Planning and Zoning Department
Telephone (203) 452-5044
Fax (203) 452-5169

Town of Trumbull
CONNECTICUT

Town Hall
5866 Main Street
Trumbull, Connecticut 06611

PLANNING AND ZONING COMMISSION

To: MEMBERS OF THE PLANNING AND ZONING COMMISSION
RE: REGULAR MEETING – **WEDNESDAY, MAY 20, 2026**

The Planning and Zoning Commission will hold a Regular Meeting on Wednesday, May 20, 2026, at 7:30 p.m. in the Council Chambers of Trumbull Town Hall.

AGENDA

PUBLIC HEARING
7:30 P.M.

PLEDGE OF ALLEGIANCE

ROLL CALL

PUBLIC HEARING

SPECIAL PERMIT/SITE PLAN/ZONE CHANGE/OTHER

1. **2135, 2145 & 2155 Reservoir Avenue:** Applicant, Vessel RE Holdings, LLC, is requesting reconsideration of their previously denied application for a Site Plan Approval of a multifamily housing development containing 150 units, pursuant to Sec 8-30g(h) of the Connecticut General Statutes. **File #26-10** ***Continued from April 22, 2026***

REGULAR MEETING

PLANNER'S REPORT

ACCEPTANCE OF MINUTES

Acceptance of the Minutes from the April 22, 2026, Planning and Zoning Commission Regular Meeting

Dated at Trumbull, CT this 13th day of May 2026.
By: Abigail Farrell, Clerk

Plans for the above applications are on file for public inspection in the office of the Planning and Zoning Commission and online on the Town of Trumbull website.

COMMISSION MEMBERS: PLEASE NOTIFY Abigail Farrell, Clerk, AT 203-452-5044 or afarrell@trumbull-ct.gov, IF YOU ARE UNABLE TO ATTEND.

Vessel

Date: March 6, 2026

To: Trumbull Planning and Zoning Commission

From: Vessel RE Holdings, LLC

Re: Resubmission Pursuant to CGS §8-30g(h)
Site Plan Application at 2135, 2145 & 2155 Reservoir Avenue

Dear Chairman and Members of the Commission:

On behalf of Vessel Holdings RE (the "Applicant"), we respectfully submit this revised application pursuant to Connecticut General Statutes §8-30g(h) in response to the Commission's February 18, 2026 denial of the prior application for approval of a multifamily development at 2135, 2145, and 2155 Reservoir Avenue.

This resubmission addresses each of the issues identified in the Commission's decision and provides additional materials for the Commission's review.

I. Statutory Framework

This application is governed by the Affordable Housing Land Use Appeals Act, Connecticut General Statutes §8-30g.

Under the statute, a municipal commission may deny an affordable housing application only if the record demonstrates that:

1. The denial is necessary to protect a substantial public interest in health, safety, or other matters the commission may legally consider;
2. That public interest clearly outweighs the need for affordable housing; and
3. The identified public interest cannot be protected by reasonable changes to the development.

Section 8-30g(h) expressly permits an applicant to submit a modified application addressing the reasons for denial. Upon such a resubmission, the commission must evaluate the revised proposal in light of the changes made and the statutory standard.

This application is submitted pursuant to that provision.

The materials included with this resubmission address the issues identified in the Commission's decision and confirm that the proposed development can be completed safely and in compliance with applicable environmental and engineering standards.

II. Environmental Investigation

The Commission's decision referenced the need for additional investigation to determine the nature and extent of potential environmental conditions on the property.

Prior to the submission of the original application, the Applicant engaged REEF Environmental to conduct both Phase I and Phase II environmental investigations of the property. These investigations were provided to the Commission during the prior proceedings at the Commission's request.

The Phase II investigation included soil sampling and groundwater monitoring at multiple locations across the site. The investigation identified limited areas of low-level petroleum-related compounds associated with the historical use of the property as a contractor storage yard. The concentrations detected were well below the Connecticut Remediation Standard Regulations applicable to residential development.

Importantly, no environmental condition was identified that would render the site unsuitable for residential redevelopment. The Town's independent third-party consultant similarly did not identify any condition that would make construction or occupancy of residential housing unsafe or unhealthy.

Any localized soil staining associated with prior site activities will be removed during site preparation, with confirmation sampling performed to demonstrate compliance with the Connecticut Remediation Standard Regulations.

Additional delineation or confirmation sampling referenced in the prior proceedings reflects the normal iterative process associated with environmental remediation and does not indicate the presence of any condition posing a risk to public health or safety.

Accordingly, the environmental record confirms that the site can be redeveloped in compliance with applicable environmental standards.

Vessel

III. Drainage Plans

The Commission's decision referenced comments from the Town Engineer indicating that drainage plans submitted with the prior application were conceptual in nature.

The Applicant is submitting revised engineering plans responding to the Town Engineer's prior comments. Updated drainage calculations, design details, and supporting documentation are included with this resubmission.

As discussed during the prior proceedings, the remaining field work referenced by the Town Engineer relates to test pits required to finalize the sizing and location of certain stormwater infrastructure elements. Such field verification is routinely completed during final engineering review and does not affect the feasibility or safety of the drainage design.

The revised materials demonstrate that the proposed stormwater management system can be designed to comply fully with applicable engineering standards.

IV. WPCA Approval

The Commission previously cited the absence of approval from the Water Pollution Control Authority for sanitary sewer connections.

WPCA approval has now been obtained. Documentation confirming that approval is included with this submission.

Accordingly, this issue has been resolved.

V. Wetlands and Watercourse Jurisdiction

The Commission's decision referenced the potential existence of an intermittent brook requiring review by the Inland Wetlands Commission.

A certified wetlands scientist has confirmed that no regulated wetlands or watercourses exist on the property and that the site is not subject to Inland Wetlands jurisdiction. Supporting documentation is included with this resubmission.

Although this documentation was previously included in the record, it is being resubmitted here for completeness.

VI. Zoning Regulation Article II, Section 2.3

The Commission's decision also referenced Article II, Section 2.3 of the Zoning Regulations, which was interpreted to require WPCA approval prior to Planning and Zoning consideration of the application.

As discussed during the prior proceedings, local procedural sequencing requirements cannot be applied in a manner inconsistent with the Affordable Housing Land Use Appeals Act. In any event, because WPCA approval has now been obtained, this issue has been resolved.

VII. Clarification of the Record

The Applicant notes that the environmental and engineering professionals who evaluated the project—including the Applicant's consultants and the Town's independent third-party reviewer—did not identify any site condition that would render the proposed development unsafe or unhealthy for residential occupancy.

The materials submitted with this resubmission provide the additional documentation referenced during the prior proceedings and confirm that the site can be developed in compliance with applicable environmental and engineering standards.

VIII. Conclusion

This resubmission addresses each of the issues identified in the Commission's decision and provides the additional documentation referenced during the prior proceedings.

The materials submitted demonstrate that:

- Environmental conditions at the site are suitable for residential redevelopment;
- Drainage and engineering issues can be addressed through final engineering review;
- WPCA approval for sewer connections has been obtained; and
- No wetlands jurisdiction exists on the property.

Vessel

Accordingly, the concerns identified in the Commission's prior decision have either been resolved or relate to matters that are routinely addressed through standard permitting processes and conditions of approval.

Because this application is submitted pursuant to CGS §8-30g(h), the Commission's review should focus on whether the revised materials resolve the concerns identified in the prior decision and whether any remaining issues can be addressed through reasonable conditions or modifications.

The Applicant appreciates the Commission's consideration of this resubmission and looks forward to continuing to work constructively with the Town during the review process.

Respectfully submitted,

Joshua Levy

March 3, 2026

Ms. Tatiana Solovey, PE
Town of Trumbull, Connecticut
5866 Main Street
Trumbull, CT 06611

Re: Phase I Wetlands Clarification
2155 Reservoir Avenue, Trumbull, Connecticut
Reef Environmental Project No. 25-1012

Dear Ms. Solovey,

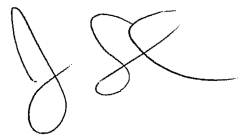
Reef Environmental, LLC's (Reef Environmental's) June 2025 Phase I Environmental Site Assessment (ESA) includes a reference to a "small intermittent stream" along the southern boundary of the site on page 10 of the report. We are providing this letter to correct and clarify the fact that this feature is actually a drainage ditch for rainwater.

Mr. James Sipperly, Certified Soil Scientist & Connecticut Wetland Scientist, evaluated this area in July of 2025 and confirmed no stream is present. The area is a manmade drainage ditch that was dug in the late 1960's or early 1970's according to the owner. A copy of Mr. Sipperly's report is included as an attachment.

Based on Mr. Sipperly's report, Reef Environmental concurs with these findings. Our firm focusses on the investigation and remediation of contamination and does not offer wetlands delineation services since we are not soil or wetland scientists.

Please feel free to contact me at jay@reefenvironmental.com or 860-841-5530 if you have any questions or would like to discuss this project further.

Kind regards,
Reef Environmental, LLC



Jay Soltis, LEP
Principal

Attachment

REEF
environmental

March 5, 2026

Planning and Zoning Commission
Town of Trumbull
5866 Main Street
Trumbull, CT 06611

Re: Environmental Summary Memo
2155 Reservoir Avenue, Trumbull, Connecticut
Reef Environmental Project No. 25-1012

Ladies/Gentlemen,

As noted in our prior reports and documents prepared for the 2155 Reservoir Road, Trumbull, Connecticut property (the "site"), we do not believe there are any environmental concerns that cannot be addressed prior to residential redevelopment of the site.

Subsurface investigations identified low concentrations of petroleum hydrocarbons and volatile organic compounds (VOCs) at concentrations below the Release-Based Cleanup Regulations (RBCR) criteria, which recently superseded the Remediation Standard Regulation (RSR) criteria. As detailed in previous documents, these analyses were selected to evaluate the areas of concern identified during the Phase I environmental site assessment process and to identify any indications of releases associated with historical site operations. The analyses performed were appropriate for an initial assessment of the site since oils, vehicle fuels, and vehicle maintenance-related solvents would represent the most likely potential contaminants. The results of this work provide a clear understanding of the general environmental quality of soil and groundwater across the site, which does not present any health or safety concerns that cannot be addressed using common remediation techniques. Field observations, field screening for VOCs, and our prior experience with many sites with similar contractor operations further support this conclusion.

Supplemental sampling and remediation of visibly stained soils was recommended based on our analysis of the subsurface investigation data, and we stand by these recommendations. If town approval for the project is obtained and the site is purchased, we anticipate all future work will be completed under the provisions of the RBCR program, which was promulgated on March 1, 2026. This program includes specific requirements and guidance from the

Connecticut Department of Energy and Environmental Protection (CT DEEP) and will be a "level playing field" for nearly all environmental assessment and remediation work completed in Connecticut going forward.

It is our opinion that the environmental assessment completed to date is sufficient in the context of making a pre-purchase decision regarding the suitability of residential redevelopment. While additional confirmation sampling and localized soil remediation will occur as part of site preparation prior to construction, this work would be completed prior to construction of any new buildings, eliminating public health or safety risks.

If you have any questions or would like to discuss the project further, please feel free to call me at (860) 841-5530.

Kind regards,
Reef Environmental, LLC



Jay Soltis, LEP
Principal

February 12, 2026

Ms. Tatiana Solovey, PE
Town of Trumbull, Connecticut
5866 Main Street
Trumbull, CT 06611

Re: Third Party Review Response
2155 Reservoir Avenue, Trumbull, Connecticut
Reef Environmental Project No. 25-1012

Dear Ms. Solovey,

Reef Environmental, LLC (Reef Environmental) has prepared this response letter to address comments outlined in the February 12, 2026, Third Party Review of Environmental Investigations memorandum prepared by WSP USA of Shelton, Connecticut (WSP) for 2155 Reservoir Avenue, Trumbull, Connecticut (the "site"). Based on the data collected to date and our understanding of historical site operations, Reef Environmental does not foresee any environmental concerns that would preclude residential redevelopment of the site. WSPs comments and our responses are included below.

1) *Samples were only analyzed for extractable total petroleum hydrocarbons (ETPH) and volatile organic compounds (VOCs). Based on the history of the Site, and lack of details regarding past operations and chemical usage, soil and groundwater samples should have been analyzed for additional constituents of concern (COCs) including: polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and metals. As noted in the report recommendations, stained soils should be characterized and removed from the Site. Those soils should at minimum be analyzed for all of the aforementioned COCs.*

The Phase II investigation was completed as part of an initial, pre-purchase study of the site to assess suitability for residential redevelopment. Based on this, we focused on petroleum hydrocarbons (tested as ETPH) and VOCs as indicators of releases from historical site operations. Our understanding is that the current site owner will be responsible for removal of all site equipment/structures and soil remediation. Reef Environmental plans to document the remediation, collect closure samples and assist with waste characterization and disposal facility selection and pre-approval. The additional analyses specified above will be conducted as part of

waste characterization for off-site disposal as is typically the case. In addition, investigation of any stained areas where access was previously limited will be completed at that time.

2) *ETPH and VOCs were not detected in soil samples collected at Borings B-5 and B-6 where surficial staining was observed on the central portion of the parcel. Samples were not collected from the stained soils, but from soils at depth. The lack of detections in these samples does not indicate that contaminants of concern are not present above criteria in these areas, but rather the release had not migrated to the underlying soils where the samples were collected.*

We concur with this as our intent was to determine if the surficial staining observed was relatively limited in depth and was not significantly impacting groundwater quality. Our recommendation was for removal and off-site disposal of visibly stained soils followed by confirmation soil sampling, which will be conducted as part of the purchase and prior to the issuance of a building permit.

Based on the lack of ETPH and VOC contamination found from 1- to 3-feet and 2- to 4-feet below grade in the stained area, we believe that the volume of contaminated soil is limited and can be remediated after the site cleanout.

3) *While all detections in soil were below CTDEEP Remediation Standard Regulation (RSR) criteria, releases of COCs to soil were identified at three locations located on the southern and northern portions of the parcel. Additional investigations are warranted prior to the development of the parcel to determine the nature and extent of the releases.*

Since the purchase of the site is dependent upon approval of the redevelopment project, Phase III delineation of these areas can be completed as a condition of approval. A Phase III investigation includes additional horizontal and vertical sampling in an effort to determine degree and extent of the release and will be used to confirm compliance with Connecticut Remediation Standard Regulation numerical criteria for residential use. A proposed Phase III boring location map is included as an attachment.

4) *A release of VOCs to groundwater was identified in the central portion of the Site. Additional investigations are warranted prior to the development of the parcel to determine the nature and extent of the release(s).*

Phase III delineation of groundwater can be completed as a condition of approval and can be completed prior to the issuing a building permit. It is our understanding that the residential

redevelopment will include connection to the public water supply. A proposed Phase III boring location map showing additional well locations is included as an attachment.

5) *Investigations completed at the Site were done so on a voluntary basis, and the findings do not currently trigger any reporting requirements or additional investigations. On March 1, 2026, the new Released-Based Cleanup Regulations (RBCRs) will be effective in Connecticut. If the investigations detailed in this report were completed after March 1, then the results would have triggered requirements of the RBCRs for additional investigations to characterize the nature and extent of the impacts.*

We anticipate the completion of any additional investigations will require reporting under the new RBCR program. Based on our current understanding of the program's requirements, we anticipate closure can be achieved prior to risk tier classification one year after the initial release report.

Based on the data collected to date and our understanding of historical site operations, Reef Environmental does not foresee any environmental concerns that would preclude residential redevelopment of the site. The contamination identified is typical for truck, construction vehicle and material storage yards, and concentrations are well below levels that pose a risk to residents or the public. The surficial staining and any contamination above the numerical criteria can be effectively remediated using well-established options that do not create a risk of migration or impact to other areas of the site or adjoining properties. Vessel has agreed to incorporate the additional testing and remediation as described herein as part of the purchase of the site. Our goal is to demonstrate and document compliance with the RSR criteria, which were developed to be protective of both human health and the environment.

Reef Environmental appreciates the opportunity to provide you responses. Please feel free to contact me at jay@reefenvironmental.com or 860-841-5530 if you have any questions or would like to discuss this project further.

Kind regards,
Reef Environmental, LLC



Jay Soltis, LEP
Principal

Attachment

MEMORANDUM

TO: Ms. Tatiana Solovey, PE
Assistant Town Engineer

FROM: Michael Manolakas, LEP, PG

DATE: February 12, 2026

SUBJECT: Third-Party Review of Environmental Investigations
2135, 2145, 2155 Reservoir Avenue, Trumbull, CT

Via Electronic Transmission

On behalf of the Town of Trumbull (Town), WSP USA (WSP) has reviewed the following environmental reports associated with the parcels located at 2135, 2145, 2155 Reservoir Avenue in Trumbull, Connecticut:

> *Phase I Environmental Site Assessment, 2135-2155 Reservoir Avenue, Trumbull, Connecticut 06611, Reef Environmental Project No. 25-1012, prepared by Reef Environmental, LLC, dated June 2025* (Phase I ESA); and
>
> *Phase II Subsurface Investigation Report, 2155 Reservoir Avenue, Trumbull, Connecticut Reef Environmental Project No. 25-1012, prepared by Reef Environmental, LLC, dated July 3, 2025.*

Phase I ESA

No environmental concerns warranting environmental investigations were identified in the Phase I ESA for the 2135 and 2145 Reservoir Avenue parcels. The Phase I ESA identified the following recognized environmental concern (REC) and areas of concern (AOC) associated with the 2155 Reservoir Avenue parcel:

> *"Reef Environmental identified one REC in connection with the site which includes a heavily stained area on the central portion of the contractor storage yard. In addition, several AOCs were identified in the contractor storage yard including the former 3-bay maintenance/repair garage, the three ASTs, and various drums/containers/buckets filled or partially filled with oil."*

Based on the above, the following opinion was rendered:

> *"Based on the findings of this assessment, the long-term use of the 2155 Reservoir Avenue parcel as a contractor storage yard and for equipment repair/maintenance represents a potential environmental concern to the site due to the typical use and storage of petroleum related products and chemicals. Reef Environmental recommends a limited subsurface investigation to determine current soil and groundwater quality associated with the contractor storage yard."*

WSP USA
6 Research Drive, Suite 260
Shelton, CT 06484

Phone: +1 (203) 929-8555
Fax: +1 (203) 926-9140
wsp.com

The operations within the contractor storage yard commenced in the 1950s, and included an asphalt company in the early 1960s. It is unclear if the three-bay maintenance/repair garage was commercially used, and no documentation was identified regarding how waste petroleum products and hazardous substances were managed or disposed. Photographs within the Phase I ESA (see below) show evidence of a release to surficial materials and extremely poor practices associated with storage of petroleum products and/or hazardous substances.



View of drums, containers, and surficial staining in contractor storage yard.



View of drums and petroleum containers in contractor storage yard.



View of aboveground storage tanks in contractor storage yard.



Stockpiles in contractor storage yard.

WSP concurs with the findings of the Phase I ESA that the activities within the contractor storage yard at 2155 Reservoir Avenue represent an environmental concern warranting further environmental investigation.

The Phase I identifies several aboveground storage tanks and 55-gallon drums on the Site, and additionally poor storage practices for all liquid chemicals. It is unclear if the total capacity is above the 1,320 gallon capacity threshold that would require the preparation of a Spill Prevention Control and Countermeasure (SPCC) plan. Nonetheless, the photographs do not show secondary containment for any of the liquid chemical containers. WSP recommends secondary containment be installed for all liquid chemical containers onsite, and that all unsealed containers be removed and properly disposed, or placed in an appropriate container.

Phase II Subsurface Investigation

The Phase II Subsurface Investigation (Phase II) included the installation of 12 soil borings, of which, two were utilized as temporary monitoring wells (Figure 1). Soil samples were collected from all soil borings from a depth ranging between 1 and 4 ft bg (feet below grade) and analyzed for extractable total petroleum hydrocarbons (ETPH) and volatile organic compounds (VOCs). No soil samples were collected from grade where the overt signs of releases were observed during the Phase I inspection. Two samples of groundwater were collected from the temporary wells and also analyzed for ETPH and VOCs.

Soil samples were screened for VOCs with a photoionization detector (PID), and geologic characteristics and observations were documented on boring and well logs. Surficial staining was observed at soil Borings B-5 and B-6 on the central portion of the parcel. In addition, a sweet odor was identified in the upper 4 feet of materials encountered at Boring B-5. Trace levels of VOCs were measured with the PID at Borings B-11 and B-12.

Laboratory results identified ETPH present in two of the soil samples, B-2 (2 to 4 ft bg) and B-12 (1 to 2 ft bg), while aromatic VOCs were detected in sample B-11 (1 to 3 ft bg). Aromatic VOCs were additionally detected in groundwater at temporary monitoring well B-5. All soil and groundwater sample results were below criteria identified in the Connecticut Department of Energy and Environmental Protection (CTDEEP) Remediation Standard Regulations (RSRs).

Anticipating redevelopment of the property for residential use, the following recommendations provided in the report:

- Any visibly stained soils encountered during building/slab demolition and site clearing should be characterized and removed for offsite disposal at an appropriate recycling/disposal facility.
- Any remaining petroleum or chemicals present in the out-of-use ASTs, drums, and/or containers should be characterized and properly disposed of at an appropriate recycling/disposal facility.
- All stockpiles of soil containing asphalt and concrete debris should be properly disposed of at an appropriate recycling/disposal facility.
- Limited confirmation sampling should be completed by Reef Environmental once any surficial contamination has been removed.

The following provides a summary of WSP findings, observations, data gaps and recommendations associated with the Phase II:

1) Samples were only analyzed for ETPH and VOCs. Based on the history of the Site, and lack of details regarding past operations and chemical usage, soil and groundwater samples should have been analyzed for additional constituents of concern (COCs) including: polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and metals. As noted in the report recommendations, stained soils should be characterized and removed from the Site. Those soils should at minimum be analyzed for all of the aforementioned COCs.
2) ETPH and VOCs were not detected in soil samples collected at Borings B-5 and B-6 where surficial staining was observed on the central portion of the parcel. Samples were not collected from the stained soils, but from soils at depth. The lack of detections in these samples does not indicate that COCs are not present above criteria in these areas, but rather the release had not migrated to the underlying soils where the samples were collected.

3) While all detections in soil were below CTDEEP RSR criteria, releases of COCs to soil were identified at three locations located on the southern and northern portions of the parcel. Additional investigations are warranted prior to the development of the parcel to determine the nature and extent of the releases.

4) A release of VOCs to groundwater was identified in the central portion of the Site. Additional investigations are warranted prior to the development of the parcel to determine the nature and extent of the release(s).

5) Investigations completed at the Site were done so on a voluntary basis, and the findings do not currently trigger any reporting requirements or additional investigations. On March 1, 2026, the new Released-Based Cleanup Regulations (RBCRs) will be effective in Connecticut. If the investigations detailed in this report were completed after March 1, then the results would have triggered requirements of the RBCRs for additional investigations to characterize the nature and extent of the impacts.

cmm
Enclosures
H:\Trumbull (T)\Reservoir Ave\Third-Party Review_Memo.docx

FIGURE

Property Boundary
Soil Boring
Soil Boring/Temporary Monitoring Well

N
W
E
S

2155
2145
2135

B-1
B-12
B-9
B-5
B-9
B-6
B-4
B-7
B-2
B-3
B-10
B-11

0
100
Feet

2135, 2145 & 2155 RESERVOIR AVENUE TRUMBULL, CONNECTICUT

Site Map

DATE	REVISED

PREPARED BY:

WSP USA Inc.
6 Research Drive
Suite 260
Shelton, CT 06484
Tel: (203) 944-5000

DRAWN:	CHECKED:	DATE: 1/12/26	FIGURE: 1

William C. Maurer, PE, LS
Town Engineer

TOWN OF TRUMBULL
CONNECTICUT

Town Hall
5866 Main Street
Trumbull, Connecticut 06611
Phone: 203.452.5050
Fax: 203.452.5061

April 20, 2026

Mr. Robert Librandi
Town of Trumbull Planning and Zoning

RE: 2135, 2145, 2155 Reservoir Avenue

Dear Mr. Robert Librandi,

As part of the Special Permit Application #26-10, an electronic copy has been submitted to the Engineering Department for review on March 6, 2026.

At this time, we are unable to fully review the proposed stormwater design.

The environmental remediation approach for the site has not yet been finalized, and that will directly influence grading, drainage patterns, and overall stormwater management. Until those elements are clearly defined, any engineering review would be premature.

We recommend advancing and resolving the environmental scope first. Once a definitive remediation plan is established, we would be able to complete a meaningful review of the stormwater design.

Sincerely,

Tatiana Solovey, P.E.
Assistant Town Engineer

CC: Chairman Garrity

JAMES SIPPERLY
CERTIFIED SOIL SCIENTIST
CONNECTICUT WETLAND SCIENTIST
401 SALEM TURNPIKE BOZRAH, CT 06334
860-334-7073
james.sipperly.js@gmail.com

Tatiana Solovey, Assistant Engineer July 17, 2025
Staff to the Inland Wetlands and Watercourses Commission
Town of Trumball
366 Church Hill Road
Public Works Administration Building
Trumball, CT 06611

RE: INLAND WETLAND SOILS AND WATERCOURSES INVESTIGATION AND DELINEATION, 2135 – 2145 – 2155 RESERVOIR AVENUE, TRUMBALL, CT

Dear Ms. Solovey:

I am a Certified Soil Scientist and a Connecticut Wetland Scientist. I also feel compelled to tell you that I am the Environmental Planner for the City of Middletown and staff their Inland Wetland and Watercourses Agency. I also am the Wetland Agent for the Town of Portland and sit on the Wetland Commission in my home town of Bozrah.

On July 3, 2025 I visited the site referenced above to investigate and delineate any inland wetlands and/or watercourses that may be on the sites referenced above. I also met Paul Timpanelli the broker for the site who gained me access to the properties.

Site 2135 and 2145 are existing residential properties with people living in there presently.

I sampled the soil throughout the site using a soil auger to a depth of 2-3 feet.

Based on my field observations and using the guidelines established by the National Cooperative Soil Survey and as defined by the Connecticut General Statutes I did not find any inland wetland soils and or watercourses on the sites.

Along a small portion of the southern property line at 2155, there is a manmade ditch that was dug in the late 1960's or early 1970's as indicated by the present owner. His father planned on installing concrete drainage pipes that were not placed and still visible in piles near that location. He also indicated that there was some clearing and grading on the adjacent property at that time and his father wanted to ensure that there was no impact to his property. No additional work has been done there since that time.

The drainage ditch is approximately 3 feet wide and 3 feet deep. There ditch was dry and there is no indication of any flow. It does not meet the definition of an intermittent watercourse. There is a somewhat defined bank and channel because it was excavated. It is linear and one can see the piles of excavated material on one side of the bank.

There are no signs of scour or deposits of recent alluvium or detritus. There are no signs of standing water or flowing water. There is also no presence of hydrophytic vegetation.

The upland soils found on the site that have not been disturbed are classified as a moderately well drained Sutton fine sandy loam. These soils are typically found on glacial till moraines.

The majority of the soils on the site are classified as a udorthent or urban land classification. These soils are often disturbed by man, filled, excavated and graded thus eliminating any subsurface soil horizons. This site has been used as a staging area for various types of construction materials and machinery for a approximately 50 years.

The site is partially wooded and dominated by invasive species such as multiflora rose, Japanese knotweed and autumn olive. The site also has been subject to dumping and storage of various containers and construction debris over the years.

I also witnessed recent soil boring holes from what I was told was the result of a Phase I and possibly a Phase II environmental study on the site at 2155 Reservoir Road.

If you have any questions, please contact me at the telephone number listed above.

Very truly yours,

James Sipperly

Certified Soil Scientist, Society of Soil Scientists of Southern New England
Connecticut Wetland Scientist, Connecticut Association of Wetland Scientists

William C. Maurer, PE, LS
Town Engineer

TOWN OF TRUMBULL
CONNECTICUT

366 Church Hill Road
Public Works Admin Building
Trumbull, Connecticut 06611
Phone: 203.452.5050
Fax: 203.452.5061

Applicant: Vessel Technologies **Project: 2135, 2145, 2155 Reservoir Avenue**	**TOWN OF TRUMBULL** **ENGINEERING DEPARTMENT** **REVIEW COMMENTS**	**Designer: Solli Engineering**	
		Review #1	**Date: 1/20/2026**

Based on the review of the proposed Site Plans and Drainage Report, submitted on 11/13/2025, the Engineering Department offers the following comments (**please provide written responses in the space below**):

PROJECT COMMENTS

Comment Number	Page or Sheet #	Review Comments – General Comments	Designer Response Solli Revised Response: 3/5/2026
1		For commercial redevelopment, pre-development conditions should be treated as per 1964 aerials.	A revised engineering report has been submitted with an updated EDA map based off the 1964 pre-development conditions. Note that the calculated CN for the watershed remained unchanged with the corrected information.
2	Site Plan	The detention basins should be moved away from Reservoir Ave.	One detention pond is now proposed in the north-central portion of the site to replace the two former ponds along Reservoir Avenue.
3		To capture run-off during intense storm events, locate at least portion of the SW system closer to the West side of the development.	One detention pond is now proposed in the north-central portion of the site to replace the two former ponds along Reservoir Avenue. Revised stormwater calculations are included in the updated engineering report.
4		Outfall cannot discharge directly onto the Town's ROW.	Noted, the outfalls proposed do not discharge into the Reservoir Avenue R.O.W.
5		The outfalls from basins 1 & 2 should be split.	There is now a single detention pond.
6		Verify sizing of the Scour hole; reduce the outflow from the site.	A detail showing a Type "A" Riprap Apron has been added on Sheet 3.03 and provides the size of all 5 aprons proposed.
7		Provide emergency spillway.	Emergency spillway elevation is shown on Sheet 2.21
8		Minimum embankment top width shall be 10'	Revised detention pond grading shows a 10' top enbankment width.

Comment Number	Page or Sheet #	Review Comments – General Comments	Designer Response
9		Please provide a cross-section through the pond that details the proposed embankment material. Additionally, ensure that the materials selected are suitable for preventing erosion, seepage and are designed to withstand the potential impacts of weather conditions.	A cross-section through the pond showing the enbankment material is provided on Sheet 2.21.
10		Please label maintenance access.	Maintenance access at 1:6 slope is shown for the detention pond and labeled on Sheet 2.21
11	Site Plan	Add note indicating that all pipes under the driveway / parking lot are H-20 rated.	A note has been added to Sheet 2.21
12	Site Plan	If proposed, depict footing drains on the plan.	If required, footing drain locations will be shown on a revised Sheet 2.21 for review prior to construction.
13	Erosion Control Plan	Concrete washout location & detail must be shown on the plans.	A concrete wash rack has been added to the construction entrance on Sheet 2.31. Please see detail on Sheet 2.41.
14	Erosion Control Plan	Provide name & phone number for person assigned the responsibility for implementing and maintaining erosion and sediment controls.	Acknowledged, information will be provided prior to construction.
15		Provide a bond estimate for all soil erosion controls in the amount agreeable to the Town Engineer. Bond must be posted prior to any site disturbance and will be retained for one year after completion.	Acknowledged, a bond estimate for SESC measures will be provided for review by engineering prior to building permit approval.
16		Provide 3rd Party environmental site monitor. Name and qualifications must be submitted for approval prior to commencement.	Noted. This information will be provided to engineering prior to sitework commencement.
17		Street opening permit and a Hold Harmless agreement are required prior to any work within Town Right-of-Way.	Noted, a street opening permit will be obtained and a Hold Harmless agreement submitted to town staff prior to work within the Reservoir Avenue R.O.W.
18		A certification letter and as-built plan will be required upon project completion. **Minimum as-built requirements:** o Stormwater system elevations; o Size of chambers, if applicable; o All underground connections with invert elevations (roof leaders, piping, etc.); o Yard drain / catch basins data; o Final topography;	Noted. An engineering certification letter and as-built survey will be provided to engineering at the completion of construction.

Comment Number	Page or Sheet #	Review Comments – General Comments	Designer Response
19		A Mylar of the as-built site plan showing the locations of the detention ponds must be filed in the Town of Trumbull land records. Maintenance plan must be provided on the Mylar.	Noted. A record mylar of the as-built survey showing this information will be filed on the land records at the completion of construction.
20		Disconnect WPCA permit is required prior to demolition.	Noted. A disconnect permit from WPCA will be obtained by the contractor prior to building demolition.
21		WPCA approval is required. Any conditions and assessed fees are due prior to the building permit sign-off.	Noted. WPCA approval was granted on 2/26/2026.
22		As part of the Engineering review fee, please provide an estimate for the proposed stormwater system. Refer to the Engineering fee schedule available on the Town of Trumbull website, under Engineering Department.	Noted. A cost estimate for the stormwater management system will be provided to engineering for review prior to building permit approval.

The Engineering Department may issue further comments based on the responses to the above mentioned items and/or design modifications. If you have any questions or concerns please contact us.

Sincerely,

Tatiana Solovey, PE
Assistant Town Engineer

John Mayer
Civil Engineer

WATER POLLUTION CONTROL AUTHORITY

Town of Trumbull

CONNECTICUT

TOWN HALL
(203) 452-5048

5866 MAIN STREET
TRUMBULL, CT 06611

FEBRUARY 26, 2026
MINUTES

CALL TO ORDER: The Chair called the meeting to order at 6:01 p.m.

ROLL CALL: The clerk called the roll and recorded it as follows:

PRESENT: Chairman Frank Regnery, Vice-Chairman John Bryk, Secretary Jon Greene,

ABSENT: Bruce Elstein

Also Present: WPCA Administrator/Town Engineer William Maurer, Town Attorney James Nugent and Christine Kurtz of Wright Pierce

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DISCUSSION ITEMS:

- February 21, 2026, Pump Stations Tour – Bill Maurer reported the pump station tour was conducted on Saturday, February 26, 2026, with newer members of the Board of Finance and Town Council. The tour included visits to Beardsley, 135 Merritt Boulevard, Reservoir, and Wildwood pump stations. The concrete issues at the Beardsley pump station were pointed out during the tour.

- Bridgeport WPCA & Town of Trumbull Agreement – Bill Maurer informs the commission that the contract with Bridgeport runs out on June 30, 2026, and there are three more years to extend it. Attorney Nugent suggested putting Bridgeport on immediate notice of the extension and that a new agreement will likely need to be negotiated.

- Earmark Grant $1.1 Million Award from the Office of Jim Himes – Bill Maurer explained the WPCA has been awarded a grant of $1.1 million for the next section of Beardsley force main replacement under the Pequannock River and Route 25. Once the funding is made available, they will move forward with the design.

NEW BUSINESS:

- Wildwood Pump Station Emergency Repair Approval – Bill Maurer explained that the pump station services a large area, including a middle school, and that they lost one of the two pumps and there are no back-up pumps. Bill Maurer shared his screen showing

pictures of what needed to be repaired. This is one of three pump stations being currently redesigned. Arcadis is doing the Q&A for the bid documents now and we should have final bid documents by the end of March. Bill Maurer shared the Kovacs invoice for the new base and rewiring of the old pump totaling $14,249.62with the commission. After further discussion the Chair called for a motion and a second to approve.

Moved by Bryk, seconded by Greene and a second to approve the Kovacs Construction Invoice #F-3035, dated 2-20-2026 in the amount of $14,249.62. (Invoice attached). VOTE: Motion CARRIED by unanimous consent.

- JANUARY 14, 2026, MEETING MINUTES APPROVAL: https://www.trumbull-ct.gov/AgendaCenter/ViewFile/Minutes/_01142026-5961 Moved by Greene, seconded by Bryk to approve the January 14, 2026, minutes as submitted. VOTE: Motion CARRIED by unanimous consent

- FY2026-2027 Operating Budget Update Approval – Bill Maurer reviewed the FY 2026-2027 operating budget in detail with the commission. He highlighted salaries, professional fees, and the rate with Bridgeport. The budget includes a 3% rate increase from Bridgeport and a potential payment for excess flow. The commission noted $50,000 is too low for unexpected repairs.

  Moved by Greene, seconded by Bryk to approve the WPCA Fiscal Year 2026-2027 Operating Budget as submitted. VOTE: Motion CARRIED by unanimous consent.

OLD BUSINESS:

- Update - Trumbull WPCA 2026 Capital Improvement Plan (CIP)-$2,700,000 Bond Issuance – Bill Maurer explained the bond issuance was approved at the council level and noted the capital plan includes funds for force main design and gravity line repairs and was approved as submitted. This is for calendar year 2026 and the funds are available now.

- 2135-2145 & 2155 Reservoir Avenue Sanitary Sewer Connection Request – Attorney Jason Klein representing Vessel Technologies and Kevin Solli of Solli Engineering were present, as wells Josh Levy Vice President of Vessel Technologies.

  Kevin Solli shared his screen. The following was reviewed, (slide presentation & additional supplemental material submitted prior to this meeting by Vessel Technologies attached), and points of discussion are as follows:
  - High level calculations based on empirical data from a similar project in New London, showing a reasonable flow estimate, see attached).
  - The proposed project would add 14,560 gallons per day to the existing flow, bringing the total to 133,000 gallons per day.
  - Solli Engineering suggested installing a holding tank to manage peak flows, estimating the cost at $200,000. The tank would hold 2-3 days of flow.
  - It was confirmed there are 1 and 2-bedroom apartments

- The Chair expressed concerns about the capacity of the existing eight-inch pipe and suggested replacing it with a ten-inch pipe.
- Christine Kurtz noted a 10-inch pipe would significantly improve capacity and Bill Maurer spoke in favor of replacing the pipe rather than using a holding tank.
- Bill Maurer estimated the cost of replacing the eight-inch pipe to a ten-inch pipe at $720,000. Bill Maurer confirmed this was a good estimate.
- The Chair proposed that Vessel Technology contribute $400,000 towards the pipe replacement.
- Vessel Technologies agrees to the contribution and suggests reconvening to finalize the details if the town can confirm the funds available.
- Attorney Klein suggested confirming there is money in the budget for the WPCA's portion of the cost of the pipe replacement before taking formal action.
- Bill Maurer stated he was confident WPCA would have funding for the remaining cost of the pipe replacement.

Moved by Greene, seconded by Bryk to the sanitary sewer connection as submitted with the following conditions:

- The developer will contribute $400,000 to increase the sanitary sewer pipe size from 8" to 10".
- The Town's portion of funding to increase the size of the sanitary sewer pipe be found in the operating budget or the bonding be approved by the Board of Finance and Town Council.
- The developer will pay the developer installed unit fee, (connection fee) of $1,050,000 (150 apartments x $7,000= $1,050,000).
- The approval is in effect for 24 months, provided that within that time, a building permit is obtained.

VOTE: Motion CARRIED by unanimous consent.

Josh Levy of Vessel Technologies extended his gratitude for how collaborative the commission has been, and Attorney Jay Klein noted how accessible staff and the town's attorney has been throughout this process.

The Chair thanked the commission for their hard work.

ADJOURNMENT: There being no further business to discuss, and upon motion made by Bryk and seconded by Greene the Trumbull WPCA adjourned at 7:38 by unanimous consent.

Respectfully submitted,

Margaret D. Mastroni

Margaret D. Mastroni, clerk

Engineering Report

To:	Tatiana Solovey, P.E. – Assistant Town Engineer
From:	Luke Mauro, P.E., PTOE – Senior Project Manager
Subject:	Trumbull Vessel – 2135 to 2155 Reservoir Avenue
Date:	March 5, 2026
CC:	Jason Klein/Carmody, Josh Levy/Vessel

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APPENDIX E: LONG-TERM OPERATION & MAINTENANCE

Operation & Maintenance Manual

Project Description

Solli Engineering (Solli) has prepared this Engineering Report to provide an analysis of the proposed stormwater drainage, soil erosion and sediment control measures, and utilities associated with the site redevelopment of 2135, 2145 & 2155 Reservoir Avenue in Trumbull, Connecticut. The development proposes two muti-family residential buildings with associated parking, access drives, landscaping, stormwater management measures and utility infrastructure.

Existing Conditions

The site is located at 2135, 2145 & 2155 Reservoir Avenue in Trumbull, Connecticut. The site consists of three parcels, totaling approximately 3.83-acres, and is currently developed with residential buildings and an industrial garage. The site is bound by Reservoir Avenue to the east, residential uses to the south, and industrial uses in the Industrial Zone I-L2 to the north and west. The property is located within the Residence A Zoning District in the Town of Trumbull. See Figure 1, Site Location Map, for a depiction of the project location.

Per FEMA Map No. 09001C0231F, no portion of the project site is located within a special flood hazard zone. See Figure 2, FEMA Flood Map. The project site is not located within a state-listed Aquifer Protection Area and is not located within an area of State and Federal Listed Species. The site is not located within a public water supply watershed. According to the Town of Trumbull GIS and a site visit by James Sipperly, Certified Soil Scientist, in July 2025, there are no wetlands located on or immediately adjacent to the site (see Figures in Appendix A for more information).

There is no evidence of an existing drainage or stormwater system on site. Refer to the Stormwater Management section of this report for more detailed information regarding the hydrology of the existing conditions.

Subsurface Soil Conditions

Based on the USDA web soil survey (WSS) map, the on-site soils include Sutton fine sandy loams, Charlton-Chatfield sandy loams and Urban Land, with a Hydraulic Soil Group rating of “B” and “D”. Per the USDA WSS map, Group “B” soils have a moderate infiltration rate when thoroughly wet. These soils have a moderate rate of water transmission. Group “D” soils have a very slow infiltration rate when thoroughly wet. These soils have a very slow rate of water transmission. The Soil Survey Map for the site can be found in Appendix A, Figure 3.

Subsurface explorations were performed on July 7, 2025, by GEI Consultants. The explorations consisted of ten (10) borings in the vicinity of the proposed buildings and parking areas. In general, the subsurface profile consists of natural granular soils, glacial till and bedrock. Refer to the Geotechnical Report by GEI, dated August 6, 2025 (under separate cover) for more information.

Infiltration tests were performed by Solli Engineering on August 8, 2025, in the general vicinity of the previously proposed above-ground stormwater basins, as close as possible to the elevation at the bottom of the proposed systems. The tests provided infiltration rates of more than 6 inches per hour.

A review of the Geotechnical Report from GEI indicates that Boring B-10 was performed in the location of the relocated above-ground detention pond to a depth of EL 199. No groundwater or rock was encountered during drilling and the material within the boring consisted of WIDELY GRADED SAND WITH GRAVEL from EL 204 to EL 199, which is ideal for stormwater percolation. The bottom of the proposed detention is located at EL 200.3.

Based on the infiltration test results and the geotechnical data available, a conservative rate of 2 inches per hour was utilized in the stormwater calculations.

Proposed Site Improvements

The proposed redevelopment will consist of the construction of two multi-family residential buildings with associated parking areas, access drives, stormwater management basins and landscaping. The buildings will consist of a total of 150 residential units (70 units in Building 1 and 80 units in Building 2). A total of 178 parking spaces will be provided along with a new full-movement access driveway from Reservoir Avenue to the east.

The redevelopment will result in an increase in impervious area of approximately 1.98 acres when compared to the approximate conditions that existed on-site in 1964 (referred to as “existing conditions”, throughout this report), which is the basis of analysis required by the Trumbull Engineering Department. The design of the proposed stormwater management system has provided a reduction in the peak discharge rates compared to existing conditions for all storm events by utilizing one large centrally located above ground detention pond.

The redevelopment provides water quality measures in the form of hydrodynamic separators, which will treat the water quality flows for the respective drainage areas, ensuring that runoff from the proposed parking areas and drives is treated prior to discharging to the stormwater basin and eventually off-site. Refer to the “Stormwater Management” section of this report for detailed information regarding the hydrology of the proposed conditions.

Stormwater Management

The stormwater management plan for the project has been designed, to the greatest extent possible, to comply with the Town of Trumbull Zoning Regulations, the 2024 Connecticut Stormwater Quality Manual, and the CT DOT 2000 Drainage Manual, while taking prevailing site conditions and practical considerations into account.

Methodology

Stormwater runoff analysis for both existing and proposed conditions was performed using the software package HydroCAD. This software uses a computer implementation of the SCS – Synthetic Unit Hydrograph methodology to compute volumes and rates of runoff. The watershed area, rainfall depths and intensity, curve number, and time of concentration are factors that influence the computed results.

Rainfall depths for this property were used for calculating the volumes and rates of runoff for this particular project. The depths were taken from the NOAA Atlas 14 documents (Latitude: 41.2295°, Longitude: -73.1956°) and are listed in Table 1 below.

Table 1: Rainfall Data

Return Period	24-hr Rainfall Depth (in)
2-year	3.52
5-year	4.56
10-year	5.43
25-year	6.62
50-year	7.51
100-year	8.46

Existing Hydrology

The site generally slopes gradually, towards the northeast, with a high elevation of approximately 217 feet at the west side of the site and a low elevation of approximately 198 feet at the northeast side of the property.

Approximately 11.81 acres were analyzed for stormwater management purposes. Based on existing drainage patterns, the site has one contributing drainage area, labeled EDA-1, which consists of residential building, driveways, walkways, wooded areas, grass lawn and dirt roads.

Characteristics of this drainage area is summarized in Table 2. The approximate location and delineation of the drainage area can be seen on Sheet EDA, Existing Drainage Area Map, found in Appendix B.

Table 2: Existing Drainage Area Characteristics

Drainage Area	Area (Acres)	Curve Number (CN)	Time of Concentration (Minutes)
EDA-1	11.81	74	13.9

Existing peak flows of runoff for all storm events analyzed are summarized in Table 3. Calculations for the existing hydrology can be found in Appendix B.

Table 3: Existing Peak Flows

Drainage Area	Storm Event Peak Flows (cfs)					
	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
EDA-1	12.6	20.9	28.2	38.6	46.6	55.2

Proposed Hydrology & Hydraulics

Based on proposed drainage patterns, the site was divided into two (2) contributing drainage areas, labeled Proposed Drainage Area 1 (PDA-1A) and Proposed Drainage Area 1B (PDA-1B).

Proposed Drainage Area 1A (PDA-1A) has a contributing area of approximately 7.50 acres. This area consists of residential properties to the south of the redevelopment, grass lawn and wooded areas. Runoff from this area flows off-site to the north and east.

Proposed Drainage Area 1B (PDA-1B) has a contributing area of approximately 4.31 acres. This area consists of residential properties to the south of the redevelopment, building roofs, parking lots, grass lawn and wooded areas. Runoff from this area flows to the proposed above-ground stormwater detention basin (Basin 1) before flowing off-site to the north.

Characteristics of these drainage areas are summarized in Table 4. The approximate location and delineation of the drainage areas can be seen on Sheet PDA, Proposed Drainage Area Map, found in Appendix B.

Table 4: Proposed Drainage Area Characteristics

Drainage Area	Area (Acres)	Curve Number (CN)	Time of Concentration (Minutes)
PDA-1A	7.50	77	10.2
PDA-1B	4.31	78	15.8

The overall proposed peak flows for all analyzed storms are summarized in Table 5. Calculations for the proposed hydrology can be found in Appendix B.

Table 5: Proposed Peak Flows

Drainage Area	Storm Event Peak Flows (cfs)					
	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
PDA-1	11.8	18.4	24.1	31.9	37.3	49.4

The proposed stormwater management system includes catch basins with four-foot sumps, drainage piping, hydrodynamic separators, and an above ground stormwater detention basin. The proposed detention basin is designed to attenuate the proposed peak discharge rate for the drainage area, so that the overall proposed peak flow is less than the overall existing peak flow within the entire project area. The stormwater conveyance system has also been designed with water quality units upgradient of the discharge points, to ensure that the water quality flow is treated prior to runoff leaving the site. The stormwater conveyance system for the project was designed to accommodate the 25-year design storm.

The project proposes an above-ground stormwater detention basin, Basin 1. The basin will capture runoff associated with the parking areas and grass lawn areas. The basin will include an outlet control structure which will direct overflow to the northeast to an outlet at the northeast corner of the site. The basin will also include an emergency spillway which will overflow to the north.

In order to comply with the 2024 Connecticut Stormwater Quality Manual, the on-site stormwater management system should be designed to retain 100% of the required on-site water quality volume. The overall water quality volume (WQV), or the required retention volume (RVV), for the project area was calculated to be 8,166 cf. For water quality purposes, the volume of water that is treated by exfiltration in the pond is considered to be the retention of the water quality volume. The volume of water that is exfiltrated during the 100-year storm in Basin 1 is 10,760 cf, Therefore, the required retention volume (RRV) for this drainage area and the property as a whole has been met.

The water quality flow (WQF) for the respective drainage areas will need to be treated prior to discharging off-site. The water quality flow (WQF) for the portion of PDA-1 flowing to hydrodynamic separator 1 (HYD-1) is 1.36 cfs. The First-Defense Hydrodynamic Separator model FDHC-4, which has a TSS treatment rate of 1.50 cfs, is sufficient to treat the water quality flow for this drainage area. The water quality flow (WQF) for the portion of PDA-1 flowing to hydrodynamic separator 2 (HYD-2) is 0.34 cfs. The First-Defense Hydrodynamic Separator model FDHC-3, which has a TSS treatment rate of 0.84 cfs, is sufficient to treat the water quality flow for this drainage area. See Appendix B for water quality flow calculation sheets.

Per Table 4-2 of the 2024 Connecticut Stormwater Quality Manual, if 100% of the site's water quality volume is retained on site, then no additional stormwater treatment volume is required in terms of pollutant load reductions for total suspended solids (TSS), total phosphorus (TP) or total nitrogen (TN). See Appendix C for water quality volume calculation sheets.

For more information regarding stormwater management, please refer to the Grading & Drainage Plan found in Appendix D, as well as the hydrology data found in Appendix B of this report.

Stormwater Conclusion

The development will result in an increase in impervious areas compared to that of existing conditions. Additionally, the parking areas will drain into proposed hydrodynamic separators which will clean runoff before discharging into the detention basins. The proposed stormwater management system design has provided a reduction in the peak discharge rates compared to that of existing conditions for all storm events analyzed and has also been designed to meet the water quality volume and pollutant load reductions as outlined in the 2024 Connecticut Stormwater Quality Manual.

Table 6: Peak Flow Comparison Table

Drainage Area	Storm Event Peak Flows (cfs)					
	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
EDA-1	12.6	20.9	28.2	38.6	46.6	55.2
PDA-1	11.8	18.4	24.1	31.9	37.3	49.4
% Reduction	6.3%	12.0%	14.5%	17.4%	20.0%	10.5%

Soil Erosion & Sediment Control

The proposed plans for soil erosion and sediment control prepared for this project have been developed in accordance with the Town of Trumbull Zoning Regulations, as well as the 2024 Connecticut Guidelines for Soil Erosion and Sediment Control, prepared by the Connecticut Council on Soil and Water Conservation in cooperation with the Connecticut Department of Environmental Protection. The soil erosion and sediment control measures that will be proposed as part of this project include geotextile silt fences, construction entrance, dust control measures, diversion swales, temporary stockpile areas, temporary sediment traps and inlet protection for stormwater drainage features.

The Soil Erosion and Sediment Control Plan is split into two phases, Phase I for the initial clearing and prepping of the site, and Phase II to proceed with building and site construction while maintaining soil erosion and sediment control measures. For more detail regarding layout and design of the soil erosion and sediment control measures implemented as part of this project see Sheets 2.31 & 2.32, Soil Erosion & Sediment Control Plan and Sheet 2.41, Soil Erosion & Sediment Control Notes & Details in Appendix D of this report.

Site Utilities

Water

Water service for the building is proposed via the existing water main within Reservoir Avenue. A 6″ DIP fire line will be installed and tie into the buildings. A 3″ domestic water line will run parallel to the 6″ DIP line and tie into generally the same location as the fire lines.

Sewer

The building will be serviced by the 8″ public sewer main located within Reservoir Avenue via 8″ PVC lateral connection.

Electric, Telephone & Cable

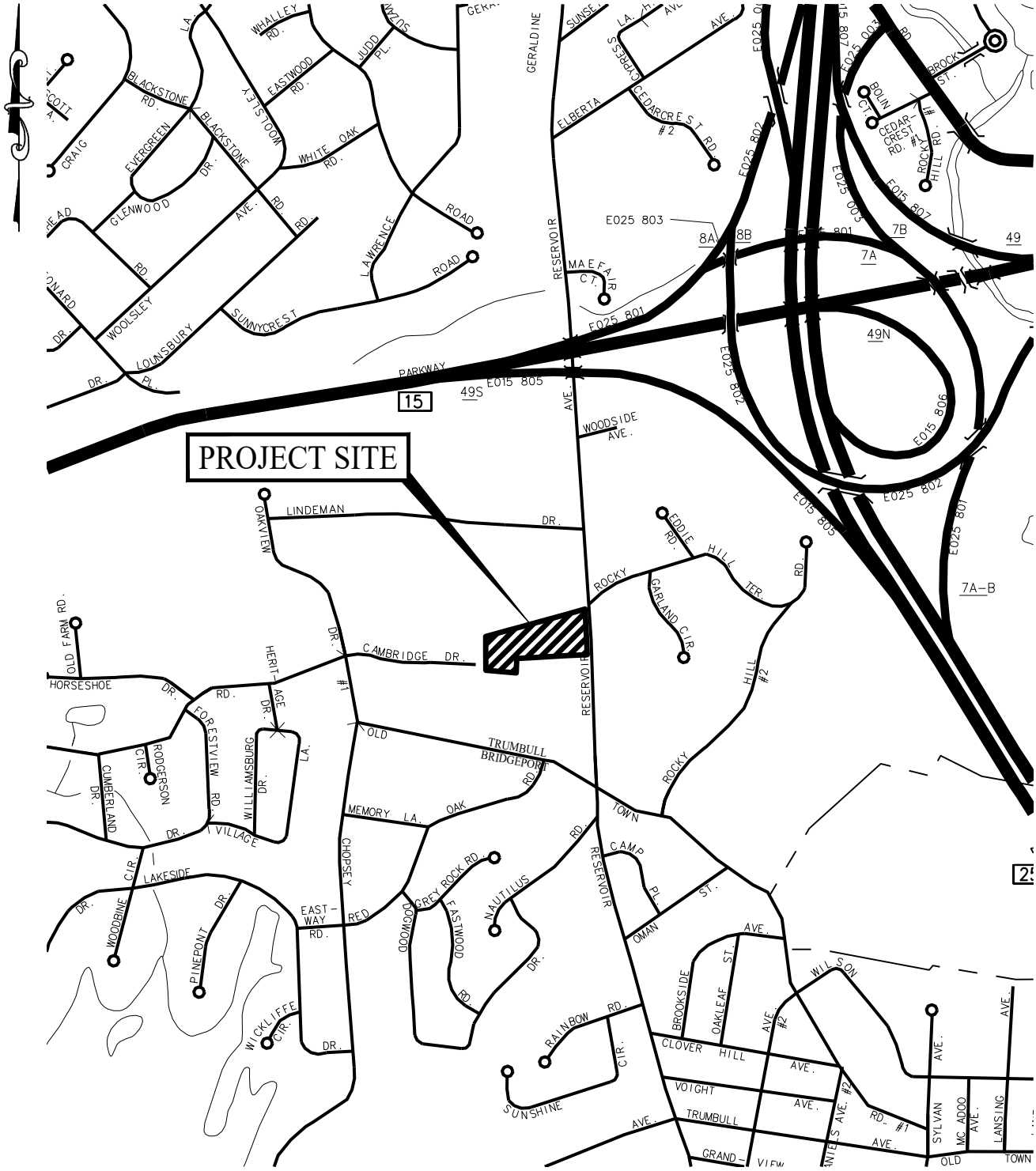
The project proposes a pad-mounted transformer for each building. The proposed electric lines will run from the existing utility poles located on Reservoir Avenue, into the proposed transformers, before running into the proposed buildings and tying into the utility rooms. Conduit for future EV charging stations will be installed and stubbed in a location designated for EV charging parking spots. Existing overhead telephone and cable services are provided from utility poles located on Reservoir Avenue. Proposed telephone and cable services are proposed to be routed, via underground conduits, to the existing utility poles per utility company requirements.

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Appendix B: Hydrology
Appendix C: Storm Drainage System Calculations
Appendix D: Design Plans
Appendix E: Long-Term Operation & Maintenance

APPENDIX A
FIGURES

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FEMA Flood Map (Figure 2)
Soil Survey Map (Figure 3)
Natural Diversity Database Map (Figure 4)
Aquifer Protection Area Map (Figure 5)
Public Water Supply Watershed Map (Figure 6)
USGS Map (Figure 7)



NOTE: BASE MAP INFORMATION TAKEN FROM CT TRU MAP 9

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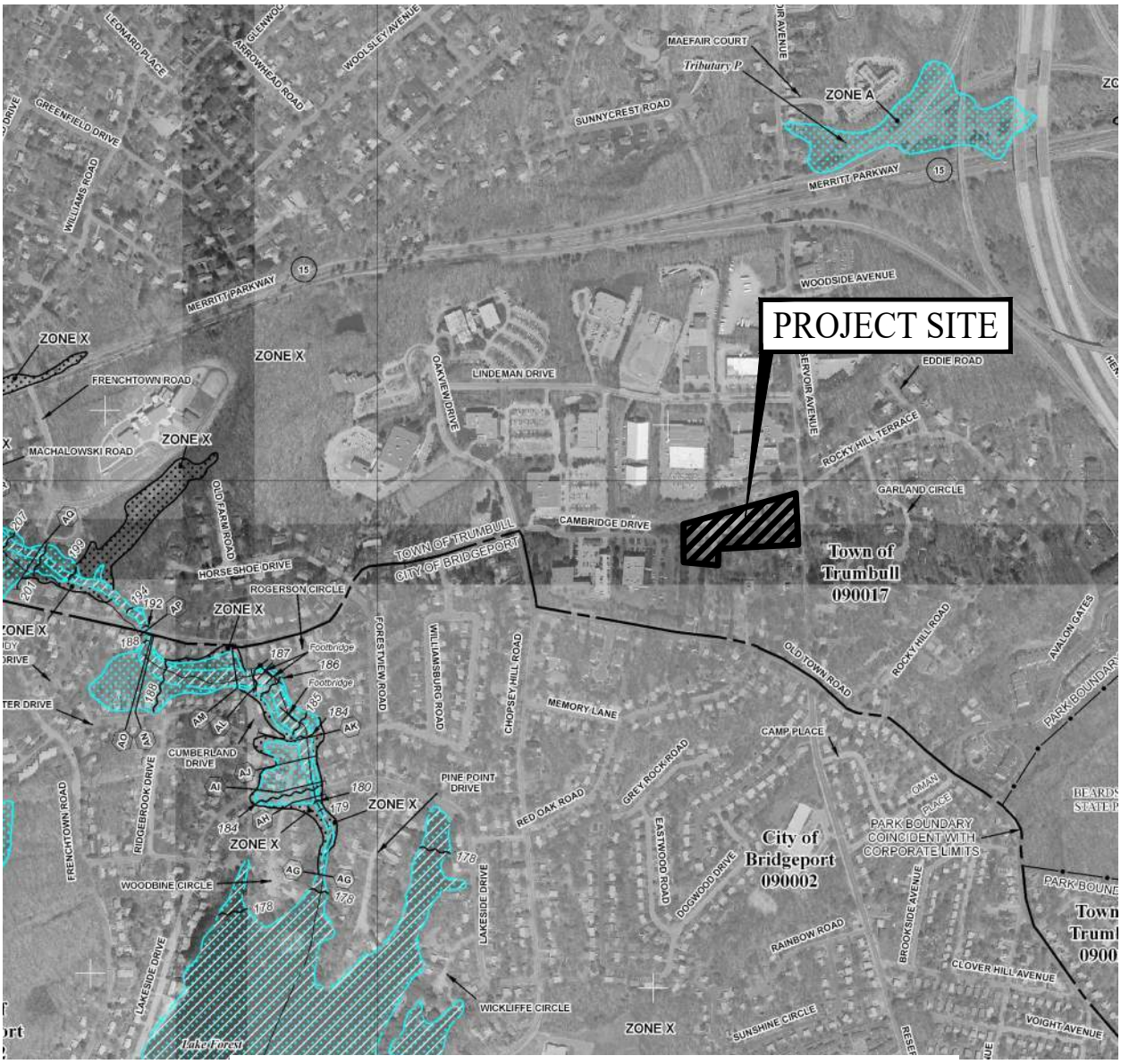
SOLLI ENGINEERING

MONROE, CT | W. HARTFORD, CT | NORWOOD, MA
SOLLIENGINEERING.COM
T: (203) 880-5455 | F: (203) 880-9695

SITE LOCATION MAP

2135, 2145 & 2155 RESERVOIR AVE
TRUMBULL, CONNECTICUT

Project #:	24116901
Plan Date:	10/31/25
Scale:	1" = 1,000'
Figure:	1



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.

NOTE: BASE MAP INFORMATION TAKEN FROM FEMA FLOOD MAP 09001C0231F DATED JUNE 18, 2010

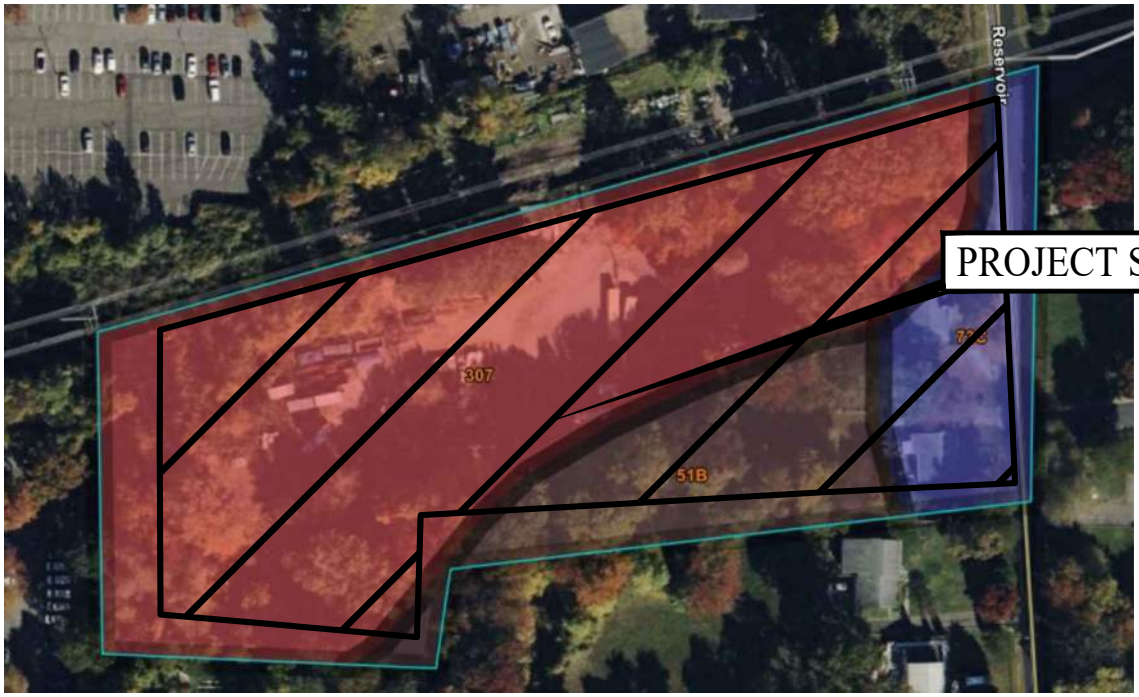
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FEMA FLOOD MAP

2135, 2145 & 2155 RESERVOIR AVE
TRUMBULL, CONNECTICUT

Project #:	24116901
Plan Date:	10/31/25
Scale:	1" = 1,000'
Figure:	2



Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
51B	Sutton fine sandy loam, 0 to 8 percent slopes, very stony	B/D	0.9	17.5%
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	B	0.6	12.9%
307	Urban land	D	3.5	69.6%
Totals for Area of Interest			**5.0**	**100.0%**

NOTE: BASE MAP INFORMATION TAKEN FROM USGS WEB SOIL SURVEY DATA

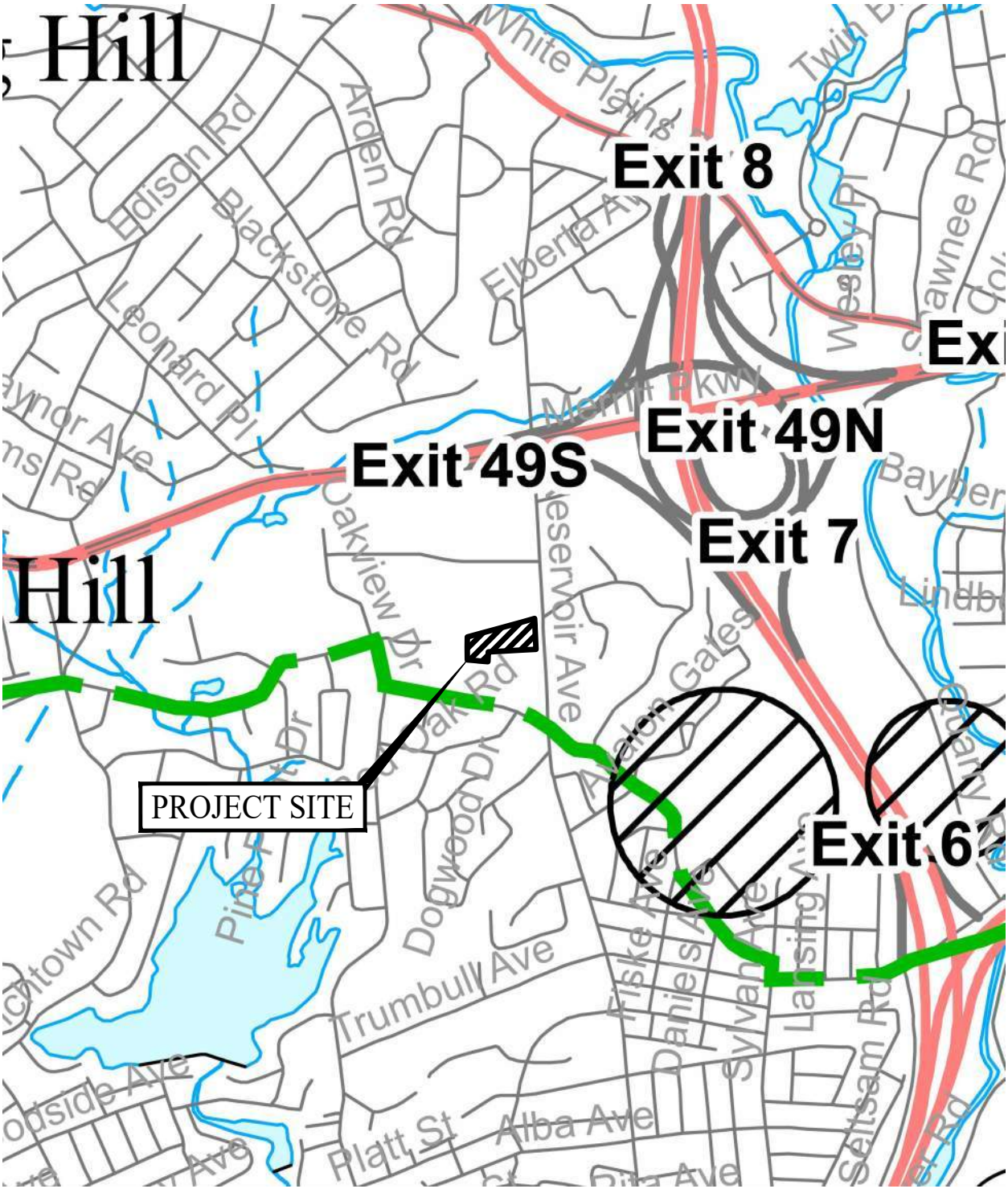
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SOLLI ENGINEERING
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T: (203) 880-5455 | F: (203) 880-9695

SOIL SURVEY MAP

2135, 2145 & 2155 RESERVOIR AVE
TRUMBULL, CONNECTICUT

Project #:	24116901
Plan Date:	10/31/25
Scale:	1" = 150'
Figure:	3



NOTE: BASE MAP INFORMATION TAKEN FROM NATURAL DIVERSITY DATA BASE AREA (TRUMBULL, CONNECTICUT, JUNE 2025)

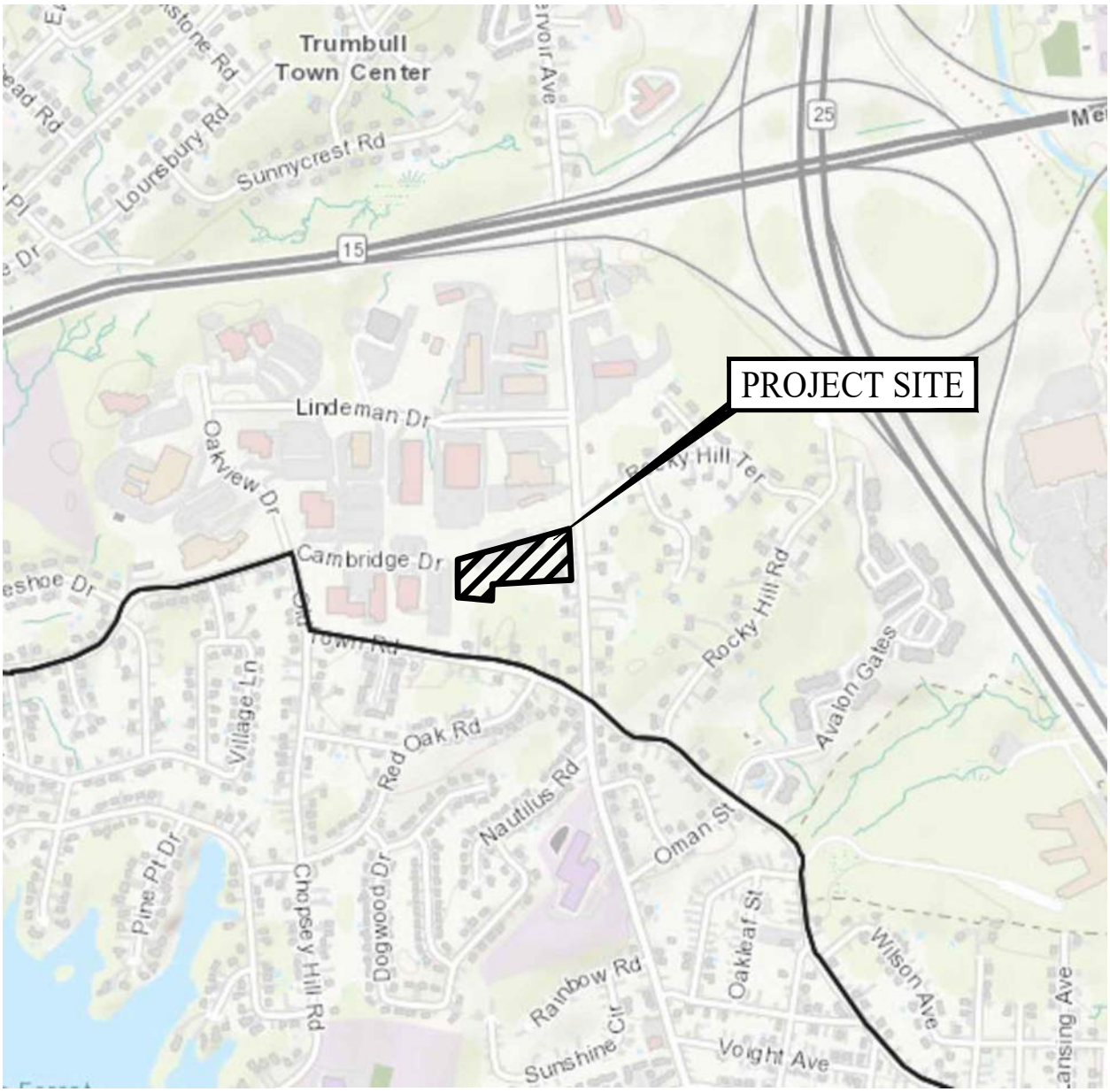
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NATURAL DIVERSITY DATABASE MAP

2135, 2145 & 2155 RESERVOIR AVE
TRUMBULL, CONNECTICUT

Project #:	24116901
Plan Date:	10/31/25
Scale:	1" = 1,500'
Figure:	4



Aquifer Protection Areas

- Final Adopted Aquifer Protection
- Final Aquifer Protection
- Preliminary Aquifer Protection

NOTE: BASE MAP INFORMATION TAKEN FROM CT DEEP AQUIFER PROTECTION AREA MAP TRUMBULL, CT

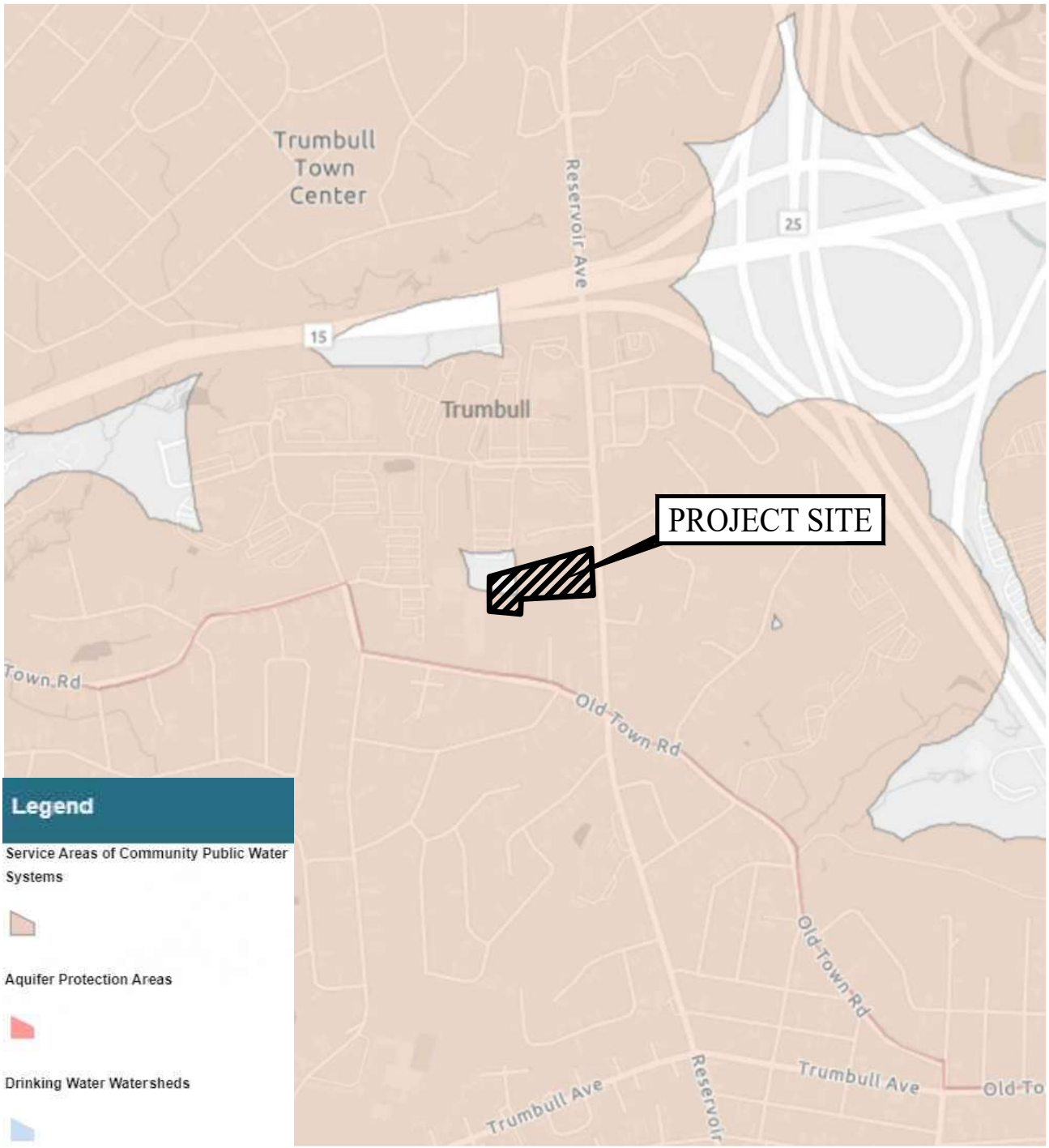
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AQUIFER PROTECTION AREA MAP

2135, 2145 & 2155 RESERVOIR AVE
TRUMBULL, CONNECTICUT

Project #:	24116901
Plan Date:	10/31/25
Scale:	1" = 1,000'
Figure:	5



NOTE: BASE MAP INFORMATION TAKEN FROM CT.GOV DRINKING WATER SECTION GIS MAP VIEWER

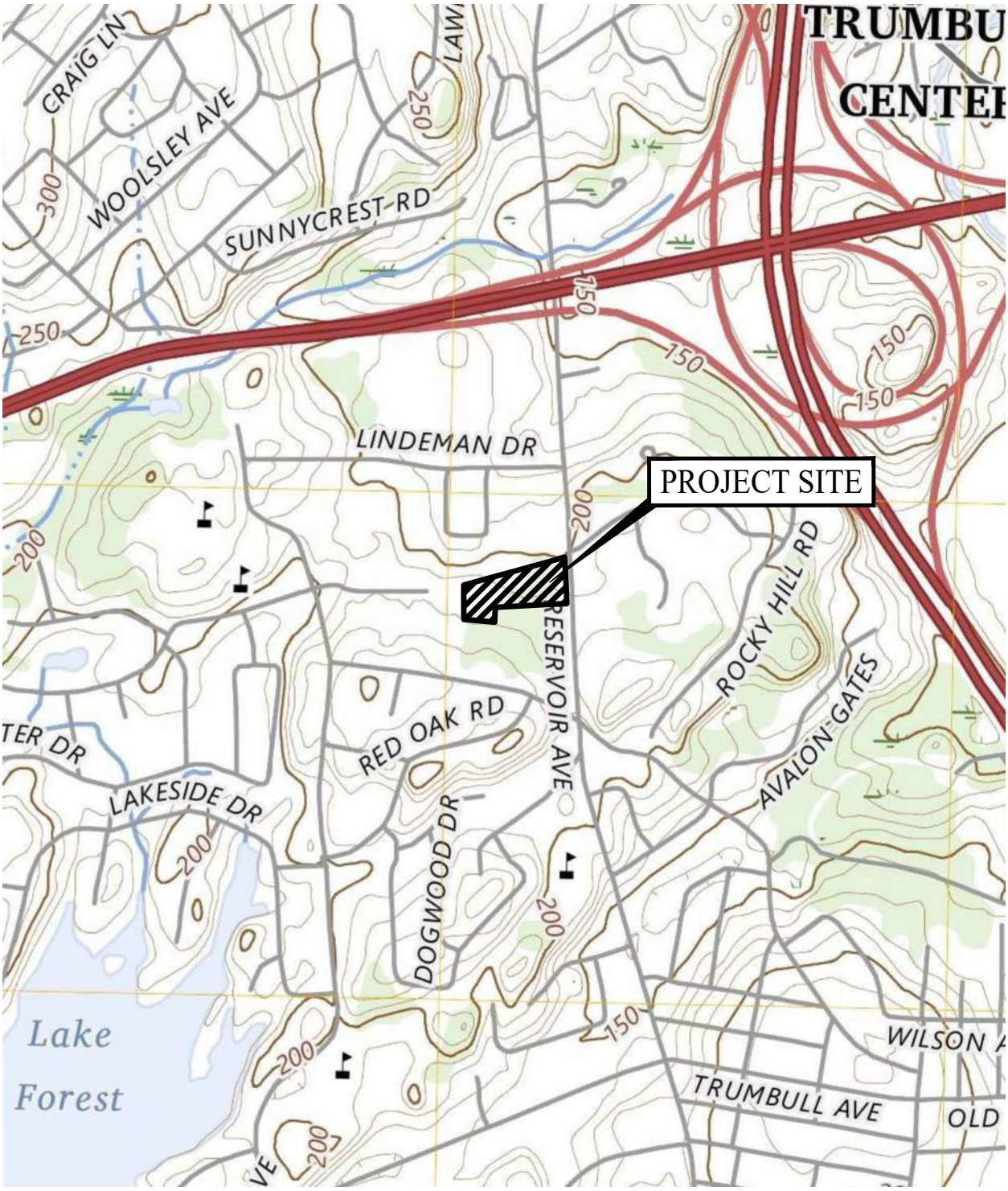
1,000 0 500 1,000

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PUBLIC SUPPLY WATERSHED MAP

2135, 2145 & 2155 RESERVOIR AVE
TRUMBULL, CONNECTICUT

Project #:	24116901
Plan Date:	10/31/25
Scale:	1" = 1,000'
Figure:	6



NOTE: BASE MAP INFORMATION TAKEN FROM UNITED STATES GEOLOGICAL SURVEY MAP DATED 2024

1,000 0 500 1,000

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USGS MAP

2135, 2145 & 2155 RESERVOIR AVE
TRUMBULL, CONNECTICUT

Project #:	24116901
Plan Date:	10/31/25
Scale:	1" = 1,000'
Figure:	7

APPENDIX B
HYDROLOGY

NOAA Atlas Precipitation Data
Existing Drainage Area Map (EDA)
Proposed Drainage Area Map (PDA)
HydroCAD Report – Existing Conditions
HydroCAD Report – Proposed Conditions
Water Quality Volume Calculations

NOAA Atlas 14, Volume 10, Version 3
Location name: Trumbull, Connecticut, USA*
Latitude: 41.2295°, Longitude: -73.1956°
Elevation: 211 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.355** (0.278-0.445)	**0.421** (0.329-0.528)	**0.529** (0.412-0.665)	**0.618** (0.480-0.782)	**0.741** (0.556-0.975)	**0.834** (0.613-1.12)	**0.931** (0.663-1.29)	**1.04** (0.701-1.47)	**1.19** (0.773-1.74)	**1.32** (0.834-1.96)
10-min	**0.502** (0.394-0.630)	**0.596** (0.467-0.748)	**0.749** (0.584-0.943)	**0.876** (0.679-1.11)	**1.05** (0.788-1.38)	**1.18** (0.868-1.58)	**1.32** (0.939-1.83)	**1.47** (0.993-2.08)	**1.69** (1.10-2.47)	**1.87** (1.18-2.78)
15-min	**0.591** (0.463-0.741)	**0.701** (0.549-0.880)	**0.881** (0.687-1.11)	**1.03** (0.799-1.30)	**1.24** (0.927-1.62)	**1.39** (1.02-1.86)	**1.55** (1.10-2.15)	**1.73** (1.17-2.45)	**1.99** (1.29-2.90)	**2.20** (1.39-3.26)
30-min	**0.823** (0.645-1.03)	**0.976** (0.765-1.22)	**1.23** (0.958-1.54)	**1.44** (1.11-1.82)	**1.72** (1.29-2.26)	**1.94** (1.42-2.60)	**2.16** (1.54-2.99)	**2.41** (1.63-3.41)	**2.75** (1.78-4.02)	**3.02** (1.91-4.50)
60-min	**1.06** (0.827-1.32)	**1.25** (0.980-1.57)	**1.57** (1.23-1.98)	**1.84** (1.43-2.33)	**2.21** (1.66-2.90)	**2.49** (1.82-3.33)	**2.78** (1.97-3.83)	**3.08** (2.08-4.36)	**3.51** (2.28-5.13)	**3.85** (2.44-5.73)
2-hr	**1.37** (1.08-1.70)	**1.63** (1.29-2.03)	**2.06** (1.62-2.58)	**2.42** (1.89-3.04)	**2.91** (2.20-3.81)	**3.28** (2.42-4.38)	**3.67** (2.63-5.06)	**4.11** (2.78-5.77)	**4.73** (3.08-6.86)	**5.24** (3.32-7.74)
3-hr	**1.58** (1.25-1.96)	**1.89** (1.50-2.35)	**2.40** (1.89-2.98)	**2.82** (2.21-3.53)	**3.40** (2.57-4.43)	**3.83** (2.84-5.09)	**4.29** (3.08-5.90)	**4.81** (3.26-6.74)	**5.57** (3.63-8.05)	**6.20** (3.94-9.12)
6-hr	**1.99** (1.59-2.46)	**2.40** (1.91-2.96)	**3.05** (2.42-3.78)	**3.60** (2.84-4.48)	**4.35** (3.32-5.64)	**4.91** (3.67-6.50)	**5.51** (3.99-7.55)	**6.20** (4.23-8.63)	**7.23** (4.73-10.4)	**8.09** (5.16-11.8)
12-hr	**2.46** (1.97-3.01)	**2.97** (2.38-3.64)	**3.81** (3.04-4.68)	**4.50** (3.57-5.56)	**5.46** (4.18-7.03)	**6.17** (4.63-8.11)	**6.93** (5.05-9.45)	**7.82** (5.35-10.8)	**9.15** (6.01-13.0)	**10.3** (6.57-14.9)
24-hr	**2.88** (2.32-3.50)	**3.52** (2.83-4.28)	**4.56** (3.66-5.57)	**5.43** (4.33-6.66)	**6.62** (5.11-8.49)	**7.51** (5.68-9.84)	**8.46** (6.22-11.5)	**9.62** (6.60-13.2)	**11.4** (7.48-16.1)	**12.9** (8.26-18.5)
2-day	**3.22** (2.61-3.89)	**4.00** (3.24-4.83)	**5.27** (4.26-6.39)	**6.32** (5.08-7.71)	**7.78** (6.05-9.94)	**8.84** (6.74-11.6)	**10.0** (7.44-13.6)	**11.5** (7.91-15.7)	**13.8** (9.10-19.4)	**15.8** (10.2-22.6)
3-day	**3.49** (2.84-4.20)	**4.34** (3.53-5.22)	**5.73** (4.65-6.92)	**6.89** (5.55-8.36)	**8.48** (6.62-10.8)	**9.64** (7.38-12.6)	**10.9** (8.15-14.9)	**12.6** (8.66-17.0)	**15.1** (10.0-21.2)	**17.4** (11.2-24.7)
4-day	**3.75** (3.06-4.49)	**4.64** (3.79-5.57)	**6.11** (4.97-7.36)	**7.33** (5.92-8.87)	**9.00** (7.04-11.4)	**10.2** (7.84-13.3)	**11.6** (8.65-15.7)	**13.3** (9.18-18.0)	**16.0** (10.6-22.3)	**18.3** (11.8-26.0)
7-day	**4.48** (3.68-5.35)	**5.45** (4.48-6.51)	**7.04** (5.75-8.43)	**8.35** (6.78-10.1)	**10.2** (7.98-12.8)	**11.5** (8.84-14.8)	**13.0** (9.67-17.3)	**14.7** (10.2-19.8)	**17.5** (11.6-24.3)	**19.9** (12.9-28.0)
10-day	**5.20** (4.29-6.18)	**6.21** (5.12-7.39)	**7.87** (6.46-9.39)	**9.24** (7.53-11.1)	**11.1** (8.76-13.9)	**12.5** (9.64-16.0)	**14.1** (10.5-18.6)	**15.9** (11.0-21.2)	**18.6** (12.4-25.7)	**20.9** (13.5-29.4)
20-day	**7.35** (6.10-8.68)	**8.47** (7.02-10.0)	**10.3** (8.49-12.2)	**11.8** (9.67-14.0)	**13.9** (10.9-17.1)	**15.4** (11.9-19.4)	**17.1** (12.7-22.2)	**18.9** (13.2-25.1)	**21.4** (14.4-29.4)	**23.5** (15.3-32.8)
30-day	**9.14** (7.61-10.7)	**10.3** (8.58-12.1)	**12.2** (10.1-14.4)	**13.8** (11.4-16.4)	**16.0** (12.7-19.7)	**17.7** (13.7-22.1)	**19.4** (14.4-25.0)	**21.3** (14.9-28.1)	**23.7** (15.9-32.3)	**25.6** (16.7-35.6)
45-day	**11.3** (9.48-13.3)	**12.6** (10.5-14.8)	**14.7** (12.2-17.2)	**16.4** (13.5-19.3)	**18.7** (14.8-22.8)	**20.5** (15.8-25.4)	**22.3** (16.5-28.4)	**24.1** (17.0-31.7)	**26.5** (17.8-35.9)	**28.3** (18.5-39.1)
60-day	**13.2** (11.0-15.4)	**14.5** (12.1-16.9)	**16.6** (13.9-19.5)	**18.4** (15.3-21.7)	**20.9** (16.6-25.3)	**22.8** (17.6-28.1)	**24.7** (18.3-31.2)	**26.5** (18.7-34.7)	**28.8** (19.4-38.9)	**30.5** (19.9-42.0)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

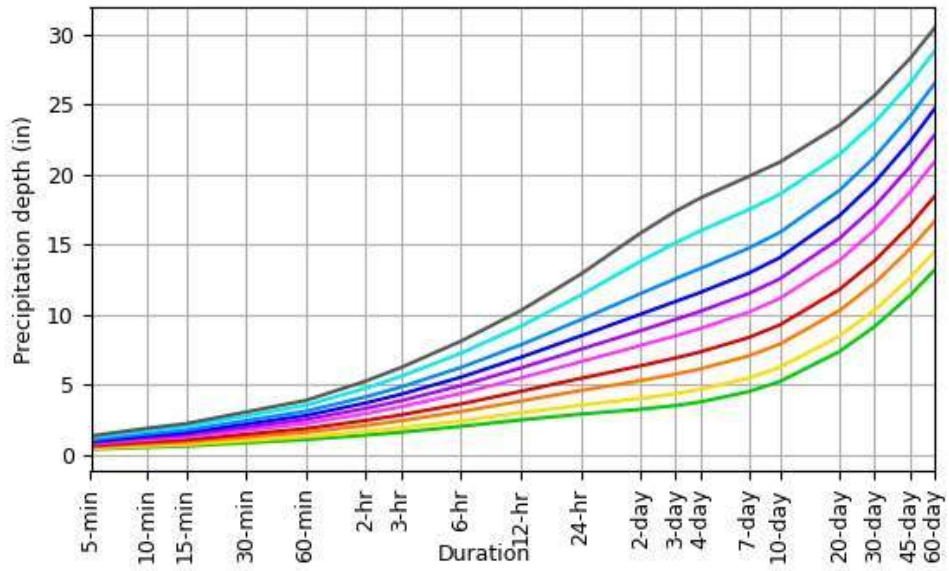
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

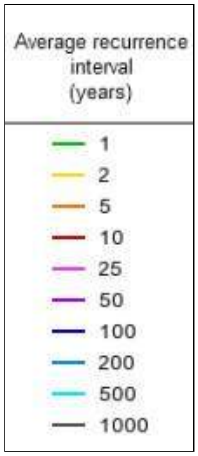
Please refer to NOAA Atlas 14 document for more information.

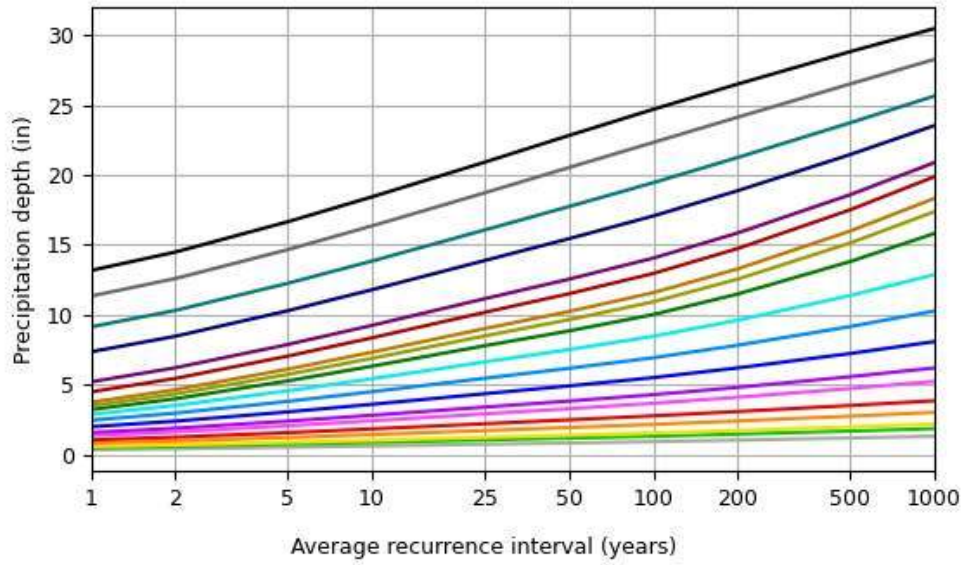
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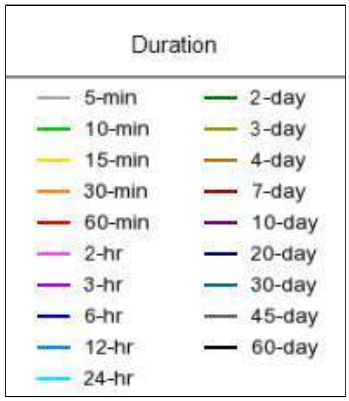
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 41.2295°, Longitude: -73.1956°







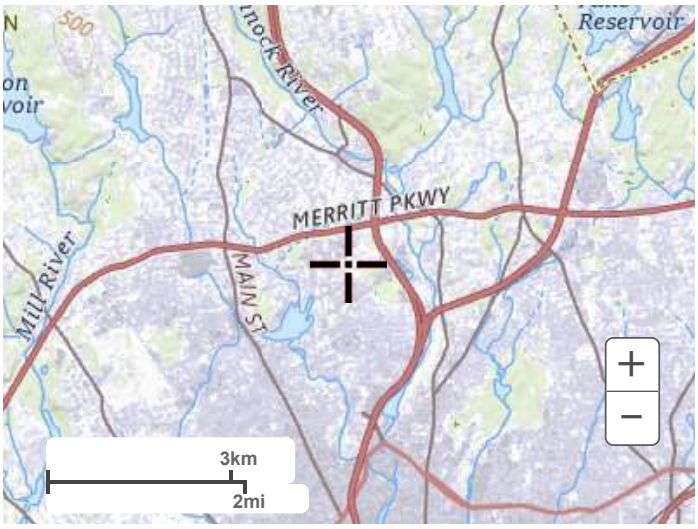


NOAA Atlas 14, Volume 10, Version 3 Created (GMT): Thu Jul 31 14:57:00 2025

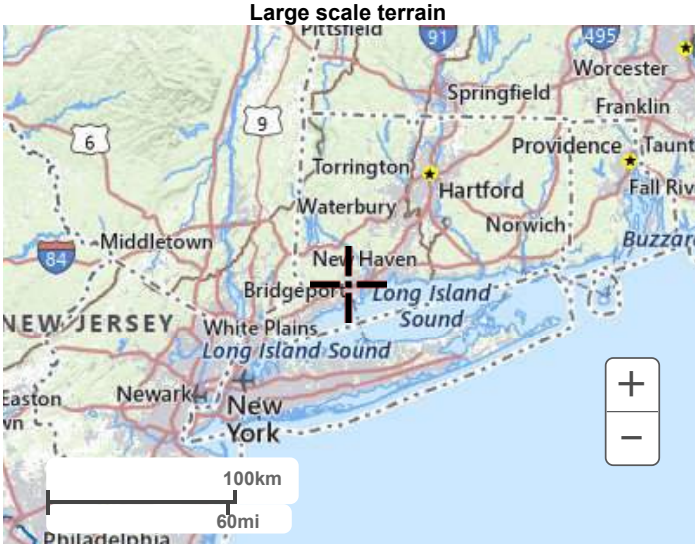
Back to Top

Maps & aerials

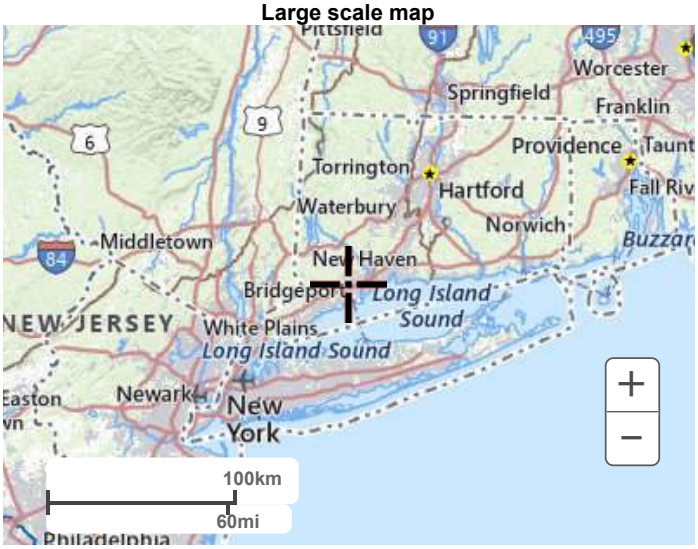
Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



Back to Top

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National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

NOAA Atlas 14, Volume 10, Version 3
Location name: Trumbull, Connecticut, USA*
Latitude: 41.2295°, Longitude: -73.1956°
Elevation: 211 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**4.26** (3.34-5.34)	**5.05** (3.95-6.34)	**6.35** (4.94-7.98)	**7.42** (5.76-9.38)	**8.89** (6.67-11.7)	**10.0** (7.36-13.4)	**11.2** (7.96-15.5)	**12.5** (8.41-17.6)	**14.3** (9.28-20.9)	**15.8** (10.0-23.5)
10-min	**3.01** (2.36-3.78)	**3.58** (2.80-4.49)	**4.49** (3.50-5.66)	**5.26** (4.07-6.64)	**6.30** (4.73-8.29)	**7.09** (5.21-9.50)	**7.92** (5.63-11.0)	**8.84** (5.96-12.5)	**10.1** (6.58-14.8)	**11.2** (7.09-16.7)
15-min	**2.36** (1.85-2.96)	**2.80** (2.20-3.52)	**3.52** (2.75-4.44)	**4.12** (3.20-5.22)	**4.94** (3.71-6.50)	**5.56** (4.09-7.46)	**6.21** (4.42-8.60)	**6.93** (4.67-9.80)	**7.95** (5.15-11.6)	**8.78** (5.56-13.1)
30-min	**1.65** (1.29-2.06)	**1.95** (1.53-2.45)	**2.45** (1.92-3.09)	**2.87** (2.23-3.63)	**3.44** (2.58-4.53)	**3.88** (2.84-5.19)	**4.33** (3.07-5.98)	**4.82** (3.25-6.81)	**5.50** (3.57-8.03)	**6.05** (3.83-9.00)
60-min	**1.06** (0.827-1.32)	**1.25** (0.980-1.57)	**1.57** (1.23-1.98)	**1.84** (1.43-2.33)	**2.21** (1.66-2.90)	**2.49** (1.82-3.33)	**2.78** (1.97-3.83)	**3.08** (2.08-4.36)	**3.51** (2.28-5.13)	**3.85** (2.44-5.73)
2-hr	**0.684** (0.539-0.852)	**0.816** (0.643-1.02)	**1.03** (0.810-1.29)	**1.21** (0.944-1.52)	**1.46** (1.10-1.90)	**1.64** (1.21-2.19)	**1.84** (1.31-2.53)	**2.05** (1.39-2.88)	**2.36** (1.54-3.43)	**2.62** (1.66-3.87)
3-hr	**0.526** (0.416-0.652)	**0.629** (0.497-0.781)	**0.798** (0.629-0.994)	**0.938** (0.734-1.17)	**1.13** (0.856-1.47)	**1.28** (0.945-1.70)	**1.43** (1.03-1.96)	**1.60** (1.09-2.24)	**1.86** (1.21-2.68)	**2.06** (1.31-3.04)
6-hr	**0.332** (0.265-0.410)	**0.400** (0.318-0.493)	**0.510** (0.404-0.631)	**0.601** (0.473-0.747)	**0.726** (0.553-0.942)	**0.820** (0.612-1.08)	**0.920** (0.666-1.26)	**1.04** (0.705-1.44)	**1.21** (0.789-1.73)	**1.35** (0.861-1.97)
12-hr	**0.204** (0.163-0.249)	**0.246** (0.197-0.302)	**0.315** (0.252-0.388)	**0.373** (0.296-0.461)	**0.452** (0.347-0.583)	**0.511** (0.384-0.673)	**0.575** (0.419-0.784)	**0.649** (0.444-0.896)	**0.759** (0.498-1.08)	**0.852** (0.545-1.24)
24-hr	**0.119** (0.096-0.145)	**0.146** (0.118-0.178)	**0.190** (0.152-0.232)	**0.226** (0.180-0.277)	**0.275** (0.213-0.353)	**0.312** (0.236-0.409)	**0.352** (0.259-0.480)	**0.400** (0.274-0.549)	**0.473** (0.311-0.670)	**0.536** (0.344-0.772)
2-day	**0.067** (0.054-0.080)	**0.083** (0.067-0.100)	**0.109** (0.088-0.133)	**0.131** (0.105-0.160)	**0.161** (0.126-0.207)	**0.184** (0.140-0.240)	**0.208** (0.155-0.284)	**0.239** (0.164-0.326)	**0.287** (0.189-0.404)	**0.329** (0.212-0.471)
3-day	**0.048** (0.039-0.058)	**0.060** (0.049-0.072)	**0.079** (0.064-0.096)	**0.095** (0.077-0.116)	**0.117** (0.091-0.149)	**0.133** (0.102-0.174)	**0.151** (0.113-0.206)	**0.174** (0.120-0.236)	**0.210** (0.138-0.294)	**0.241** (0.155-0.343)
4-day	**0.039** (0.031-0.046)	**0.048** (0.039-0.058)	**0.063** (0.051-0.076)	**0.076** (0.061-0.092)	**0.093** (0.073-0.119)	**0.106** (0.081-0.138)	**0.120** (0.090-0.163)	**0.138** (0.095-0.187)	**0.166** (0.110-0.232)	**0.190** (0.123-0.271)
7-day	**0.026** (0.021-0.031)	**0.032** (0.026-0.038)	**0.041** (0.034-0.050)	**0.049** (0.040-0.059)	**0.060** (0.047-0.076)	**0.068** (0.052-0.088)	**0.077** (0.057-0.103)	**0.087** (0.060-0.118)	**0.104** (0.069-0.144)	**0.118** (0.076-0.166)
10-day	**0.021** (0.017-0.025)	**0.025** (0.021-0.030)	**0.032** (0.026-0.039)	**0.038** (0.031-0.046)	**0.046** (0.036-0.058)	**0.052** (0.040-0.066)	**0.058** (0.043-0.077)	**0.066** (0.045-0.088)	**0.077** (0.051-0.106)	**0.087** (0.056-0.122)
20-day	**0.015** (0.012-0.018)	**0.017** (0.014-0.020)	**0.021** (0.017-0.025)	**0.024** (0.020-0.029)	**0.028** (0.022-0.035)	**0.032** (0.024-0.040)	**0.035** (0.026-0.046)	**0.039** (0.027-0.052)	**0.044** (0.029-0.061)	**0.049** (0.031-0.068)
30-day	**0.012** (0.010-0.014)	**0.014** (0.011-0.016)	**0.016** (0.014-0.020)	**0.019** (0.015-0.022)	**0.022** (0.017-0.027)	**0.024** (0.018-0.030)	**0.026** (0.019-0.034)	**0.029** (0.020-0.038)	**0.032** (0.022-0.044)	**0.035** (0.023-0.049)
45-day	**0.010** (0.008-0.012)	**0.011** (0.009-0.013)	**0.013** (0.011-0.015)	**0.015** (0.012-0.017)	**0.017** (0.013-0.021)	**0.019** (0.014-0.023)	**0.020** (0.015-0.026)	**0.022** (0.015-0.029)	**0.024** (0.016-0.033)	**0.026** (0.017-0.036)
60-day	**0.009** (0.007-0.010)	**0.010** (0.008-0.011)	**0.011** (0.009-0.013)	**0.012** (0.010-0.015)	**0.014** (0.011-0.017)	**0.015** (0.012-0.019)	**0.017** (0.012-0.021)	**0.018** (0.013-0.024)	**0.020** (0.013-0.027)	**0.021** (0.013-0.029)

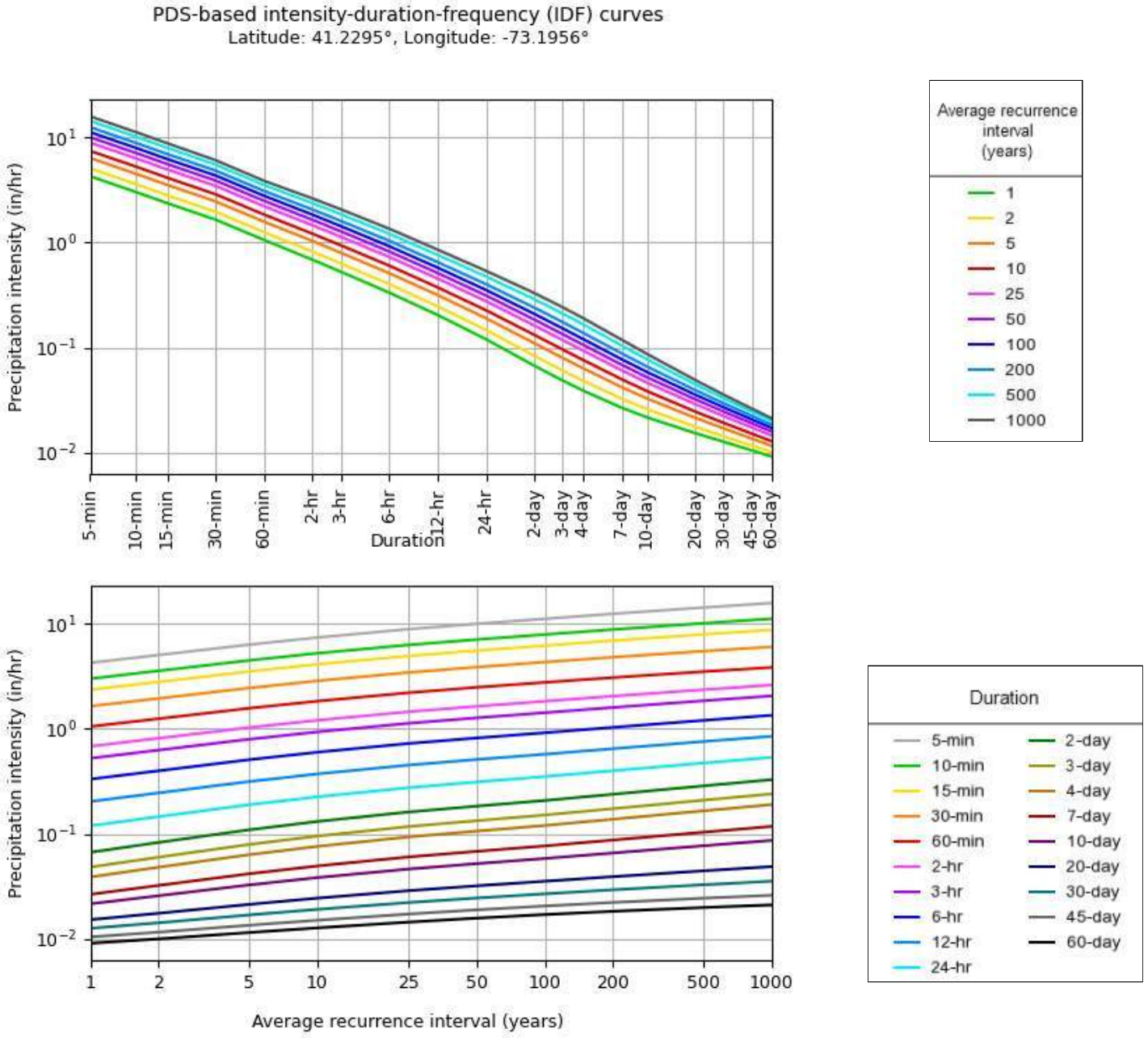
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical



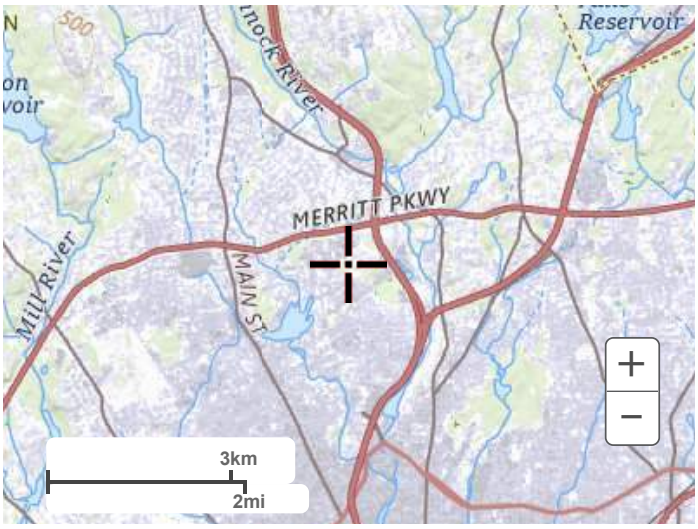
NOAA Atlas 14, Volume 10, Version 3

Created (GMT): Thu Jul 31 14:57:32 2025

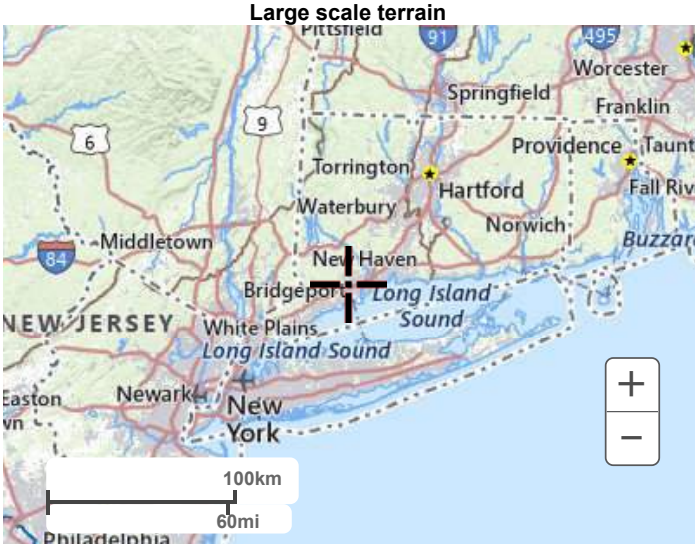
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Maps & aerials

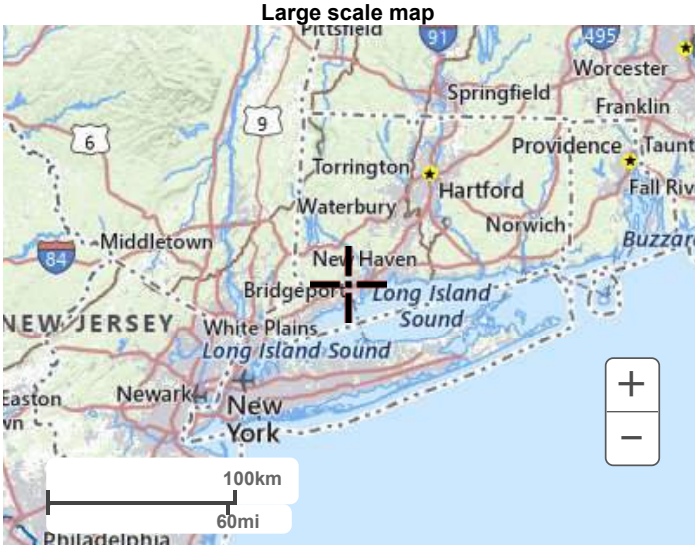
Small scale terrain



Large scale terrain



Large scale map



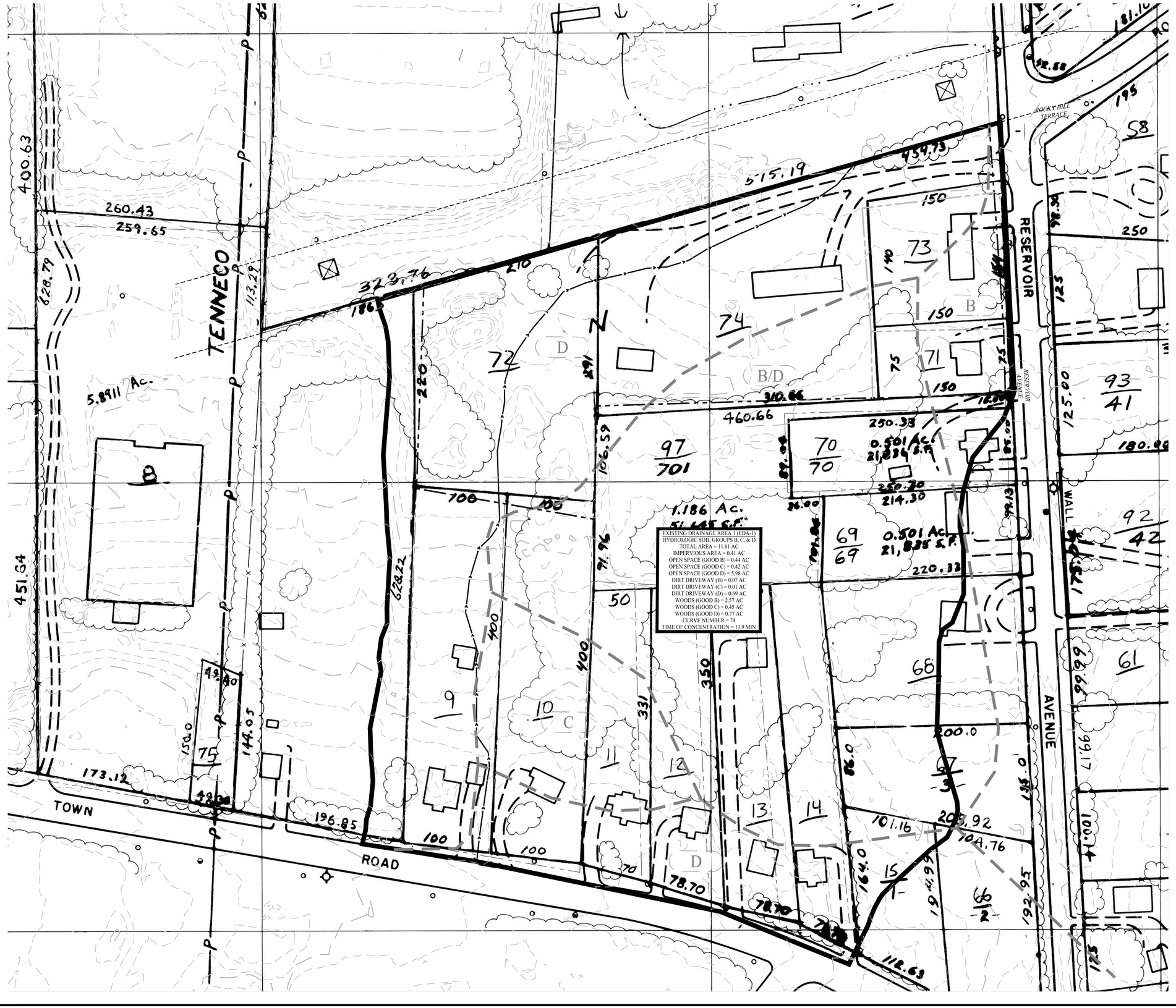
Large scale aerial



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National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer



EXISTING DRAINAGE AREA 1 (EDA-1)
HYDROLOGIC SOIL GROUPS B, C, & D
TOTAL AREA = 11.81 AC
IMPERVIOUS AREA = 0.41 AC
OPEN SPACE (GOOD B) = 0.44 AC
OPEN SPACE (GOOD C) = 0.42 AC
OPEN SPACE (GOOD D) = 5.98 AC
DIRT DRIVEWAY (B) = 0.07 AC
DIRT DRIVEWAY (C) = 0.01 AC
DIRT DRIVEWAY (D) = 0.69 AC
WOODS (GOOD B) = 2.57 AC
WOODS (GOOD C) = 0.45 AC
WOODS (GOOD D) = 0.77 AC
CURVE NUMBER = 74
TIME OF CONCENTRATION = 13.9 MIN

GENERAL NOTES

1. EXISTING BOUNDARY AND TOPOGRAPHY IS BASED ON DRAWING TITLED "PROPERTY SURVEY OF 2135, 2145 & 2155 RESERVOIR AVENUE TRUMBULL CONNECTICUT", SCALE 1"=30', DATED JULY 24, 2025, BY ACCURATE LAND SURVEYING LLC.
2. AERIAL PHOTOGRAPHY TAKEN FROM DRAWING TITLED "PLANIMETRIC MAP OF TOWN OF TRUMBULL, CONNECTICUT (SHEET NO. G-11)," DATED AUGUST 1964 PREPARED BY ABRAMS AERIAL SURVEY CORPORATION.
3. STORMWATER RUNOFF ANALYSIS WAS CALCULATED USING THE SCS TR-55 METHODOLOGY.
4. OFF-SITE TOPOGRAPHY DATA IS BASED ON CT ECO FILES.
5. CT ECO AND SURVEY CONTOURS HAVE BEEN ADJUSTED TO ALIGN SMOOTHLY, AND MAY NOT BE PERFECTLY ACCURATE.

LEGEND

- PROPERTY LINE
- ADJOINING LOT LINE
- LIMIT OF DRAINAGE AREA
- FLOW PATH
- SOIL TYPE BOUNDARY
- B — SOIL TYPE

Rev. #:	Date	Description
1	03/04/26	Re-Filing Set

Graphic Scale: 50 0 50 100

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Drawn By:	DJR
Checked By:	LAM
Approved By:	KMS
Project #:	24116901
Plan Date:	11/07/25
Scale:	1" = 50'

STATE OF CONNECTICUT — KEVIN M. SOLLI — 25759 — LICENSED PROFESSIONAL ENGINEER
Kevin Solli, P.E.
CT 25759

Project:

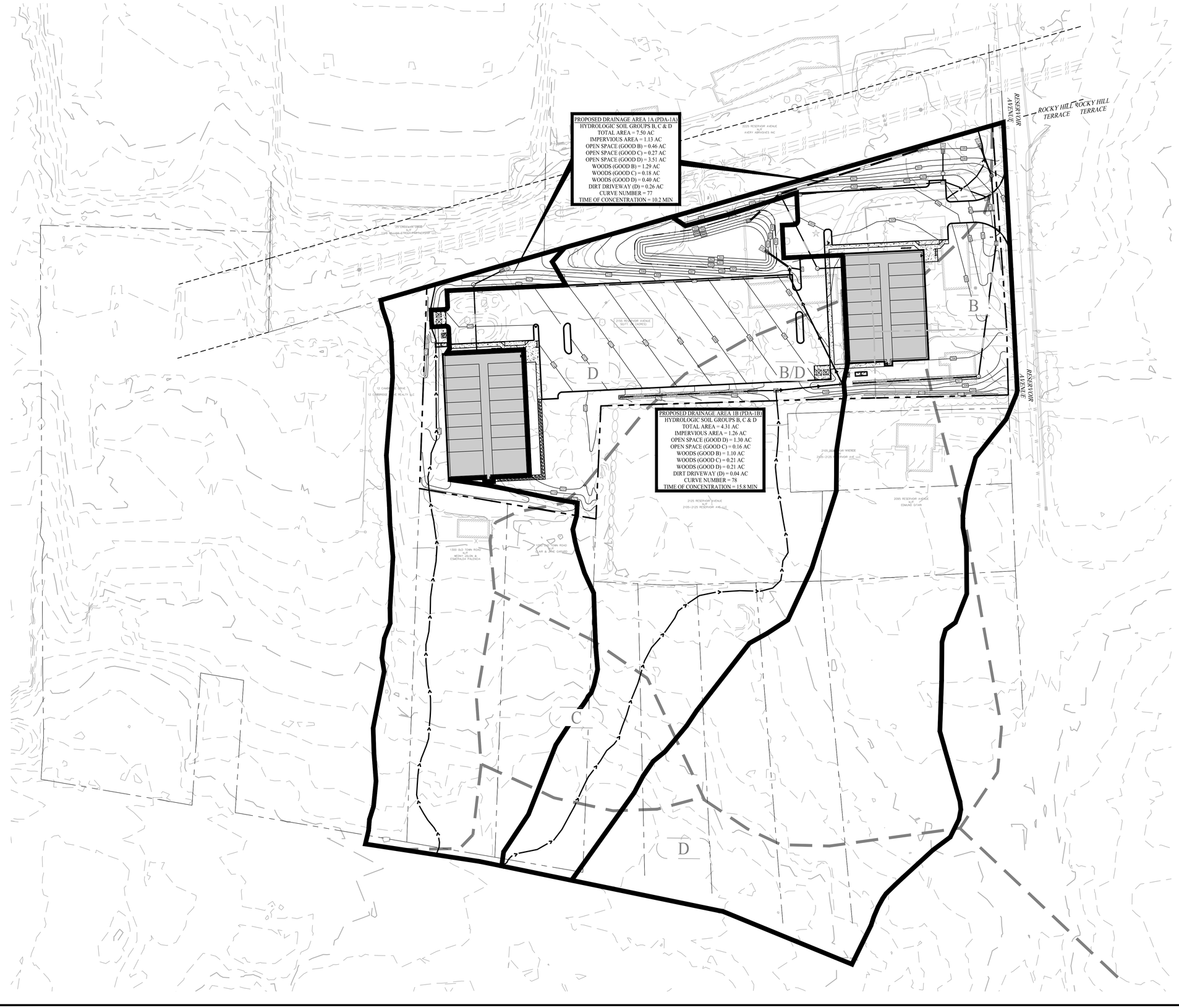
PROPOSED REDEVELOPMENT

2135, 2145, & 2155 RESERVOIR AVENUE
TRUMBULL, CONNECTICUT

Sheet Title: EXISTING DRAINAGE AREA MAP

Sheet #: EDA

Mar 05, 2026 – 10:48am drosemark
X:\SE Files\Project Data\2024\24116901 – 2135, 2145, 2155 Reservoir Ave – Trumbull, CT\Engineering Data\CAD Files\24116901 – EDA.dwg



GENERAL NOTES

1. EXISTING BOUNDARY AND TOPOGRAPHY IS BASED ON DRAWING TITLED "PROPERTY SURVEY OF 2135, 2145 & 2155 RESERVOIR AVENUE TRUMBULL CONNECTICUT", SCALE 1"=30', DATED JULY 24, 2025, BY ACCURATE LAND SURVEYING LLC.
2. STORMWATER RUNOFF ANALYSIS WAS CALCULATED USING THE SCS TR-55 METHODOLOGY.
3. OFF-SITE TOPOGRAPHY DATA IS BASED ON CTECO MAP READER TOWN OF TRUMBULL, CT.
4. CT ECO AND SURVEY CONTOURS HAVE BEEN ADJUSTED TO ALIGN SMOOTHLY, AND MAY NOT BE PERFECTLY ACCURATE.

LEGEND

- PROPERTY LINE
- ADJOINING LOT LINE
- LIMIT OF DRAINAGE AREA
- FLOW PATH
- SOIL TYPE BOUNDARY
- B — SOIL TYPE

Rev. #:	Date	Description
1	03/04/26	Re-Filing Set

Graphic Scale: 50 0 50 100

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Drawn By:	MJD
Checked By:	LAM
Approved By:	KMS
Project #:	24116901
Plan Date:	11/07/25
Scale:	1" = 50'

STATE OF CONNECTICUT · KEVIN M. SOLLI · 25759 · LICENSED PROFESSIONAL ENGINEER

Kevin Solli, P.E.
CT 25759

Project:

PROPOSED REDEVELOPMENT

2135, 2145, & 2155 RESERVOIR AVENUE
TRUMBULL, CONNECTICUT

Sheet Title:

PROPOSED DRAINAGE AREA MAP

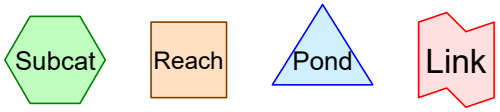
Sheet #:

PDA

Mar 05, 2026 - 10:48am dnostemark
X:\SE Files\Project Data\2024\24116901 - 2135, 2145, 2155 Reservoir Ave - Trumbull, CT\Engineering Data\CAD Files\24116901 - PDA.dwg



Existing Drainage Area 1



Routing Diagram for 2135, 2145, 2155 Reservoir Ave - Trumbull, CT - EDA
Prepared by Solli Engineering, Printed 3/4/2026
HydroCAD® 10.20-7a s/n 13171 © 2025 HydroCAD Software Solutions LLC

Summary for Subcatchment EDA-1: Existing Drainage Area 1

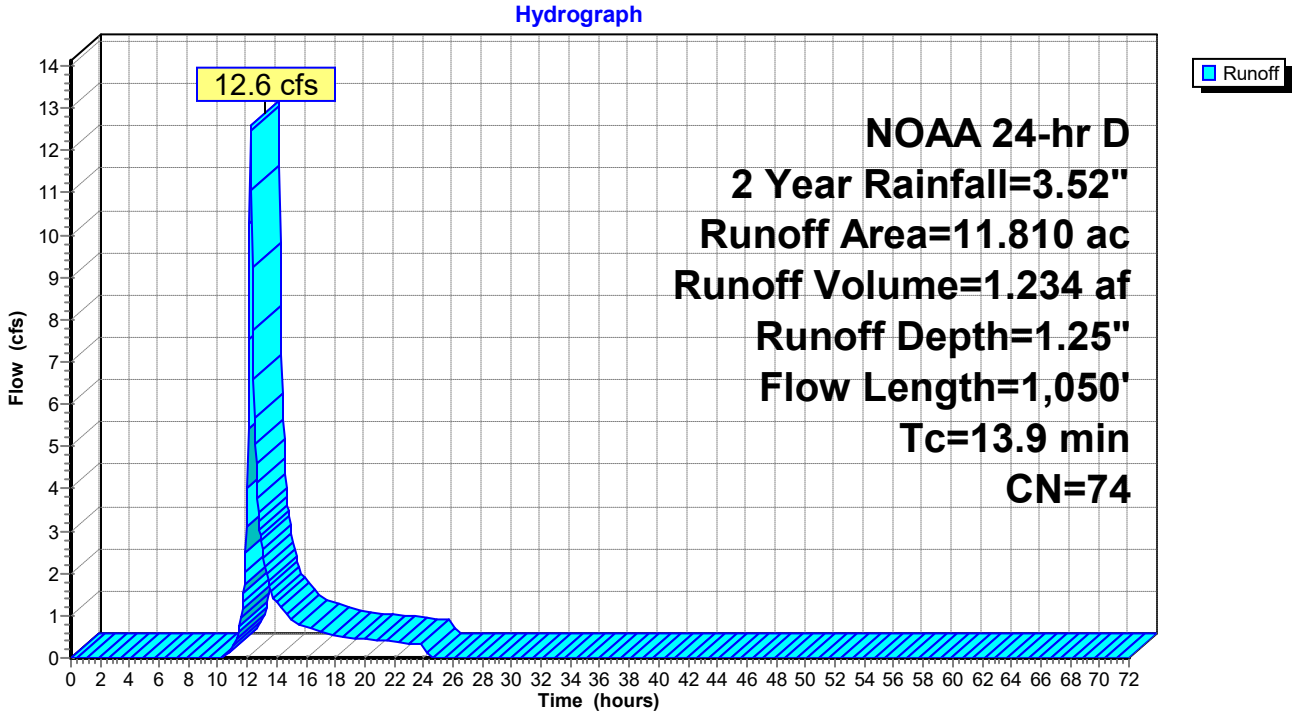
Runoff = 12.6 cfs @ 12.23 hrs, Volume= 1.234 af, Depth= 1.25"
Routed to nonexistent node 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2 Year Rainfall=3.52"

Area (ac)	CN	Description
0.410	98	Paved parking, HSG D
0.440	61	>75% Grass cover, Good, HSG B
5.980	80	>75% Grass cover, Good, HSG D
0.420	74	>75% Grass cover, Good, HSG C
0.070	82	Dirt roads, HSG B
0.010	87	Dirt roads, HSG C
0.690	89	Dirt roads, HSG D
2.570	55	Woods, Good, HSG B
0.770	77	Woods, Good, HSG D
0.450	70	Woods, Good, HSG C
11.810	74	Weighted Average
11.400		96.53% Pervious Area
0.410		3.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0250	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.52"
0.2	45	0.0900	4.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.3	277	0.0505	3.62		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	21	0.0702	4.27		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.5	79	0.0299	2.78		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	72	0.0299	2.78		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.8	305	0.0311	2.84		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	84	0.0120	2.22		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	34	0.0145	1.94		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	33	0.0302	2.80		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
13.9	1,050	Total			

Subcatchment EDA-1: Existing Drainage Area 1



Summary for Subcatchment EDA-1: Existing Drainage Area 1

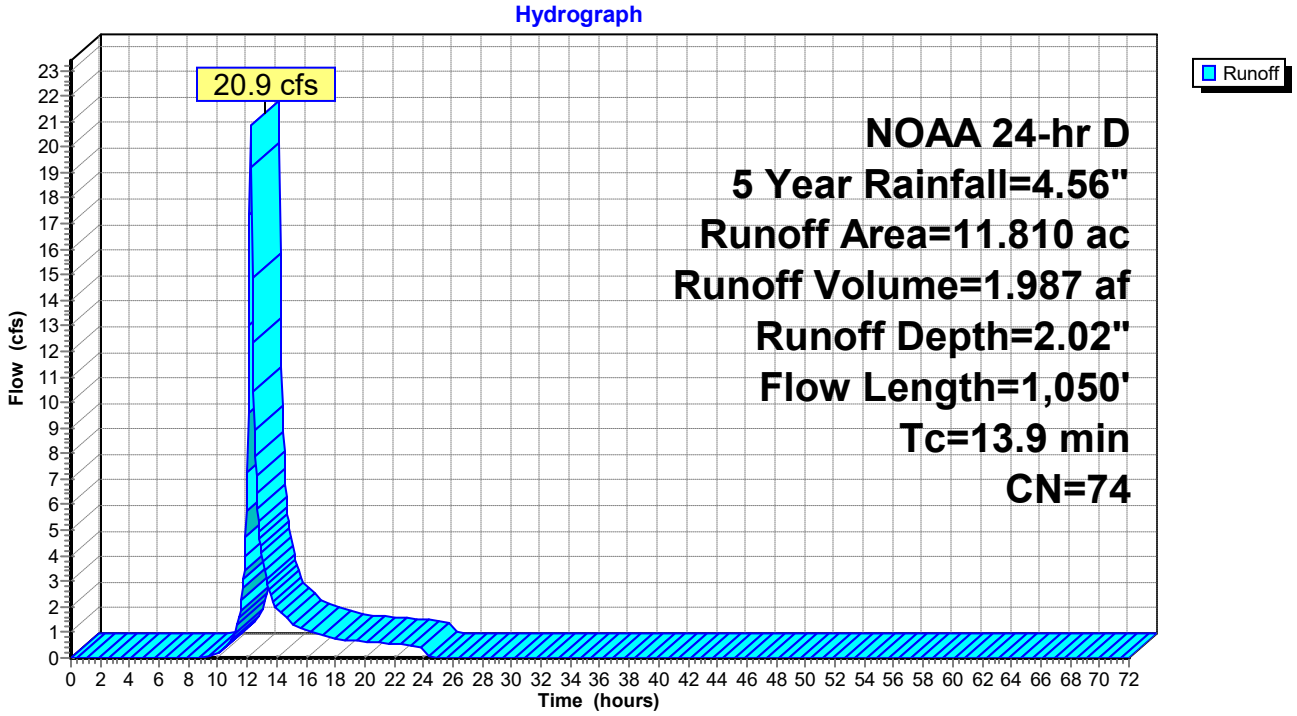
Runoff = 20.9 cfs @ 12.22 hrs, Volume= 1.987 af, Depth= 2.02"
Routed to nonexistent node 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 5 Year Rainfall=4.56"

Area (ac)	CN	Description
0.410	98	Paved parking, HSG D
0.440	61	>75% Grass cover, Good, HSG B
5.980	80	>75% Grass cover, Good, HSG D
0.420	74	>75% Grass cover, Good, HSG C
0.070	82	Dirt roads, HSG B
0.010	87	Dirt roads, HSG C
0.690	89	Dirt roads, HSG D
2.570	55	Woods, Good, HSG B
0.770	77	Woods, Good, HSG D
0.450	70	Woods, Good, HSG C
11.810	74	Weighted Average
11.400		96.53% Pervious Area
0.410		3.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0250	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.52"
0.2	45	0.0900	4.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.3	277	0.0505	3.62		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	21	0.0702	4.27		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.5	79	0.0299	2.78		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	72	0.0299	2.78		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.8	305	0.0311	2.84		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	84	0.0120	2.22		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	34	0.0145	1.94		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	33	0.0302	2.80		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
13.9	1,050	Total			

Subcatchment EDA-1: Existing Drainage Area 1



Summary for Subcatchment EDA-1: Existing Drainage Area 1

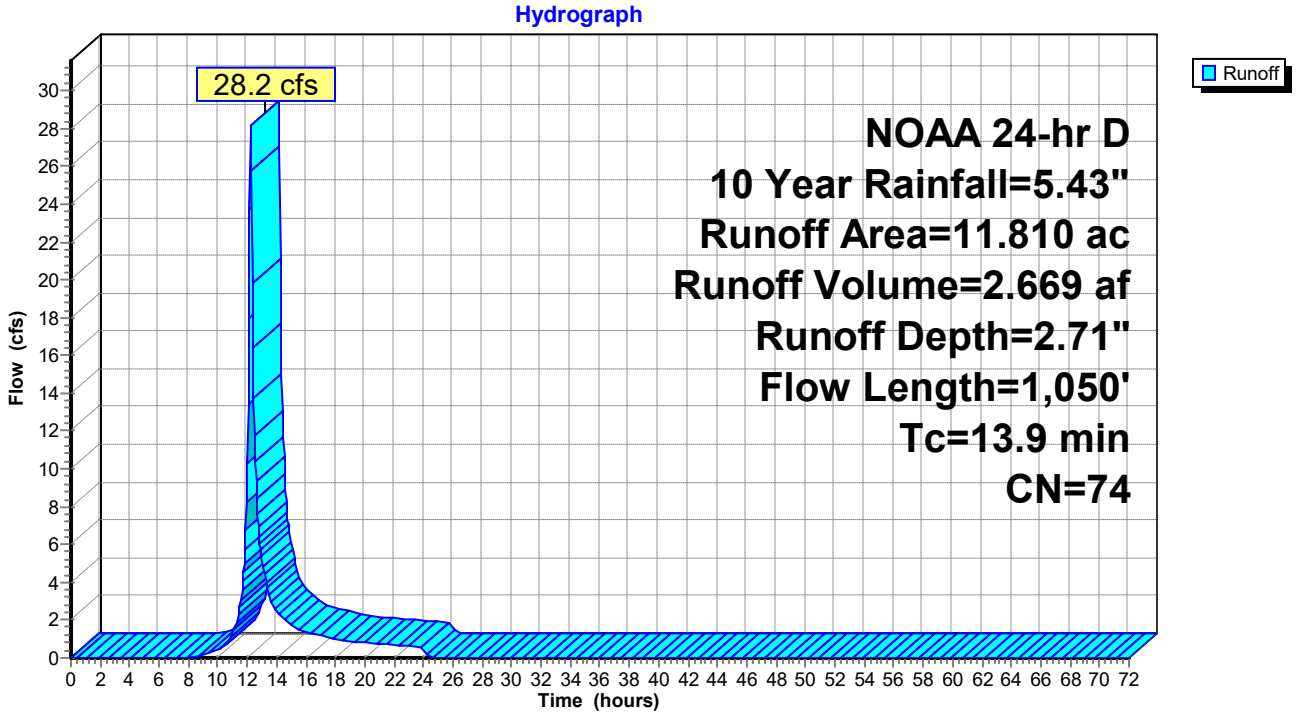
Runoff = 28.2 cfs @ 12.22 hrs, Volume= 2.669 af, Depth= 2.71"
Routed to nonexistent node 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10 Year Rainfall=5.43"

Area (ac)	CN	Description
0.410	98	Paved parking, HSG D
0.440	61	>75% Grass cover, Good, HSG B
5.980	80	>75% Grass cover, Good, HSG D
0.420	74	>75% Grass cover, Good, HSG C
0.070	82	Dirt roads, HSG B
0.010	87	Dirt roads, HSG C
0.690	89	Dirt roads, HSG D
2.570	55	Woods, Good, HSG B
0.770	77	Woods, Good, HSG D
0.450	70	Woods, Good, HSG C
11.810	74	Weighted Average
11.400		96.53% Pervious Area
0.410		3.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0250	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.52"
0.2	45	0.0900	4.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.3	277	0.0505	3.62		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	21	0.0702	4.27		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.5	79	0.0299	2.78		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	72	0.0299	2.78		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.8	305	0.0311	2.84		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	84	0.0120	2.22		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	34	0.0145	1.94		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	33	0.0302	2.80		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
13.9	1,050	Total			

Subcatchment EDA-1: Existing Drainage Area 1



Summary for Subcatchment EDA-1: Existing Drainage Area 1

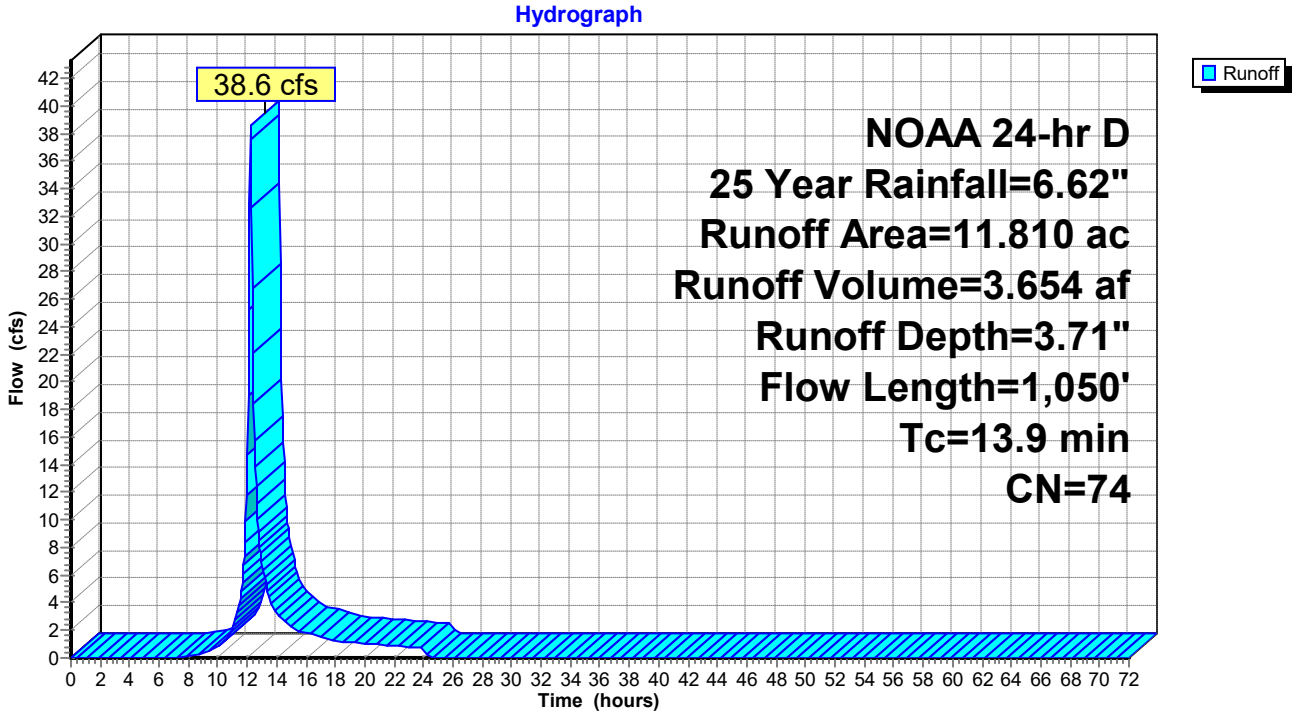
Runoff = 38.6 cfs @ 12.22 hrs, Volume= 3.654 af, Depth= 3.71"
Routed to nonexistent node 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25 Year Rainfall=6.62"

Area (ac)	CN	Description
0.410	98	Paved parking, HSG D
0.440	61	>75% Grass cover, Good, HSG B
5.980	80	>75% Grass cover, Good, HSG D
0.420	74	>75% Grass cover, Good, HSG C
0.070	82	Dirt roads, HSG B
0.010	87	Dirt roads, HSG C
0.690	89	Dirt roads, HSG D
2.570	55	Woods, Good, HSG B
0.770	77	Woods, Good, HSG D
0.450	70	Woods, Good, HSG C
11.810	74	Weighted Average
11.400		96.53% Pervious Area
0.410		3.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0250	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.52"
0.2	45	0.0900	4.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.3	277	0.0505	3.62		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	21	0.0702	4.27		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.5	79	0.0299	2.78		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	72	0.0299	2.78		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.8	305	0.0311	2.84		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	84	0.0120	2.22		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	34	0.0145	1.94		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	33	0.0302	2.80		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
13.9	1,050	Total			

Subcatchment EDA-1: Existing Drainage Area 1



Summary for Subcatchment EDA-1: Existing Drainage Area 1

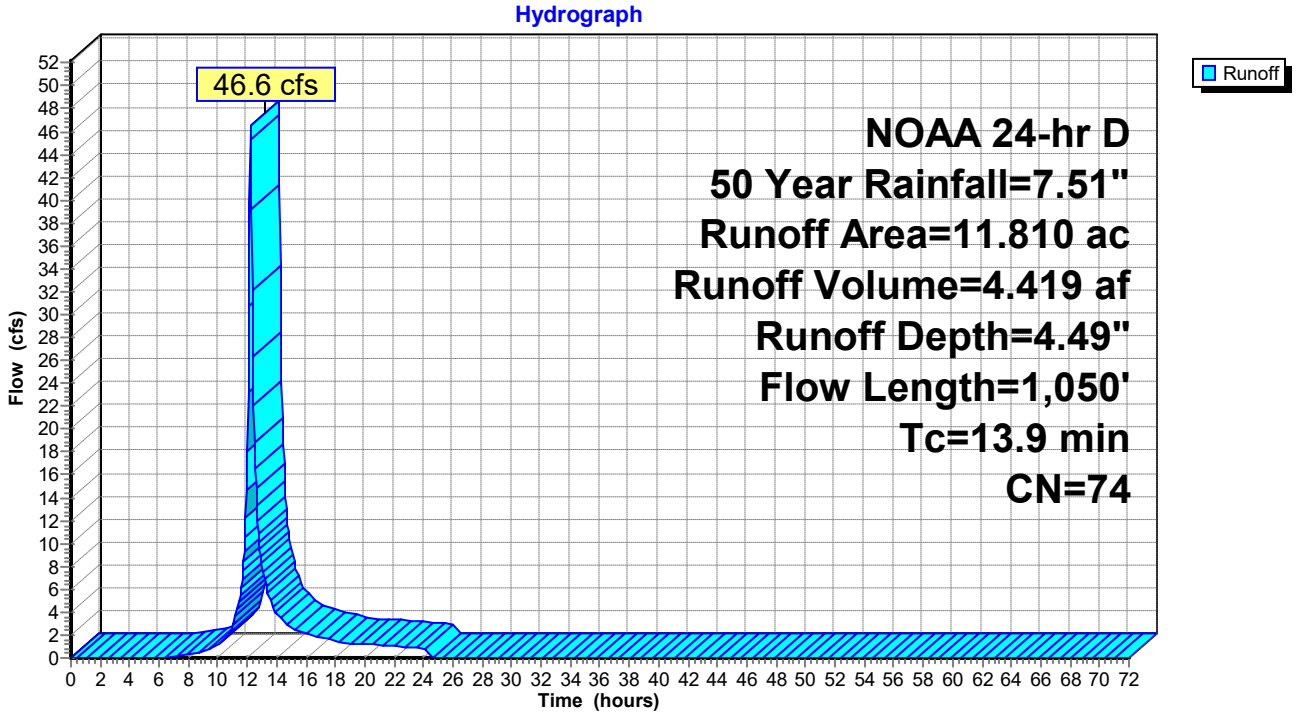
Runoff = 46.6 cfs @ 12.22 hrs, Volume= 4.419 af, Depth= 4.49"
Routed to nonexistent node 1L

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50 Year Rainfall=7.51"

Area (ac)	CN	Description
0.410	98	Paved parking, HSG D
0.440	61	>75% Grass cover, Good, HSG B
5.980	80	>75% Grass cover, Good, HSG D
0.420	74	>75% Grass cover, Good, HSG C
0.070	82	Dirt roads, HSG B
0.010	87	Dirt roads, HSG C
0.690	89	Dirt roads, HSG D
2.570	55	Woods, Good, HSG B
0.770	77	Woods, Good, HSG D
0.450	70	Woods, Good, HSG C
11.810	74	Weighted Average
11.400		96.53% Pervious Area
0.410		3.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0250	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.52"
0.2	45	0.0900	4.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.3	277	0.0505	3.62		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	21	0.0702	4.27		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.5	79	0.0299	2.78		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	72	0.0299	2.78		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.8	305	0.0311	2.84		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	84	0.0120	2.22		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	34	0.0145	1.94		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	33	0.0302	2.80		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
13.9	1,050	Total			

Subcatchment EDA-1: Existing Drainage Area 1



Summary for Subcatchment EDA-1: Existing Drainage Area 1

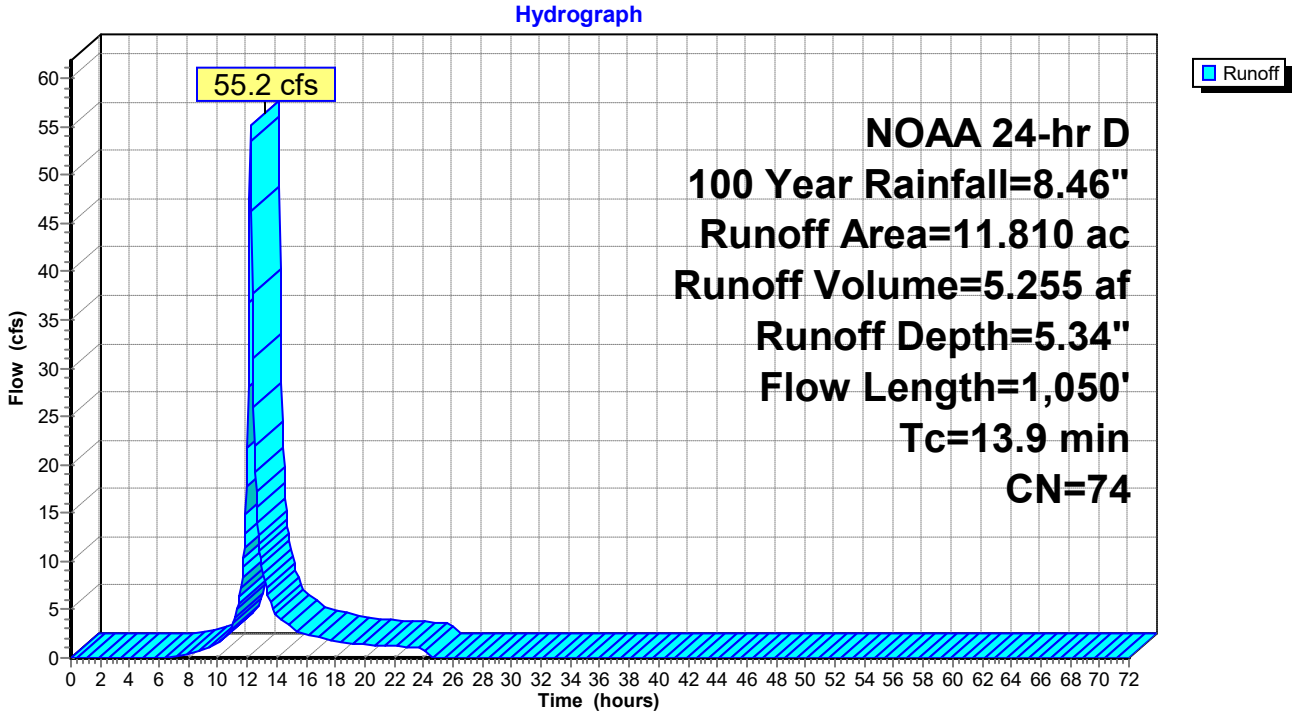
Runoff = 55.2 cfs @ 12.22 hrs, Volume= 5.255 af, Depth= 5.34"
Routed to nonexistent node 1L

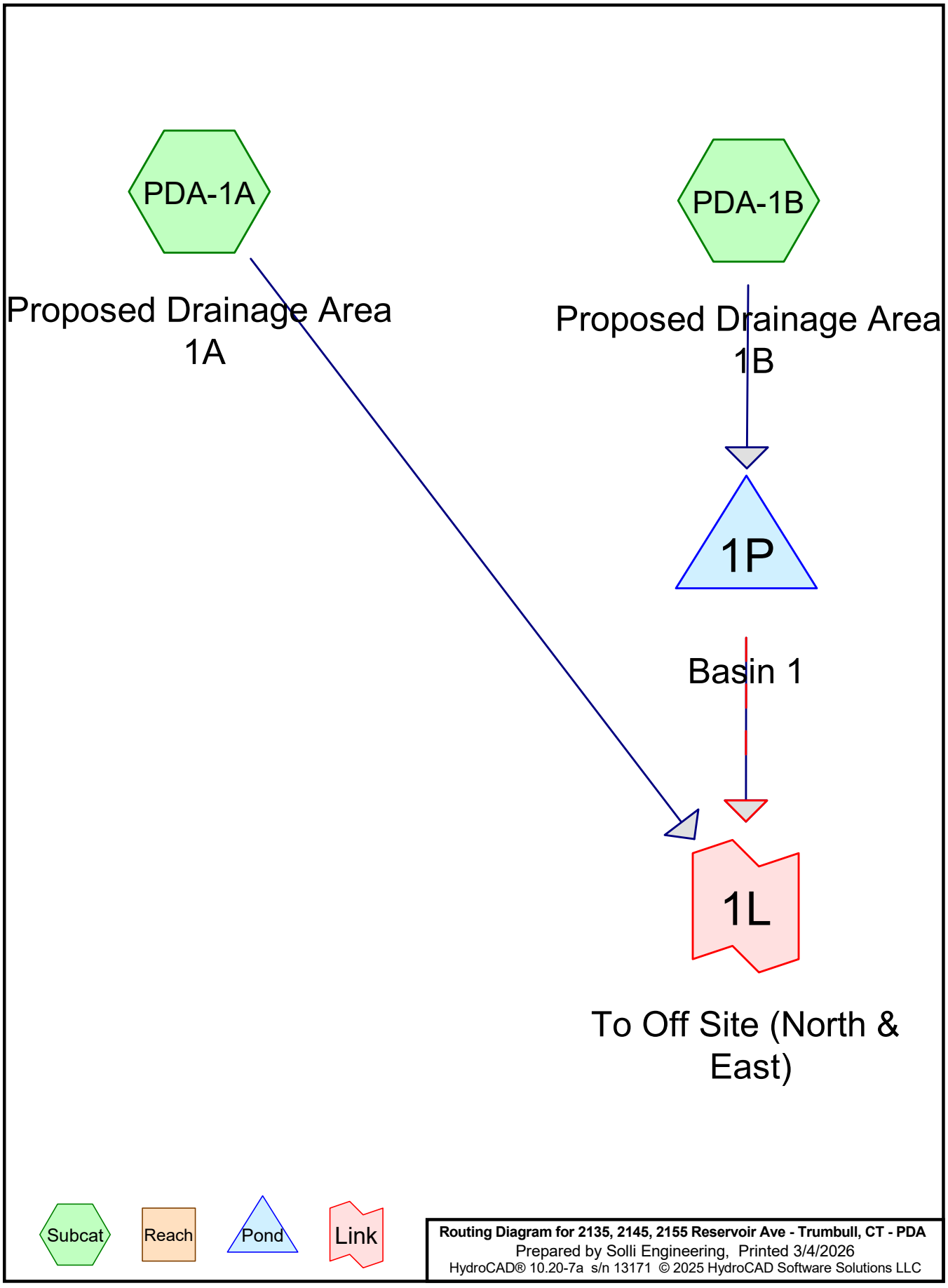
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100 Year Rainfall=8.46"

Area (ac)	CN	Description
0.410	98	Paved parking, HSG D
0.440	61	>75% Grass cover, Good, HSG B
5.980	80	>75% Grass cover, Good, HSG D
0.420	74	>75% Grass cover, Good, HSG C
0.070	82	Dirt roads, HSG B
0.010	87	Dirt roads, HSG C
0.690	89	Dirt roads, HSG D
2.570	55	Woods, Good, HSG B
0.770	77	Woods, Good, HSG D
0.450	70	Woods, Good, HSG C
11.810	74	Weighted Average
11.400		96.53% Pervious Area
0.410		3.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0250	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.52"
0.2	45	0.0900	4.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.3	277	0.0505	3.62		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	21	0.0702	4.27		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.5	79	0.0299	2.78		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	72	0.0299	2.78		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.8	305	0.0311	2.84		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	84	0.0120	2.22		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	34	0.0145	1.94		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	33	0.0302	2.80		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
13.9	1,050	Total			

Subcatchment EDA-1: Existing Drainage Area 1




PDA-1A
PDA-1B
Proposed Drainage Area 1A
Proposed Drainage Area 1B
1P
Basin 1
1L
To Off Site (North & East)
Subcat
Reach
Pond
Link
Routing Diagram for 2135, 2145, 2155 Reservoir Ave - Trumbull, CT - PDA
Prepared by Solli Engineering, Printed 3/4/2026
HydroCAD® 10.20-7a s/n 13171 © 2025 HydroCAD Software Solutions LLC

Summary for Subcatchment PDA-1A: Proposed Drainage Area 1A

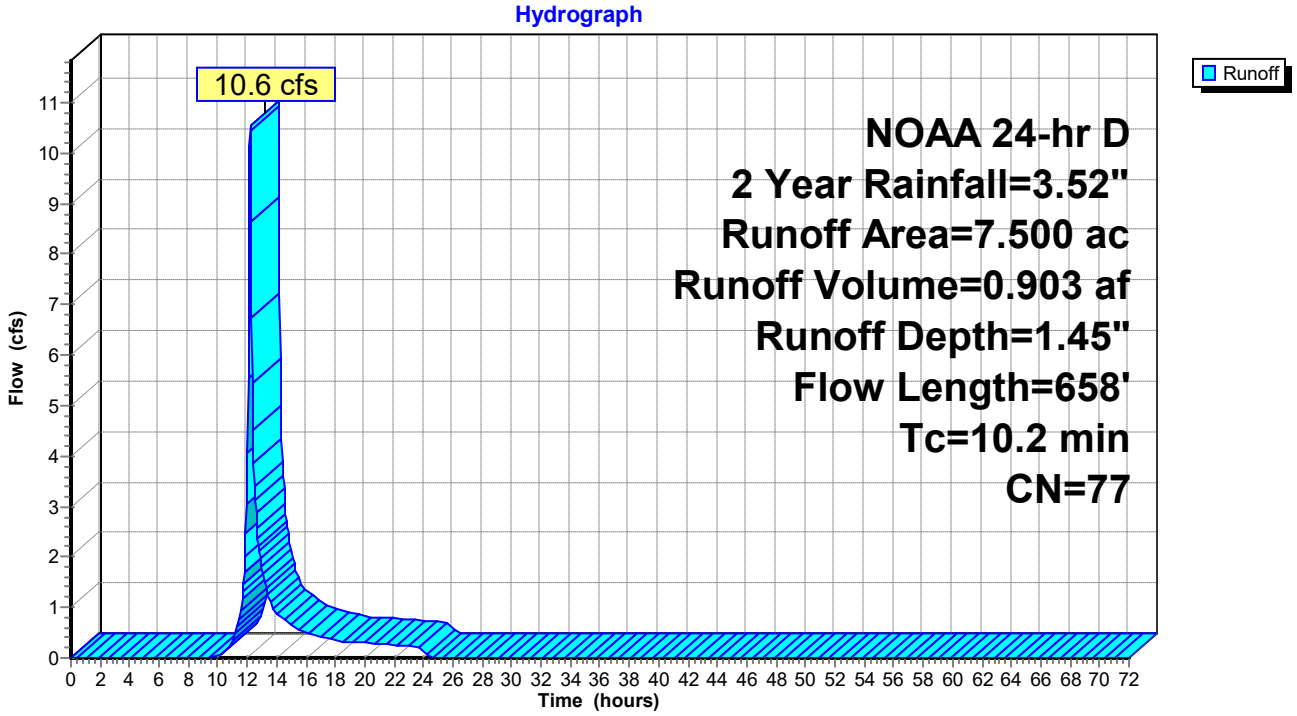
Runoff = 10.6 cfs @ 12.18 hrs, Volume= 0.903 af, Depth= 1.45"
Routed to Link 1L : To Off Site (North & East)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2 Year Rainfall=3.52"

Area (ac)	CN	Description
1.130	98	Paved parking, HSG D
0.460	61	>75% Grass cover, Good, HSG B
0.270	74	>75% Grass cover, Good, HSG C
3.510	80	>75% Grass cover, Good, HSG D
1.290	55	Woods, Good, HSG B
0.180	70	Woods, Good, HSG C
0.400	77	Woods, Good, HSG D
0.260	89	Dirt roads, HSG D
7.500	77	Weighted Average
6.370		84.93% Pervious Area
1.130		15.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	100	0.0500	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.52"
1.4	324	0.0556	3.80		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	13	0.0154	2.00		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.2	221	0.0113	1.71		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.2	658	Total			

Subcatchment PDA-1A: Proposed Drainage Area 1A



Summary for Subcatchment PDA-1B: Proposed Drainage Area 1B

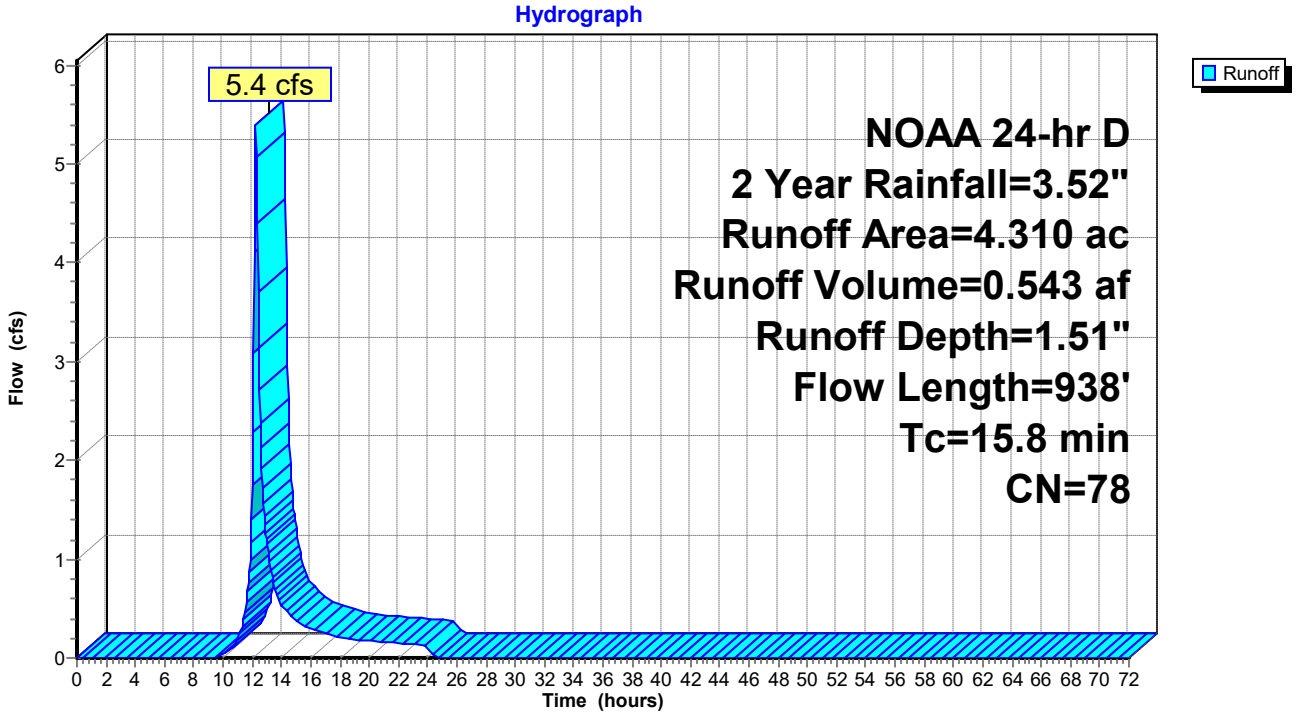
Runoff = 5.4 cfs @ 12.25 hrs, Volume= 0.543 af, Depth= 1.51"
Routed to Pond 1P : Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2 Year Rainfall=3.52"

Area (ac)	CN	Description
1.260	98	Paved parking, HSG D
0.160	74	>75% Grass cover, Good, HSG C
1.330	80	>75% Grass cover, Good, HSG D
1.100	55	Woods, Good, HSG B
0.210	70	Woods, Good, HSG C
0.210	77	Woods, Good, HSG D
0.040	89	Dirt roads, HSG D
4.310	78	Weighted Average
3.050		70.77% Pervious Area
1.260		29.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0100	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.52"
2.9	606	0.0470	3.49		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	69	0.0160	5.74	4.51	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
0.4	132	0.0110	5.52	6.78	**Pipe Channel, CMP_Round 15"** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
0.0	5	0.0200	10.18	31.99	**Pipe Channel, CMP_Round 24"** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
0.0	26	0.0850	20.99	65.96	**Pipe Channel, CMP_Round 24"** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
15.8	938	Total			

Subcatchment PDA-1B: Proposed Drainage Area 1B



Summary for Pond 1P: Basin 1

Inflow Area = 4.310 ac, 29.23% Impervious, Inflow Depth = 1.51" for 2 Year event
Inflow = 5.4 cfs @ 12.25 hrs, Volume= 0.543 af
Outflow = 2.2 cfs @ 12.59 hrs, Volume= 0.543 af, Atten= 60%, Lag= 20.7 min
Discarded = 0.2 cfs @ 12.59 hrs, Volume= 0.152 af
Primary = 2.0 cfs @ 12.59 hrs, Volume= 0.392 af
Routed to Link 1L : To Off Site (North & East)
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 1L : To Off Site (North & East)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 202.0' @ 12.59 hrs Surf.Area= 0.092 ac Storage= 0.124 af

Plug-Flow detention time= 32.6 min calculated for 0.543 af (100% of inflow)
Center-of-Mass det. time= 32.6 min (897.1 - 864.5)

Volume	Invert	Avail.Storage	Storage Description
#1	200.3'	0.630 af	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
200.3	0.056	296.0	0.000	0.000	0.056
201.0	0.070	310.0	0.044	0.044	0.072
204.0	0.146	378.0	0.317	0.361	0.161
205.0	0.188	539.0	0.167	0.528	0.431
205.5	0.222	433.0	0.102	0.630	0.619

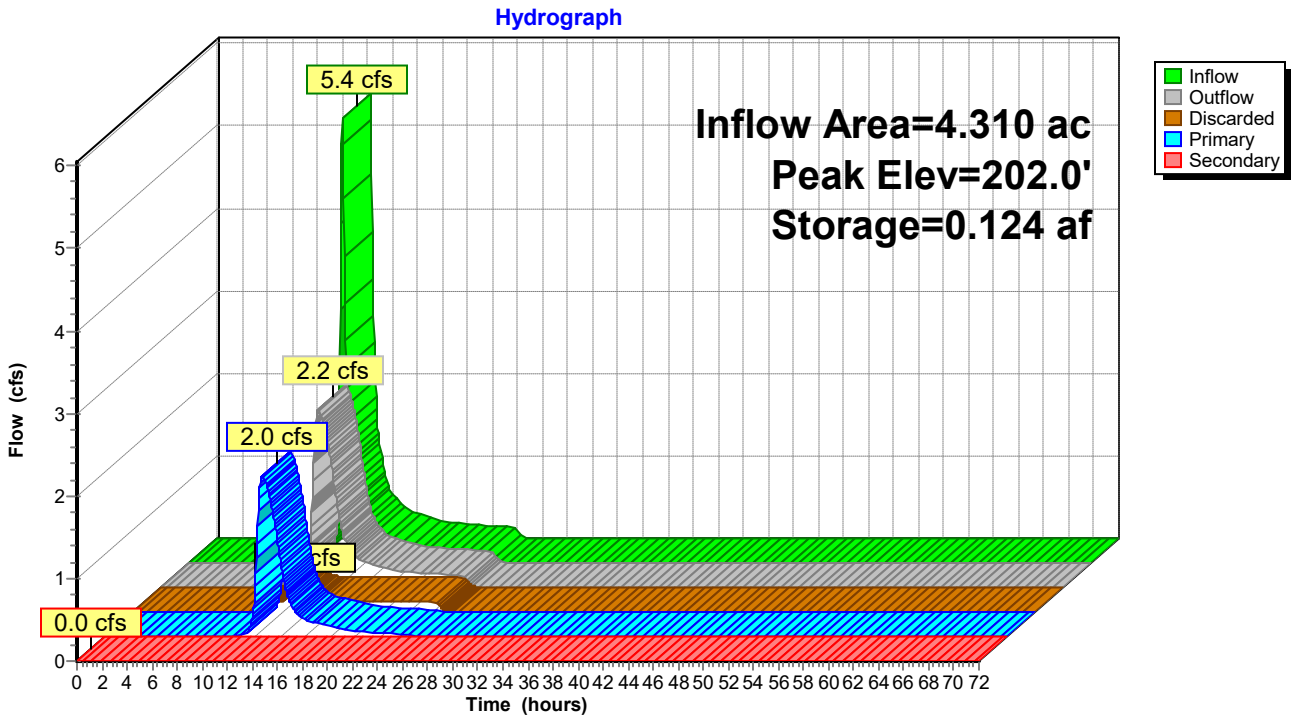
Device	Routing	Invert	Outlet Devices
#1	Primary	200.3'	**24.0" Round Culvert** L= 59.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 200.3' / 200.0' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	203.5'	**24.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	200.3'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	204.7'	**8.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#5	Discarded	200.3'	**2.000 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=0.2 cfs @ 12.59 hrs HW=202.0' (Free Discharge)
└**5=Exfiltration** (Exfiltration Controls 0.2 cfs)

Primary OutFlow Max=2.0 cfs @ 12.59 hrs HW=202.0' (Free Discharge)
└**1=Culvert** (Passes 2.0 cfs of 9.8 cfs potential flow)
  └**2=Orifice/Grate** (Controls 0.0 cfs)
  └**3=Orifice/Grate** (Orifice Controls 2.0 cfs @ 5.60 fps)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=200.3' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond 1P: Basin 1



Stage-Area-Storage for Pond 1P: Basin 1

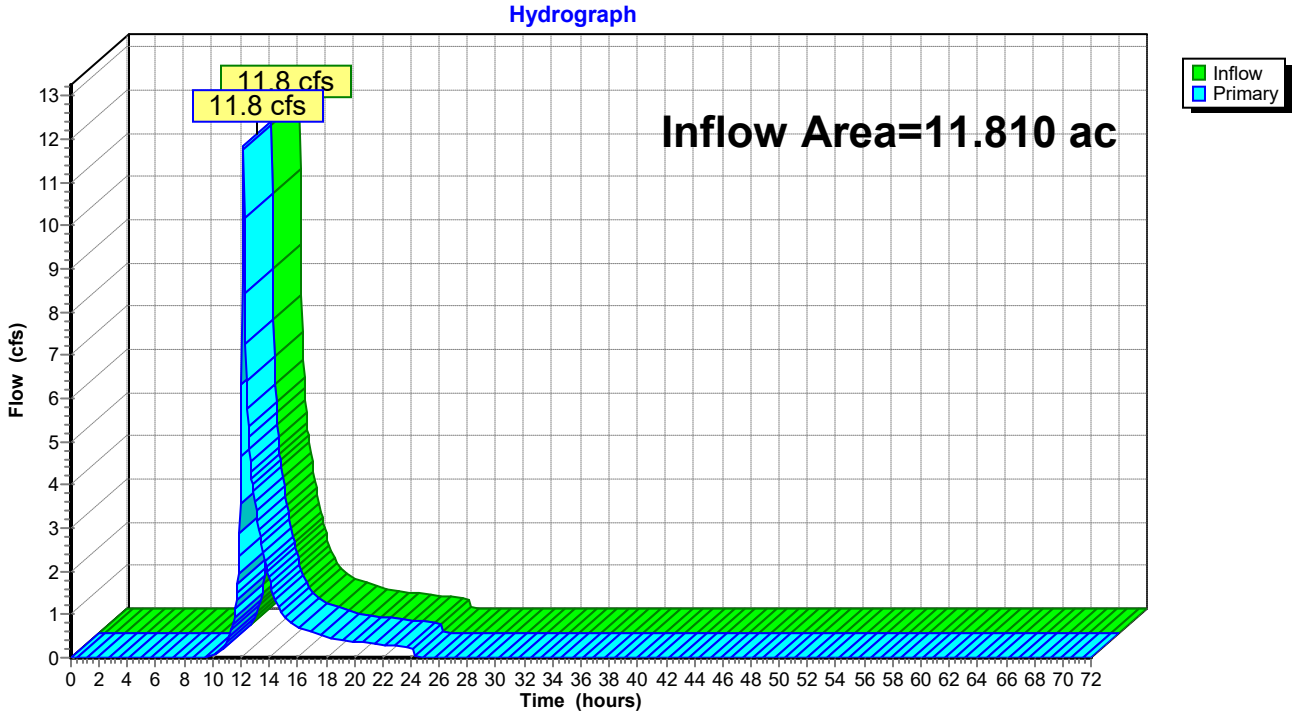
Elevation (feet)	Surface (acres)	Wetted (acres)	Storage (acre-feet)
200.3	0.056	0.056	0.000
200.4	0.058	0.058	0.006
200.5	0.060	0.061	0.012
200.6	0.062	0.063	0.018
200.7	0.064	0.065	0.024
200.8	0.066	0.068	0.030
200.9	0.068	0.070	0.037
201.0	0.070	0.072	0.044
201.1	0.072	0.075	0.051
201.2	0.074	0.078	0.058
201.3	0.076	0.080	0.066
201.4	0.079	0.083	0.074
201.5	0.081	0.086	0.082
201.6	0.083	0.089	0.090
201.7	0.085	0.091	0.098
201.8	0.088	0.094	0.107
201.9	0.090	0.097	0.116
202.0	0.092	0.100	0.125
202.1	0.095	0.103	0.134
202.2	0.097	0.106	0.144
202.3	0.100	0.109	0.154
202.4	0.102	0.111	0.164
202.5	0.105	0.114	0.174
202.6	0.107	0.117	0.185
202.7	0.110	0.120	0.195
202.8	0.112	0.123	0.207
202.9	0.115	0.126	0.218
203.0	0.118	0.129	0.230
203.1	0.120	0.132	0.241
203.2	0.123	0.136	0.254
203.3	0.126	0.139	0.266
203.4	0.129	0.142	0.279
203.5	0.131	0.145	0.292
203.6	0.134	0.148	0.305
203.7	0.137	0.151	0.319
203.8	0.140	0.154	0.332
203.9	0.143	0.158	0.347
204.0	0.146	0.161	0.361
204.1	0.150	0.184	0.376
204.2	0.154	0.207	0.391
204.3	0.158	0.232	0.407
204.4	0.162	0.258	0.423
204.5	0.166	0.284	0.439
204.6	0.171	0.312	0.456
204.7	0.175	0.340	0.473
204.8	0.179	0.369	0.491
204.9	0.184	0.400	0.509
205.0	0.188	0.431	0.528
205.1	0.195	0.472	0.547
205.2	0.201	0.511	0.567
205.3	0.208	0.549	0.587
205.4	0.215	0.585	0.608
205.5	**0.222**	**0.619**	**0.630**

Summary for Link 1L: To Off Site (North & East)

Inflow Area = 11.810 ac, 20.24% Impervious, Inflow Depth = 1.32" for 2 Year event
Inflow = 11.8 cfs @ 12.19 hrs, Volume= 1.295 af
Primary = 11.8 cfs @ 12.19 hrs, Volume= 1.295 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 1L: To Off Site (North & East)



Summary for Subcatchment PDA-1A: Proposed Drainage Area 1A

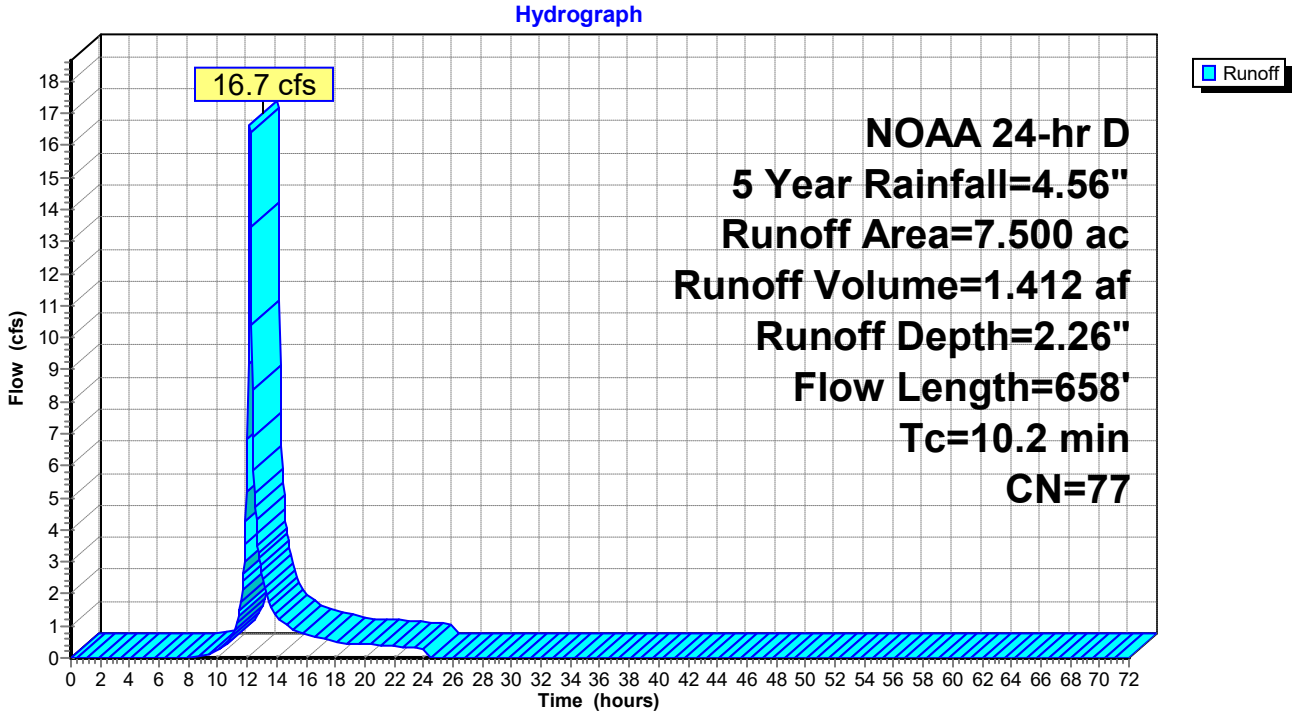
Runoff = 16.7 cfs @ 12.18 hrs, Volume= 1.412 af, Depth= 2.26"
Routed to Link 1L : To Off Site (North & East)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 5 Year Rainfall=4.56"

Area (ac)	CN	Description
1.130	98	Paved parking, HSG D
0.460	61	>75% Grass cover, Good, HSG B
0.270	74	>75% Grass cover, Good, HSG C
3.510	80	>75% Grass cover, Good, HSG D
1.290	55	Woods, Good, HSG B
0.180	70	Woods, Good, HSG C
0.400	77	Woods, Good, HSG D
0.260	89	Dirt roads, HSG D
7.500	77	Weighted Average
6.370		84.93% Pervious Area
1.130		15.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	100	0.0500	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.52"
1.4	324	0.0556	3.80		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	13	0.0154	2.00		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.2	221	0.0113	1.71		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.2	658	Total			

Subcatchment PDA-1A: Proposed Drainage Area 1A



Summary for Subcatchment PDA-1B: Proposed Drainage Area 1B

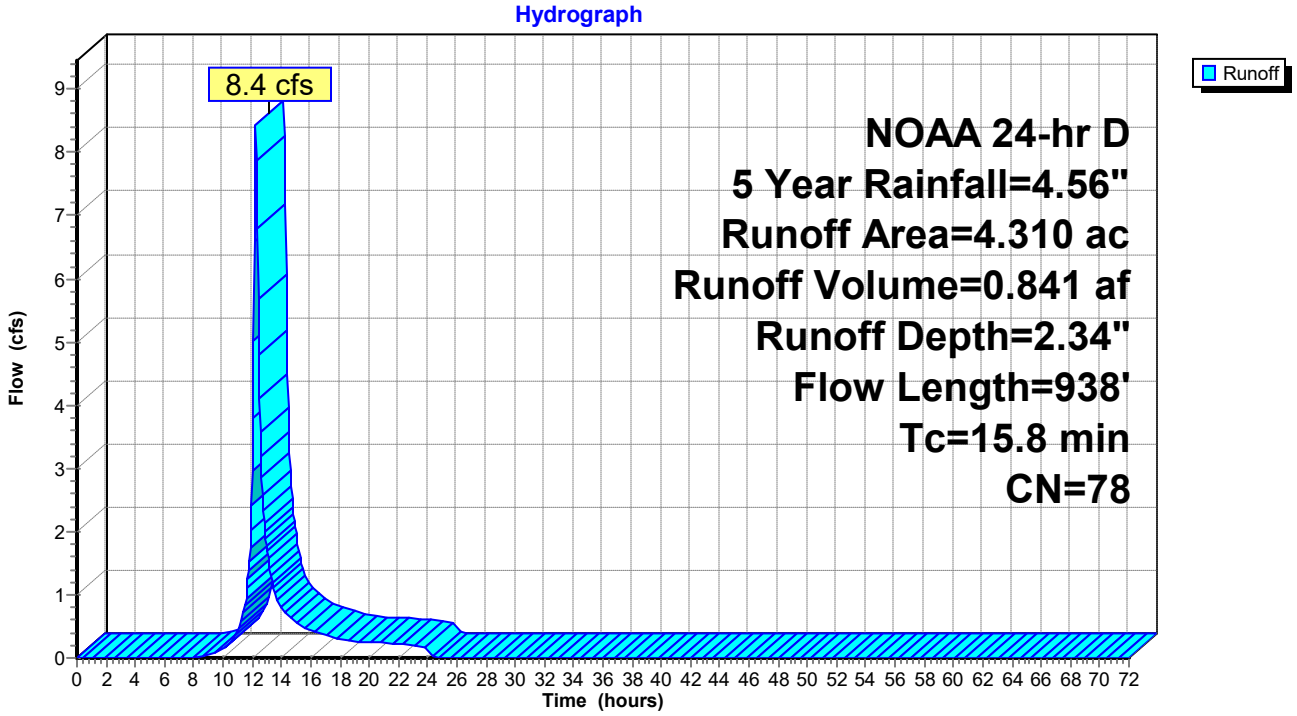
Runoff = 8.4 cfs @ 12.25 hrs, Volume= 0.841 af, Depth= 2.34"
Routed to Pond 1P : Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 5 Year Rainfall=4.56"

Area (ac)	CN	Description
1.260	98	Paved parking, HSG D
0.160	74	>75% Grass cover, Good, HSG C
1.330	80	>75% Grass cover, Good, HSG D
1.100	55	Woods, Good, HSG B
0.210	70	Woods, Good, HSG C
0.210	77	Woods, Good, HSG D
0.040	89	Dirt roads, HSG D
4.310	78	Weighted Average
3.050		70.77% Pervious Area
1.260		29.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0100	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.52"
2.9	606	0.0470	3.49		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	69	0.0160	5.74	4.51	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
0.4	132	0.0110	5.52	6.78	**Pipe Channel, CMP_Round 15"** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
0.0	5	0.0200	10.18	31.99	**Pipe Channel, CMP_Round 24"** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
0.0	26	0.0850	20.99	65.96	**Pipe Channel, CMP_Round 24"** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
15.8	938	Total			

Subcatchment PDA-1B: Proposed Drainage Area 1B



Summary for Pond 1P: Basin 1

Inflow Area = 4.310 ac, 29.23% Impervious, Inflow Depth = 2.34" for 5 Year event
Inflow = 8.4 cfs @ 12.25 hrs, Volume= 0.841 af
Outflow = 2.8 cfs @ 12.66 hrs, Volume= 0.841 af, Atten= 67%, Lag= 24.9 min
Discarded = 0.3 cfs @ 12.66 hrs, Volume= 0.178 af
Primary = 2.5 cfs @ 12.66 hrs, Volume= 0.663 af
Routed to Link 1L : To Off Site (North & East)
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 1L : To Off Site (North & East)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 202.9' @ 12.66 hrs Surf.Area= 0.115 ac Storage= 0.219 af

Plug-Flow detention time= 39.1 min calculated for 0.841 af (100% of inflow)
Center-of-Mass det. time= 39.2 min (889.6 - 850.5)

Volume	Invert	Avail.Storage	Storage Description
#1	200.3'	0.630 af	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
200.3	0.056	296.0	0.000	0.000	0.056
201.0	0.070	310.0	0.044	0.044	0.072
204.0	0.146	378.0	0.317	0.361	0.161
205.0	0.188	539.0	0.167	0.528	0.431
205.5	0.222	433.0	0.102	0.630	0.619

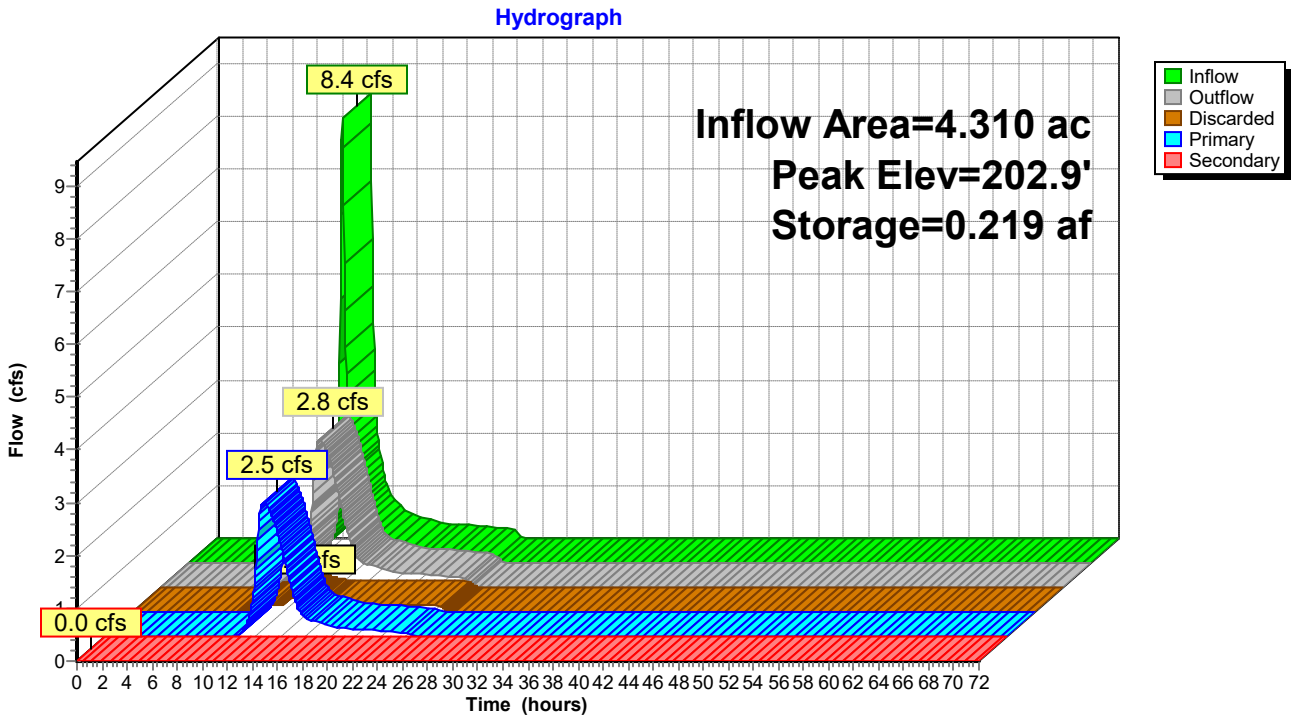
Device	Routing	Invert	Outlet Devices
#1	Primary	200.3'	**24.0" Round Culvert** L= 59.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 200.3' / 200.0' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	203.5'	**24.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	200.3'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	204.7'	**8.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#5	Discarded	200.3'	**2.000 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=0.3 cfs @ 12.66 hrs HW=202.9' (Free Discharge)
└**5=Exfiltration** (Exfiltration Controls 0.3 cfs)

Primary OutFlow Max=2.5 cfs @ 12.66 hrs HW=202.9' (Free Discharge)
└**1=Culvert** (Passes 2.5 cfs of 16.7 cfs potential flow)
  └**2=Orifice/Grate** (Controls 0.0 cfs)
  └**3=Orifice/Grate** (Orifice Controls 2.5 cfs @ 7.26 fps)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=200.3' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond 1P: Basin 1



Stage-Area-Storage for Pond 1P: Basin 1

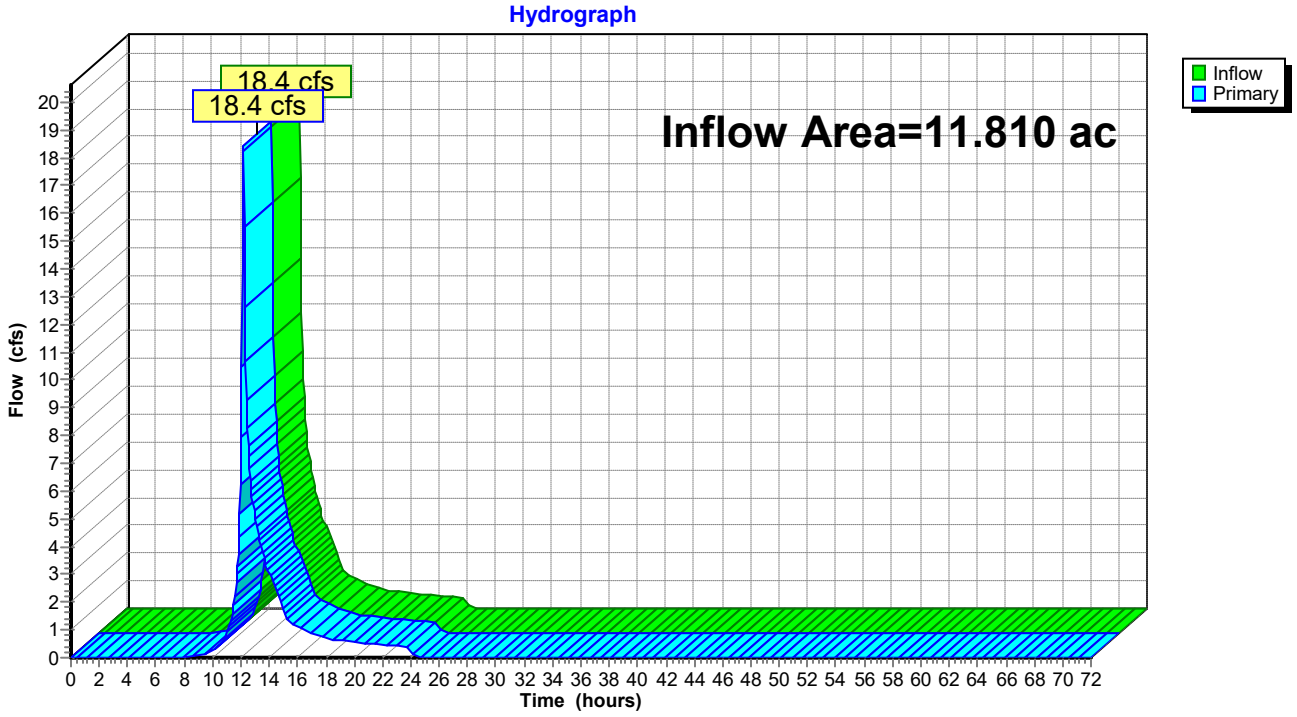
Elevation (feet)	Surface (acres)	Wetted (acres)	Storage (acre-feet)
200.3	0.056	0.056	0.000
200.4	0.058	0.058	0.006
200.5	0.060	0.061	0.012
200.6	0.062	0.063	0.018
200.7	0.064	0.065	0.024
200.8	0.066	0.068	0.030
200.9	0.068	0.070	0.037
201.0	0.070	0.072	0.044
201.1	0.072	0.075	0.051
201.2	0.074	0.078	0.058
201.3	0.076	0.080	0.066
201.4	0.079	0.083	0.074
201.5	0.081	0.086	0.082
201.6	0.083	0.089	0.090
201.7	0.085	0.091	0.098
201.8	0.088	0.094	0.107
201.9	0.090	0.097	0.116
202.0	0.092	0.100	0.125
202.1	0.095	0.103	0.134
202.2	0.097	0.106	0.144
202.3	0.100	0.109	0.154
202.4	0.102	0.111	0.164
202.5	0.105	0.114	0.174
202.6	0.107	0.117	0.185
202.7	0.110	0.120	0.195
202.8	0.112	0.123	0.207
202.9	0.115	0.126	0.218
203.0	0.118	0.129	0.230
203.1	0.120	0.132	0.241
203.2	0.123	0.136	0.254
203.3	0.126	0.139	0.266
203.4	0.129	0.142	0.279
203.5	0.131	0.145	0.292
203.6	0.134	0.148	0.305
203.7	0.137	0.151	0.319
203.8	0.140	0.154	0.332
203.9	0.143	0.158	0.347
204.0	0.146	0.161	0.361
204.1	0.150	0.184	0.376
204.2	0.154	0.207	0.391
204.3	0.158	0.232	0.407
204.4	0.162	0.258	0.423
204.5	0.166	0.284	0.439
204.6	0.171	0.312	0.456
204.7	0.175	0.340	0.473
204.8	0.179	0.369	0.491
204.9	0.184	0.400	0.509
205.0	0.188	0.431	0.528
205.1	0.195	0.472	0.547
205.2	0.201	0.511	0.567
205.3	0.208	0.549	0.587
205.4	0.215	0.585	0.608
205.5	**0.222**	**0.619**	**0.630**

Summary for Link 1L: To Off Site (North & East)

Inflow Area = 11.810 ac, 20.24% Impervious, Inflow Depth = 2.11" for 5 Year event
Inflow = 18.4 cfs @ 12.18 hrs, Volume= 2.075 af
Primary = 18.4 cfs @ 12.18 hrs, Volume= 2.075 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 1L: To Off Site (North & East)



Summary for Subcatchment PDA-1A: Proposed Drainage Area 1A

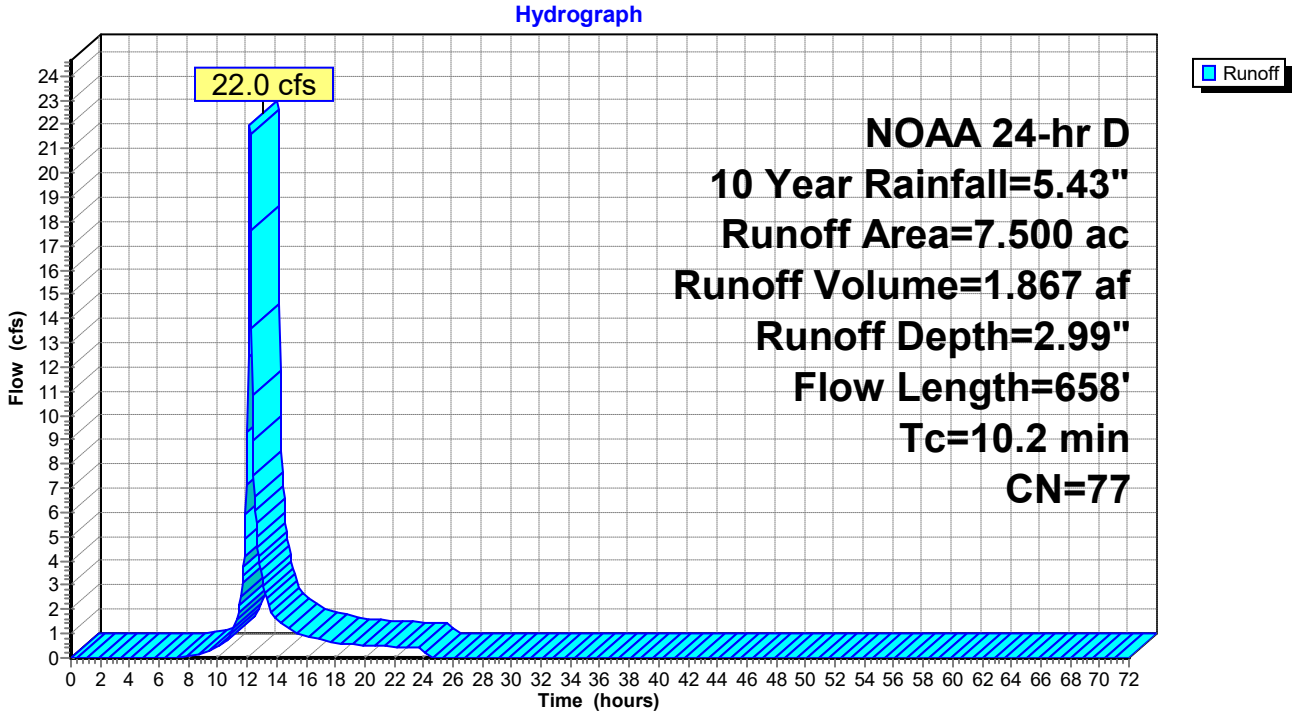
Runoff = 22.0 cfs @ 12.18 hrs, Volume= 1.867 af, Depth= 2.99"
Routed to Link 1L : To Off Site (North & East)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10 Year Rainfall=5.43"

Area (ac)	CN	Description
1.130	98	Paved parking, HSG D
0.460	61	>75% Grass cover, Good, HSG B
0.270	74	>75% Grass cover, Good, HSG C
3.510	80	>75% Grass cover, Good, HSG D
1.290	55	Woods, Good, HSG B
0.180	70	Woods, Good, HSG C
0.400	77	Woods, Good, HSG D
0.260	89	Dirt roads, HSG D
7.500	77	Weighted Average
6.370		84.93% Pervious Area
1.130		15.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	100	0.0500	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.52"
1.4	324	0.0556	3.80		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	13	0.0154	2.00		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.2	221	0.0113	1.71		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.2	658	Total			

Subcatchment PDA-1A: Proposed Drainage Area 1A



Summary for Subcatchment PDA-1B: Proposed Drainage Area 1B

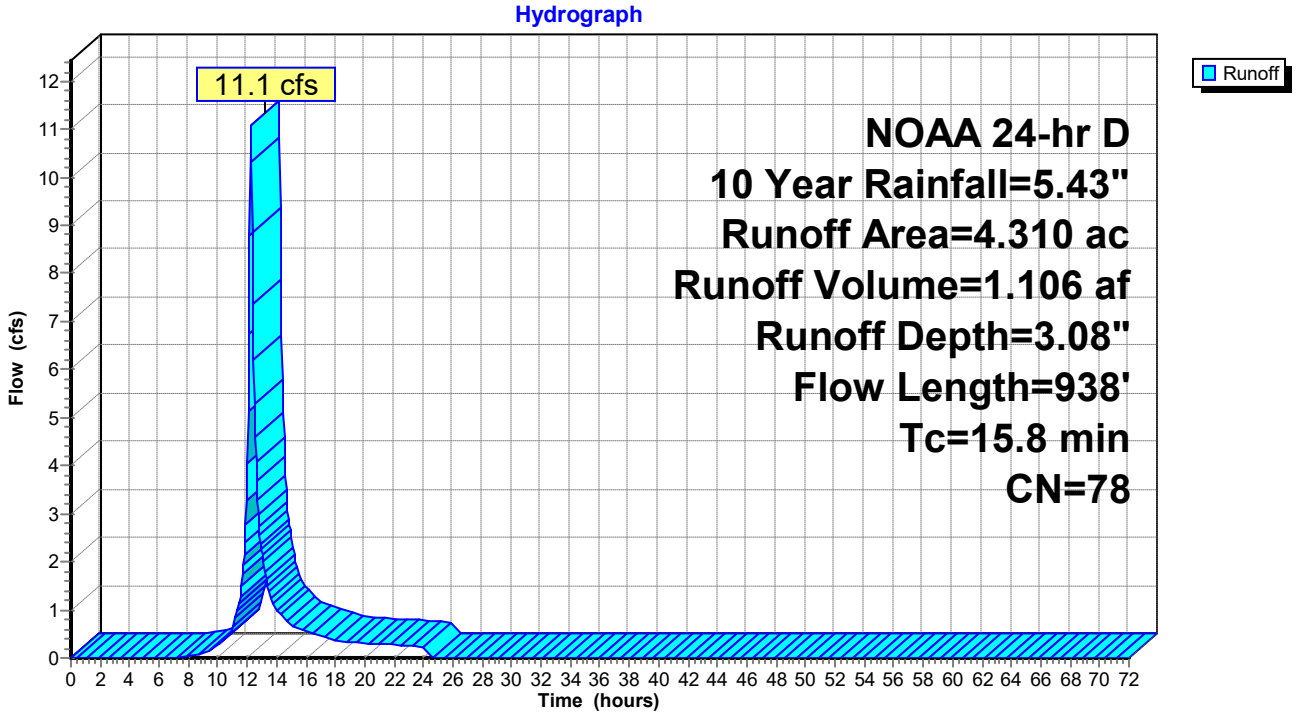
Runoff = 11.1 cfs @ 12.24 hrs, Volume= 1.106 af, Depth= 3.08"
Routed to Pond 1P : Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10 Year Rainfall=5.43"

Area (ac)	CN	Description
1.260	98	Paved parking, HSG D
0.160	74	>75% Grass cover, Good, HSG C
1.330	80	>75% Grass cover, Good, HSG D
1.100	55	Woods, Good, HSG B
0.210	70	Woods, Good, HSG C
0.210	77	Woods, Good, HSG D
0.040	89	Dirt roads, HSG D
4.310	78	Weighted Average
3.050		70.77% Pervious Area
1.260		29.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0100	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.52"
2.9	606	0.0470	3.49		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	69	0.0160	5.74	4.51	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
0.4	132	0.0110	5.52	6.78	**Pipe Channel, CMP_Round 15"** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
0.0	5	0.0200	10.18	31.99	**Pipe Channel, CMP_Round 24"** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
0.0	26	0.0850	20.99	65.96	**Pipe Channel, CMP_Round 24"** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
15.8	938	Total			

Subcatchment PDA-1B: Proposed Drainage Area 1B



Summary for Pond 1P: Basin 1

Inflow Area = 4.310 ac, 29.23% Impervious, Inflow Depth = 3.08" for 10 Year event
Inflow = 11.1 cfs @ 12.24 hrs, Volume= 1.106 af
Outflow = 4.0 cfs @ 12.61 hrs, Volume= 1.106 af, Atten= 64%, Lag= 22.1 min
Discarded = 0.3 cfs @ 12.61 hrs, Volume= 0.201 af
Primary = 3.7 cfs @ 12.61 hrs, Volume= 0.906 af
Routed to Link 1L : To Off Site (North & East)
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 1L : To Off Site (North & East)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 203.6' @ 12.61 hrs Surf.Area= 0.134 ac Storage= 0.303 af

Plug-Flow detention time= 43.8 min calculated for 1.106 af (100% of inflow)
Center-of-Mass det. time= 43.8 min (885.6 - 841.8)

Volume	Invert	Avail.Storage	Storage Description
#1	200.3'	0.630 af	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
200.3	0.056	296.0	0.000	0.000	0.056
201.0	0.070	310.0	0.044	0.044	0.072
204.0	0.146	378.0	0.317	0.361	0.161
205.0	0.188	539.0	0.167	0.528	0.431
205.5	0.222	433.0	0.102	0.630	0.619

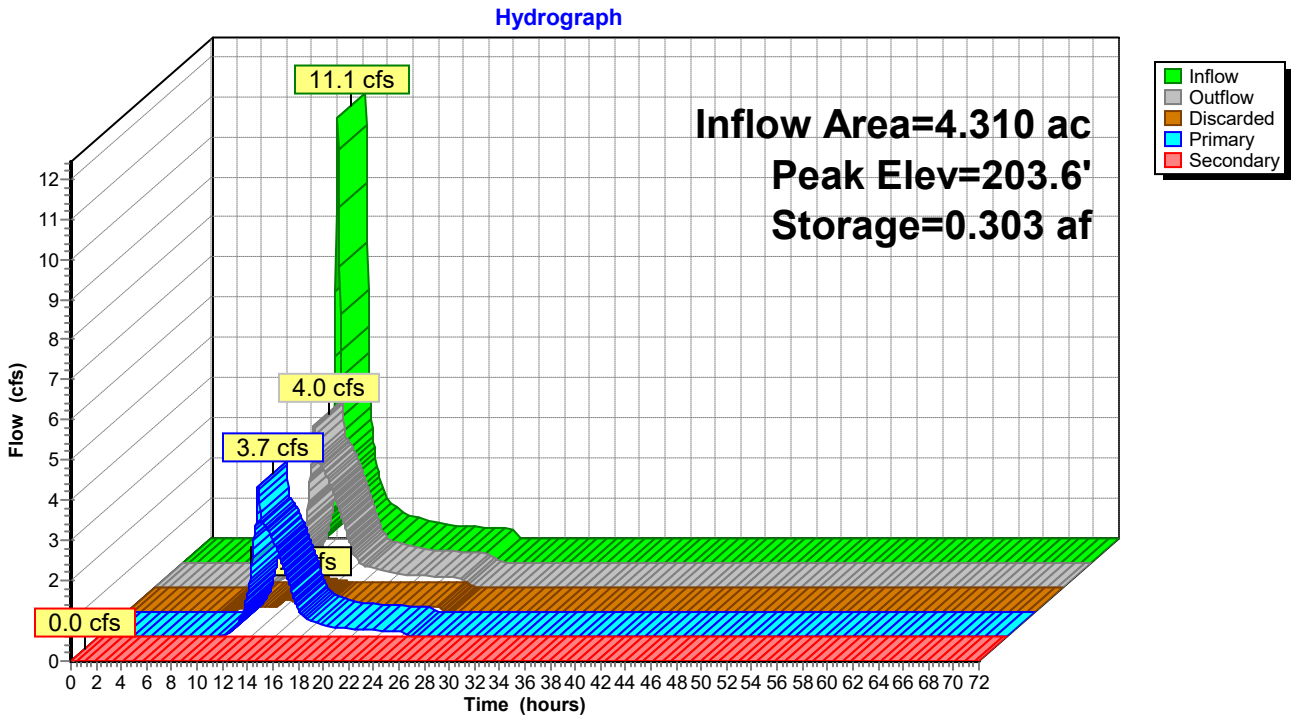
Device	Routing	Invert	Outlet Devices
#1	Primary	200.3'	**24.0" Round Culvert** L= 59.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 200.3' / 200.0' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	203.5'	**24.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	200.3'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	204.7'	**8.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#5	Discarded	200.3'	**2.000 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=0.3 cfs @ 12.61 hrs HW=203.6' (Free Discharge)
└**5=Exfiltration** (Exfiltration Controls 0.3 cfs)

Primary OutFlow Max=3.7 cfs @ 12.61 hrs HW=203.6' (Free Discharge)
└**1=Culvert** (Passes 3.7 cfs of 21.2 cfs potential flow)
  └**2=Orifice/Grate** (Weir Controls 0.8 cfs @ 0.95 fps)
  └**3=Orifice/Grate** (Orifice Controls 2.9 cfs @ 8.27 fps)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=200.3' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond 1P: Basin 1



Stage-Area-Storage for Pond 1P: Basin 1

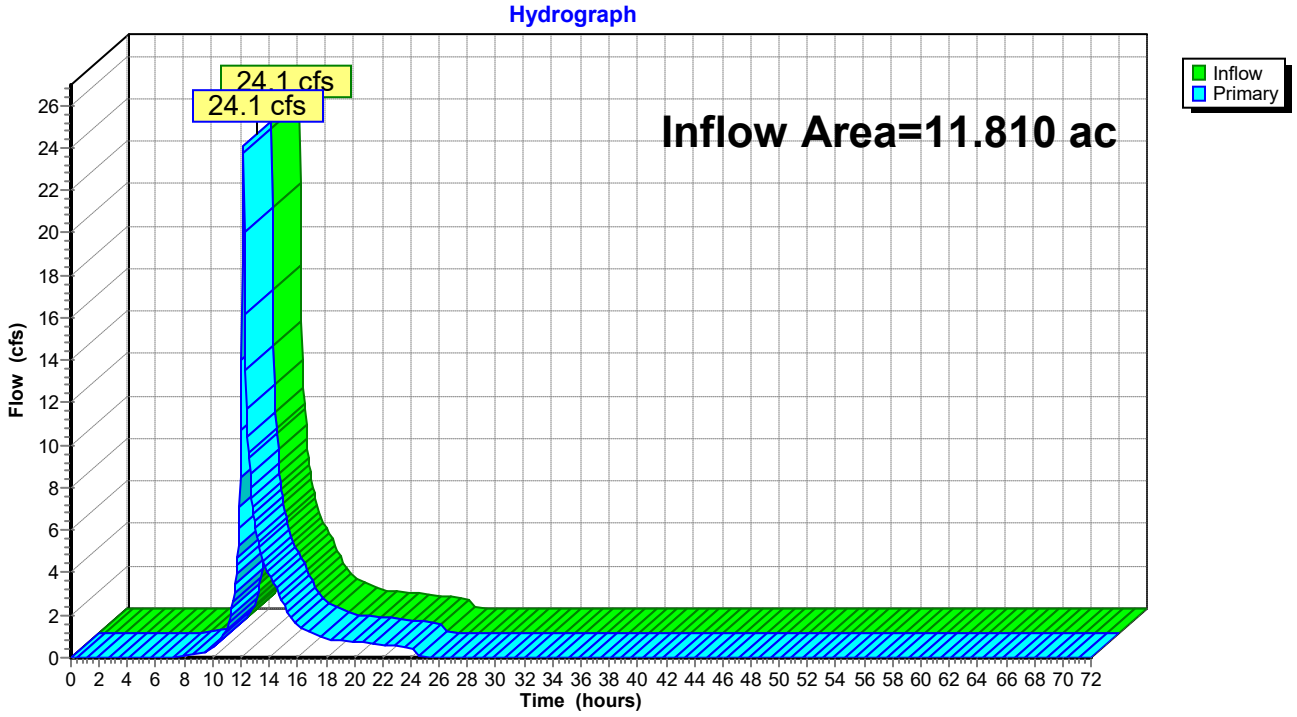
Elevation (feet)	Surface (acres)	Wetted (acres)	Storage (acre-feet)
200.3	0.056	0.056	0.000
200.4	0.058	0.058	0.006
200.5	0.060	0.061	0.012
200.6	0.062	0.063	0.018
200.7	0.064	0.065	0.024
200.8	0.066	0.068	0.030
200.9	0.068	0.070	0.037
201.0	0.070	0.072	0.044
201.1	0.072	0.075	0.051
201.2	0.074	0.078	0.058
201.3	0.076	0.080	0.066
201.4	0.079	0.083	0.074
201.5	0.081	0.086	0.082
201.6	0.083	0.089	0.090
201.7	0.085	0.091	0.098
201.8	0.088	0.094	0.107
201.9	0.090	0.097	0.116
202.0	0.092	0.100	0.125
202.1	0.095	0.103	0.134
202.2	0.097	0.106	0.144
202.3	0.100	0.109	0.154
202.4	0.102	0.111	0.164
202.5	0.105	0.114	0.174
202.6	0.107	0.117	0.185
202.7	0.110	0.120	0.195
202.8	0.112	0.123	0.207
202.9	0.115	0.126	0.218
203.0	0.118	0.129	0.230
203.1	0.120	0.132	0.241
203.2	0.123	0.136	0.254
203.3	0.126	0.139	0.266
203.4	0.129	0.142	0.279
203.5	0.131	0.145	0.292
203.6	0.134	0.148	0.305
203.7	0.137	0.151	0.319
203.8	0.140	0.154	0.332
203.9	0.143	0.158	0.347
204.0	0.146	0.161	0.361
204.1	0.150	0.184	0.376
204.2	0.154	0.207	0.391
204.3	0.158	0.232	0.407
204.4	0.162	0.258	0.423
204.5	0.166	0.284	0.439
204.6	0.171	0.312	0.456
204.7	0.175	0.340	0.473
204.8	0.179	0.369	0.491
204.9	0.184	0.400	0.509
205.0	0.188	0.431	0.528
205.1	0.195	0.472	0.547
205.2	0.201	0.511	0.567
205.3	0.208	0.549	0.587
205.4	0.215	0.585	0.608
205.5	**0.222**	**0.619**	**0.630**

Summary for Link 1L: To Off Site (North & East)

Inflow Area = 11.810 ac, 20.24% Impervious, Inflow Depth = 2.82" for 10 Year event
Inflow = 24.1 cfs @ 12.18 hrs, Volume= 2.772 af
Primary = 24.1 cfs @ 12.18 hrs, Volume= 2.772 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 1L: To Off Site (North & East)



Summary for Subcatchment PDA-1A: Proposed Drainage Area 1A

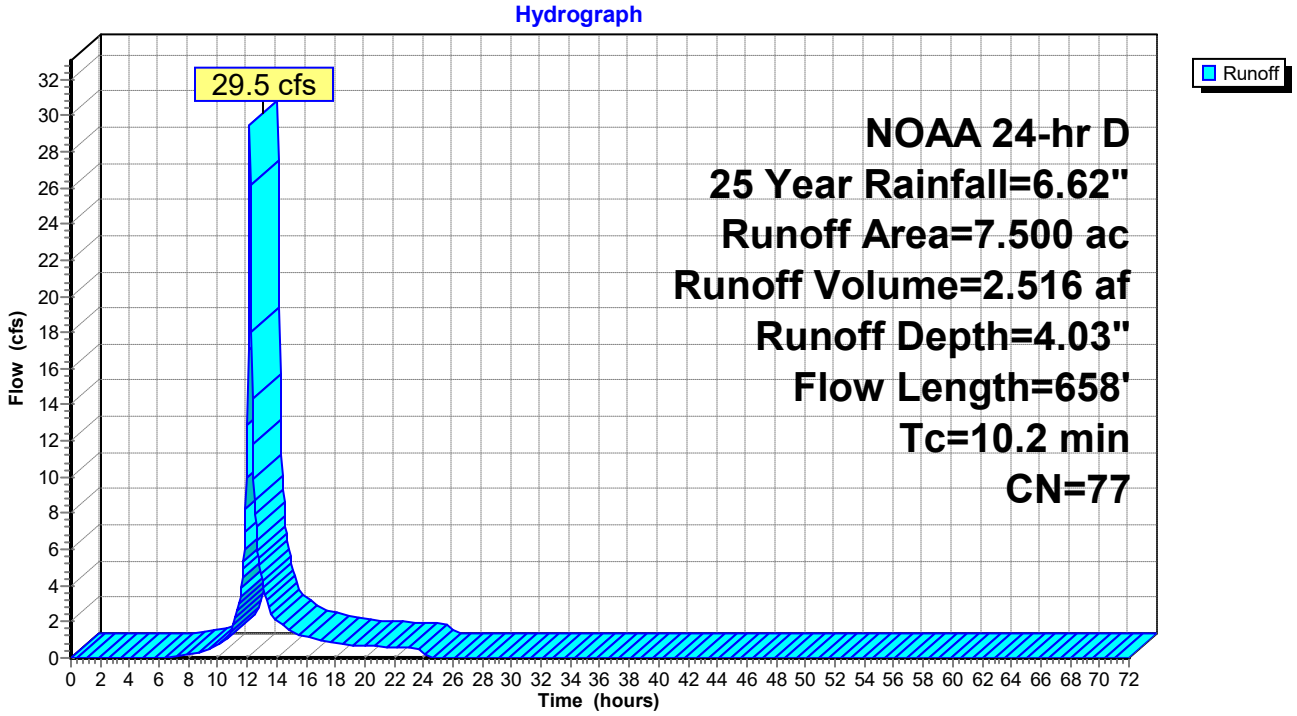
Runoff = 29.5 cfs @ 12.18 hrs, Volume= 2.516 af, Depth= 4.03"
Routed to Link 1L : To Off Site (North & East)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25 Year Rainfall=6.62"

Area (ac)	CN	Description
1.130	98	Paved parking, HSG D
0.460	61	>75% Grass cover, Good, HSG B
0.270	74	>75% Grass cover, Good, HSG C
3.510	80	>75% Grass cover, Good, HSG D
1.290	55	Woods, Good, HSG B
0.180	70	Woods, Good, HSG C
0.400	77	Woods, Good, HSG D
0.260	89	Dirt roads, HSG D
7.500	77	Weighted Average
6.370		84.93% Pervious Area
1.130		15.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	100	0.0500	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.52"
1.4	324	0.0556	3.80		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	13	0.0154	2.00		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.2	221	0.0113	1.71		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.2	658	Total			

Subcatchment PDA-1A: Proposed Drainage Area 1A



Summary for Subcatchment PDA-1B: Proposed Drainage Area 1B

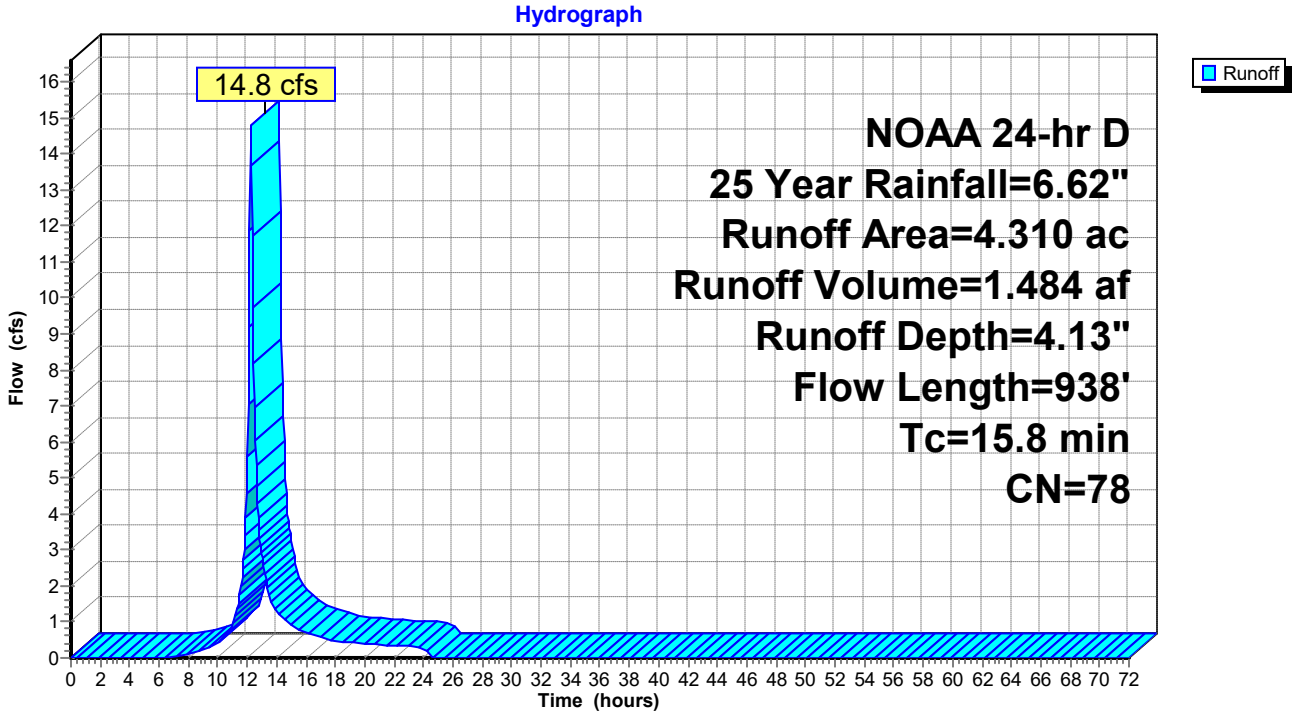
Runoff = 14.8 cfs @ 12.24 hrs, Volume= 1.484 af, Depth= 4.13"
Routed to Pond 1P : Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25 Year Rainfall=6.62"

Area (ac)	CN	Description
1.260	98	Paved parking, HSG D
0.160	74	>75% Grass cover, Good, HSG C
1.330	80	>75% Grass cover, Good, HSG D
1.100	55	Woods, Good, HSG B
0.210	70	Woods, Good, HSG C
0.210	77	Woods, Good, HSG D
0.040	89	Dirt roads, HSG D
4.310	78	Weighted Average
3.050		70.77% Pervious Area
1.260		29.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0100	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.52"
2.9	606	0.0470	3.49		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	69	0.0160	5.74	4.51	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
0.4	132	0.0110	5.52	6.78	**Pipe Channel, CMP_Round 15"** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
0.0	5	0.0200	10.18	31.99	**Pipe Channel, CMP_Round 24"** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
0.0	26	0.0850	20.99	65.96	**Pipe Channel, CMP_Round 24"** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
15.8	938	Total			

Subcatchment PDA-1B: Proposed Drainage Area 1B



Summary for Pond 1P: Basin 1

Inflow Area = 4.310 ac, 29.23% Impervious, Inflow Depth = 4.13" for 25 Year event
Inflow = 14.8 cfs @ 12.24 hrs, Volume= 1.484 af
Outflow = 10.1 cfs @ 12.40 hrs, Volume= 1.484 af, Atten= 32%, Lag= 9.6 min
Discarded = 0.3 cfs @ 12.40 hrs, Volume= 0.221 af
Primary = 9.8 cfs @ 12.40 hrs, Volume= 1.263 af
Routed to Link 1L : To Off Site (North & East)
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 1L : To Off Site (North & East)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 203.8' @ 12.40 hrs Surf.Area= 0.142 ac Storage= 0.340 af

Plug-Flow detention time= 40.1 min calculated for 1.483 af (100% of inflow)
Center-of-Mass det. time= 40.1 min (872.6 - 832.4)

Volume	Invert	Avail.Storage	Storage Description
#1	200.3'	0.630 af	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
200.3	0.056	296.0	0.000	0.000	0.056
201.0	0.070	310.0	0.044	0.044	0.072
204.0	0.146	378.0	0.317	0.361	0.161
205.0	0.188	539.0	0.167	0.528	0.431
205.5	0.222	433.0	0.102	0.630	0.619

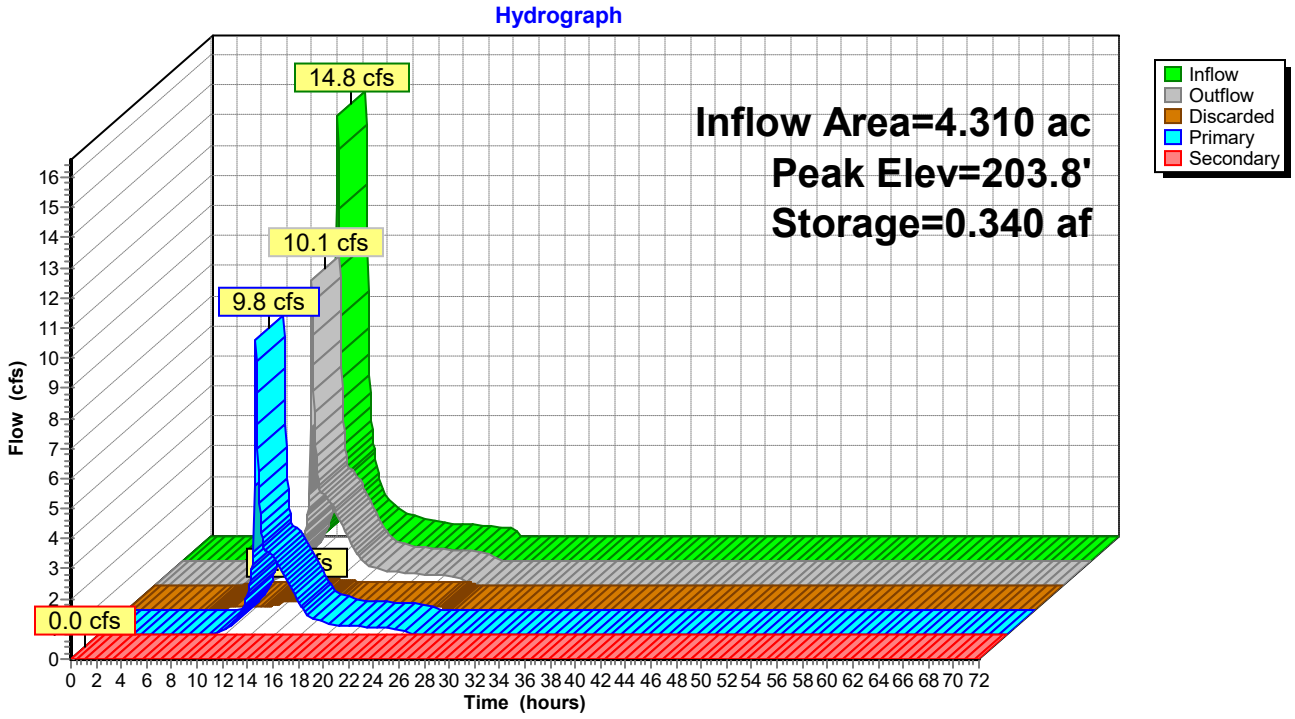
Device	Routing	Invert	Outlet Devices
#1	Primary	200.3'	**24.0" Round Culvert** L= 59.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 200.3' / 200.0' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	203.5'	**24.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	200.3'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	204.7'	**8.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#5	Discarded	200.3'	**2.000 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=0.3 cfs @ 12.40 hrs HW=203.8' (Free Discharge)
└**5=Exfiltration** (Exfiltration Controls 0.3 cfs)

Primary OutFlow Max=9.7 cfs @ 12.40 hrs HW=203.8' (Free Discharge)
└**1=Culvert** (Passes 9.7 cfs of 22.9 cfs potential flow)
  └**2=Orifice/Grate** (Weir Controls 6.7 cfs @ 1.93 fps)
  └**3=Orifice/Grate** (Orifice Controls 3.0 cfs @ 8.63 fps)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=200.3' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond 1P: Basin 1



Stage-Area-Storage for Pond 1P: Basin 1

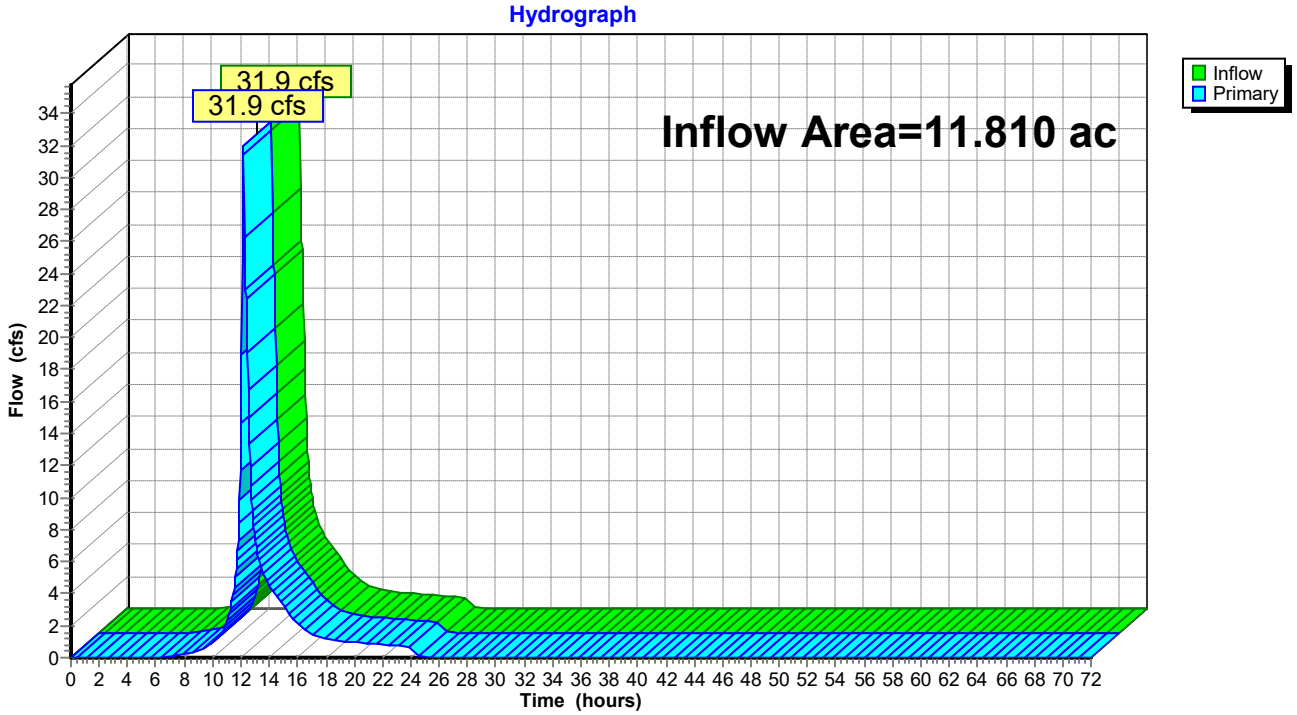
Elevation (feet)	Surface (acres)	Wetted (acres)	Storage (acre-feet)
200.3	0.056	0.056	0.000
200.4	0.058	0.058	0.006
200.5	0.060	0.061	0.012
200.6	0.062	0.063	0.018
200.7	0.064	0.065	0.024
200.8	0.066	0.068	0.030
200.9	0.068	0.070	0.037
201.0	0.070	0.072	0.044
201.1	0.072	0.075	0.051
201.2	0.074	0.078	0.058
201.3	0.076	0.080	0.066
201.4	0.079	0.083	0.074
201.5	0.081	0.086	0.082
201.6	0.083	0.089	0.090
201.7	0.085	0.091	0.098
201.8	0.088	0.094	0.107
201.9	0.090	0.097	0.116
202.0	0.092	0.100	0.125
202.1	0.095	0.103	0.134
202.2	0.097	0.106	0.144
202.3	0.100	0.109	0.154
202.4	0.102	0.111	0.164
202.5	0.105	0.114	0.174
202.6	0.107	0.117	0.185
202.7	0.110	0.120	0.195
202.8	0.112	0.123	0.207
202.9	0.115	0.126	0.218
203.0	0.118	0.129	0.230
203.1	0.120	0.132	0.241
203.2	0.123	0.136	0.254
203.3	0.126	0.139	0.266
203.4	0.129	0.142	0.279
203.5	0.131	0.145	0.292
203.6	0.134	0.148	0.305
203.7	0.137	0.151	0.319
203.8	0.140	0.154	0.332
203.9	0.143	0.158	0.347
204.0	0.146	0.161	0.361
204.1	0.150	0.184	0.376
204.2	0.154	0.207	0.391
204.3	0.158	0.232	0.407
204.4	0.162	0.258	0.423
204.5	0.166	0.284	0.439
204.6	0.171	0.312	0.456
204.7	0.175	0.340	0.473
204.8	0.179	0.369	0.491
204.9	0.184	0.400	0.509
205.0	0.188	0.431	0.528
205.1	0.195	0.472	0.547
205.2	0.201	0.511	0.567
205.3	0.208	0.549	0.587
205.4	0.215	0.585	0.608
205.5	**0.222**	**0.619**	**0.630**

Summary for Link 1L: To Off Site (North & East)

Inflow Area = 11.810 ac, 20.24% Impervious, Inflow Depth = 3.84" for 25 Year event
Inflow = 31.9 cfs @ 12.18 hrs, Volume= 3.779 af
Primary = 31.9 cfs @ 12.18 hrs, Volume= 3.779 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 1L: To Off Site (North & East)



Summary for Subcatchment PDA-1A: Proposed Drainage Area 1A

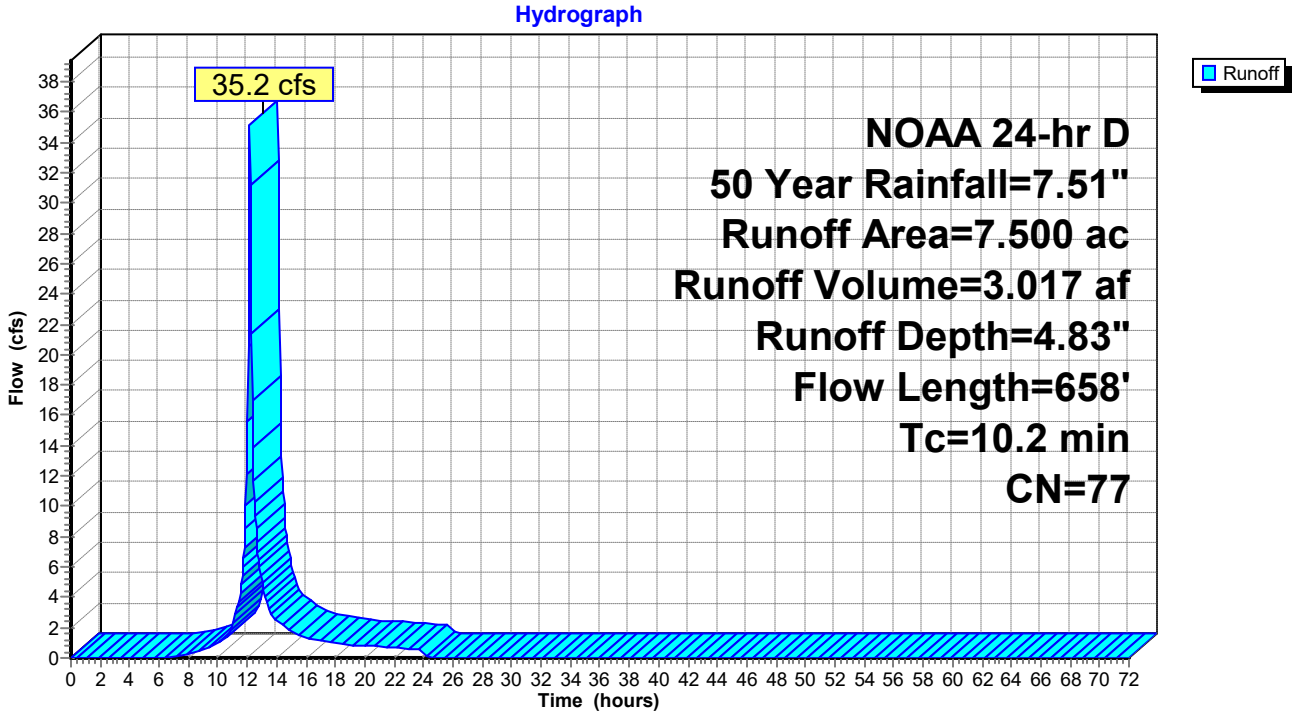
Runoff = 35.2 cfs @ 12.18 hrs, Volume= 3.017 af, Depth= 4.83"
Routed to Link 1L : To Off Site (North & East)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50 Year Rainfall=7.51"

Area (ac)	CN	Description
1.130	98	Paved parking, HSG D
0.460	61	>75% Grass cover, Good, HSG B
0.270	74	>75% Grass cover, Good, HSG C
3.510	80	>75% Grass cover, Good, HSG D
1.290	55	Woods, Good, HSG B
0.180	70	Woods, Good, HSG C
0.400	77	Woods, Good, HSG D
0.260	89	Dirt roads, HSG D
7.500	77	Weighted Average
6.370		84.93% Pervious Area
1.130		15.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	100	0.0500	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.52"
1.4	324	0.0556	3.80		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	13	0.0154	2.00		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.2	221	0.0113	1.71		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.2	658	Total			

Subcatchment PDA-1A: Proposed Drainage Area 1A



Summary for Subcatchment PDA-1B: Proposed Drainage Area 1B

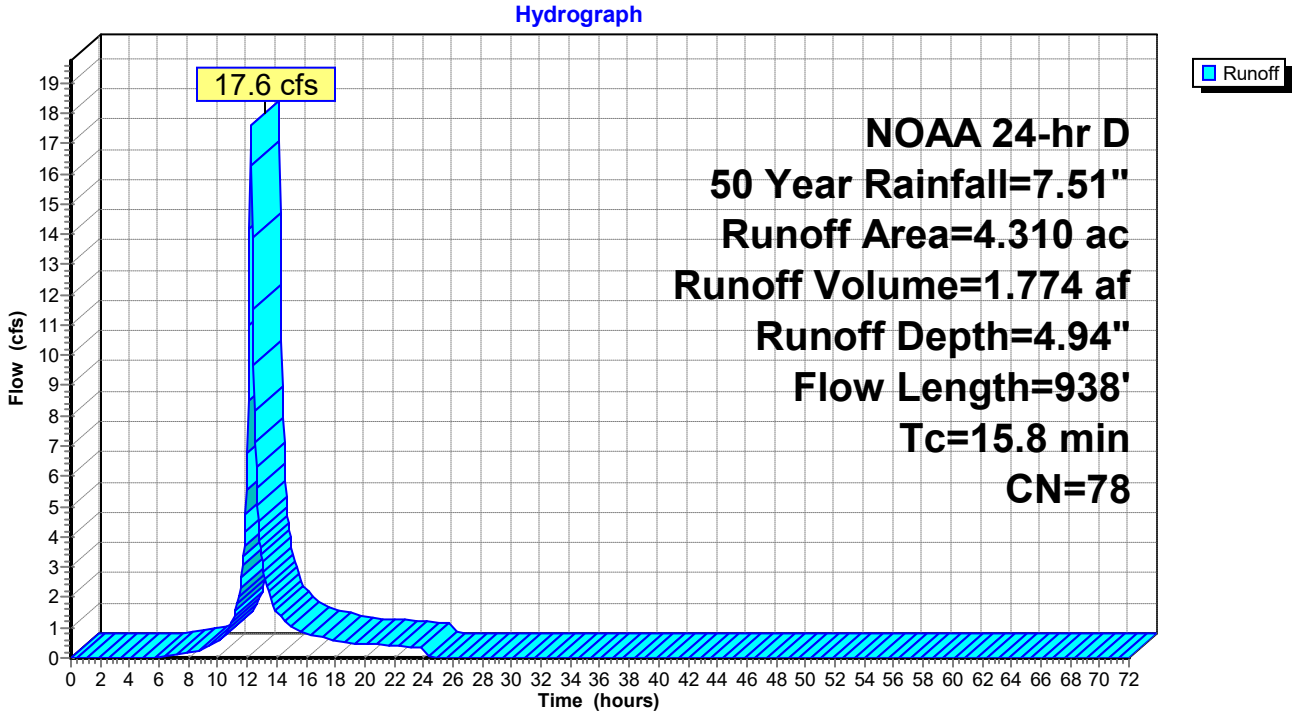
Runoff = 17.6 cfs @ 12.24 hrs, Volume= 1.774 af, Depth= 4.94"
Routed to Pond 1P : Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50 Year Rainfall=7.51"

Area (ac)	CN	Description
1.260	98	Paved parking, HSG D
0.160	74	>75% Grass cover, Good, HSG C
1.330	80	>75% Grass cover, Good, HSG D
1.100	55	Woods, Good, HSG B
0.210	70	Woods, Good, HSG C
0.210	77	Woods, Good, HSG D
0.040	89	Dirt roads, HSG D
4.310	78	Weighted Average
3.050		70.77% Pervious Area
1.260		29.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0100	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.52"
2.9	606	0.0470	3.49		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	69	0.0160	5.74	4.51	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
0.4	132	0.0110	5.52	6.78	**Pipe Channel, CMP_Round 15"** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
0.0	5	0.0200	10.18	31.99	**Pipe Channel, CMP_Round 24"** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
0.0	26	0.0850	20.99	65.96	**Pipe Channel, CMP_Round 24"** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
15.8	938	Total			

Subcatchment PDA-1B: Proposed Drainage Area 1B



Summary for Pond 1P: Basin 1

Inflow Area = 4.310 ac, 29.23% Impervious, Inflow Depth = 4.94" for 50 Year event
Inflow = 17.6 cfs @ 12.24 hrs, Volume= 1.774 af
Outflow = 14.5 cfs @ 12.35 hrs, Volume= 1.774 af, Atten= 18%, Lag= 6.4 min
Discarded = 0.3 cfs @ 12.35 hrs, Volume= 0.234 af
Primary = 14.2 cfs @ 12.35 hrs, Volume= 1.540 af
Routed to Link 1L : To Off Site (North & East)
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 1L : To Off Site (North & East)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 204.0' @ 12.35 hrs Surf.Area= 0.146 ac Storage= 0.359 af

Plug-Flow detention time= 37.9 min calculated for 1.773 af (100% of inflow)
Center-of-Mass det. time= 37.9 min (864.7 - 826.8)

Volume	Invert	Avail.Storage	Storage Description
#1	200.3'	0.630 af	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
200.3	0.056	296.0	0.000	0.000	0.056
201.0	0.070	310.0	0.044	0.044	0.072
204.0	0.146	378.0	0.317	0.361	0.161
205.0	0.188	539.0	0.167	0.528	0.431
205.5	0.222	433.0	0.102	0.630	0.619

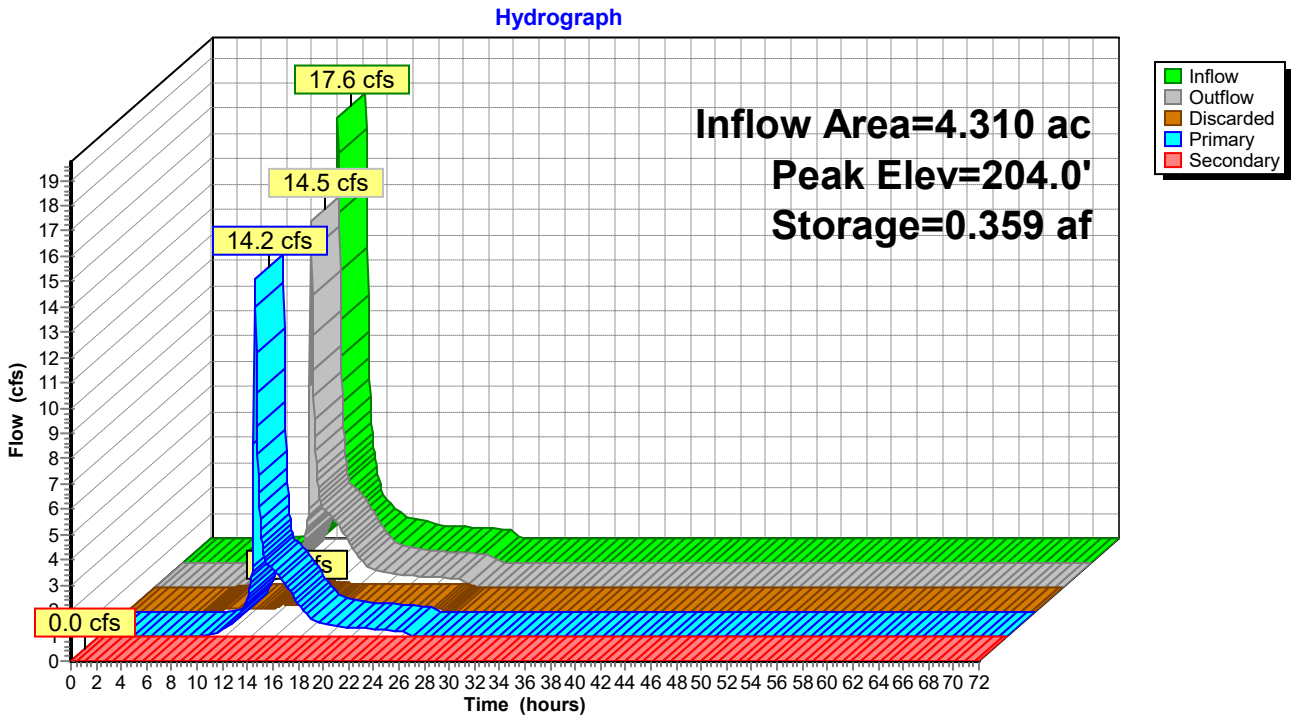
Device	Routing	Invert	Outlet Devices
#1	Primary	200.3'	**24.0" Round Culvert** L= 59.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 200.3' / 200.0' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	203.5'	**24.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	200.3'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	204.7'	**8.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#5	Discarded	200.3'	**2.000 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=0.3 cfs @ 12.35 hrs HW=204.0' (Free Discharge)
└**5=Exfiltration** (Exfiltration Controls 0.3 cfs)

Primary OutFlow Max=14.1 cfs @ 12.35 hrs HW=204.0' (Free Discharge)
└**1=Culvert** (Passes 14.1 cfs of 23.8 cfs potential flow)
  └**2=Orifice/Grate** (Weir Controls 11.0 cfs @ 2.28 fps)
  └**3=Orifice/Grate** (Orifice Controls 3.1 cfs @ 8.82 fps)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=200.3' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond 1P: Basin 1



Stage-Area-Storage for Pond 1P: Basin 1

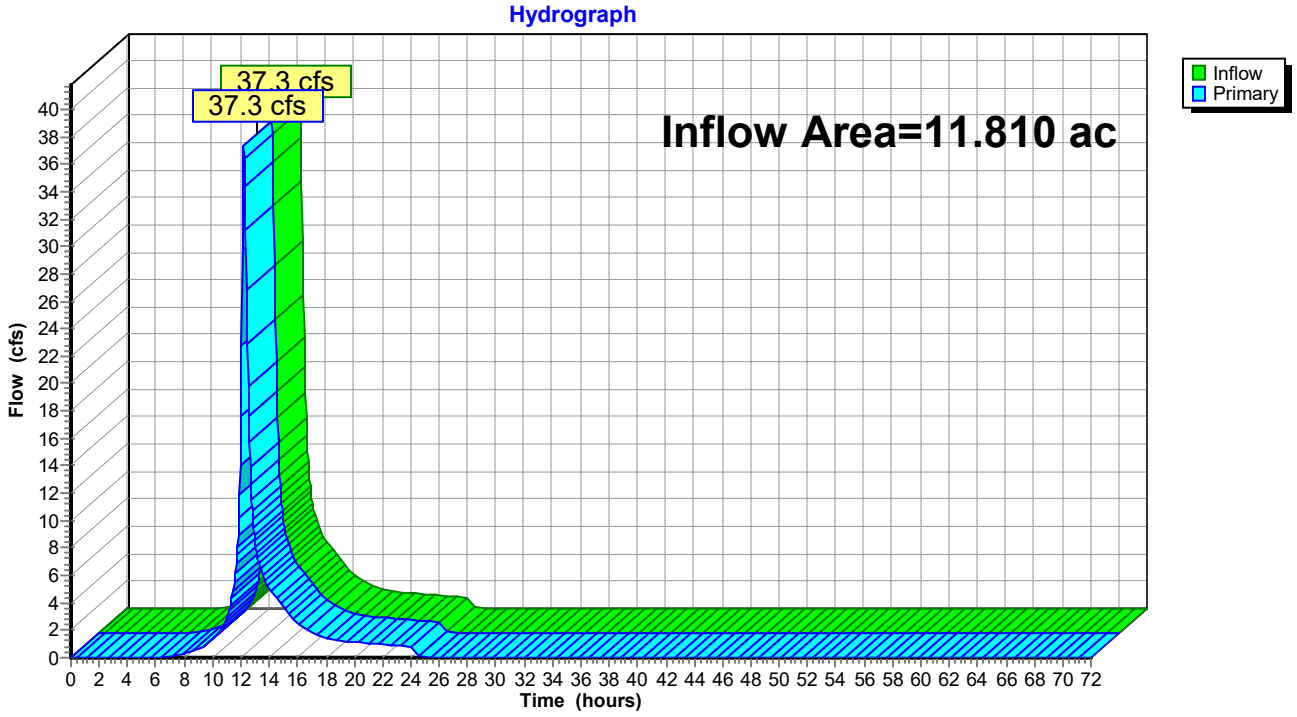
Elevation (feet)	Surface (acres)	Wetted (acres)	Storage (acre-feet)
200.3	0.056	0.056	0.000
200.4	0.058	0.058	0.006
200.5	0.060	0.061	0.012
200.6	0.062	0.063	0.018
200.7	0.064	0.065	0.024
200.8	0.066	0.068	0.030
200.9	0.068	0.070	0.037
201.0	0.070	0.072	0.044
201.1	0.072	0.075	0.051
201.2	0.074	0.078	0.058
201.3	0.076	0.080	0.066
201.4	0.079	0.083	0.074
201.5	0.081	0.086	0.082
201.6	0.083	0.089	0.090
201.7	0.085	0.091	0.098
201.8	0.088	0.094	0.107
201.9	0.090	0.097	0.116
202.0	0.092	0.100	0.125
202.1	0.095	0.103	0.134
202.2	0.097	0.106	0.144
202.3	0.100	0.109	0.154
202.4	0.102	0.111	0.164
202.5	0.105	0.114	0.174
202.6	0.107	0.117	0.185
202.7	0.110	0.120	0.195
202.8	0.112	0.123	0.207
202.9	0.115	0.126	0.218
203.0	0.118	0.129	0.230
203.1	0.120	0.132	0.241
203.2	0.123	0.136	0.254
203.3	0.126	0.139	0.266
203.4	0.129	0.142	0.279
203.5	0.131	0.145	0.292
203.6	0.134	0.148	0.305
203.7	0.137	0.151	0.319
203.8	0.140	0.154	0.332
203.9	0.143	0.158	0.347
204.0	0.146	0.161	0.361
204.1	0.150	0.184	0.376
204.2	0.154	0.207	0.391
204.3	0.158	0.232	0.407
204.4	0.162	0.258	0.423
204.5	0.166	0.284	0.439
204.6	0.171	0.312	0.456
204.7	0.175	0.340	0.473
204.8	0.179	0.369	0.491
204.9	0.184	0.400	0.509
205.0	0.188	0.431	0.528
205.1	0.195	0.472	0.547
205.2	0.201	0.511	0.567
205.3	0.208	0.549	0.587
205.4	0.215	0.585	0.608
205.5	**0.222**	**0.619**	**0.630**

Summary for Link 1L: To Off Site (North & East)

Inflow Area = 11.810 ac, 20.24% Impervious, Inflow Depth = 4.63" for 50 Year event
Inflow = 37.3 cfs @ 12.18 hrs, Volume= 4.557 af
Primary = 37.3 cfs @ 12.18 hrs, Volume= 4.557 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 1L: To Off Site (North & East)



Summary for Subcatchment PDA-1A: Proposed Drainage Area 1A

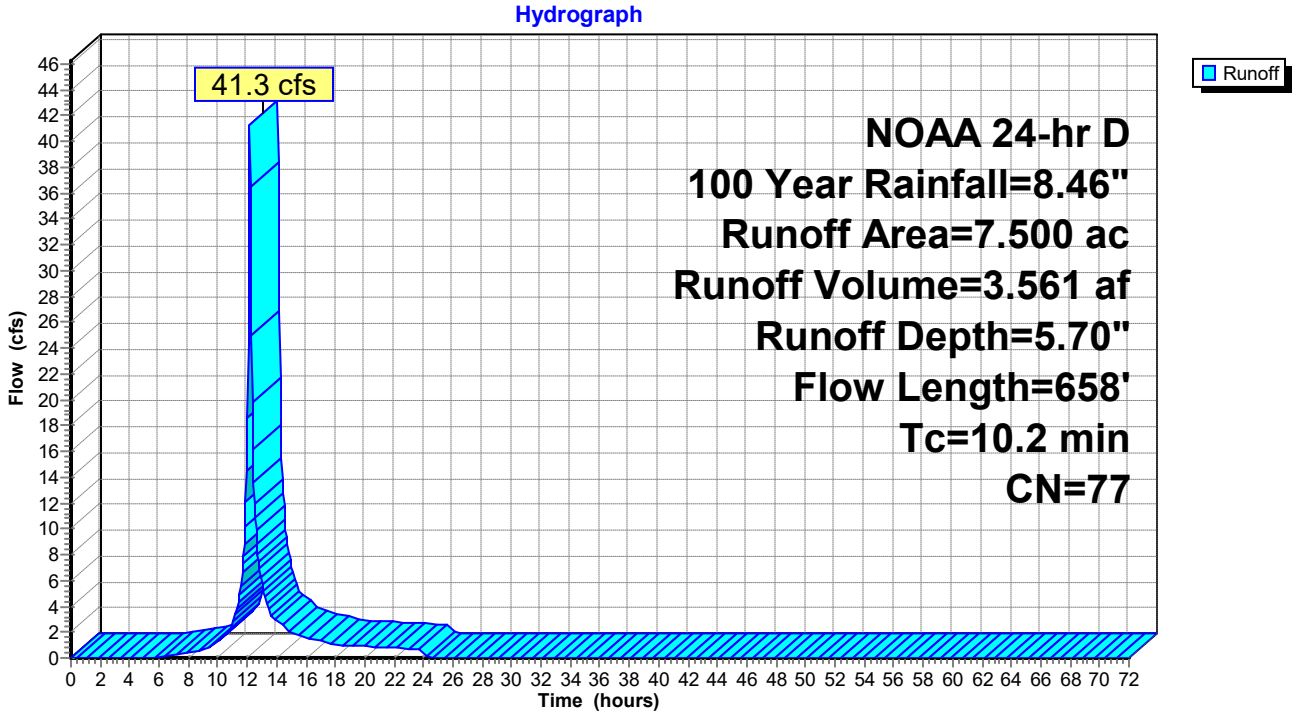
Runoff = 41.3 cfs @ 12.17 hrs, Volume= 3.561 af, Depth= 5.70"
Routed to Link 1L : To Off Site (North & East)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100 Year Rainfall=8.46"

Area (ac)	CN	Description
1.130	98	Paved parking, HSG D
0.460	61	>75% Grass cover, Good, HSG B
0.270	74	>75% Grass cover, Good, HSG C
3.510	80	>75% Grass cover, Good, HSG D
1.290	55	Woods, Good, HSG B
0.180	70	Woods, Good, HSG C
0.400	77	Woods, Good, HSG D
0.260	89	Dirt roads, HSG D
7.500	77	Weighted Average
6.370		84.93% Pervious Area
1.130		15.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	100	0.0500	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.52"
1.4	324	0.0556	3.80		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	13	0.0154	2.00		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.2	221	0.0113	1.71		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.2	658	Total			

Subcatchment PDA-1A: Proposed Drainage Area 1A



Summary for Subcatchment PDA-1B: Proposed Drainage Area 1B

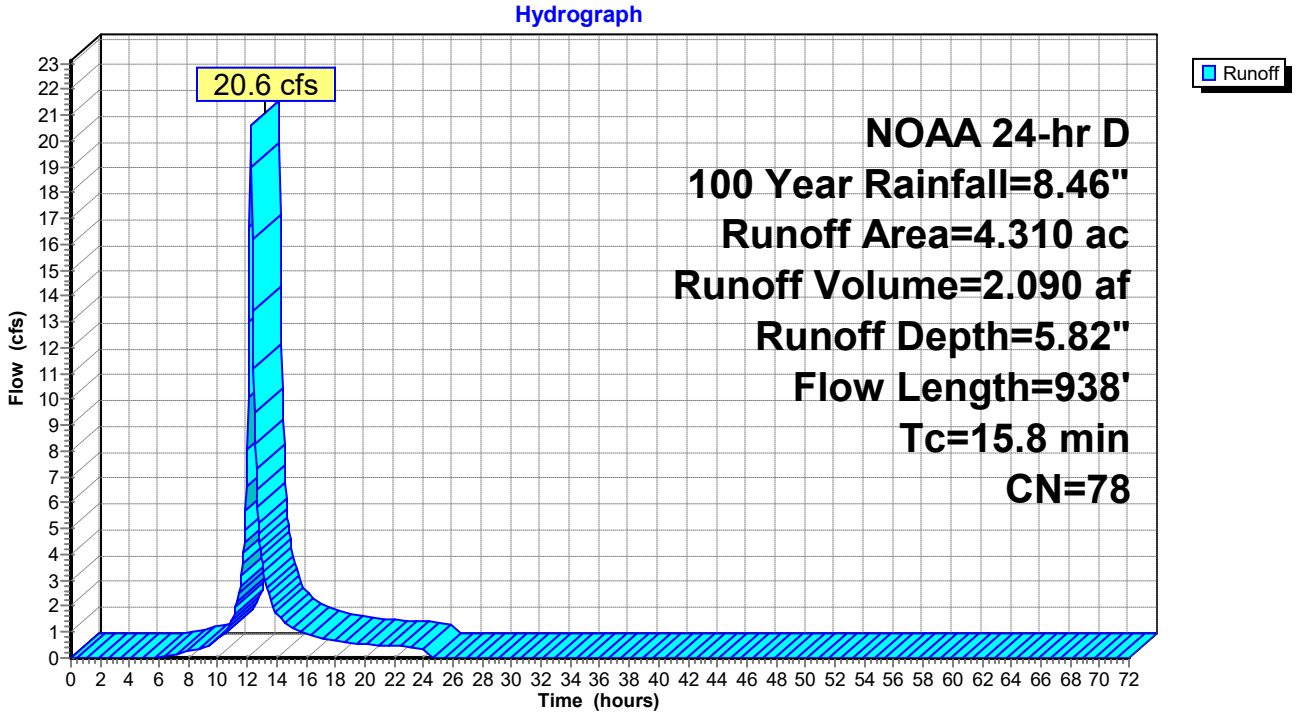
Runoff = 20.6 cfs @ 12.24 hrs, Volume= 2.090 af, Depth= 5.82"
Routed to Pond 1P : Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100 Year Rainfall=8.46"

Area (ac)	CN	Description
1.260	98	Paved parking, HSG D
0.160	74	>75% Grass cover, Good, HSG C
1.330	80	>75% Grass cover, Good, HSG D
1.100	55	Woods, Good, HSG B
0.210	70	Woods, Good, HSG C
0.210	77	Woods, Good, HSG D
0.040	89	Dirt roads, HSG D
4.310	78	Weighted Average
3.050		70.77% Pervious Area
1.260		29.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0100	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.52"
2.9	606	0.0470	3.49		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	69	0.0160	5.74	4.51	**Pipe Channel, CMP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
0.4	132	0.0110	5.52	6.78	**Pipe Channel, CMP_Round 15"** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
0.0	5	0.0200	10.18	31.99	**Pipe Channel, CMP_Round 24"** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
0.0	26	0.0850	20.99	65.96	**Pipe Channel, CMP_Round 24"** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
15.8	938	Total			

Subcatchment PDA-1B: Proposed Drainage Area 1B



Summary for Pond 1P: Basin 1

Inflow Area = 4.310 ac, 29.23% Impervious, Inflow Depth = 5.82" for 100 Year event
Inflow = 20.6 cfs @ 12.24 hrs, Volume= 2.090 af
Outflow = 18.8 cfs @ 12.31 hrs, Volume= 2.090 af, Atten= 9%, Lag= 4.4 min
Discarded = 0.4 cfs @ 12.31 hrs, Volume= 0.247 af
Primary = 18.4 cfs @ 12.31 hrs, Volume= 1.842 af
Routed to Link 1L : To Off Site (North & East)
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 1L : To Off Site (North & East)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 204.1' @ 12.31 hrs Surf.Area= 0.150 ac Storage= 0.376 af

Plug-Flow detention time= 36.2 min calculated for 2.090 af (100% of inflow)
Center-of-Mass det. time= 36.0 min (857.7 - 821.6)

Volume	Invert	Avail.Storage	Storage Description
#1	200.3'	0.630 af	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Perim. (feet)	Inc.Store (acre-feet)	Cum.Store (acre-feet)	Wet.Area (acres)
200.3	0.056	296.0	0.000	0.000	0.056
201.0	0.070	310.0	0.044	0.044	0.072
204.0	0.146	378.0	0.317	0.361	0.161
205.0	0.188	539.0	0.167	0.528	0.431
205.5	0.222	433.0	0.102	0.630	0.619

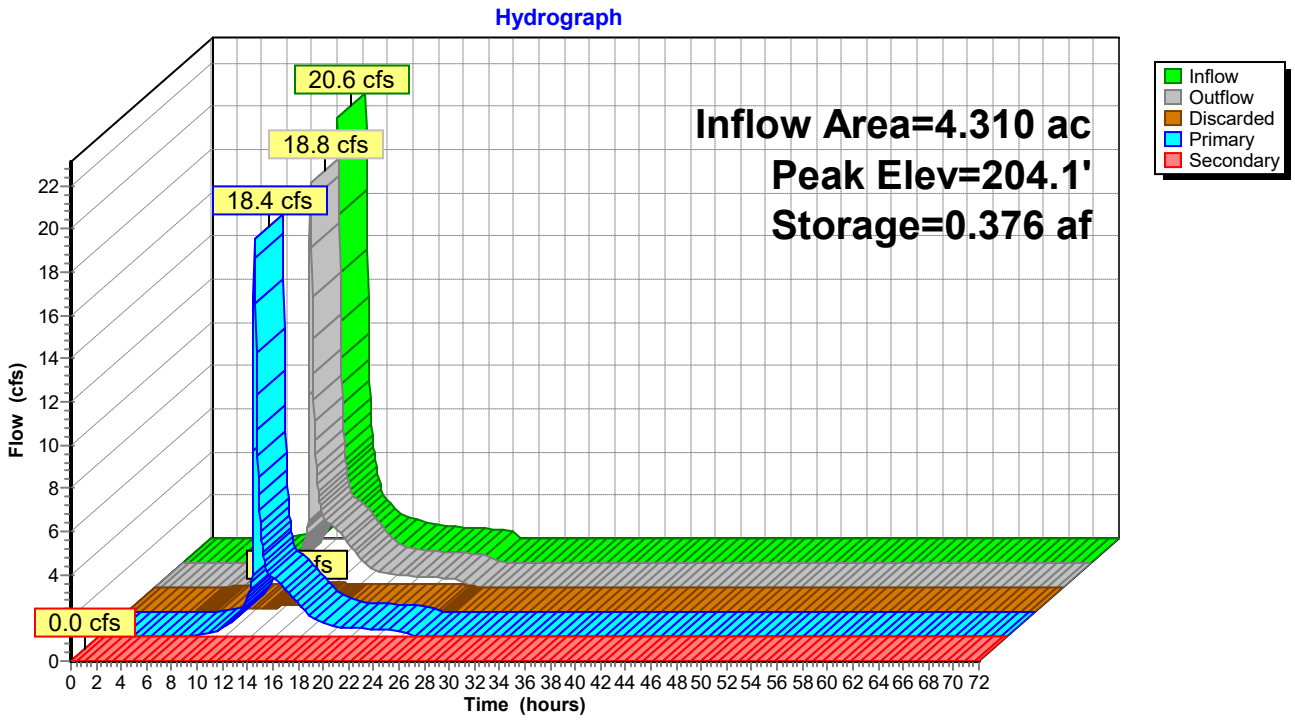
Device	Routing	Invert	Outlet Devices
#1	Primary	200.3'	**24.0" Round Culvert** L= 59.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 200.3' / 200.0' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	203.5'	**24.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	200.3'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	204.7'	**8.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#5	Discarded	200.3'	**2.000 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=0.4 cfs @ 12.31 hrs HW=204.1' (Free Discharge)
└**5=Exfiltration** (Exfiltration Controls 0.4 cfs)

Primary OutFlow Max=18.0 cfs @ 12.31 hrs HW=204.1' (Free Discharge)
└**1=Culvert** (Passes 18.0 cfs of 24.4 cfs potential flow)
  └**2=Orifice/Grate** (Weir Controls 14.9 cfs @ 2.52 fps)
  └**3=Orifice/Grate** (Orifice Controls 3.1 cfs @ 8.96 fps)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=200.3' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond 1P: Basin 1



Stage-Area-Storage for Pond 1P: Basin 1

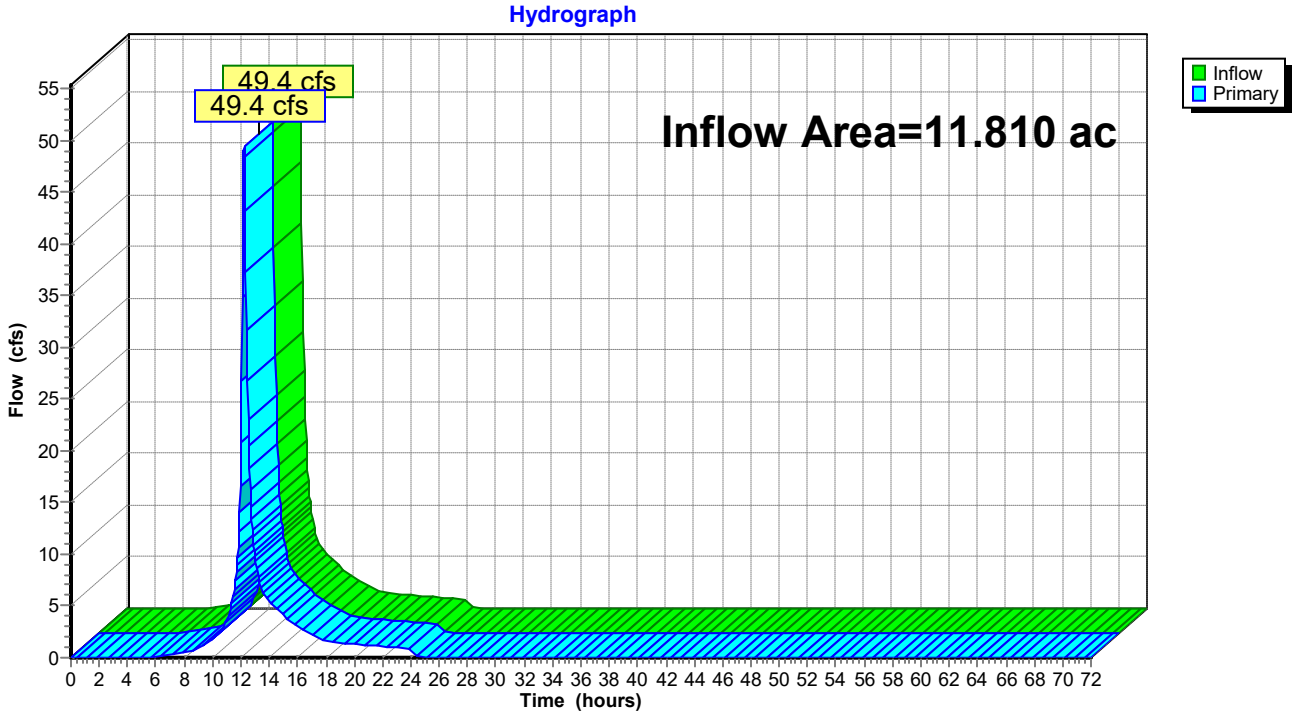
Elevation (feet)	Surface (acres)	Wetted (acres)	Storage (acre-feet)
200.3	0.056	0.056	0.000
200.4	0.058	0.058	0.006
200.5	0.060	0.061	0.012
200.6	0.062	0.063	0.018
200.7	0.064	0.065	0.024
200.8	0.066	0.068	0.030
200.9	0.068	0.070	0.037
201.0	0.070	0.072	0.044
201.1	0.072	0.075	0.051
201.2	0.074	0.078	0.058
201.3	0.076	0.080	0.066
201.4	0.079	0.083	0.074
201.5	0.081	0.086	0.082
201.6	0.083	0.089	0.090
201.7	0.085	0.091	0.098
201.8	0.088	0.094	0.107
201.9	0.090	0.097	0.116
202.0	0.092	0.100	0.125
202.1	0.095	0.103	0.134
202.2	0.097	0.106	0.144
202.3	0.100	0.109	0.154
202.4	0.102	0.111	0.164
202.5	0.105	0.114	0.174
202.6	0.107	0.117	0.185
202.7	0.110	0.120	0.195
202.8	0.112	0.123	0.207
202.9	0.115	0.126	0.218
203.0	0.118	0.129	0.230
203.1	0.120	0.132	0.241
203.2	0.123	0.136	0.254
203.3	0.126	0.139	0.266
203.4	0.129	0.142	0.279
203.5	0.131	0.145	0.292
203.6	0.134	0.148	0.305
203.7	0.137	0.151	0.319
203.8	0.140	0.154	0.332
203.9	0.143	0.158	0.347
204.0	0.146	0.161	0.361
204.1	0.150	0.184	0.376
204.2	0.154	0.207	0.391
204.3	0.158	0.232	0.407
204.4	0.162	0.258	0.423
204.5	0.166	0.284	0.439
204.6	0.171	0.312	0.456
204.7	0.175	0.340	0.473
204.8	0.179	0.369	0.491
204.9	0.184	0.400	0.509
205.0	0.188	0.431	0.528
205.1	0.195	0.472	0.547
205.2	0.201	0.511	0.567
205.3	0.208	0.549	0.587
205.4	0.215	0.585	0.608
205.5	**0.222**	**0.619**	**0.630**

Summary for Link 1L: To Off Site (North & East)

Inflow Area = 11.810 ac, 20.24% Impervious, Inflow Depth = 5.49" for 100 Year event
Inflow = 49.4 cfs @ 12.22 hrs, Volume= 5.404 af
Primary = 49.4 cfs @ 12.22 hrs, Volume= 5.404 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 1L: To Off Site (North & East)



WATER QUALITY VOLUME (WQV) COMPUTATIONS FOR OVERALL SITE

Project: Proposed Redevelopment
Location: 2135, 2145, 2155 Reservoir Ave - Trumbull, CT
Date: 03/06/26

Water Quality Volume Calculations:

$$WQV = \frac{(1.3")(R)(A)}{12}$$

Where:
WQV = water quality volume (ac-ft)
R = volumentric runoff coefficient = 0.05+0.009(I)
I = percent impervious cover (see below)
A = site area in acres

$$I = \frac{AIMP}{ATOT} \times 100$$

Where:
I = percent impervious cover
AIMP = area of impervious cover
ATOT = total area of watershed

Watershed Description:	OVERALL SITE			
Area of impervious coverage, AIMP	1.71	Acres		
Total area of watershed, ATOT	3.83	Acres		
Percent impverious cover, I	44.65	%		
Volumentric runoff coefficient, R	0.45			
Water Quality Volume, WQV	0.187	ac-ft	8,166	cf

WATER QUALITY VOLUME (WQV) COMPUTATIONS FOR HYD-1

Project: Proposed Redevelopment
Location: 2135, 2145, 2155 Reservoir Ave - Trumbull, CT
Date: 03/06/26

Water Quality Volume Calculations:

$$WQV = \frac{(1.3")(R)(A)}{12}$$

Where:
WQV = water quality volume (ac-ft)
R = volumentric runoff coefficient = 0.05+0.009(I)
I = percent impervious cover (see below)
A = site area in acres

$$I = \frac{AIMP}{ATOT} \times 100$$

Where:
I = percent impervious cover
AIMP = area of impervious cover
ATOT = total area of watershed

Watershed Description:	HYD-1			
Area of impervious coverage, AIMP	1.12	Acres		
Total area of watershed, ATOT	1.22	Acres		
Percent impverious cover, I	91.80	%		
Volumentric runoff coefficient, R	0.88			
Water Quality Volume, WQV	0.116	ac-ft	5,045	cf

Water Quality Flow Calculations:

WQf = (qu)(A)(Q)
WQf = Peak Discharge for water quality event (cfs)
qu = unit peak discharge (cfs/mi2/in)
A = drainage area (square miles)
Q = runoff volume (WQv/A) (watershed inches)

CN = 1000 /[10 + 5*P +10*Q - 10*(Q2 +1.25*Q*P)1/2]

P=	1.3	inches
Q=	1.139	inches
WQv =	0.116	acre-ft
Total Drainage Area =	1.22	acre
CN =	90.00	

Ia = 200/CN -2

Ia =	0.222	

Compute Ia/P

P=	1.3	inches
Ia / P =	0.17	

Tc= 5 min
0.083 hr

Exhibit 4-III

Tc=	0.083
Ia / P =	0.17
qu =	625

WQf = (qu)(A)(Q)

qu =	625	csm/in
A =	0.002	mi2 (acre/640)
Q =	1.139	inches
WQf =	1.36	cfs

WQF Provided:
First Defense FDHC-4 Max. Treatment Rate = 1.50 cfs

WATER QUALITY VOLUME (WQV) COMPUTATIONS FOR HYD-2

Project: Proposed Redevelopment
Location: 2135, 2145, 2155 Reservoir Ave - Trumbull, CT
Date: 03/06/26

Water Quality Volume Calculations:

$$WQV = \frac{(1.3")(R)(A)}{12}$$

Where:
WQV = water quality volume (ac-ft)
R = volumentric runoff coefficient = 0.05+0.009(I)
I = percent impervious cover (see below)
A = site area in acres

$$I = \frac{AIMP}{ATOT} \times 100$$

Where:
I = percent impervious cover
AIMP = area of impervious cover
ATOT = total area of watershed

Watershed Description:	HYD-2			
Area of impervious coverage, AIMP	0.28	Acres		
Total area of watershed, ATOT	0.31	Acres		
Percent impverious cover, I	90.32	%		
Volumentric runoff coefficient, R	0.86			
Water Quality Volume, WQV	0.029	ac-ft	1,262	cf

Water Quality Flow Calculations:

WQf = (qu)(A)(Q)
WQf = Peak Discharge for water quality event (cfs)
qu = unit peak discharge (cfs/mi2/in)
A = drainage area (square miles)
Q = runoff volume (WQv/A) (watershed inches)

CN = 1000 /[10 + 5*P +10*Q - 10*(Q2 +1.25*Q*P)1/2]

P=	1.3	inches
Q=	1.122	inches
WQv =	0.029	acre-ft
Total Drainage Area =	0.31	acre
CN =	90.00	

Ia = 200/CN -2

Ia =	0.222	

Compute Ia/P

P=	1.3	inches
Ia / P =	0.17	

Tc= 5 min
0.083 hr

Exhibit 4-III

Tc=	0.083
Ia / P =	0.17
qu =	625

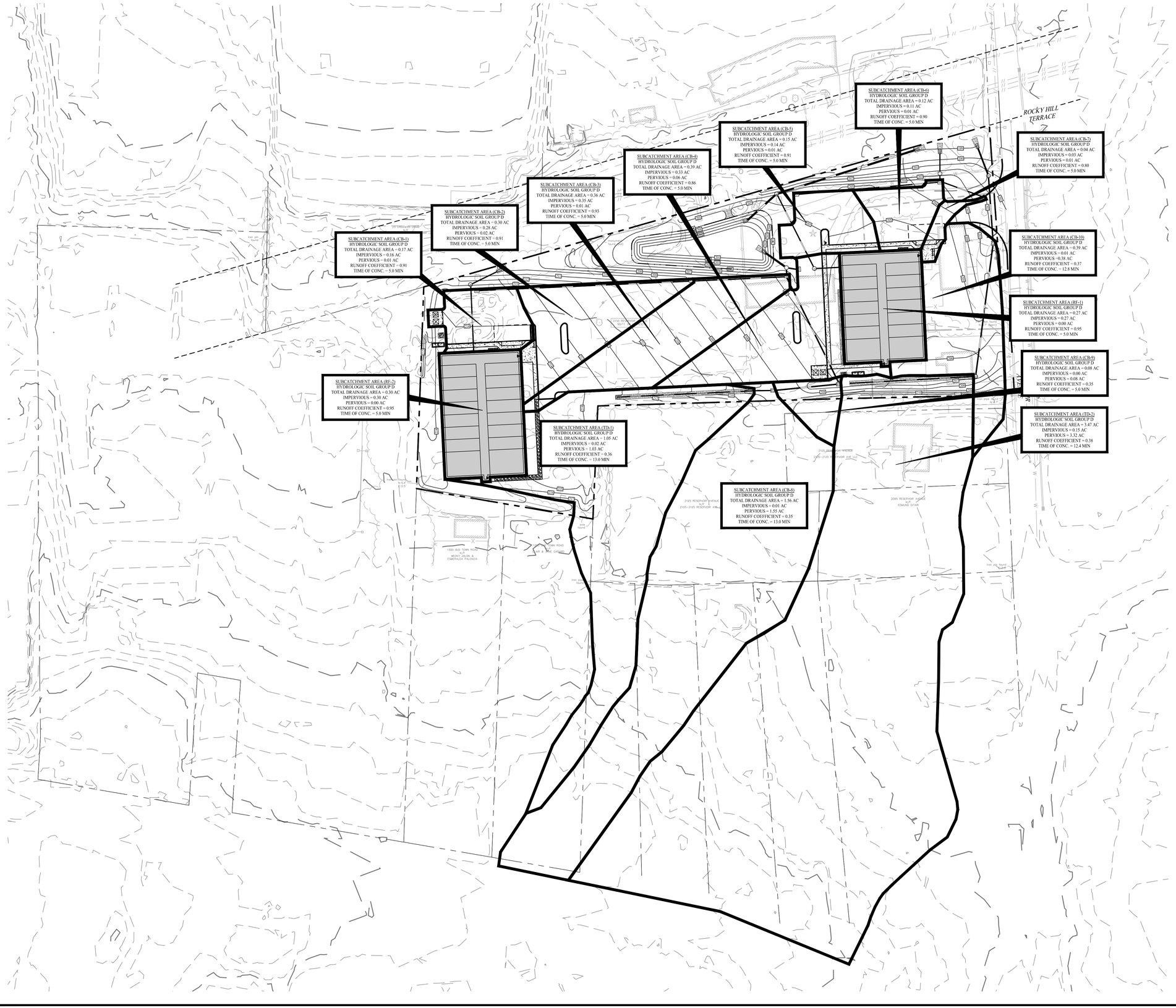
WQf = (qu)(A)(Q)

qu =	625	csm/in
A =	0.000	mi2 (acre/640)
Q =	1.122	inches
WQf =	0.34	cfs

WQF Provided:
First Defense FDHC-3 Max. Treatment Rate = 0.84 cfs

APPENDIX C
STORM DRAINAGE SYSTEM CALCULATIONS

Subcatchment Drainage Area Map (DA-CB)
Storm Sewer Schematic
Hydraflow Storm Sewer Tabular Reports
Hydraflow Storm Sewer Profiles
Runoff Coefficient Calculations
Hydrodynamic Separator Information



GENERAL NOTES

1. EXISTING BOUNDARY AND TOPOGRAPHY IS BASED ON DRAWING TITLED "PROPERTY SURVEY OF 2135, 2145 & 2155 RESERVOIR AVENUE TRUMBULL CONNECTICUT", SCALE 1"=30', DATED JULY 24, 2025, BY ACCURATE LAND SURVEYING LLC.
2. STORMWATER RUNOFF ANALYSIS WAS CALCULATED USING THE SCS TR-55 METHODOLOGY.
3. OFF-SITE TOPOGRAPHY DATA IS BASED ON CTECO MAP READER TOWN OF TRUMBULL, CT.
4. CT ECO AND SURVEY CONTOURS HAVE BEEN ADJUSTED TO ALIGN SMOOTHLY, AND MAY NOT BE PERFECTLY ACCURATE.

LEGEND

PROPERTY LINE

ADJOINING LOT LINE

LIMIT OF DRAINAGE AREA

Rev. #:	Date	Description
1	03/04/26	Re-Filing Set

Graphic Scale: 50 0 50 100

SOLLI ENGINEERING
MONROE, CT | W. HARTFORD, CT | NORWOOD, MA
SOLLIENGINEERING.COM
T: (203) 880-5455 | F: (203) 880-9695

Drawn By:	MJD
Checked By:	LAM
Approved By:	KMS
Project #:	24116901
Plan Date:	11/07/25
Scale:	1" = 50'

STATE OF CONNECTICUT · KEVIN M. SOLLI · 25759 · LICENSED PROFESSIONAL ENGINEER

Kevin Solli, P.E.
CT 25759

Project:

PROPOSED REDEVELOPMENT

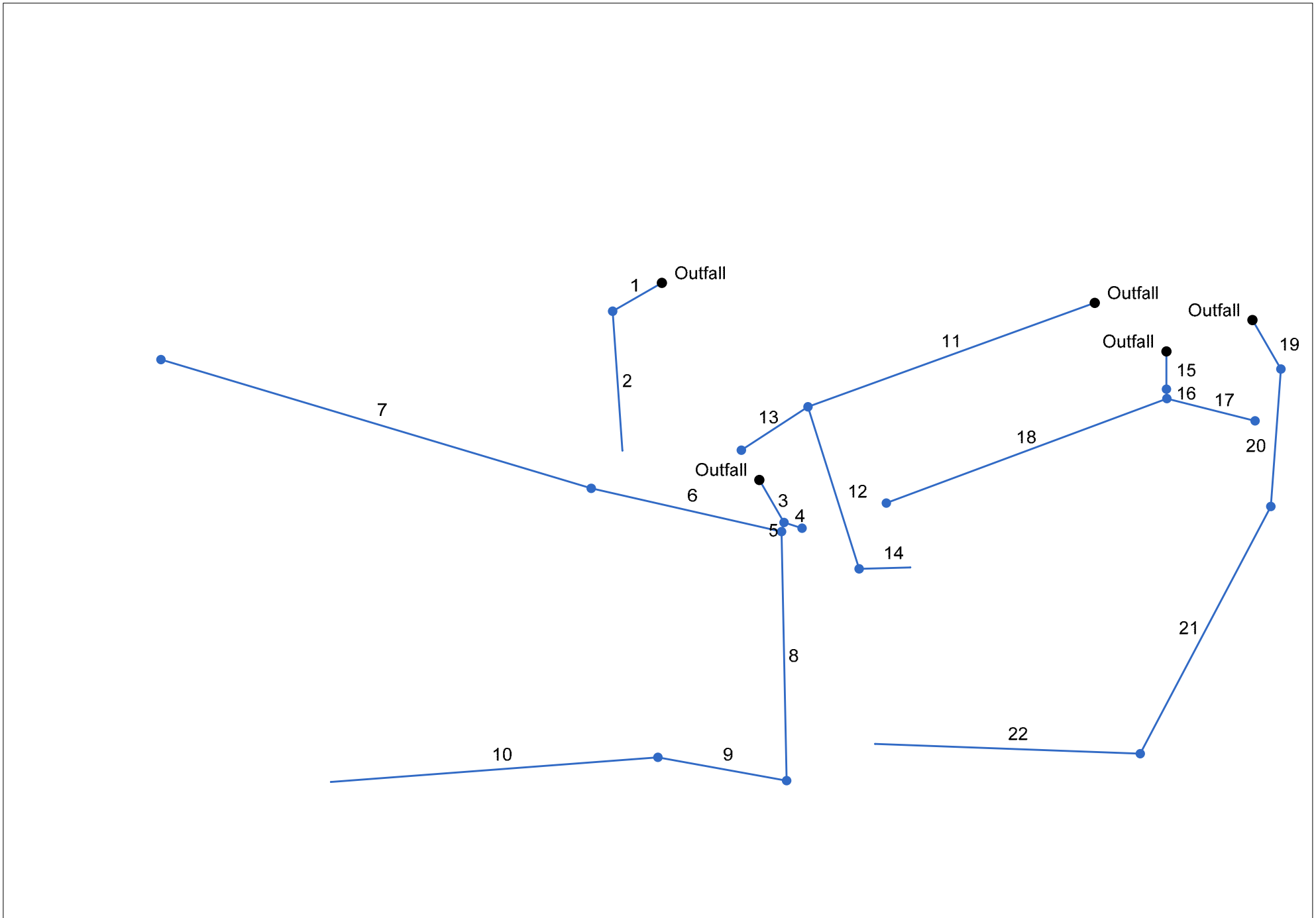
2135, 2145, & 2155 RESERVOIR AVENUE
TRUMBULL, CONNECTICUT

Sheet Title: DRAINAGE AREA CATCH BASIN MAP

Sheet #: DACB

Mar 05, 2026 - 10:46am droosemark
X:\SE Files\Project Data\2024\24116901 - 2135, 2145, 2155 Reservoir Ave - Trumbull, CT\Engineering Data\CAD Files\24116901 - DACB.dwg

Reservoir Ave, Trumbull, CT



Project File: 2135, 2145, 2155 Reservoir Ave - Trumbull, CT - StormSewers.stm	Number of lines: 22	Date: 3/4/2026

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	30.000	0.00	0.30	0.00	0.00	0.29	0.0	5.4	8.6	2.46	4.11	4.91	12	1.33	209.80	210.20	210.36	210.87	211.05	212.80	MH-1
2	1	74.000	0.30	0.30	0.95	0.29	0.29	5.0	5.0	8.9	2.53	3.70	4.48	12	1.08	210.20	211.00	210.87	211.68	212.80	215.00	RF-2
3	End	26.000	0.00	3.91	0.00	0.00	2.08	0.0	14.9	5.2	10.85	37.11	4.64	24	2.69	202.00	202.70	203.80	203.88	204.00	205.80	HYD-1
4	3	10.000	0.39	0.39	0.86	0.34	0.34	5.0	5.0	8.9	2.98	6.46	3.37	15	1.00	202.70	202.80	203.88	203.49	205.80	205.10	CB-4
5	3	5.000	0.36	3.52	0.93	0.33	1.75	5.0	14.9	5.2	9.11	9.13	7.63	15	2.00	202.70	202.80	203.88	203.96	205.80	205.80	CB-3
6	5	103.000	0.30	0.47	0.91	0.27	0.43	5.0	7.3	7.5	3.23	5.77	4.55	12	2.62	202.80	205.50	203.96	206.27	205.80	208.50	CB-2
7	6	237.000	0.17	0.17	0.91	0.15	0.15	5.0	5.0	8.9	1.37	4.33	2.83	12	1.48	205.50	209.00	206.27	209.50	208.50	213.00	CB-1
8	5	132.000	0.08	2.69	0.35	0.03	0.98	5.0	14.3	5.3	5.23	6.65	4.89	15	1.06	202.80	204.20	203.96	205.13	205.80	206.20	CB-9
9	8	69.000	1.56	2.61	0.37	0.58	0.96	13.0	14.1	5.4	5.14	8.15	5.29	15	1.59	204.20	205.30	205.13	206.22	206.20	208.40	CB-8
10	9	173.000	1.05	1.05	0.36	0.38	0.38	13.0	13.0	5.6	2.12	3.56	3.47	12	1.00	205.30	207.03	206.22	207.65	208.40	213.00	TD-1
11	End	161.000	0.00	0.27	0.00	0.00	0.26	0.0	5.7	8.4	11.96	17.83	5.84	24	0.62	199.00	200.00	200.24	201.24	200.00	203.50	MH-3
12	11	90.000	0.00	0.27	0.00	0.00	0.26	0.0	5.2	8.8	2.25	6.17	3.55	12	3.00	200.00	202.70	201.24	203.34	203.50	205.70	MH-2
13	11	42.000	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	9.80	19.12	5.10	24	0.71	200.00	200.30	201.24	201.42	203.50	202.00	OCS-1
14	12	27.000	0.27	0.27	0.95	0.26	0.26	5.0	5.0	8.9	2.28	3.75	4.27	12	1.11	202.70	203.00	203.34	203.65	205.70	206.00	RF-1
15	End	20.000	0.00	0.31	0.00	0.00	0.28	0.0	7.2	7.6	2.09	2.52	3.82	12	0.50	199.00	199.10	199.62	199.80	200.00	205.80	HYD-2
16	15	5.000	0.12	0.31	0.90	0.11	0.28	5.0	7.2	7.6	2.09	5.04	3.76	12	2.00	199.10	199.20	199.83	199.82	205.80	203.50	CB-6
17	16	48.000	0.04	0.04	0.80	0.03	0.03	5.0	5.0	8.9	0.28	2.82	1.39	12	0.63	199.20	199.50	199.82	199.72	203.50	202.00	CB-7
18	16	158.000	0.15	0.15	0.91	0.14	0.14	5.0	5.0	8.9	1.21	3.80	2.89	12	1.14	199.20	201.00	199.82	201.46	203.50	204.00	CB-5
19	End	30.000	0.00	3.86	0.00	0.00	1.46	0.0	13.4	5.5	8.09	8.57	5.63	18	0.67	199.00	199.20	200.10	200.38	200.00	205.70	MH-5
20	19	73.000	0.39	3.86	0.37	0.14	1.46	12.8	13.2	5.6	8.15	5.34	6.64	15	0.68	199.20	199.70	200.66	201.83	205.70	202.70	CB-10
21	20	148.000	0.00	3.47	0.00	0.00	1.32	0.0	12.8	5.7	7.47	9.04	6.09	15	1.96	199.70	202.60	202.29	204.28	202.70	206.80	MH-6
22	21	140.000	3.47	3.47	0.38	1.32	1.32	12.4	12.4	5.8	7.60	6.46	6.19	15	1.00	202.60	204.00	204.81	206.74	206.80	206.70	TD-2

Reservoir Ave, Trumbull, CT | Number of lines: 22 | Run Date: 3/4/2026

NOTES:Intensity = 39.06 / (Inlet time + 3.50) ^ 0.69; Return period =Yrs. 25 ; c = cir e = ellip b = box

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	30.000	-74.090	MH	0.00	0.00	0.00	0.0	209.80	1.33	210.20	12	Cir	0.013	0.92	212.80	MH-1
2	1	74.000	-64.000	None	0.00	0.30	0.95	5.0	210.20	1.08	211.00	12	Cir	0.013	1.00	215.00	RF-2
3	End	26.000	-74.090	MH	0.00	0.00	0.00	0.0	202.00	2.69	202.70	24	Cir	0.013	0.75	205.80	HYD-1
4	3	10.000	-42.223	Comb	0.00	0.39	0.86	5.0	202.70	1.00	202.80	15	Cir	0.013	1.00	205.10	CB-4
5	3	5.000	44.832	Comb	0.00	0.36	0.93	5.0	202.70	2.00	202.80	15	Cir	0.013	1.64	205.80	CB-3
6	5	103.000	88.032	Comb	0.00	0.30	0.91	5.0	202.80	2.62	205.50	12	Cir	0.013	0.50	208.50	CB-2
7	6	237.000	3.865	Comb	0.00	0.17	0.91	5.0	205.50	1.48	209.00	12	Cir	0.013	1.00	213.00	CB-1
8	5	132.000	-15.987	DrGrt	0.00	0.08	0.35	5.0	202.80	1.06	204.20	15	Cir	0.013	1.50	206.20	CB-9
9	8	69.000	101.470	DrGrt	0.00	1.56	0.37	13.0	204.20	1.59	205.30	15	Cir	0.013	0.50	208.40	CB-8
10	9	173.000	-14.637	None	0.00	1.05	0.36	13.0	205.30	1.00	207.03	12	Cir	0.013	1.00	213.00	TD-1
11	End	161.000	-74.090	MH	0.00	0.00	0.00	0.0	199.00	0.62	200.00	24	Cir	0.013	1.00	203.50	MH-3
12	11	90.000	-87.450	MH	0.00	0.00	0.00	0.0	200.00	3.00	202.70	12	Cir	0.013	0.97	205.70	MH-2
13	11	42.000	-13.170	MH	9.80	0.00	0.00	0.0	200.00	0.71	200.30	24	Cir	0.013	1.00	202.00	OCS-1
14	12	27.000	-74.090	None	0.00	0.27	0.95	5.0	202.70	1.11	203.00	12	Cir	0.013	1.00	206.00	RF-1
15	End	20.000	-74.090	MH	0.00	0.00	0.00	0.0	199.00	0.50	199.10	12	Cir	0.013	0.15	202.80	HYD-2
16	15	5.000	-2.588	Comb	0.00	0.12	0.90	5.0	199.10	2.00	199.20	12	Cir	0.013	2.16	203.50	CB-6
17	16	48.000	-73.192	Comb	0.00	0.04	0.80	5.0	199.20	0.63	199.50	12	Cir	0.013	1.00	202.00	CB-7
18	16	158.000	72.081	Comb	0.00	0.15	0.91	5.0	199.20	1.14	201.00	12	Cir	0.013	1.00	204.00	CB-5
19	End	30.000	-74.090	MH	0.00	0.00	0.00	0.0	199.00	0.67	199.20	18	Cir	0.013	0.62	205.70	MH-5
20	19	73.000	34.176	DrGrt	0.00	0.39	0.37	12.8	199.20	0.68	199.70	15	Cir	0.013	0.68	202.70	CB-10
21	20	148.000	23.558	MH	0.00	0.00	0.00	0.0	199.70	1.96	202.60	15	Cir	0.013	0.92	206.80	MH-6
22	21	140.000	64.394	None	0.00	3.47	0.38	12.4	202.60	1.00	204.00	15	Cir	0.013	1.00	206.70	TD-2

Reservoir Ave, Trumbull, CT | Number of lines: 22 | Date: 3/4/2026

Structure Report

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
1		Manhole	212.80	Cir	4.00	4.00	12	Cir	210.20	12	Cir	210.20
2		None	215.00	n/a	n/a	n/a	12	Cir	211.00			
3		Manhole	205.80	Cir	4.00	4.00	24	Cir	202.70	15 15	Cir Cir	202.70 202.70
4		Combination	205.10	Cir	4.00	4.00	15	Cir	202.80			
5		Combination	205.80	Cir	4.00	4.00	15	Cir	202.80	12 15	Cir Cir	202.80 202.80
6		Combination	208.50	Cir	4.00	4.00	12	Cir	205.50	12	Cir	205.50
7		Combination	213.00	Cir	4.00	4.00	12	Cir	209.00			
8		DropGrate	206.20	Cir	4.00	4.00	15	Cir	204.20	15	Cir	204.20
9		DropGrate	208.40	Cir	4.00	4.00	15	Cir	205.30	12	Cir	205.30
10		None	213.00	n/a	n/a	n/a	12	Cir	207.03			
11		Manhole	203.50	Cir	4.00	4.00	24	Cir	200.00	12 24	Cir Cir	200.00 200.00
12		Manhole	205.70	Cir	4.00	4.00	12	Cir	202.70	12	Cir	202.70
13		Manhole	202.00	Cir	4.00	4.00	24	Cir	200.30			
14		None	206.00	n/a	n/a	n/a	12	Cir	203.00			
15		Manhole	202.80	Cir	4.00	4.00	12	Cir	199.10	12	Cir	199.10
16		Combination	203.50	Cir	4.00	4.00	12	Cir	199.20	12 12	Cir Cir	199.20 199.20
17		Combination	202.00	Cir	4.00	4.00	12	Cir	199.50			
18		Combination	204.00	Cir	4.00	4.00	12	Cir	201.00			
19		Manhole	205.70	Cir	4.00	4.00	18	Cir	199.20	15	Cir	199.20
20		DropGrate	202.70	Cir	4.00	4.00	15	Cir	199.70	15	Cir	199.70
21		Manhole	206.80	Cir	4.00	4.00	15	Cir	202.60	15	Cir	202.60

Structure Report

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
22		None	206.70	n/a	n/a	n/a	15	Cir	204.00			

Storm Sewer Tabulation

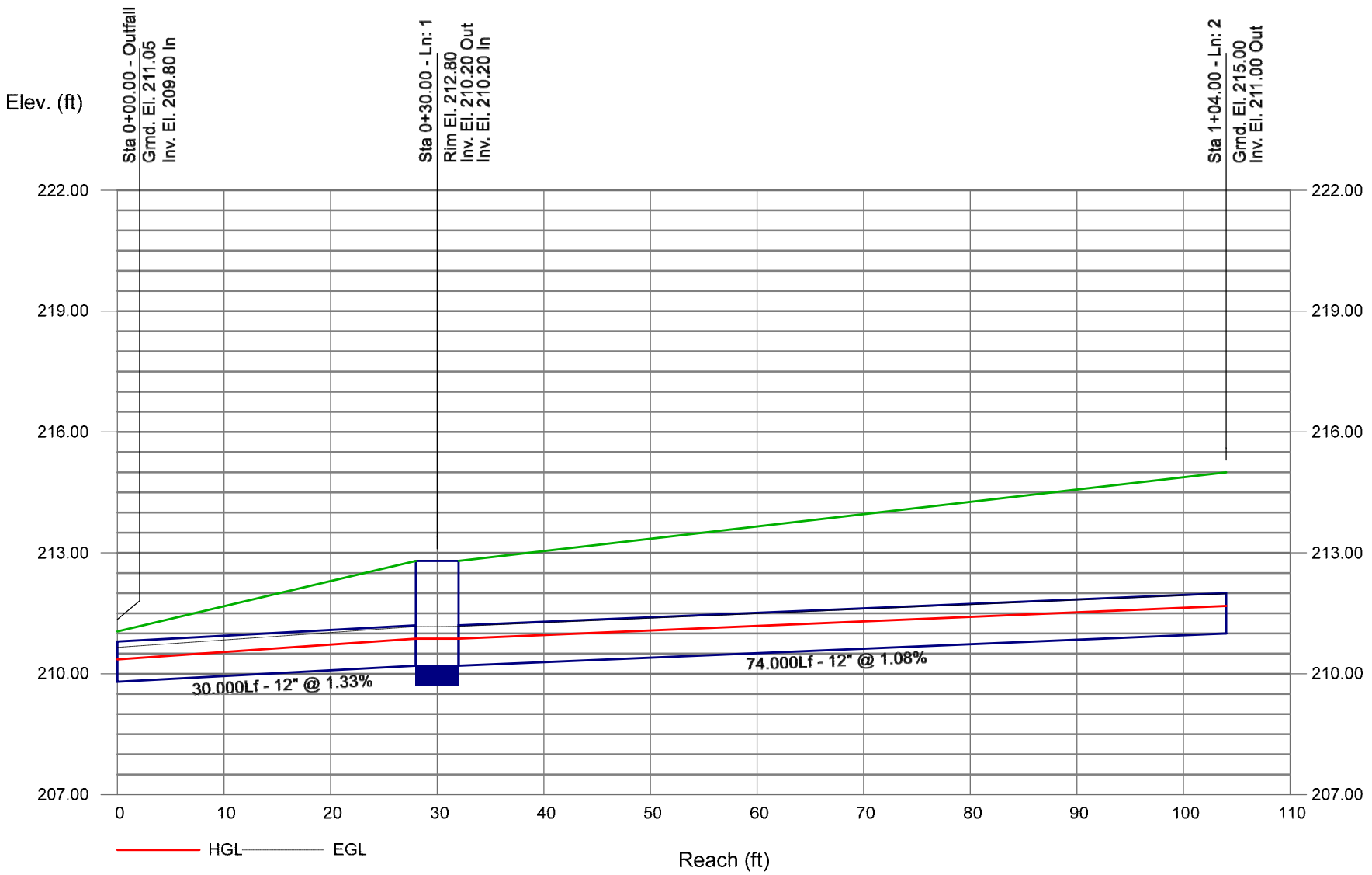
Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	30.000	0.00	0.30	0.00	0.00	0.29	0.0	5.4	8.6	2.46	4.11	4.93	12	1.33	209.80	210.20	210.36	210.87	211.05	212.80	MH-1
2	1	74.000	0.30	0.30	0.95	0.29	0.29	5.0	5.0	8.9	2.53	3.70	4.48	12	1.08	210.20	211.00	210.87	211.68	212.80	215.00	RF-2
3	End	26.000	0.00	3.91	0.00	0.00	2.08	0.0	14.9	5.2	10.85	37.11	4.64	24	2.69	202.00	202.70	203.80	203.88	204.00	205.80	HYD-1
4	3	10.000	0.39	0.39	0.86	0.34	0.34	5.0	5.0	8.9	2.98	6.46	3.37	15	1.00	202.70	202.80	203.88	203.49	205.80	205.10	CB-4
5	3	5.000	0.36	3.52	0.93	0.33	1.75	5.0	14.9	5.2	9.11	9.13	7.63	15	2.00	202.70	202.80	203.88	203.96	205.80	205.80	CB-3
6	5	103.000	0.30	0.47	0.91	0.27	0.43	5.0	7.3	7.5	3.23	5.77	4.55	12	2.62	202.80	205.50	203.96	206.27	205.80	208.50	CB-2
7	6	237.000	0.17	0.17	0.91	0.15	0.15	5.0	5.0	8.9	1.37	4.33	2.83	12	1.48	205.50	209.00	206.27	209.50	208.50	213.00	CB-1
8	5	132.000	0.08	2.69	0.35	0.03	0.98	5.0	14.3	5.3	5.23	6.65	4.89	15	1.06	202.80	204.20	203.96	205.13	205.80	206.20	CB-9
9	8	69.000	1.56	2.61	0.37	0.58	0.96	13.0	14.1	5.4	5.14	8.15	5.29	15	1.59	204.20	205.30	205.13	206.22	206.20	208.40	CB-8
10	9	173.000	1.05	1.05	0.36	0.38	0.38	13.0	13.0	5.6	2.12	3.56	3.47	12	1.00	205.30	207.03	206.22	207.65	208.40	213.00	TD-1
11	End	161.000	0.00	0.27	0.00	0.00	0.26	0.0	5.7	8.4	11.96	17.83	5.84	24	0.62	199.00	200.00	200.24	201.24	200.00	203.50	MH-3
12	11	90.000	0.00	0.27	0.00	0.00	0.26	0.0	5.2	8.8	2.25	6.17	3.55	12	3.00	200.00	202.70	201.24	203.34	203.50	205.70	MH-2
13	11	42.000	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	9.80	19.12	5.10	24	0.71	200.00	200.30	201.24	201.42	203.50	202.00	OCS-1
14	12	27.000	0.27	0.27	0.95	0.26	0.26	5.0	5.0	8.9	2.28	3.75	4.27	12	1.11	202.70	203.00	203.34	203.65	205.70	206.00	RF-1
15	End	20.000	0.00	0.31	0.00	0.00	0.28	0.0	7.2	7.6	2.09	2.52	3.83	12	0.50	199.00	199.10	199.62	199.80	200.00	202.80	HYD-2
16	15	5.000	0.12	0.31	0.90	0.11	0.28	5.0	7.2	7.6	2.09	5.04	3.76	12	2.00	199.10	199.20	199.83	199.82	202.80	203.50	CB-6
17	16	48.000	0.04	0.04	0.80	0.03	0.03	5.0	5.0	8.9	0.28	2.82	1.39	12	0.63	199.20	199.50	199.82	199.72	203.50	202.00	CB-7
18	16	158.000	0.15	0.15	0.91	0.14	0.14	5.0	5.0	8.9	1.21	3.80	2.89	12	1.14	199.20	201.00	199.82	201.46	203.50	204.00	CB-5
19	End	30.000	0.00	3.86	0.00	0.00	1.46	0.0	13.4	5.5	8.09	8.57	5.63	18	0.67	199.00	199.20	200.10	200.38	200.00	205.70	MH-5
20	19	73.000	0.39	3.86	0.37	0.14	1.46	12.8	13.2	5.6	8.15	5.34	6.64	15	0.68	199.20	199.70	200.66	201.83	205.70	202.70	CB-10
21	20	148.000	0.00	3.47	0.00	0.00	1.32	0.0	12.8	5.7	7.47	9.04	6.09	15	1.96	199.70	202.60	202.29	204.28	202.70	206.80	MH-6
22	21	140.000	3.47	3.47	0.38	1.32	1.32	12.4	12.4	5.8	7.60	6.46	6.19	15	1.00	202.60	204.00	204.81	206.74	206.80	206.70	TD-2

Reservoir Ave, Trumbull, CT | Number of lines: 22 | Run Date: 3/4/2026

NOTES:Intensity = 39.06 / (Inlet time + 3.50) ^ 0.69; Return period =Yrs. 25 ; c = cir e = ellip b = box

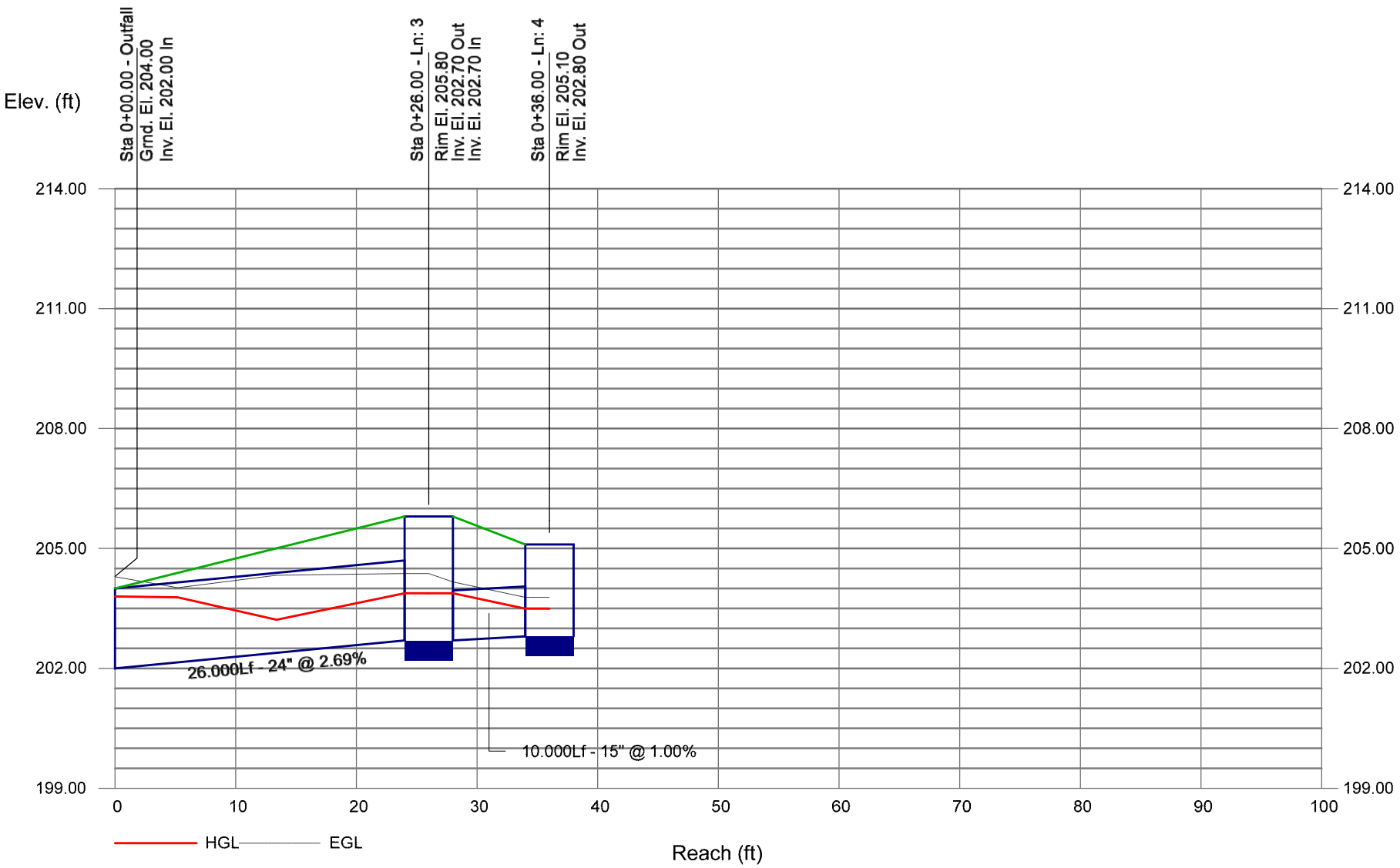
Storm Sewer Profile

Proj. file: 2135, 2145, 2155 Reservoir Ave - Trumbull, CT - StormSewers.stm



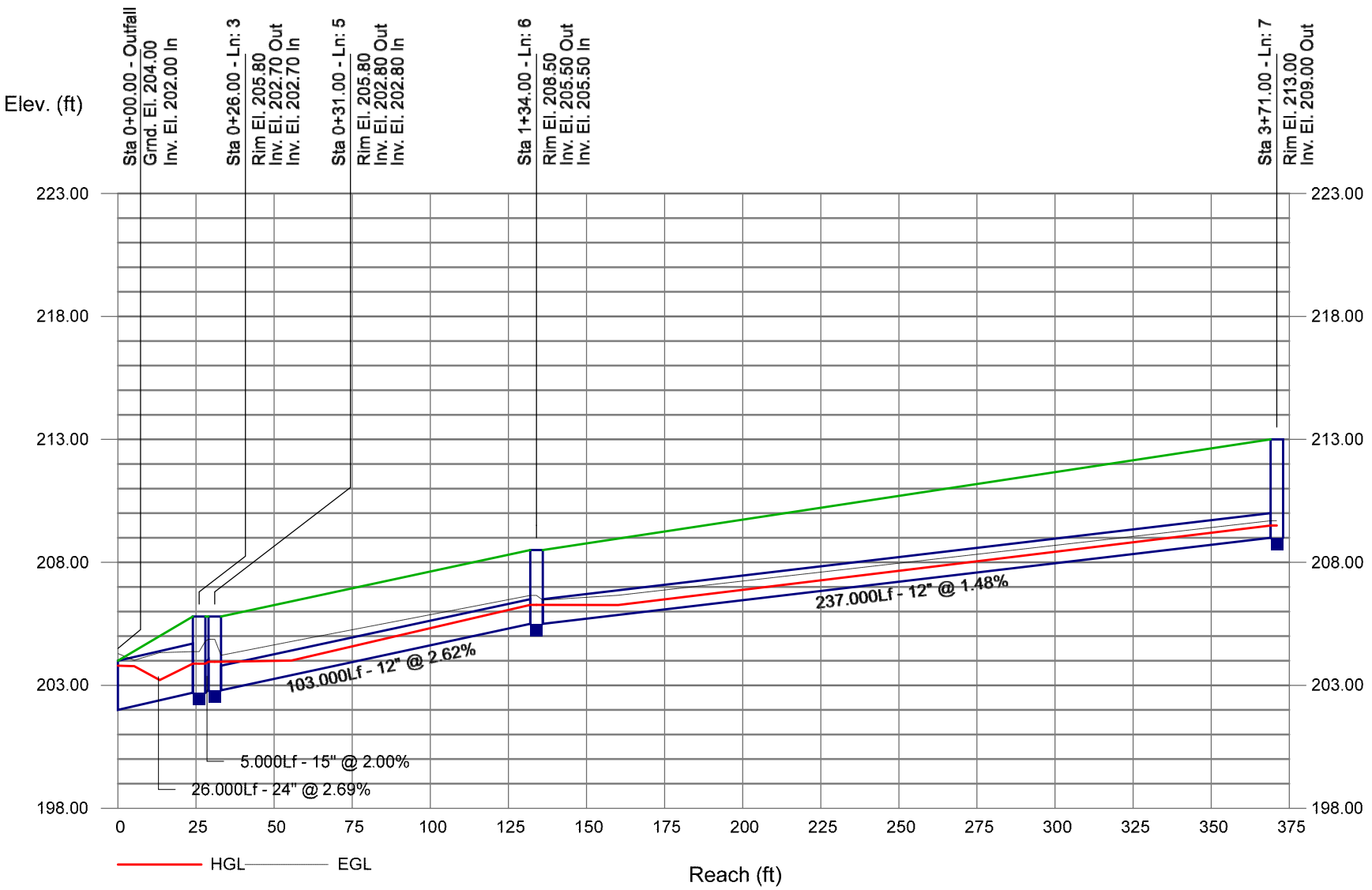
Storm Sewer Profile

Proj. file: 2135, 2145, 2155 Reservoir Ave - Trumbull, CT - StormSewers.stm



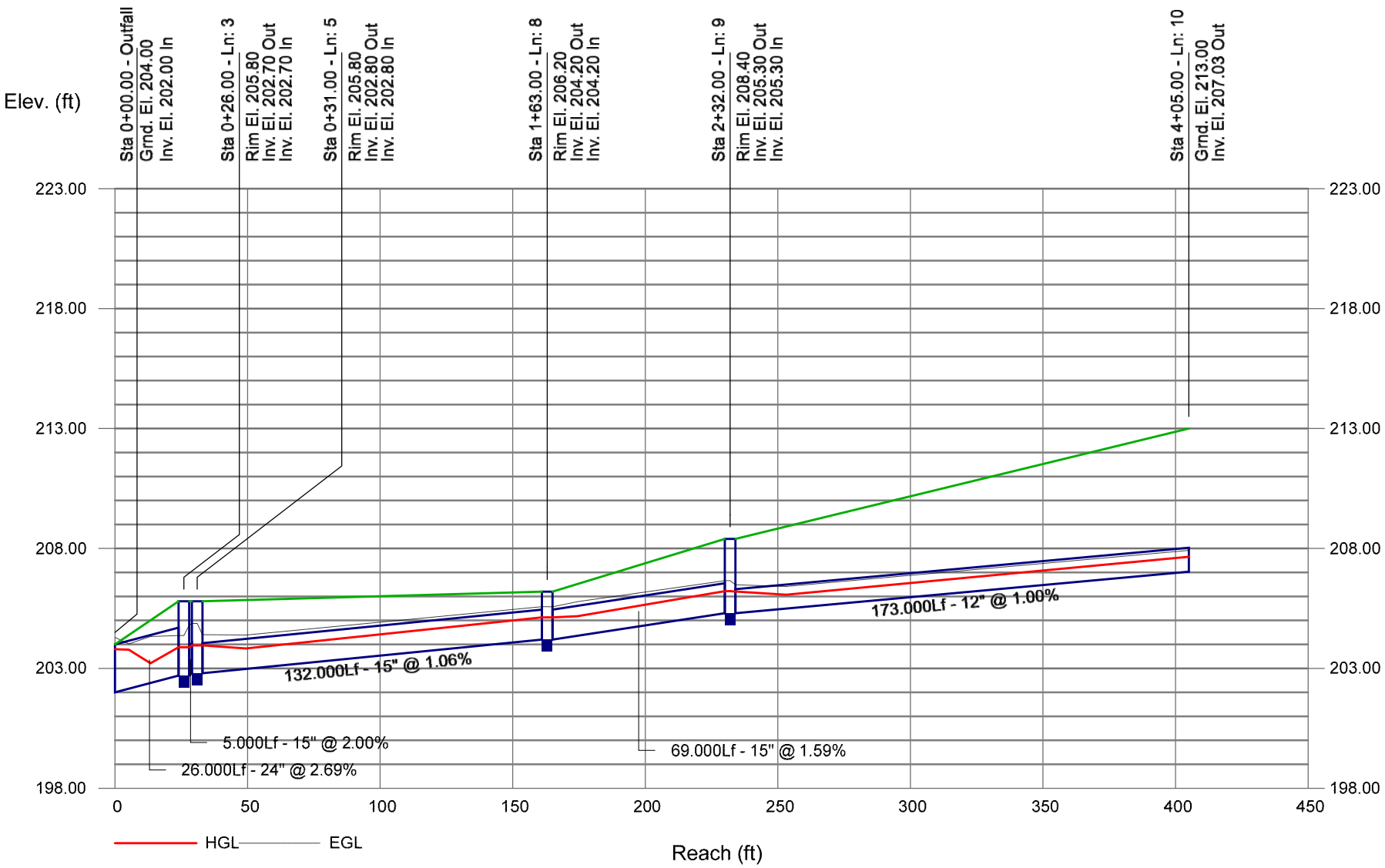
Storm Sewer Profile

Proj. file: 2135, 2145, 2155 Reservoir Ave - Trumbull, CT - StormSewers.stm



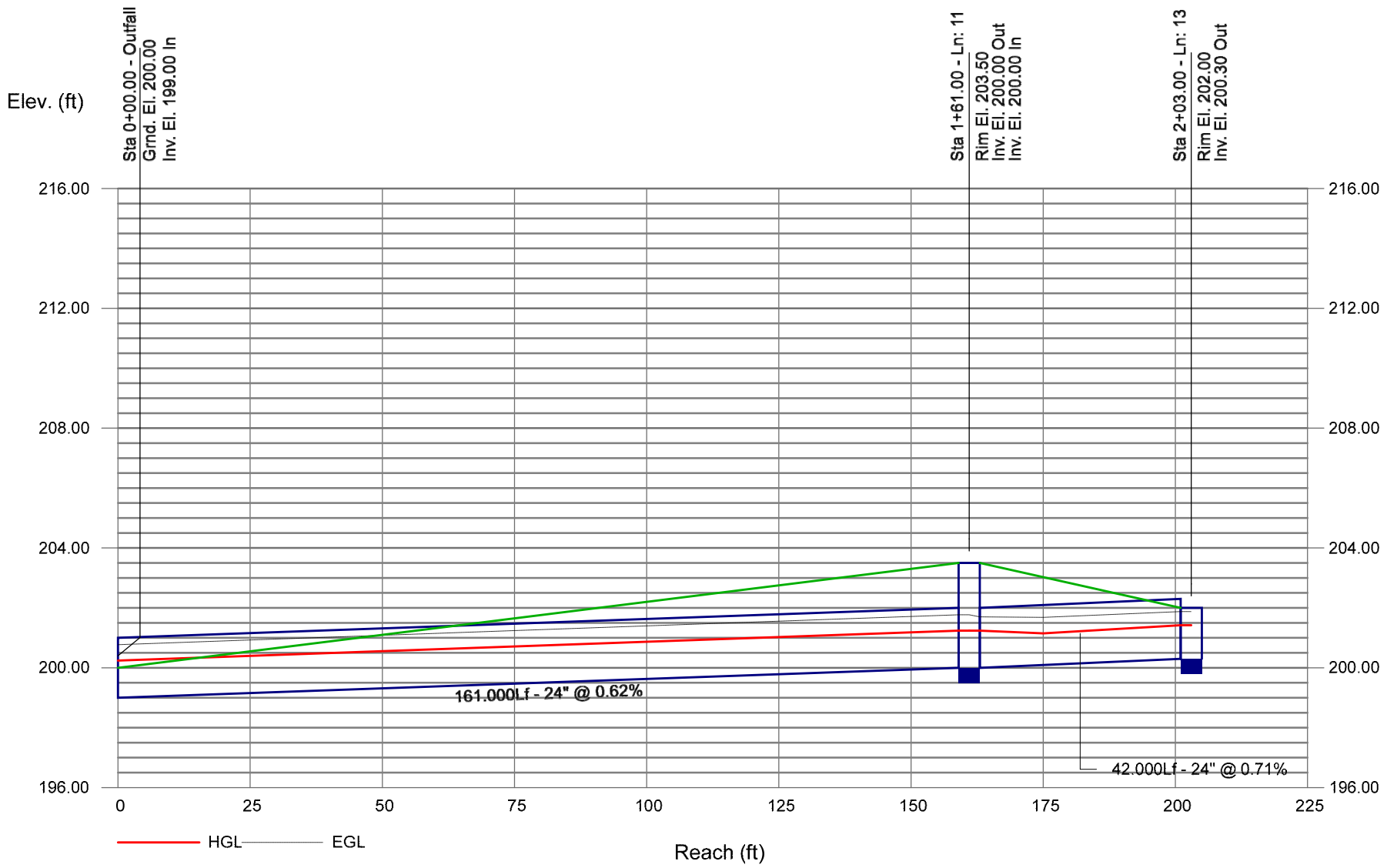
Storm Sewer Profile

Proj. file: 2135, 2145, 2155 Reservoir Ave - Trumbull, CT - StormSewers.stm

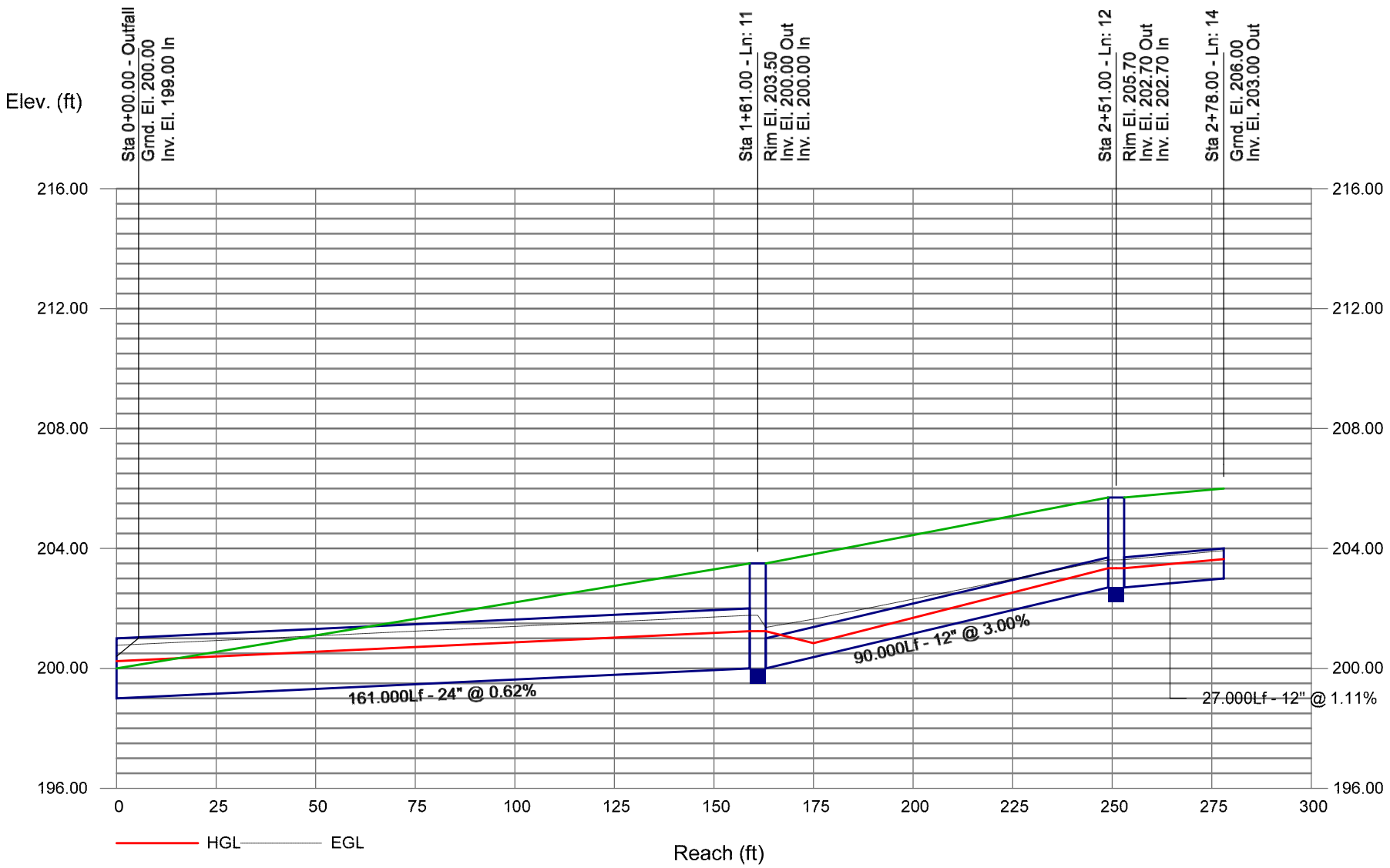


Storm Sewer Profile

Proj. file: 2135, 2145, 2155 Reservoir Ave - Trumbull, CT - StormSewers.stm

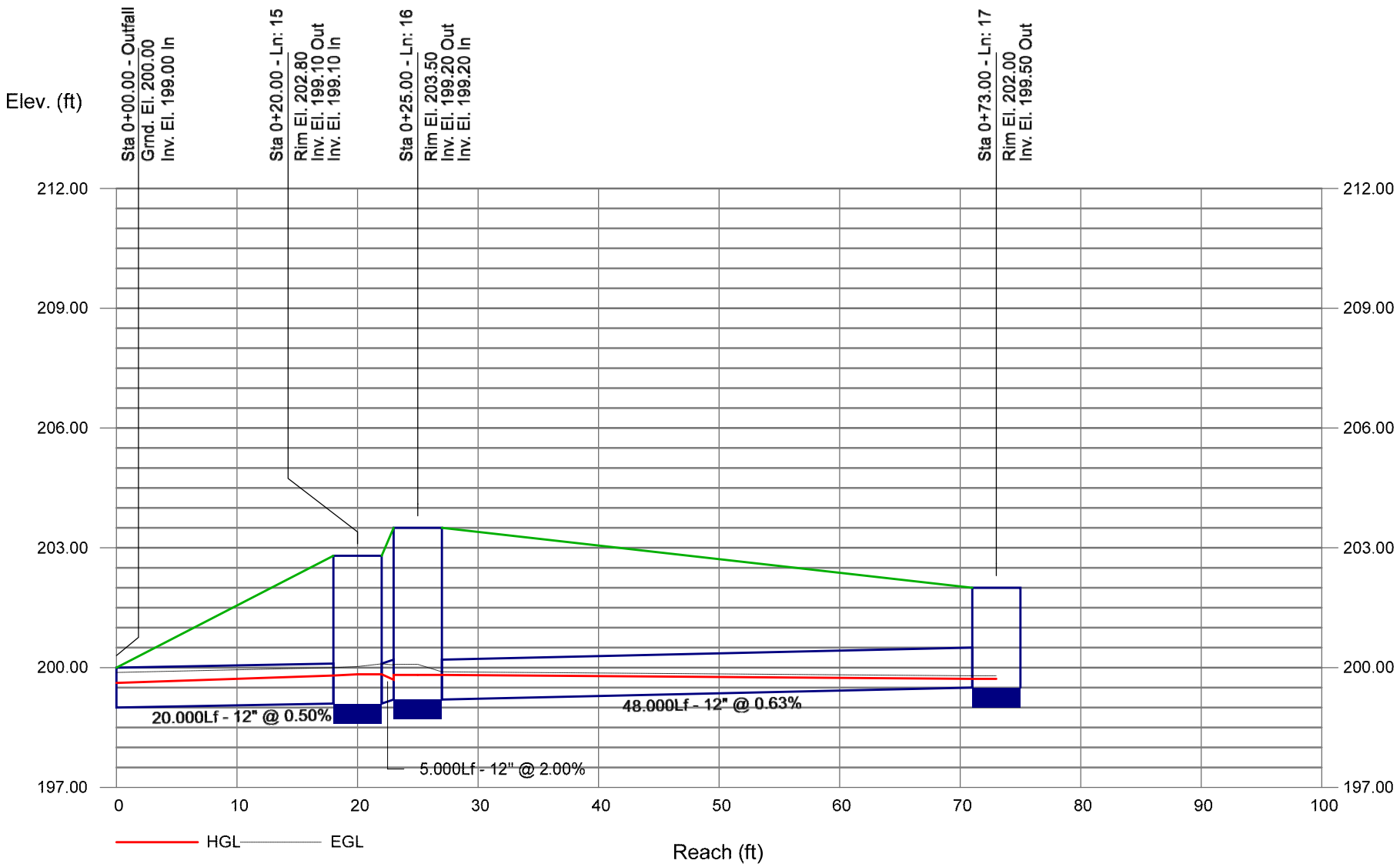


Storm Sewer Profile

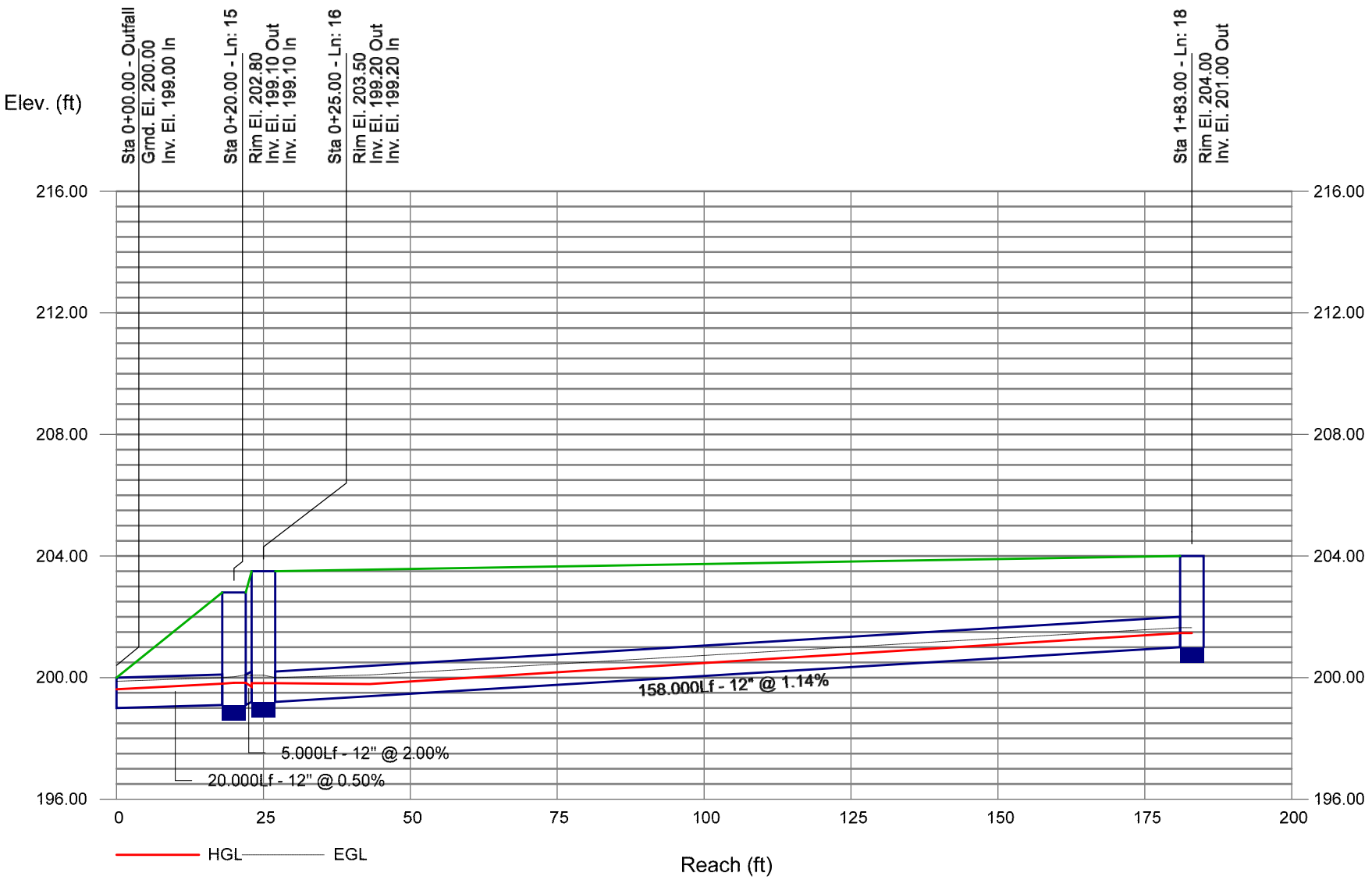


Storm Sewer Profile

Proj. file: 2135, 2145, 2155 Reservoir Ave - Trumbull, CT - StormSewers.stm

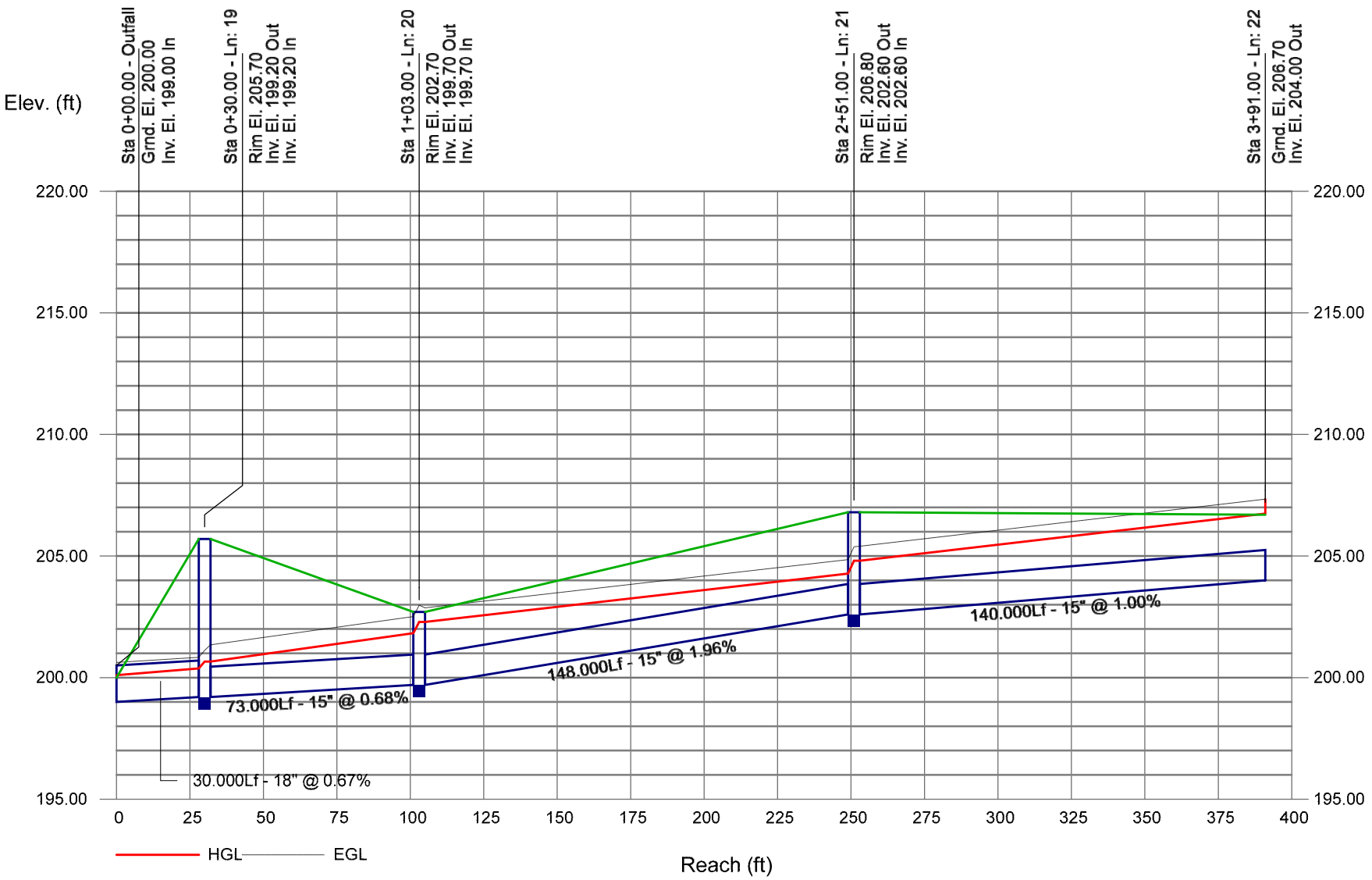


Storm Sewer Profile



Storm Sewer Profile

Proj. file: 2135, 2145, 2155 Reservoir Ave - Trumbull, CT - StormSewers.stm



Project **Proposed Development** By **MJD** Date **03/06/26**

Location **2135, 2145, 2155 Reservoir Ave, Trumbull, CT** Checked **LAM** Date **03/06/26**

Site Status: Developed **Partially Developed** **CB-1**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
D	**Impervious**	**0.95**			**0.16**	**0.15**
D	**Pervious**	**0.35**			**0.01**	**0.00**
1 Use only one C source per line			Totals =		**0.17**	**0.16**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.16}{0.17} =$ 0.91 Use C = **0.91**

Project **Proposed Development** By **MJD** Date **03/06/26**

Location **2135, 2145, 2155 Reservoir Ave, Trumbull, CT** Checked **LAM** Date **03/06/26**

Site Status: Developed **Partially Developed** **CB-2**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
D	**Impervious**	**0.95**			**0.28**	**0.27**
D	**Pervious**	**0.35**			**0.02**	**0.01**
1 Use only one C source per line		Totals =			**0.30**	**0.27**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.27}{0.30} =$ 0.91 Use C = **0.91**

Project **Proposed Development** By **MJD** Date **03/06/26**

Location **2135, 2145, 2155 Reservoir Ave, Trumbull, CT** Checked **LAM** Date **03/06/26**

Site Status: Developed **Partially Developed** **CB-3**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
D	**Impervious**	**0.95**			**0.35**	**0.33**
D	**Pervious**	**0.35**			**0.01**	**0.00**
1 Use only one C source per line				Totals =	**0.36**	**0.34**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.34}{0.36} =$ 0.93 Use C = **0.93**

Project **Proposed Development** By **MJD** Date **03/06/26**

Location **2135, 2145, 2155 Reservoir Ave, Trumbull, CT** Checked **LAM** Date **03/06/26**

Site Status: Developed **Partially Developed** **CB-4**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
D	**Impervious**	**0.95**			**0.33**	**0.31**
D	**Pervious**	**0.35**			**0.06**	**0.02**
1 Use only one C source per line				Totals =	**0.39**	**0.33**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.33}{0.39} =$ 0.86 Use C = **0.86**

Project **Proposed Development** By **MJD** Date **03/06/26**

Location **2135, 2145, 2155 Reservoir Ave, Trumbull, CT** Checked **LAM** Date **03/06/26**

Site Status: Developed **Partially Developed** **CB-5**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
D	**Impervious**	**0.95**			**0.14**	**0.13**
D	**Pervious**	**0.35**			**0.01**	**0.00**
1 Use only one C source per line				Totals =	**0.15**	**0.14**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.14}{0.15} =$ 0.91 Use C = **0.91**

Project **Proposed Development** By **MJD** Date **03/06/26**

Location **2135, 2145, 2155 Reservoir Ave, Trumbull, CT** Checked **LAM** Date **03/06/26**

Site Status: Developed **Partially Developed** **CB-6**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
D	**Impervious**	**0.95**			**0.11**	**0.10**
D	**Pervious**	**0.35**			**0.01**	**0.00**
1 Use only one C source per line				Totals =	**0.12**	**0.11**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.11}{0.12} =$ 0.90 Use C = **0.90**

Project **Proposed Development** By **MJD** Date **03/06/26**

Location **2135, 2145, 2155 Reservoir Ave, Trumbull, CT** Checked **LAM** Date **03/06/26**

Site Status: Developed **Partially Developed** **CB-7**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
D	**Impervious**	**0.95**			**0.03**	**0.03**
D	**Pervious**	**0.35**			**0.01**	**0.00**
1 Use only one C source per line				Totals =	**0.04**	**0.03**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.03}{0.04} =$ 0.80 Use C = **0.80**

Project **Proposed Development** By **MJD** Date **03/06/26**

Location **2135, 2145, 2155 Reservoir Ave, Trumbull, CT** Checked **LAM** Date **03/06/26**

Site Status: Developed **Partially Developed** **CB-8**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
D	**Impervious**	**0.95**			**0.01**	**0.01**
D	**Pervious**	**0.35**			**1.55**	**0.54**
1 Use only one C source per line			Totals =		**1.56**	**0.55**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.55}{1.56} =$ 0.35 Use C = **0.35**

Project **Proposed Development** By **MJD** Date **03/06/26**

Location **2135, 2145, 2155 Reservoir Ave, Trumbull, CT** Checked **LAM** Date **03/06/26**

Site Status: Developed **Partially Developed** **CB-9**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
D	**Impervious**	**0.95**			**0.00**	**0.00**
D	**Pervious**	**0.35**			**0.08**	**0.03**
1 Use only one C source per line				Totals =	**0.08**	**0.03**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.03}{0.08} =$ 0.35 Use C = **0.35**

Project **Proposed Development** By **MJD** Date **03/06/26**

Location **2135, 2145, 2155 Reservoir Ave, Trumbull, CT** Checked **LAM** Date **03/06/26**

Site Status: Developed **Partially Developed** **CB-10**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
D	**Impervious**	**0.95**			**0.01**	**0.01**
D	**Pervious**	**0.35**			**0.38**	**0.13**
1 Use only one C source per line			Totals =		**0.39**	**0.14**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.14}{0.39} =$ 0.37 Use C = **0.37**

Project **Proposed Development** By **MJD** Date **03/06/26**

Location **2135, 2145, 2155 Reservoir Ave, Trumbull, CT** Checked **LAM** Date **03/06/26**

Site Status: Developed **Partially Developed** **TD-1**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
D	**Impervious**	**0.95**			**0.02**	**0.02**
D	**Pervious**	**0.35**			**1.03**	**0.36**
1 Use only one C source per line			Totals =		**1.05**	**0.38**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.38}{1.05} =$ 0.36 Use C = **0.36**

Project **Proposed Development** By **MJD** Date **03/06/26**

Location **2135, 2145, 2155 Reservoir Ave, Trumbull, CT** Checked **LAM** Date **03/06/26**

Site Status: Developed **Partially Developed** **TD-2**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
D	**Impervious**	**0.95**			**0.15**	**0.14**
D	**Pervious**	**0.35**			**3.32**	**1.16**
1 Use only one C source per line				Totals =	**3.47**	**1.30**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{1.30}{3.47} =$ 0.38 Use C = **0.38**

Project **Proposed Development** By **MJD** Date **03/06/26**

Location **2135, 2145, 2155 Reservoir Ave, Trumbull, CT** Checked **LAM** Date **03/06/26**

Site Status: Developed **Partially Developed** **RF-1**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
D	**Impervious**	**0.95**			**0.27**	**0.26**
D	**Pervious**	**0.35**			**0.00**	**0.00**
1 Use only one C source per line			Totals =		**0.27**	**0.26**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.26}{0.27} =$ 0.95 Use C = **0.95**

Project **Proposed Development** By **MJD** Date **03/06/26**

Location **2135, 2145, 2155 Reservoir Ave, Trumbull, CT** Checked **LAM** Date **03/06/26**

Site Status: Developed **Partially Developed** **RF-2**

1. Runoff Coefficient ©

Soil Name and hydrologic group (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C [1]			Area [x] acres [ ] mi^2 [ ] %	Product of C x area
D	**Impervious**	**0.95**			**0.30**	**0.29**
D	**Pervious**	**0.35**			**0.00**	**0.00**
1 Use only one C source per line			Totals =		**0.30**	**0.29**

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{0.29}{0.30} =$ 0.95 Use C = **0.95**

First Defense®

Advanced Hydrodynamic Separator

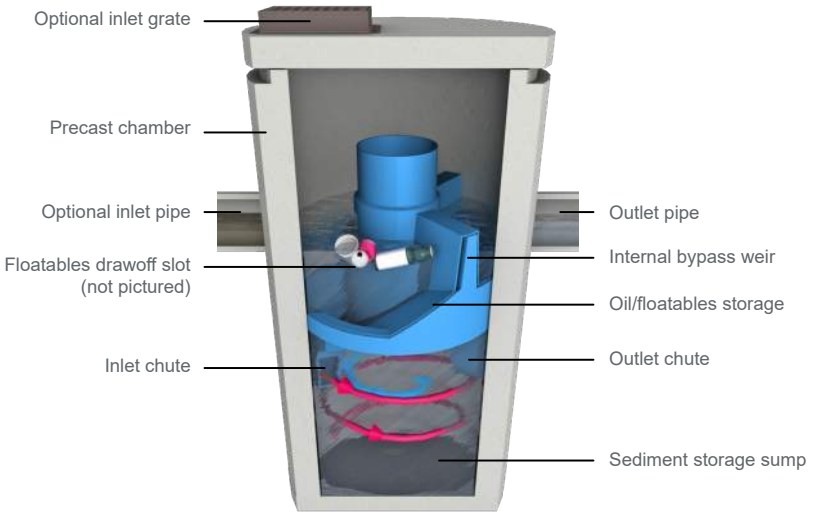


Product Summary

A Simple Solution for the Trickiest Sites

First Defense is a versatile stormwater separator with some of the highest approved flow rates in the United States. Engineers and contractors can save site space and reduce project costs by using the smallest possible footprint. It works with single or multiple inlet pipes and inlet grates. An internal bypass conveys infrequent peak flows directly to the outlet, efficiently capturing pollutants and preventing washouts.

Features



Contaminated stormwater runoff enters the inlet chute from a surface grate and/or inlet pipe. The inlet chute introduces flow into the chamber tangentially to create a low energy vortex flow regime (magenta arrow) that directs sediment into the sump while oils, floating trash and debris rise to the surface.

Treated stormwater exits through a submerged outlet chute located opposite to the direction of the rotating flow (blue arrow). Enhanced vortex separation is provided by forcing the rotating flow within the vessel to follow the longest path possible rather than directly from inlet to outlet.

Higher flows bypass the treatment chamber to prevent turbulence and washout of captured pollutants. An internal bypass conveys infrequent peak flows directly to the outlet eliminating the need for, and expense of, external bypass control structures. A floatables draw off slot functions to convey floatables into the treatment chamber prior to bypass.

Applications

- Areas requiring a minimum of 50% TSS removal
- 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
- Highways, parking lots, industrial areas and urban developments
- Pre-treatment to ponds, storage systems, green infrastructure

Benefits

Highest Flow Through the Smallest Footprint

- **Smaller Footprint, Lower Costs**
  First Defense provides space-saving, easy-to-install surface water treatment in standard size chambers/manholes.
- **Adapt to Site Limitations**
  Variable configurations will help you effectively slip First Defense into a tight spot. It also works well with large pipes, multiple inlet pipes and inlet grates.
- **Reduce Installation Time & Costs**
  Every First Defense unit is delivered to site pre-assembled and ready for install.
- **Online System Configuration**
  First Defense eliminates the need for separate structures with its integrated internal bypass.
- **Designed with Maintenance in Mind**
  Easy vactor hose access through the center shaft of the system makes for quick sump cleanout, saving time and reducing long-term operational cost.



Sizing & Specifications

First Defense units are available in **six diameters** to fit standard chamber and manhole sizes. The dimensions below are common across all model numbers.

Diameter	Peak Online Flow Rate	Maximum Pipe Diameter[1]	Typical Sediment Storage Capacity[2]	Minimum Distance from Outlet Invert to Top of Rim[3]	Standard Distance from Outlet Invert to Sump Floor
(ft / m)	(cfs / L/s)	(in / mm)	(yd^3 / m^3)	(ft / m)	(ft / m)
3 / 0.9	15 / 424	18 / 450	0.4 / 0.3	2.0 - 2.5 / 0.61 - 0.76	3.71 / 1.13
4 / 1.2	18 / 510	24 / 600	0.7 / 0.5	2.0 - 3.0 / 0.61 - 0.91	4.97 / 1.5
5 / 1.5	20 / 566	24 / 600	1.1 / .84	2.0 - 3.7 / 0.61 - 1.13	5.83 / 1.5
6 / 1.8	32 / 906	30 / 750	1.6 / 1.2	2.0 - 4.1 / 0.61 - 1.25	5.97 / 1.8
8 / 2.4	50 / 1415	48 / 1200	2.8 / 2.1	2.4 - 5.4 / 0.73 -1.65	7.40 / 2.2
10 / 3.0	50 / 1415	48 / 1200	4.4 / 3.3	2.4 - 6.8 / 0.73 - 2.07	10.25 / 3.12

Hydro International offers First Defense units in **two versions** that conform to the performance requirements of different states' water quality regulations.[4]

First Defense High Capacity Model Number	Typical TSS Treatment Flow Rates	
	NJDEP Certified[4]	110µm
	(cfs / L/s)	(cfs / L/s)
FDHC-3	0.84 / 23.7	1.06 / 30.0
FDHC-4	1.50 / 42.4	1.88 / 53.2
FDHC-5	2.35 / 66.2	2.94 / 83.2
FDHC-6	3.38 / 95.7	4.23 / 119.8
FDHC-8	6.00 / 169.9	7.52 / 212.9
FDHC-10	9.38 / 265.6	11.75 / 332.7

First Defense Optimum Model Number	NJDEP Certified Treatment Flow Rates[4]
	(cfs / L/s)
FDO-3	1.02 / 28.9
FDO-4	1.81 / 51.3
FDO-5	2.83 / 80.0
FDO-6	4.07 / 115.2
FDO-8	7.23 / 204.7
FDO-10	11.33 / 320.6

[1]Contact Hydro International when larger pipe sizes are required.
[2]Contact Hydro International when custom sediment storage capacity is required.
[3]These are guidlines only. Minimum distance is based on pipe diameter and headloss at assumed flow rates, contact Hydro for detailed design.
[4]NJDEP Certified / NJCAT Verified, based on one inlet pipe and no inlet grate.

Also available in a screened configuration for Full Trash Capture!



Free Online Design Tool

This free online sizing tool will recommend the best separator, model size and online or offline configuration based on site-specific data entered by the user.

Upon completion, users have the option to submit the design to Hydro International for a free review by our engineering team.

Go to hydro-int.com/sizing to access the tool.

Hydro International

Hydro International, 94 Hutchins Drive, Portland, ME 04102
Tel: (207) 756-6200
Email: stormwaterinquiry@hydro-int.com
Web: www.hydro-int.com/firstdefense

FD_SS_B_2203

Download Drawings:
→ hydro-int.com/fddrawings

Operation & Maintenance Manual:
→ hydro-int.com/fd-om

APPENDIX D
DESIGN PLANS

Under Separate Cover

Grading & Drainage Plan (2.21)
Soil Erosion & Sediment Control Plans (2.31 & 2.32)
Soil Erosion & Sediment Control Notes & Details (2.41)
Utility Plan (2.51)
Landscaping Plan (2.61)
Lighting Plan (2.71)

APPENDIX E
LONG-TERM OPERATION & MAINTENANCE

Operation & Maintenance Manual

TABLE OF CONTENTS

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STORM DRAINAGE PIPING 5
SNOW & ICE MANAGEMENT 5
PESTICIDES, HERBICIDES AND FERTILIZERS 5
TRASH REMOVAL 5
EMERGENCY SPILL CONTAINMENT 5
RIP RAP OUTLET PROTECTION 6
STREET MAINTENANCE 6
DISPOSAL OF DEBRIS AND SEDIMENT 7

SOLLI ENGINEERING

LONG-TERM
OPERATION & MAINTENANCE MANUAL

For the Proposed:

Multi-Family Residential Development

Located At:
2135, 2145 & 2155 Reservoir Avenue
Trumbull, Connecticut 06611

Prepared On:
March 4, 2026

Prepared By:

SOLLI ENGINEERING
501 Main Street
Monroe, Connecticut 06468
T: (203) 880-5455 F: (203) 880-9695

Prepared For:

Vessel Technologies

46 West 55th Street
New York, NY

INTRODUCTION

Solli Engineering (Solli) has prepared this Stormwater Management System Operation and Maintenance Manual in accordance with Chapter 4 Standard 4: Post Construction Operation and Maintenance of the Connecticut Stormwater Quality Manual. The Long-Term Operations and Maintenance (O&M) Manual, filed with the Town of Trumbull, shall be implemented at the proposed Multi-Family Residential Development project at 2135, 2145 & 2155 Reservoir Avenue in the Town of Trumbull, Connecticut to ensure that the stormwater management functions as designed. The owner possesses the primary responsibility for overseeing and implementing the O&M plan and assigning a Property Manager who will be responsible for the proper operation and maintenance of the stormwater structures. In case of transfer of property ownership, future property owners shall be notified of the presence of the stormwater management system and the requirements for proper implementation of the O&M plan. Included in the O&M plan identifying key components of the stormwater system as well as a log for tracking inspections & maintenance.

The stormwater management system protects and enhances the stormwater runoff water quality through the removal of sediment and pollutants, and source control significantly reduces the amount of pollutants entering the system. Preventive maintenance of the system will include a comprehensive source reduction program of regular vacuuming and litter removal, prohibitions on the use of pesticides and maintenance of designated waste and recycling. All inspections and maintenance shall be performed in accordance with the Connecticut Stormwater Quality Manual.

RESPONSIBILITY

The purpose of the Long-Term Operation and Maintenance (O&M) Manual is to ensure inspection of the system, removal of accumulated sediments, oils, and debris and implementation of corrective action and record keeping activities. The below O&M activities associated with the site will be performed by a Contract Operator for the scope of maintenance. The Contract Operator will be a professional engineer or other technical professional with expertise and experience with stormwater management facilities operation and maintenance.

The ongoing responsibility is the Owner, its successors, and assigns. Adequate maintenance is defined in this document as good working condition.

Responsibility for O&M (to be transferred upon sale of property / development):

Contact: Josh Levy
Company: Vessel Technologies
Number: (646) 531-2126
Address: 46 West 55th Street
City, State: New York, NY 10019

DOCUMENTATION

An inspection and maintenance record log and schedule will be kept by the Owner or Property Manager summarizing inspections, maintenance, repairs, and any corrective actions taken. The log will include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. If a maintenance task requires the clean-out of any sediments or debris, the location where the sediment and debris was disposed after removal will be indicated. Inspection & Maintenance Logs will be kept on file at the on-site Property Management office.

MAINTENANCE PROGRAM

The Owner, Property Manager and maintenance staff will conduct the Operation and Maintenance program set forth in this document. The Owner or Property Manager will ensure that inspections and record keeping are timely and accurate, and that cleaning and maintenance are performed in accordance with the recommended frequency for each stormwater component. Inspection & Maintenance Log Forms shall include the date and the amount of the last significant storm event in excess of 1-inch of rain in a 24-hour period, physical conditions of the structures, depth of sediment in structures, evidence of overtopping or debris blockage and maintenance required of each structure. The following areas, facilities and measures will be inspected by the Owner or Property Manager and maintained as specified below. Identified deficiencies will be corrected. Accumulated sediments and debris will be properly handled and disposed of off-site, in accordance with local, state, and federal guidelines and regulations.

All inspections and maintenance performed shall be in accordance with specifications outlined in the Connecticut Stormwater Quality Manual.

ABOVE-GROUND STORMWATER DETENTION BASIN

The stormwater detention basin was designed to attenuate the peak discharge rate per the 2024 Connecticut Stormwater Quality Manual. To successfully maintain these design parameters the following will be required for upkeep:

As needed basis:

- Prune and weed to maintain appearance
- Remove trash and debris
- Ensure that contributing area, practice and inlets are clear of debris
- Repair undercut and eroded areas at inflow and outflow structures

Semi-annually:

- Inspect inflow and pretreatment systems for clogging and remove sediment
- Remove trees that start to grow within the basin.

Annually:

- Inspect and remove any sediment and debris build-up in basin
- Inspect inflow points and infiltration surface for buildup or road sand associated with spring melt period, remove as necessary, and replant areas that have been impacted by sand/salt buildup
- Cut back and remove previous year's plant material and remove accumulated leaves if needed

Every 5 Years:

- Scrape basin bottom and remove sediment
- Restore original volumetric dimensions of basin
- Restore original infiltration rate

HYDRODYNAMIC SEPARATOR UNIT

Hydrodynamic separators protect 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 separator. The unit 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 structure will no longer be able to store removed sediment and oil. In the case of inspection and floatables removal, a vactor truck may be needed. The frequency of cleanout is determined in the field after installation. During the first year of operation, the unit should be inspected regularly and then after, every six months (twice a year) to determine the rate of sediment and floatables accumulation. A simple probe can be used to determine the level of accumulated solids stored in the sump. This information should be recorded in the inspection logs. Sediment and debris removal can be done manually or with approved sump-vac (or equal).

As for inspection procedures, set up any safety equipment around the access port or grate of the structure. Such safety equipment should notify passing pedestrians and road traffic that work is being done. Then remove the top of said manhole, and without entering the vessel inspect the inside of the chamber, making note of any irregularities or issues observed, such as sediment buildup, cracks or breaks in the structure, water level, etc. Again, without entering the vessel, use a pole skimmer to remove floatables and debris from the chamber. Using a sediment probe, measure the depth of the sediment that has collected in the sump of the structure. For a more thorough cleaning, lower a vactor hose to the base of the sump and vactor out the sediment and gross debris from the sump floor. On the log it is important to note the date, location of structure (or identification), estimated volume of floatables, and depth of sediment. Securely replace the top of the structure and take down any safety equipment. Then notify the engineer of record for any irregularities in the structure's performance if any.

CATCH BASIN & DRAINAGE INLETS

- Catch basins and drainage inlets shall be completely cleaned of accumulated debris and sediments at the completion of construction.
- For the first year, catch basins and other drainage inlets shall be inspected on a quarterly basis, with one inspection immediately following the completion of winter sanding and subsequent sweeping operations, and one happening just prior to the winter season.
- Any accumulated debris within the catch basins/inlets shall be removed and any repairs made to the basin as required.
- From the second year onward, visual inspections shall occur twice per year, once in the spring, after winter sanding and sweeping operations are complete, and once in the fall, after fall cleanup of leaves has occurred.
- Accumulated debris within the catch basins/inlets shall be removed and repairs made as required.
- Accumulated sediments shall be removed at which time they are within 12 inches of the invert of the outlet pipe.
- All drainage outlets shall be inspected and cleared of debris. Any repairs to outlet protection material (rip rap) shall be performed.

STORM DRAINAGE PIPING

- All storm drainage piping shall be completely flushed of debris and accumulated sediment at the completion of construction.
- Connection points at structures shall be inspected and repaired on an annual basis.
- Unless system performance indicates degradation of piping, comprehensive video inspection of storm drainage piping shall occur once every ten years.

SNOW & ICE MANAGEMENT

Snow accumulations removed from roadway, driveway and parking areas should be placed in areas where sand and other debris will remain after snowmelt for later removal. Excess snow should be removed from the site and properly disposed of in an approved snow disposal facility. Care must be exercised not to deposit snow in the following areas: on top of storm drain catch basins; in storm drainage swales; in natural depressions and in the stormwater basin.

PESTICIDES, HERBICIDES AND FERTILIZERS

Pesticides and herbicides shall be used sparingly. Fertilizers should be restricted to the use of organic fertilizers only. Exterior storage of fertilizers, herbicides, pesticides or other toxic or hazardous materials should be prohibited.

TRASH REMOVAL

Once a month the owner of the site or a designated property manager should walk the site and remove any debris or trash that is seen. The site walk shall include the existing surface detention basin to the east of the retaining wall and the surrounding wooded area adjacent to the edge of the proposed paved area to the south. All trash and debris are to be collected and disposed of in an approved manner.

EMERGENCY SPILL CONTAINMENT

The Owner, along with the on-site Property Manager, is responsible for educating staff and informing tenants on the environmental benefits associated with the use of pavement at the site. Staff must be trained, and tenants informed via the community website as to the proper spill prevention control and response procedures should a spill occur on the pavement surface. Proper spill control products, such as a granular dry absorbent, must be kept on-site at the property management office in a clean, dry chemical and corrosion resistant container.

A spill of greater than 10 gallons of oil or a spill of any quantity that has reached a surface water, into a sewer, storm drain, ditch, or culvert leading to a surface water, is immediately reported to one or more municipal, state, or federal authority. In the event of a hazardous waste spill on-site, the following protocol should be followed.

- If it is safe to do so, maintenance staff or tenants detecting an oil spill should immediately stop the release and use available materials to prevent the spread of oil, Tetra Tech 6 particularly from discharging towards leaching catch basins located within the access driveway.
- If there is a potentially flammable, toxic or explosive condition, evacuate the vicinity of the spill.
- If it's believed that a reportable or dangerous condition exists, immediately call your local Fire Department to notify them of the release.
- If it is believed that a reportable condition exists, immediately call CT DEEP to notify them of the release. Be prepared to provide the following information to CT DEEP and the Fire Department:
    - Identity of the caller
    - Contact phone number
    - Location of the spill
    - Type of product spilled
    - Approximate quantity or product spilled
    - Extent of actual and/or potential water pollution
    - Date and time of spill
    - Cause of spill
- Contact a Licensed Site Professional (LSP) to assist in further handling of the material(s) and PADEP.

RIP RAP OUTLET PROTECTION

Inspect at least once annually for accumulation of sediment and debris and for signs of erosion surrounding rip rap. Remove debris whenever observed during inspection. Remove sediment when accumulation exceeds 25% of rip rap channel. Weed and prune as required by landscaping design. At a minimum, weed and prune annually to allow rip rap to effectively work. Snow should not be stored within or down-slope rip rap channel. Repair any erosion and re-grade or replace rip rap material, as warranted by inspection. Reconstruct the rip rap channel if indications of down-slope erosion have occurred.

STREET MAINTENANCE

Street maintenance is a non-structural source control performed by mechanical means to limit sediment and particulates from impervious surfaces as an effort to control or limit the sediment migration to other stormwater BMP's during storm events. There are three typical types of sweeping methods, including mechanical, regenerative air and vacuum filter. Mechanical sweepers are the most common and use brooms or brushes to scour the pavement. Regenerative air sweepers blow air onto the impervious surface causing sediment and other fine particles to be blown from the surface so they can be vacuumed. Vacuum filter sweepers are available in wet and dry types. Dry types use brooms to agitate the sediment prior to vacuuming. Wet types work in a similar fashion but use water to suppress dust during the collection activity. Because of street maintenance, sediment and other fine particulates are limited on the impervious surfaces and be further controlled from entering other BMP's. They also allow for the removal and prevention of accumulation of sediment along parking or road edges.

This should be done periodically during dry weather to remove excess sediments to reduce the amount of sediments that the drainage system shall have to remove from runoff. Sweeping should mostly be conducted between the months of March and November, with special attention to sweeping during the wetter (earlier) months. Salt used for de-icing should be limited as much as possible as this will reduce the need for the removal and treatment. However, sand containing the minimum amount of calcium chloride (or approved equal) needed for handling may be applied as part of the routine winter maintenance activities.

DISPOSAL OF DEBRIS AND SEDIMENT

All debris and sediment removed from the stormwater structures shall be disposed of legally. There shall be no dumping of silt or debris into or in proximity to any inland or tidal wetlands.

	Title:	Inpsection #:
	Location:	Project #:
		Field Date:

INSPECTION & MAINTENANCE LOG

Name(s) & Title(s) of Individual(s) performing inspection: _____

Week of Inspection: _____

Type of Inspection:

☐ Monthly ☐ Quarterly ☐ Biannually ☐ Annually ☐ Emergency

Weather (during inspection)

☐ Clear ☐ Cloudy ☐ Rain ☐ Snow ☐ Sunny ☐ Windy ☐ Fog

Other:

Time of Inspection:		**Temp. during inspection:**	°F
Start Time:	**a.m.** **End Time:** **a.m.**	**Precip. since last inspection:**	"

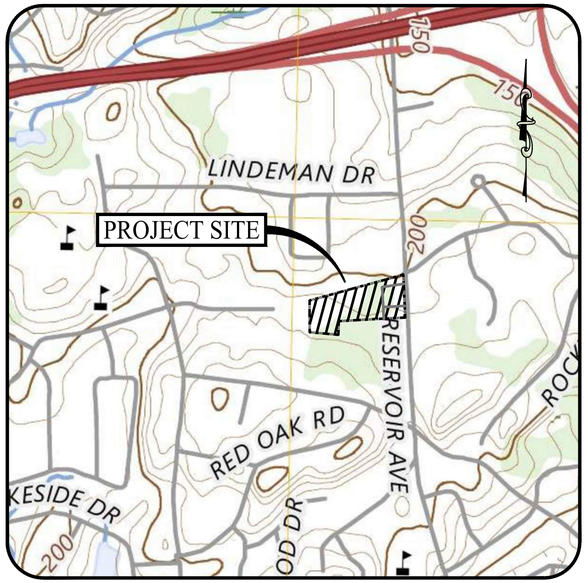
Site Specific BMP's

#	BMP	Maintenance Required		Corrective Action Needed & Notes
1		☐ Yes	☐ No	
2		☐ Yes	☐ No	
3		☐ Yes	☐ No	
4		☐ Yes	☐ No	
5		☐ Yes	☐ No	
6		☐ Yes	☐ No	
7		☐ Yes	☐ No	
8		☐ Yes	☐ No	
9		☐ Yes	☐ No	
10		☐ Yes	☐ No	

Overall Site Maintenance Concerns

BMP/Activity	Maintenance Required		Corrective Action Needed & Notes
Are discharge points & receiving waters free of any sediment deposits?	☐ Yes	☐ No	
Are storm drain inlets properly working?	☐ Yes	☐ No	
Is trash/litter from site areas collected & placed in covered dumpsters?	☐ Yes	☐ No	
What is the level of sediment within infiltration basin?	☐ Yes	☐ No	
What is the level of sediment within the hydrodynamic separators?	☐ Yes	☐ No	
What is the levels of oil/grit/trash within the infiltration basin or hydrodynamic separators?	☐ Yes	☐ No	
(Other)	☐ Yes	☐ No	

Inspector(s) Signature(s): _____



USGS MAP

SCALE: 1" = 500'

PROPOSED MULTI-FAMILY RESIDENTIAL REDEVELOPMENT

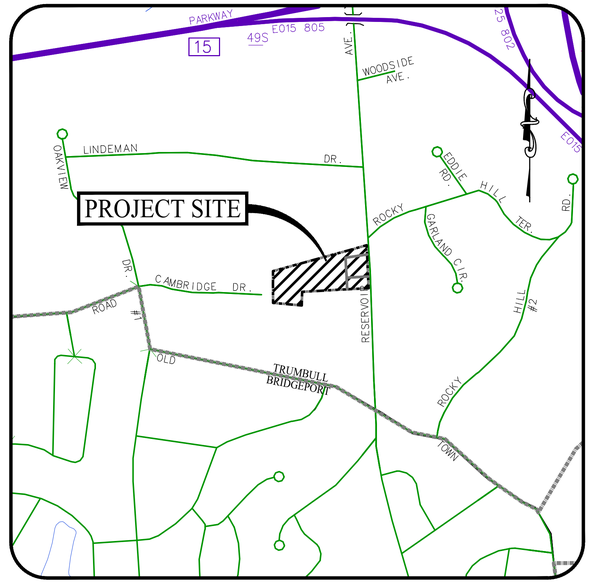
2135, 2145, 2155 RESERVOIR AVENUE
TRUMBULL, CONNECTICUT

SITE PLAN APPLICATION
RE-FILING SET

PREPARED FOR:

VESSEL TECHNOLOGIES

46 WEST 55TH STREET
NEW YORK, NEW YORK



LOCATION MAP

SCALE: 1" = 500'

PROPERTY INFORMATION

ADDRESS: 2135, 2145, 2155 RESERVOIR AVENUE
ZONE: RESIDENCE ZONE A
TOTAL AREA: 3.57 AC
MAP-BLOCK-LOT: G/11-71-000, G/11-73-000, G/11-74-000
BOOK/PAGE: 1794/0735

SITE/CIVIL ENGINEER

KEVIN SOLLI, P.E., CPESC, LEED AP BD+C
LICENSE NO. 25759
SOLLI ENGINEERING, LLC
501 MAIN STREET
MONROE, CONNECTICUT 06468
(203) 880-5455

APPLICANT

VESSEL TECHNOLOGIES
ATTN: JOSH LEVY
46 WEST 55TH STREET
NEW YORK, NEW YORK
(646) 531-2126

SURVEYOR OF RECORD

BRYAN NESTERIAK, PE, LS
ACCURATE LAND SURVEYING, LLC
15 RESEARCH DRIVE
WOODBRIDGE, CONNECTICUT 06525
(203) 881-8145

GEOTECHNICAL ENGINEER

GEI CONSULTANTS, INC.
455 WINDING BROOK DRIVE, SUITE 201
GLASTONBURY, CONNECTICUT 06033
(860) 368-5300

LANDSCAPE DESIGNER

MARY BLACKBURN, PLA
LICENSE NO. 1499
SOLLI ENGINEERING, LLC
501 MAIN STREET
MONROE, CONNECTICUT 06468
(203) 880-5455

ARCHITECT

MILTON GREGORY GREW, AIA
241 MAIN STREET S
WOODBURY, CONNECTICUT 06798
(203) 217-1074

DRAWING LIST

SITE CIVIL DRAWINGS

SHEET #	SHEET NAME	PLAN DATE	LATEST REVISION
0.00	COVER SHEET	11/07/25	03/04/26
1 OF 1	PROPERTY SURVEY	07/24/25	N/A
1.40	250' RADIUS MAP	11/07/25	N/A
2.11	SITE PLAN	11/07/25	03/04/26
2.21	GRADING & DRAINAGE PLAN	11/07/25	03/04/26
2.31	SOIL EROSION & SEDIMENT CONTROL PLAN - PHASE I	11/07/25	03/04/26
2.32	SOIL EROSION & SEDIMENT CONTROL PLAN - PHASE II	11/07/25	03/04/26
2.41	SOIL EROSION & SEDIMENT CONTROL NOTES & DETAILS	11/07/25	03/04/26
2.51	UTILITY PLAN	11/07/25	03/04/26
2.61	LANDSCAPE PLAN	11/07/25	03/04/26
2.62	LANDSCAPE DETAILS	11/07/25	N/A
2.71	LIGHTING PLAN	11/07/25	N/A
3.01	DETAIL SHEET	11/07/25	N/A
3.02	DETAIL SHEET	11/07/25	N/A
3.03	DETAIL SHEET	11/07/25	03/04/26
3.04	DETAIL SHEET	11/07/25	N/A
TT-1	TRUCK TURNING FIGURE	11/07/25	03/04/26

ARCHITECTURAL DRAWINGS

UNDER SEPARATE COVER

PREPARED BY:

SOLLI ENGINEERING

MONROE, CT | WEST HARTFORD, CT | NORWOOD, MA

NOT FOR CONSTRUCTION,
FOR PERMITTING PURPOSES ONLY

Rev. #:	Date	Description

Project:

PROPOSED REDEVELOPMENT
2135, 2145, 2155 RESERVOIR AVENUE
TRUMBULL, CONNECTICUT

Sheet Title:	Sheet #:
COVER SHEET	0.00

LEGEND

- PROPERTY LINE
- ADJOINING LOT LINE
- BUILDING SETBACK
- LIMIT OF EASEMENT
- EXISTING BUILDING LIMITS
- PROPOSED BUILDING LIMITS
- PROPOSED BUILDING HATCH
- SAWCUT PAVEMENT LINE
- BITUMINOUS CONCRETE CURB
- STANDARD DUTY BITUMINOUS CONCRETE PAVEMENT
- CONCRETE SIDEWALK / PAVEMENT
- SIDEWALK LIMITS / EDGE OF PAVEMENT
- RETAINING WALL
- PAVEMENT STRIPING - WHITE STANDARD AND ADA PARKING SPACES
- (17) PARKING SPACE COUNT
- PROPOSED FUTURE ELECTRIC VEHICLE CHARGING SPACE
- DUMPSTER / TRASH RECEPTACLE
- TRAFFIC SIGN
- TRAFFIC SIGN DESIGNATION
- COMPACT SPACE
- DIRECTION OF TRAVEL

PARKING SUMMARY

PROPOSED DEVELOPMENT	UNIT	REQUIRED*	PROVIDED
APARTMENT BUILDING #1	56 1-BR UNITS 14 2-BR UNITS	67 SPACES	178* (1.19 SPACES/UNIT)
APARTMENT BUILDING #2	66 1-BR UNITS 14 2-BR UNITS	94 SPACES	

*COMPLIES WITH ITE PARKING GENERATION ESTIMATES, PARKING REQUIREMENTS FOR MULTI-FAMILY HOUSING PER CT GENERAL STATUTES SEC. 8-2(D)(9), WHICH REQUIRES 1 SPACE PER 1-BEDROOM UNIT AND 2 SPACES PER 2-BEDROOM UNIT.

BULK ZONING TABLE

DESCRIPTION	EXISTING TOWN REQUIREMENT (RESIDENTIAL ZONE A)	PROPOSED 830-g CONDITION CONSOLIDATED LOTS
MINIMUM LOT SIZE	0.5 AC.	3.83 AC.
MINIMUM ROAD FRONTAGE	125 FT	305 FT
MINIMUM FLOOR AREA		
1 STORY	1ST FLOOR: 1,200 SF 2ND FLOOR: N/A	N/A
1.5 STORY	1ST FLOOR: 900 SF 2ND FLOOR: 500 SF	N/A
2 STORY	1ST FLOOR: 900 SF 2ND FLOOR: 800 SF	N/A
MAXIMUM BUILDING HEIGHT	40 FT	±58 FT
MINIMUM YARDS		
FRONT	50 FT	86.8± FT
SIDE	20 FT	15.7± FT
REAR	50 FT	19.8± FT
MAXIMUM BUILDING COVERAGE	25%	14.9%
MAXIMUM FLOOR AREA RATIO	0.29	0.74
LOT COVERAGE	N/A	44.6%

SIGN LEGEND

A



SIZES (IN)	CONN DOT #	SUPPORTS
30"	31-0552	1

B



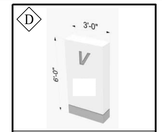
SIZES (IN)	CONN DOT #	SUPPORTS
12"x24"	31-0662	1

C



SIZES (IN)	CONN DOT #	SUPPORTS
12"x24" 18"x9"	31-0662 31-0648	1

D



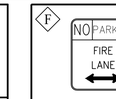
36" L x 72" H
FREE-STANDING VESSEL SIGN

E



SIZES (IN)	CONN DOT #	SUPPORTS
12"x18"	31-0607	1

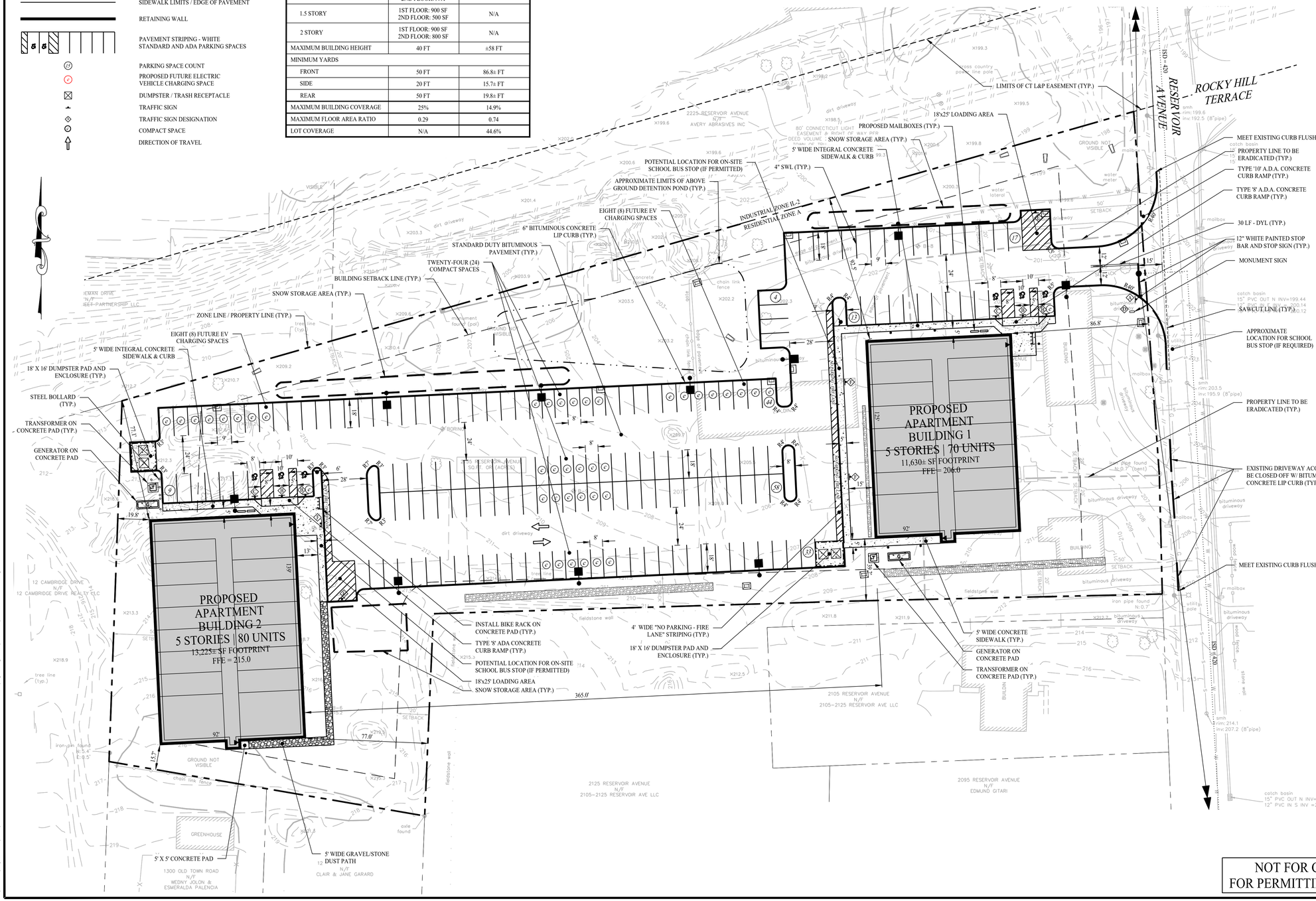
F



SIZES (IN)	CONN DOT #	SUPPORTS
12"x18"	31-0650	1

SITE PLAN NOTES

1. THESE PLANS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT FOR CONSTRUCTION. NO CONSTRUCTION OR DEMOLITION SHALL BEGIN UNTIL FINAL APPROVAL OF THIS PLAN IS GRANTED BY ALL GOVERNING AND REGULATORY AGENCIES.
2. ALL PROPOSED SITE WORK IS TO BE COMPLETED IN ACCORDANCE WITH ALL PERMITS, APPROVALS, AND CONDITIONS OF APPROVALS ISSUED BY LOCAL, STATE, AND/OR FEDERAL REVIEWING AGENCIES.
3. EXISTING BOUNDARY AND TOPOGRAPHY IS BASED ON DRAWING TITLED "PROPERTY SURVEY OF 2135, 2145 & 2155 RESERVOIR AVENUE, TRUMBULL, CONNECITCUT, PREPARED FOR VESSEL TECHNOLOGIES", SCALE 1"=30', DATED JULY 24, 2025, PERFORMED BY ACCURATE LAND SURVEYING, LLC.
4. ALL CONSTRUCTION SHALL COMPLY WITH, TOWN OF TRUMBULL STANDARDS AND THE CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS IN THE ABOVE REFERENCED INCREASING HIERARCHY. IF SPECIFICATIONS ARE IN CONFLICT, THE MORE STRINGENT SPECIFICATION SHALL APPLY. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE OSHA, FEDERAL, STATE, AND LOCAL REGULATIONS.
5. THE OWNER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY ZONING PERMITS REQUIRED BY GOVERNMENT AGENCIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ALL COUNTY AND TOWN CONSTRUCTION PERMITS, INCLUDING CONNECTICUT DOT PERMITS AND SEWER AND WATER CONNECTION PERMITS. THE CONTRACTOR SHALL POST ALL BONDS, PAY ALL FEES, PROVIDE PROOF OF INSURANCE AND PROVIDE TRAFFIC CONTROL NECESSARY FOR THIS WORK.
6. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS IN THE FIELD AND CONTACT THE SITE/CIVIL ENGINEER IF THERE ARE ANY QUESTIONS OR CONFLICTS REGARDING THE CONSTRUCTION DOCUMENTS AND/OR FIELD CONDITIONS.
7. THE CONTRACTOR SHALL FOLLOW THE SEQUENCE OF CONSTRUCTION NOTES PROVIDED ON THE EROSION CONTROL PLAN.
8. THE CONTRACTOR SHALL REFERENCE ARCHITECTURAL PLANS FOR EXACT DIMENSIONS AND CONSTRUCTION DETAILS OF BUILDING, AND THE RAISED CONCRETE SIDEWALKS AND RAMPS.
9. SHOULD ANY UNCHARTED OR INCORRECTLY CHARTED, EXISTING PIPING, OR OTHER UTILITY BE UNCOVERED DURING EXCAVATION, CONSULT THE SITE/CIVIL ENGINEER IMMEDIATELY FOR DIRECTIONS BEFORE PROCEEDING FURTHER WITH WORK IN THIS AREA.
10. DO NOT INTERRUPT EXISTING UTILITIES SERVICING FACILITIES OCCUPIED AND USED BY THE OWNER OR OTHERS DURING OCCUPIED HOURS EXCEPT WHEN SUCH INTERRUPTIONS HAVE BEEN AUTHORIZED IN WRITING BY THE OWNER AND THE LOCAL MUNICIPALITIES. INTERRUPTIONS SHALL ONLY OCCUR AFTER ACCEPTABLE TEMPORARY SERVICE HAS BEEN PROVIDED.
11. ALL SITE DIMENSIONS ARE REFERENCED TO THE FACE OF CURBS OR EDGE OF PAVING AS APPLICABLE UNLESS OTHERWISE NOTED. ALL BUILDING DIMENSIONS ARE REFERENCED TO THE OUTSIDE FACE OF THE STRUCTURE.
13. TRAFFIC CONTROL SIGNAGE SHALL CONFORM TO THE STATE DOT STANDARD DETAIL SHEETS AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. SIGNS SHALL BE INSTALLED PLUMB WITH THE EDGE OF THE SIGN 2' OFF THE FACE OF THE CURB, AND WITH 7' VERTICAL CLEARANCE UNLESS OTHERWISE DETAILED OR NOTED.
14. PAVEMENT MARKING KEY:
    4" SWL - 4" SOLID WHITE LINE
    4" DYL - 4" DOUBLE YELLOW LINE
15. PARKING SPACES SHALL BE STRIPED WITH 4" SWL; HATCHED AREA SHALL BE STRIPED WITH 4" SWL AT A 45° ANGLE, 2' ON CENTER. HATCHING, SYMBOLS, AND STRIPING FOR HANDICAPPED SPACES SHALL BE PAINTED BLUE. OTHER MARKINGS SHALL BE PAINTED WHITE OR AS NOTED.
16. THE CONTRACTOR SHALL RESTORE ANY DRAINAGE STRUCTURE, PIPE, UTILITY, PAVEMENT, CURBS, SIDEWALKS, LANDSCAPED AREAS OR SIGNAGE DISTURBED DURING CONSTRUCTION TO THEIR ORIGINAL CONDITION OR BETTER, AS APPROVED BY THE SITE/CIVIL ENGINEER.
17. THE CONTRACTOR SHALL PROVIDE AS-BUILT RECORDS OF ALL CONSTRUCTION (INCLUDING UNDERGROUND UTILITIES) TO THE OWNER AT THE END OF CONSTRUCTION.
18. THE ARCHITECT AND SITE/CIVIL ENGINEER ARE NOT RESPONSIBLE FOR SITE SAFETY MEASURES TO BE EMPLOYED DURING CONSTRUCTION. THE ARCHITECT AND SITE/CIVIL ENGINEER HAVE NO CONTRACTUAL DUTY TO CONTROL THE SAFEST METHODS OR MEANS OF THE WORK, JOB SITE RESPONSIBILITIES, SUPERVISION OR TO SUPERVISE SAFETY AND DOES NOT VOLUNTARILY ASSUME ANY SUCH DUTY OR RESPONSIBILITY.
19. INFORMATION ON EXISTING UTILITIES AND STORM DRAINAGE SYSTEMS HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING UTILITY PROVIDER AND MUNICIPAL RECORD MAPS AND/OR FIELD SURVEY AND IS NOT GUARANTEED CORRECT OR COMPLETE. UTILITIES AND STORM DRAINAGE SYSTEMS ARE SHOWN TO ALERT THE CONTRACTOR TO THEIR PRESENCE AND THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STORM DRAINAGE SYSTEMS INCLUDING SERVICES. PRIOR TO DEMOLITION OR CONSTRUCTION, THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" 72 HOURS BEFORE COMMENCEMENT OF WORK AT "(800) 922-4455" AND VERIFY ALL UTILITY AND STORM DRAINAGE SYSTEM LOCATIONS.
20. NO PART OF THE PROJECT PARCEL IS LOCATED WITHIN ANY FEMA DESIGNATED FLOOD HAZARD AREAS.
21. FIRE LANES SHALL BE ESTABLISHED AND PROPERLY DESIGNATED IN ACCORDANCE WITH THE REQUIREMENTS OF THE FIRE DISTRICT FIRE MARSHAL.
22. ALL PAVEMENT MARKINGS WITHIN RIGHT OF WAY SHOULD BE RESTORED TO THEIR ORIGINAL STATE.
23. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR ACTUAL LOCATIONS OF ALL DOORS, UTILITY ENTRANCES TO INCLUDE SANITARY SEWER LATERALS, DOMESTIC WATER SERVICE, ELECTRICAL, TELEPHONE AND GAS SERVICE, ROOF DRAINS, AND ALL OTHER UTILITIES. CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES IN SUCH A MANNER AS TO AVOID CONFLICTS AND TO ENSURE PROPER DEPTHS ARE ACHIEVED AS WELL AS COORDINATING WITH THE REGULATORY AGENCY AS TO LOCATION OF AND SCHEDULING OF CONNECTIONS TO THEIR FACILITIES. THE ARCHITECTURAL PLANS ARE NOT INCLUDED AS A PART OF THIS PERMITTING PLAN SET AND WILL BE PROVIDED UNDER A SEPARATE COVER.



NOT FOR CONSTRUCTION, FOR PERMITTING PURPOSES ONLY

Rev. #:	Date	Description
3	03/04/26	Re-Filing Set
2	02/13/26	Rev. Per Town Comments
1	12/17/25	Rev. Per Fire Marshal Comments

Graphic Scale: 30 0 30 60

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Drawn By:	ARM
Checked By:	LAM
Approved By:	KMS
Project #:	24116901
Plan Date:	11/07/25
Scale:	1" = 30'

STATE OF CONNECTICUT KEVIN M. SOLLI 25759 LICENSED PROFESSIONAL ENGINEER
Kevin Solli, P.E.
CT 25759

Project:

PROPOSED REDEVELOPMENT

2135, 2145, & 2155 RESERVOIR AVENUE
TRUMBULL, CONNECTICUT

Sheet Title:	Sheet #:
SITE PLAN	2.11

Mar 05, 2026 - 1:28pm omopoulos
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TEST PIT OBSERVATIONS

TESTING PERFORMED BY SOLLI ENGINEERING, LLC ON AUGUST 8, 2025.

TEST PIT 1
0"-12" TOPSOIL
12"-28" LIGHT BROWN FINE SANDY LOAM
28"-44" DARK BROWN FINE SANDY LOAM
44"-76" GRAY FINE SANDY LOAM, MOTTLES

GROUNDWATER @ 74".
NO LEDGE.
ROOTS TO 44".

TEST PIT 2
0"-11" TOPSOIL
11"-30" LIGHT BROWN FINE SANDY LOAM
30"-48" DARK BROWN FINE SANDY LOAM
48"-72" GRAY FINE SANDY LOAM, MOTTLES

GROUNDWATER @ 70".
NO LEDGE.
ROOTS TO 30".

TEST PIT 3
0"-13" TOPSOIL
13"-27" DARK BROWN SANDY LOAM
27"-72" BROWN FINE SANDY LOAM, SOME COBBLES

NO GROUNDWATER.
NO LEDGE.
ROOTS TO 30".

TEST PIT 4
0"-10" TOPSOIL
10"-24" DARK BROWN SANDY LOAM
24"-52" BROWN FINE SANDY LOAM, SOME COBBLES

NO GROUNDWATER.
LEDGE @ 52".
ROOTS TO 18".

TEST PIT 5
0"-9" TOPSOIL
9"-70" BROWN FINE SANDY LOAM, SOME COBBLES

NO GROUNDWATER.
NO LEDGE.
ROOTS TO 44".

TEST PIT 6
0"-9" TOPSOIL
9"-72" BROWN FINE SANDY LOAM, SOME COBBLES

NO GROUNDWATER.
NO LEDGE.
ROOTS TO 14".

BORING OBSERVATIONS

TESTING PERFORMED BY GEI CONSULTANTS ON JULY 8, 2025.

B-10
SEE GEOTECHNICAL REPORT FOR BORING DATA.

INFILTRATION TEST DATA

INFILTRATION TESTS WERE PERFORMED ON AUGUST 8, 2025 BY SOLLI ENGINEERING, LLC.

INFILTRATION TEST: I-1
DIAMETER OF PIT: 4"
DEPTH OF PIT: 48"
HOLE PRESOAKED PRIOR TO TEST

ELAPSED TIME (MIN.)	READING (IN.)
0	19.75
5	25.5
10	26.75
15	28.25
20	28.75
25	29
30	29.5
35	29.75
40	30
45	30.25
50	30.5

INFILTRATION RATE:
3 INCHES PER HOUR

INFILTRATION TEST: I-2
DIAMETER OF PIT: 4"
DEPTH OF PIT: 48"
HOLE PRESOAKED PRIOR TO TEST

ELAPSED TIME (MIN.)	READING (IN.)
0	13.5
5	18.25
10	21.75
15	24.25
20	26
25	27.75
30	29
35	30

INFILTRATION RATE:
12 INCHES PER HOUR

INFILTRATION TEST: I-3
DIAMETER OF PIT: 4"
DEPTH OF PIT: 48"
HOLE PRESOAKED PRIOR TO TEST

ELAPSED TIME (MIN.)	READING (IN.)
0	13
5	22
10	26.5
15	28.25
20	29.75
25	30.5

INFILTRATION RATE:
9 INCHES PER HOUR

INFILTRATION TEST: I-4
DIAMETER OF PIT: 4"
DEPTH OF PIT: 48"
HOLE PRESOAKED PRIOR TO TEST

ELAPSED TIME (MIN.)	READING (IN.)
0	10.25
5	20.75
10	24
15	26.5
20	28
25	28.75
30	30

INFILTRATION RATE:
15 INCHES PER HOUR

INFILTRATION TEST: I-5
DIAMETER OF PIT: 4"
DEPTH OF PIT: 48"
HOLE PRESOAKED PRIOR TO TEST

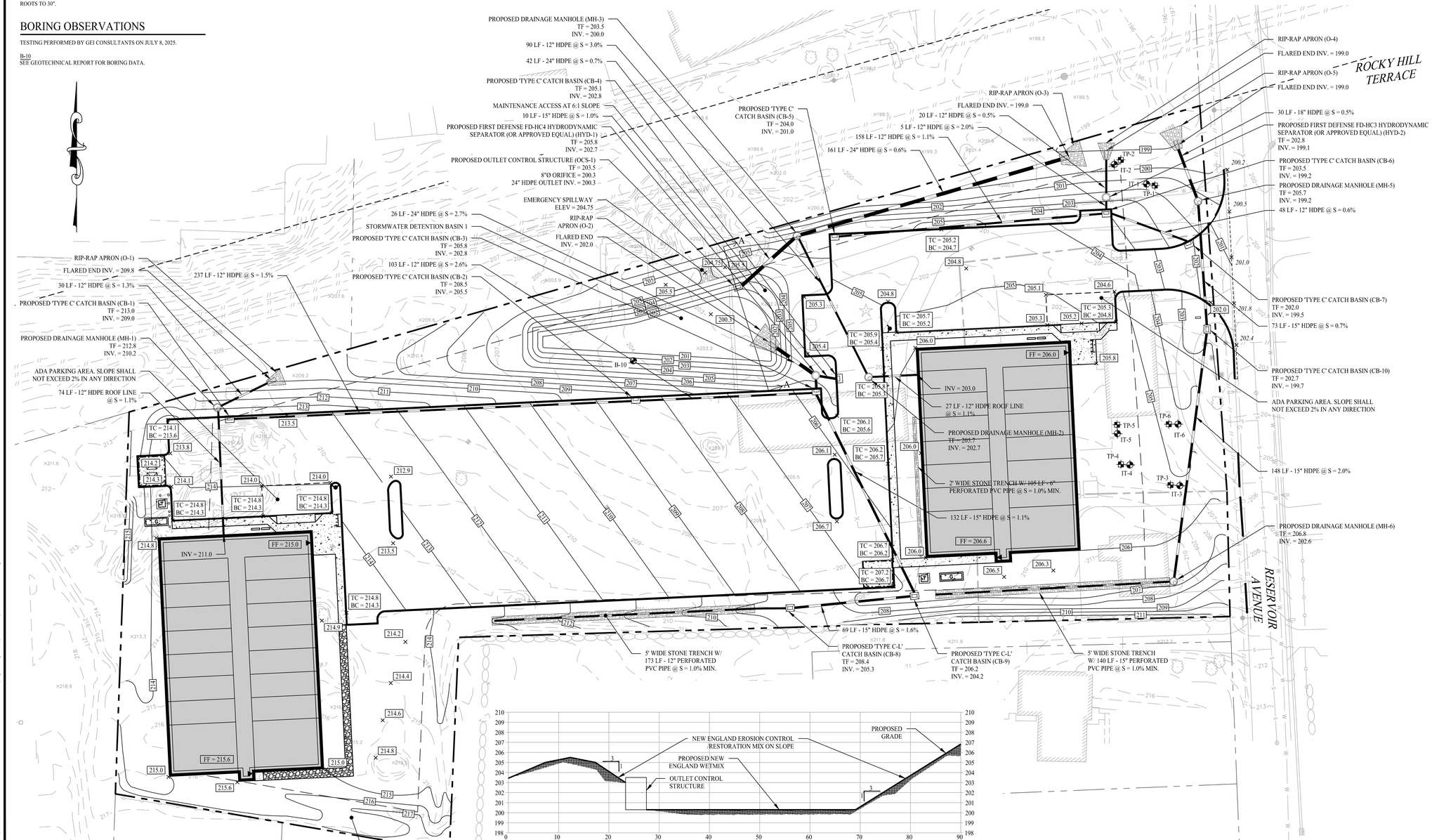
ELAPSED TIME (MIN.)	READING (IN.)
0	2.25
5	4.5
10	6
15	7.75
20	9.25
25	10.75
30	12
35	13.25
40	14.5
45	15.75
50	16.75
55	17.75
60	18.75

INFILTRATION RATE:
12 INCHES PER HOUR

INFILTRATION TEST: I-6
DIAMETER OF PIT: 4"
DEPTH OF PIT: 48"
HOLE PRESOAKED PRIOR TO TEST

ELAPSED TIME (MIN.)	READING (IN.)
0	4
5	13.75
10	19
15	21.75
20	24
25	25.5
30	26.25
35	27
40	27.75
45	28.25
50	28.75
55	29.25
60	29.75

INFILTRATION RATE:
6 INCHES PER HOUR



ABOVE GROUND DETENTION BASIN SECTION A-A

SCALE: H: 1" = 10'
V: 1" = 5'

NOT FOR CONSTRUCTION, FOR PERMITTING PURPOSES ONLY

GRADING AND DRAINAGE NOTES

1. THESE PLANS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT FOR CONSTRUCTION. NO CONSTRUCTION OR DEMOLITION SHALL BEGIN UNTIL FINAL APPROVAL OF THIS PLAN IS GRANTED BY ALL GOVERNING AND REGULATORY AGENCIES.
2. ALL PROPOSED SITE WORK TO BE COMPLETED IN ACCORDANCE WITH ALL PERMITS, APPROVALS AND CONDITIONS OF APPROVALS ISSUED BY LOCAL, STATE AND/OR FEDERAL REVIEWING AGENCIES.
3. EXISTING BOUNDARY AND TOPOGRAPHY IS BASED ON DRAWING TITLED "PROPERTY SURVEY OF 2135, 2145 & 2155 RESERVOIR AVENUE, TRUMBULL, CONNECTICUT, PREPARED FOR VESSEL TECHNOLOGIES", SCALE 1"=30', DATED JULY 24, 2025, PERFORMED BY ACCURATE LAND SURVEYING, LLC.
4. THIS DRAWING IS INTENDED TO DESCRIBE GRADING AND DRAINAGE ONLY. REFER TO SITE PLAN FOR GENERAL INFORMATION, AND DETAIL SHEETS FOR DETAILS.
5. THE CONTRACTOR SHALL PRESERVE EXISTING VEGETATION WHERE POSSIBLE AND/OR AS NOTED ON DRAWINGS. REFER TO EROSION CONTROL PLAN FOR LIMIT OF DISTURBANCE AND EROSION CONTROL NOTES.
6. TOPSOIL SHALL BE STRIPPED AND STOCKPILED ON SITE FOR USE IN FINAL LANDSCAPING.
7. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION PERMITS REQUIRED BY GOVERNMENT AND LOCAL AGENCIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY CONSTRUCTION PERMITS FROM THE TOWN OF TRUMBULL REQUIRED TO PERFORM ALL WORK, INCLUDING FOR STREET CUTS AND CONNECTIONS TO EXISTING UTILITIES. THE CONTRACTOR SHALL POST ALL BONDS, PAY ALL FEES, PROVIDE PROOF OF INSURANCE AND PROVIDE TRAFFIC CONTROL NECESSARY FOR THIS WORK.
8. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC DEVICES FOR PROTECTION OF VEHICLES AND PEDESTRIANS CONSISTING OF DRUMS, BARRIERS, SIGNS, LIGHTS, FENCES AND UNIFORMED TRAFFIC CONTROLLERS AS REQUIRED, ORDERED BY THE ENGINEER OR REQUIRED BY THE STATE AND LOCAL GOVERNING AUTHORITIES.
9. THE CONTRACTOR SHALL COMPACT FILL IN 12" MAXIMUM LIFTS UNDER ALL PARKING, BUILDING, AND DRIVE AREAS TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557 (MODIFIED PROCTOR TEST), OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
10. UNDERDRAINS SHALL BE ADDED, IF DETERMINED NECESSARY IN THE FIELD BY THE OWNER/GEOTECHNICAL ENGINEER, AFTER SUBGRADE IS ROUGH GRADED.
11. ALL DISTURBANCE INCURRED TO TOWN OR STATE PROPERTY DUE TO CONSTRUCTION SHALL BE RESTORED TO ITS PREVIOUS CONDITION OR BETTER, TO THE SATISFACTION OF THE TOWN OF TRUMBULL AUTHORITY.
12. IF IMPACTED OR CONTAMINATED SOIL IS ENCOUNTERED BY THE CONTRACTOR, THE CONTRACTOR SHALL SUSPEND EXCAVATION WORK OF IMPACTED SOIL AND NOTIFY THE OWNER AND/OR OWNER'S ENVIRONMENTAL CONSULTANT PRIOR TO PROCEEDING WITH FURTHER WORK IN THE IMPACTED SOIL LOCATION UNTIL FURTHER INSTRUCTED BY THE OWNER AND/OR OWNER'S ENVIRONMENTAL CONSULTANT.
13. ALL PIPE LENGTHS ARE HORIZONTAL DISTANCES AND ARE APPROXIMATE.
14. GRADING CONTRACTOR SHALL RESTORE TO GRADE AND COMPACT ALL AREAS DISTURBED BY BUILDING CONSTRUCTION PRIOR TO BASE AND PAVING OPERATIONS COMMENCING.
15. ALL PROPOSED CATCH BASINS SHALL BE EQUIPPED WITH HOODED OUTLETS AND CONSTRUCTED WITH MINIMUM 48" SUMPS.
16. ALL PROPOSED PIPES UNDER PAVEMENT TO BE H-20 LOAD RATED.

LEGEND

- PROPERTY LINE
- ADJOINING LOT LINE
- MAJOR CONTOURS (420)
- MINOR CONTOURS (421)
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- CONTOUR LABEL (420)
- PROPOSED SPOT ELEVATION (568.5)
- EXISTING SPOT ELEVATION (568.5)
- STORM DRAIN PIPE
- TYPE "C" CATCH BASIN
- OUTLET CONTROL STRUCTURE
- STORM MANHOLE
- WATER QUALITY UNIT
- OUTLET CONTROL STRUCTURE
- TEST PIT (TP-1)
- PERC TEST LOCATION (IT-1)

Rev. #:	Date	Description
2	03/04/26	Re-Filing Set
1	02/13/26	Rev. Per Town Comments

Graphic Scale: 30 0 30 60

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Drawn By:	MJD
Checked By:	LAM
Approved By:	KMS
Project #:	24116901
Plan Date:	11/07/25
Scale:	1" = 30'

STATE OF CONNECTICUT · KEVIN M. SOLLI · 25759 · LICENSED PROFESSIONAL ENGINEER

Kevin Solli, P.E.
CT 25759

Project:

PROPOSED REDEVELOPMENT

2135, 2145, & 2155 RESERVOIR AVENUE
TRUMBULL, CONNECTICUT

Sheet Title: CONDITIONAL APPROVAL GRADING & DRAINAGE PLAN

Sheet #: 2.21

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EROSION CONTROL TABLE

EROSION CONTROL MEASURE	CONTROL OBJECTIVE	INSPECTION/ MAINTENANCE	FAILURE INDICATOR	REMOVAL
TEMPORARY SEDIMENT TRAP (TST)	- DETAIN SEDIMENT LADEN RUNOFF FROM SMALL DISTURBED AREAS LONG ENOUGH TO ALLOW A MAJORITY OF THE SEDIMENT TO SETTLE OUT	INSPECT AT LEAST ONCE A WEEK AND WITHIN 24 HOURS OF THE END OF A STORM WITH ANY MEASURABLE RAINFALL. STONE OUTLET SHOULD BE AT LEAST 1 FOOT BELOW CREST OF EMBANKMENT. SEDIMENT MUST BE REMOVED WHEN ACCUMULATION REACHES ½ OF THE REQUIRED WET STORAGE.	-TURBID WATER -EXCESSIVE SEDIMENT ACCUMULATION -OVERTOPPING EVIDENCE	TST MAY BE REMOVED ONCE THE CONTRIBUTING DRAINAGE AREA IS PERMANENTLY STABLIZED.
SILT FENCE	- INTERCEPT AND REDIRECT/DETAIN SMALL AMOUNTS OF SEDIMENT FROM SMALL DISTURBED AREAS. - DECREASE VELOCITY OF SHEET FLOW - PROTECT SENSITIVE SLOPES OR SOIL FROM EXCESSIVE WATER FLOW.	INSPECT AT LEAST ONCE A WEEK AND WITHIN 24 HOURS OF THE END OF A STORM WITH ANY MEASURABLE RAINFALL. ACCUMULATED SEDIMENT MUST BE REMOVED ONCE ITS DEPTH IS EQUAL TO ½ OF THE BARRIER. INSPECT FREQUENTLY DURING PUMPING OPERATIONS IF USED FOR DEWATERING OPERATIONS.	-PHYSICAL DAMAGE OR DECOMPOSITION - EVIDENCE OF OVERTOPPED OF UNDERCUT FENCE. -EVIDENCE OF SIGNIFICANT FLOWS EVADING CAPTURE. -REPETITIVE FAILURE	SILT FENCE MAY BE REMOVED AFTER UPHILL AND SENSITIVE AREAS HAVE BEEN PERMANENTLY STABILIZED.
TEMPORARY DIVERSION SWALE OR TEMPORARY SWALE OR WATER BAR	- MINIMIZE VELOCITY AND CONCENTRATION OF SHEET FLOW ACROSS CONSTRUCTION SITE TO A SEDIMENT TRAPPING FACILITY. - DIVERT WATER ORIGINATING FROM UNDISTURBED AREA AWAY FROM CONSTRUCTION.	WHEN LOCATED WITHIN CLOSE PROXIMITY TO ON GOING CONSTRUCTION ACTIVITES, INSPECT AT THE END OF EACH WORK DAY AND IMMEDIATELY REPAIR DAMAGES. OTHERWISE INSPECT AT LEAST ONCE A WEEK AND WITHIN 24 HOURS OF THE END OF A STORM WWITH ANY MEASURABLE RAINFALL. REPAIR THE TEMPORARY MEASURE AND ANY OTHER ASSOCIATED MEASURES WITHIN 24 HOURS.	-PHYSICAL DAMAGE -EXCESSIVE SCOURING/EROSION -REPETITIVE FAILURE	TEMPORARY DIVERSIONS MAY BE REMOVED ONCE CONSTRUCTION HAS CEASED AND THE CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED.
CONSTRUCTION ENTRANCE	-REDUCE THE TRACKING OF SEDIMENT OFF-SITE ON TO PAVED SURFACES.	INSPECT AT THE END OF EACH WORK DAY AND IMMEDIATELY REPAIR DAMAGES. PERIODIC ADDITION OF STONE OR LENGTHENING OF ENTRANCE MAY BE REQUIRED AS CONDITIONS DEMAND. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ON TO PAVED SURFACES AS A RESULT OF INEFFICIENCY OF CONSTRUCTION ENTRANCE SHALL BE IMMEDIATELY REMOVED.	-SEDIMENT IN ROADWAY ADJACENT TO SITE	CONSTRUCTION ENTRANCE MAY BE REMOVED ONCE THE SITE HAS BEEN PERMANENTLY STABILIZED, AND ALL SECTIONS OF ROADWAY HAVE BEEN PERMANENTLY PAVED.
CATCH BASIN INLET PROTECTION	-PROHIBIT SILT IN CONSTRUCTION RELATED RUNOFF FROM ENTERING STORM DRAINAGE SYSTEM.	INSPECT AFTER ANY RAIN EVENT. IF FILTER BAG INSIDE CATCH BASIN CONTAINS MORE THAN 6" OF SEDIMENT, REMOVE SEDIMENT FROM BAG. CHECK SURROUNDING SILT FENCE AND STRAW BALES PER NOTED ABOVE.	-RIPPED BAG -FAILED STRAW BALES/SILT FENCE -SIGNIFICANT SILT PRESENCE IN STORM DRAINAGE SYSTEM OUTFLOW.	INLET PROTECTION MAY BE REMOVED ONCE THE SITE HAS BEEN PERMANENTLY STABILIZED, AND ALL OTHER SECTIONS OF ROADWAY HAVE BEEN PERMANENTLY PAVED.
STOCKPILE PROTECTION	-RETAIN SOIL STOCKPILE IN LOCATIONS SPECIFIED AND REDUCE WATER TRANSPORT.	INSPECT SILT FENCE AT THE END OF EACH WORK DAY AND IMMEDIATELY REPAIR DAMAGES. PERIODIC REINFORCEMENT OF SILT FENCE, OR ADDITION OF STRAW BALES MAY BE NECESSARY.	-EVIDENCE OF STOCK PILE DIMINISHING DUE TO RAIN EVENTS -FAILURE OF SILT FENCE	STOCKPILE PROTECTION MAY BE REMOVED ONCE THE STOCKPILE IS USED OR REMOVED.
DUST PROTECTION	-TO PREVENT MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES , WHICH MAY CAUSE BOTH OFF-SITE AND ON-SITE DAMAGE, BE A HEALTH HAZARD TO HUMANS, WILDLIFE, AND PLANT LIFE, OR CREATE A HAZARD BY REDUCING TRAFFIC VISIBILITY.	USE MECHANICAL SWEEPING DAILY ON PAVED AREAS WHERE DUST AND FINE MATERIALS ACCUMULATE. IF HEAVILY TRAFFICKED AND SEDIMENT ACCUMULATES QUICKLY. PERIODICALLY MOISTEN UNPAVED TRAVEL WAYS TO CONTROL DUST WHEN EVIDENCE OF AIRBORNE DUST.	-AIRBORNE DUST	REPEAT APPLICATION OF DUST CONTROL MEASURES UNTIL ALL AREAS ARE PERMANENTLY STABILIZED, VEGETATED, AND PAVED, OR AS LONG AS THERE IS AIRBORNE DUST.

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJOINING LOT LINE
- SILT FENCE PROTECTION
- STRAW WATTLES PROTECTION
- LIMIT OF DISTURBANCE
- CONSTRUCTION ENTRANCE
- DIVERSION SWALE/BERM
- BUILDING / STRUCTURE DEMOLITION
- BITUMINOUS CONCRETE PAVEMENT DEMOLITION
- TEMPORARY SEDIMENT TRAP
- SILT SACK INLET PROTECTION
- STONE CHECK DAM
- SOIL TYPE BOUNDARY
- SOIL TYPE
- PROPOSED SPOT ELEVATION

SEDIMENT TRAP CALCULATIONS

NOTE:
TEMPORARY SEDIMENT TRAPS HAVE BEEN SIZED TO PROVIDE A MINIMUM STORAGE VOLUME OF 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA PER THE 2024 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL.

SEDIMENT TRAP #1:
CONTRIBUTING DRAINAGE AREA = 1.94± ACRES
1.94 AC x 134 CY/AC = 260 CY
260 CY x 27 CF/CY = 7,020 CF
SEDIMENT TRAP STORAGE CAPACITY = 7,020 CF

SEDIMENT TRAP #2:
CONTRIBUTING DRAINAGE AREA = 1.70± ACRES
1.70 AC x 134 CY/AC = 228 CY
228 CY x 27 CF/CY = 6,156 CF
SEDIMENT TRAP STORAGE CAPACITY = 6,156 CF

SEDIMENT AND EROSION CONTROL NOTES

1. THESE PLANS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT FOR CONSTRUCTION. NO CONSTRUCTION OR DEMOLITION SHALL BEGIN UNTIL FINAL APPROVAL OF THIS PLAN IS GRANTED BY ALL GOVERNING AND REGULATORY AGENCIES.
2. ALL PROPOSED SITE WORK IS TO BE COMPLETED IN ACCORDANCE WITH ALL PERMITS, APPROVALS, AND CONDITIONS OF APPROVALS ISSUED BY LOCAL, STATE, AND/OR FEDERAL REVIEWING AGENCIES.
3. EXISTING BOUNDARY AND TOPOGRAPHY IS BASED ON DRAWING TITLED "PROPERTY SURVEY OF 2135, 2145 & 2155 RESERVOIR AVENUE, TRUMBULL, CONNECITCUT, PREPARED FOR VESSEL TECHNOLOGIES", SCALE 1"=30', DATED JULY 24, 2025, PERFORMED BY ACCURATE LAND SURVEYING, LLC.
4. ALL CONSTRUCTION SHALL COMPLY WITH, TOWN OF TRUMBULL STANDARDS AND SPECIFICATIONS IN THE ABOVE REFERENCED INCREASING HIERARCHY. IF SPECIFICATIONS ARE IN CONFLICT, THE MORE STRINGENT SPECIFICATION SHALL APPLY. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE OSHA, FEDERAL, STATE, AND LOCAL REGULATIONS.
5. THE OWNER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY ZONING PERMITS REQUIRED BY GOVERNMENT AGENCIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ALL TOWN CONSTRUCTION PERMITS, INCLUDING SEWER AND WATER CONNECTION PERMITS. THE CONTRACTOR SHALL POST ALL BONDS, PAY ALL FEES, PROVIDE PROOF OF INSURANCE AND PROVIDE TRAFFIC CONTROL NECESSARY FOR THIS WORK.
6. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS IN THE FIELD AND CONTACT THE SITE/CIVIL ENGINEER IF THERE ARE ANY QUESTIONS OR CONFLICTS REGARDING THE CONSTRUCTION DOCUMENTS AND/OR FIELD CONDITIONS.
7. THE CONTRACTOR SHALL FOLLOW THE SEQUENCE OF CONSTRUCTION NOTES PROVIDED HEREON.
8. SHOULD ANY UNCHARTED OR INCORRECTLY CHARTED, EXISTING PIPING OR OTHER UTILITY BE UNCOVERED DURING EXCAVATION, CONSULT THE SITE/CIVIL ENGINEER IMMEDIATELY FOR DIRECTIONS BEFORE PROCEEDING FURTHER WITH WORK IN THIS AREA.
9. DO NOT INTERRUPT EXISTING UTILITIES SERVICING FACILITIES OCCUPIED AND USED BY THE OWNER OR OTHERS DURING OCCUPIED HOURS EXCEPT WHEN SUCH INTERRUPTIONS HAVE BEEN AUTHORIZED IN WRITING BY THE OWNER AND THE LOCAL MUNICIPALITIES. INTERRUPTIONS SHALL ONLY OCCUR AFTER ACCEPTABLE TEMPORARY SERVICE HAS BEEN PROVIDED.
10. THE CONTRACTOR SHALL RESTORE ANY DRAINAGE STRUCTURE, PIPE, UTILITY, PAVEMENT, CURBS, SIDEWALKS, LANDSCAPED AREAS OR SIGNAGE DISTURBED DURING CONSTRUCTION TO THEIR ORIGINAL CONDITION OR BETTER, AS APPROVED BY THE SITE/CIVIL ENGINEER.
11. INFORMATION ON EXISTING UTILITIES AND STORM DRAINAGE SYSTEMS HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING UTILITY PROVIDER AND MUNICIPAL RECORD MAPS AND/OR FIELD SURVEY AND IS NOT GUARANTEED CORRECT OR COMPLETE. UTILITIES AND STORM DRAINAGE SYSTEMS ARE SHOWN TO ALERT THE CONTRACTOR TO THEIR PRESENCE AND THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STORM DRAINAGE SYSTEMS INCLUDING SERVICES. PRIOR TO DEMOLITION OR CONSTRUCTION, THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" 72 HOURS BEFORE COMMENCEMENT OF WORK AT "(800) 922-4455" AND VERIFY ALL UTILITY AND STORM DRAINAGE SYSTEM LOCATIONS.
12. REFER TO SHEET 2.32 FOR PHASE II CONSTRUCTION PLAN AND FOR THE INSTALLATION, MAINTENANCE, AND OPERATION OF THE PROPOSED SOIL EROSION & SEDIMENT CONTROL MEASURES SHOWN HEREON.
13. REFER TO SHEET 2.41 FOR SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.

PHASE I CONSTRUCTION SEQUENCE

1. INSTALL CONSTRUCTION FENCE, SILT SACK INLET PROTECTION FOR CATCH BASINS LOCATED WITHIN THE STREET, AND STABILIZED CONSTRUCTION ENTRANCE/EXIT.
2. INSTALL SILT FENCE / SEC MEASURES AS PROPOSED (CLEAR ONLY THOSE AREAS NECESSARY TO INSTALL SEC MEASURES). REMOVE THE NECESSARY PAVEMENT TO INSTALL SILT FENCE ALONG THE NORTHERN AND EASTERN LIMIT OF SITE WORK.
3. INSTALL SEDIMENT TRAPS.
4. PREPARE TEMPORARY PARKING AND STORAGE AREAS.
5. ESTABLISH MATERIAL STOCKPILE AREA AND INSTALL SEC BARRIER SURROUNDING PILE.
6. HALT ALL ACTIVITIES AND CONTACT THE SITE/CIVIL ENGINEER / TOWN OF TRUMBULL LAND USE AGENT TO PERFORM INSPECTION AND CERTIFICATION OF BEST MANAGEMENT PRACTICES (BMPS). GENERAL CONTRACTOR SHALL SCHEDULE AND CONDUCT THE STORMWATER PRE-CONSTRUCTION MEETING WITH THE SITE/CIVIL ENGINEER, OR REPRESENTATIVE OF, TOWN AGENCIES, AND GROUND-DISTURBING CONTRACTOR BEFORE PROCEEDING WITH CONSTRUCTION.
7. PERFORM PAVEMENT SAWCUTS.
8. DEMOLISH AND REMOVE EXISTING STRUCTURES / FOUNDATIONS.
9. REMOVE ALL EXISTING CURBING, BITUMINOUS CONCRETE PAVEMENT, CONCRETE PADS, AND FENCING.
10. BEGIN CLEARING AND GRUBBING THE SITE.
11. BEGIN CONSTRUCTION OF RETAINING WALLS.
12. BEGIN ROUGH GRADING OF THE SITE.
13. TEMPORARILY SEED THROUGH CONSTRUCTION DISTURBED AREAS THAT WILL BE INACTIVE FOR 14 DAYS OR MORE.
14. CONTRACTOR/CONSTRUCTION MANAGER TO COORDINATE WITH SITE/CIVIL ENGINEER OF RECORD TO OBTAIN STABILIZED SITE STATUS

PROPOSED SEDIMENT TRAP #2. SEDIMENT TRAP TO BE IN PLACE UNTIL FINAL STORMWATER MANAGEMENT IS INSTALLED AND ON-LINE
DISTURBED AREA = 1.70 ACRES
TOP OF TRAP ELEV. = 200.50
BOTTOM OF TRAP ELEV. = 197.00
REQUIRED TOTAL CAPACITY = 6,156 CF
PROVIDED WET CAPACITY (EL 197-199) = 3,211 CF
PROVIDED DRY CAPACITY (EL 199-200.5) = 2,945 CF

PROPOSED SEDIMENT TRAP #1. SEDIMENT TRAP TO BE IN PLACE UNTIL FINAL STORMWATER MANAGEMENT IS INSTALLED AND ON-LINE
DISTURBED AREA = 1.94 ACRES
TOP OF TRAP ELEV. = 203.50
BOTTOM OF TRAP ELEV. = 200.00
REQUIRED TOTAL CAPACITY = 7,020 CF
PROVIDED WET CAPACITY (EL 200-202) = 3,610 CF
PROVIDED DRY CAPACITY (EL 202-203.5) = 3,502 CF

TEMPORARY STONE CHECK DAMS PLACED EVERY LINEAR 75' (TYP.)

EXISTING MOUNDS TO BE REMOVED AND AREA TO BE GRADED TO DRAIN

SILT SACK INLET PROTECTION (TYP.)

CHAIN-LINK CONSTRUCTION FENCE (TYP.)

SILT FENCE PERIMETER WITH STRAW WATTLE BACKING (TYP.)

LIMIT OF DISTURBANCE (TYP.) (3.71 AC.)

TEMPORARY DRAINAGE SWALE FROM CONCRETE WASH RACK

TEMPORARY STONE STABILIZED CONSTRUCTION ENTRANCE PAD (MIN. LENGTH 50')

CONCRETE WASH RACK

REMOVE & DISPOSE OF EXISTING BUILDINGS, PAVEMENT, AND CONCRETE (TYP.)

INSTALL TEMPORARY MATERIAL STOCKPILE AREA WITH SILT FENCE PERIMETER. LOCATION SUBJECT TO CHANGE THROUGHOUT CONSTRUCTION

REMOVE AND DISPOSE OF EXISTING FENCE AND SHEDS (TYP.)

ROCKY HILL TERRACE

RESERVOIR AVENUE

12 CAMBRIDGE DRIVE N/F 12 CAMBRIDGE DRIVE NE LLC

1300 OLD TOWN ROAD N/F WEDNY JOLON & ESMERALDA PALENCIA

1280 OLD TOWN ROAD N/F CLAIR & JANE GARARD

2105 RESERVOIR AVENUE N/F 2105-2125 RESERVOIR AVE LLC

2125 RESERVOIR AVENUE N/F 2105-2125 RESERVOIR AVE LLC

2095 RESERVOIR AVENUE N/F EDMUND GITARI

2155 RESERVOIR AVENUE SQ.FT. OR (ACRES)

2145 RESERVOIR AVENUE SQ.FT. OR (ACRES)

2135 RESERVOIR AVENUE SQ.FT. OR (ACRES)

NOT FOR CONSTRUCTION, FOR PERMITTING PURPOSES ONLY

Rev. #:	Date	Description
2	03/04/26	Re-Filing Set
1	02/13/26	Rev. Per Town Comments

Graphic Scale: 30 0 30 60

SOLLI ENGINEERING
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Drawn By:	DJR
Checked By:	LAM
Approved By:	KMS
Project #:	24116901
Plan Date:	11/07/25
Scale:	1" = 30'

STATE OF CONNECTICUT KEVIN M. SOLLI 25759 REGISTERED PROFESSIONAL ENGINEER
Kevin Solli, P.E.
CT 25759

Project:

PROPOSED REDEVELOPMENT

2135, 2145, & 2155 RESERVOIR AVENUE
TRUMBULL, CONNECTICUT

Sheet Title: SOIL EROSION & SEDIMENT CONTROL PLAN - PHASE 1

Sheet #: 2.31

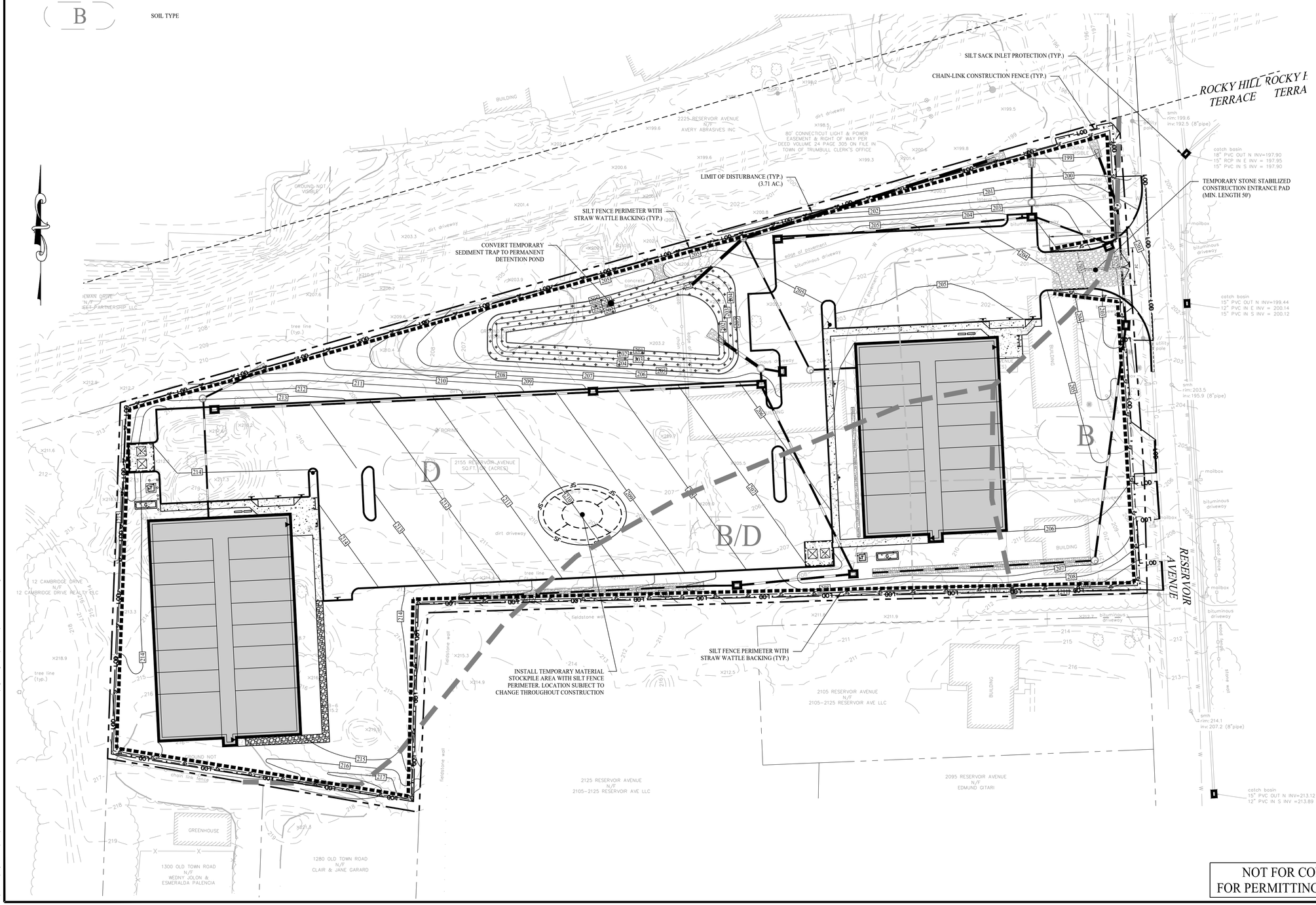
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LEGEND

- PROPERTY LINE
- ADJOINING LOT LINE
- SILT FENCE PROTECTION (SF)
- LIMIT OF DISTURBANCE (LOD)
- CONSTRUCTION ENTRANCE
- SLOPE STABILIZATION MATTING
- SILT SACK INLET PROTECTION
- SOIL TYPE BOUNDARY
- SOIL TYPE (B)

PHASE II CONSTRUCTION SEQUENCE

1. DECOMMISSION SEDIMENT TRAP #1.
2. INSTALL ADDITIONAL SILT FENCE SHOWN HERE ON. PROTECT & MAINTAIN SILT FENCE INSTALLED IN PHASE WHERE APPLICABLE.
3. INSTALL SANITARY SEWER PIPING AND STRUCTURES (SEE SHEET 2.51)
4. INSTALL PROPOSED STORM DRAINAGE SYSTEM AND STRUCTURES (SEE SHEET 2.21). UPON INSTALLATION OF DRAINAGE STRUCTURES, INLET PROTECTION TO BE INSTALLED.
5. START CONSTRUCTION OF BUILDING PAD, PARKING AREAS, UTILITY TRENCHING AND STRUCTURES.
6. PERMANENTLY STABILIZE AREAS TO BE VEGETATED AS THEY ARE BROUGHT TO FINAL GRADE.
7. PREPARE SITE FOR PAVING.
8. INSTALL CURBS.
9. CONSTRUCT CONCRETE PADS AND SIDEWALKS.
10. PAVE AREAS SHOWN ON SITE PLAN.
11. COMPLETE GRADING AND INSTALLATION OF PERMANENT STABILIZATION OVER ALL AREAS.
12. OBTAIN CONCURRENCE WITH THE CONSTRUCTION MANAGER THAT THE SITE HAS BEEN FULLY STABILIZED THEN:
    - 12.1. REMOVE ALL REMAINING TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES,
    - 12.2. STABILIZE ANY AREAS DISTURBED BY THE REMOVAL OF BMP'S, AND
    - 12.3. ASK THE CM TO CONTACT THE ENGINEER TO COMPLETE THE ENGINEERS ON-SITE INSPECTIONS AND REPORT.
13. CONTINUE DAILY INSPECTION REPORTS UNTIL THE FINAL DAILY INSPECTION REPORT IS SIGNED BY THE CONSTRUCTION MANAGER AND SUBMITTED.



Rev. #:	Date	Description
1	03/04/26	Re-Filing Set

Graphic Scale: 30 0 30 60

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Drawn By:	DJR
Checked By:	LAM
Approved By:	KMS
Project #:	24116901
Plan Date:	11/07/25
Scale:	1" = 30'

STATE OF CONNECTICUT · KEVIN M. SOLLI · 25759 · LICENSED PROFESSIONAL ENGINEER

Kevin Solli, P.E.
CT 25759

Project:

PROPOSED REDEVELOPMENT

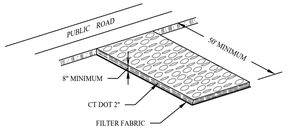
2135, 2145, & 2155 RESERVOIR AVENUE
TRUMBULL, CONNECTICUT

Sheet Title: SOIL EROSION & SEDIMENT CONTROL PLAN - PHASE II

Sheet #: 2.32

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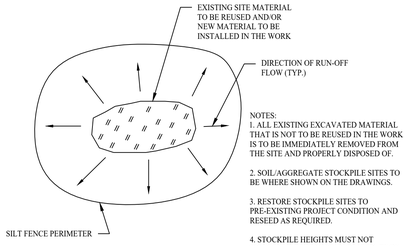
GRADATION TABLE

	CONN. DOT 2" CRUSHED GRAVEL	ASTM C-33 NO. 2	ASTM C-33 NO. 3
SQUARE MESH SIEVES	% FINER	% FINER	% FINER
2 1/2 INCHES	100	90-100	100
2 INCHES	95-100	35-70	90-100
1 1/2 INCHES	35-70	0-15	35-70
1 1/4 INCHES	0-25	---	---
1 INCHES	0-10	---	0-15
3/4 INCHES	---	0-5	---
1/2 INCHES	---	---	0-5
3/8 INCHES	---	---	---

SOURCE:
U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, STORRS, CONNECTICUT

CONSTRUCTION ENTRANCE

SCALE: NTS



NOTES:
1. ALL EXISTING EXCAVATED MATERIAL THAT IS NOT TO BE REUSED IN THE WORK IS TO BE IMMEDIATELY REMOVED FROM THE SITE AND PROPERLY DISPOSED OF.

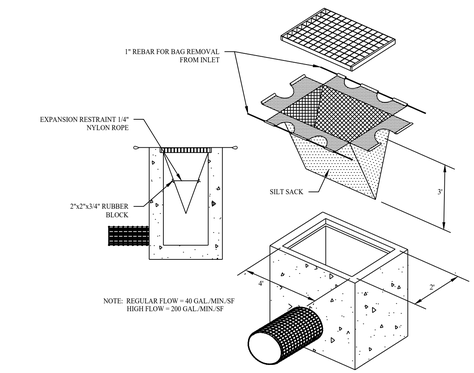
2. SOIL/AGGREGATE STOCKPILE SITES TO BE WHERE SHOWN ON THE DRAWINGS.

3. RESTORE STOCKPILE SITES TO PRE-EXISTING PROJECT CONDITION AND RESEED AS REQUIRED.

4. STOCKPILE HEIGHTS MUST NOT EXCEED 35'. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.

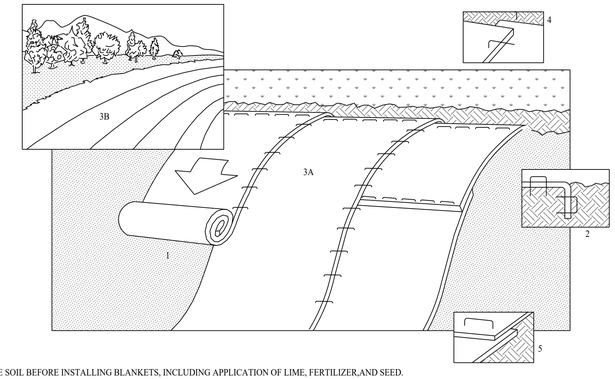
STOCKPILE AREA DETAIL

SCALE: NTS



SILT SACK INLET PROTECTION DETAIL

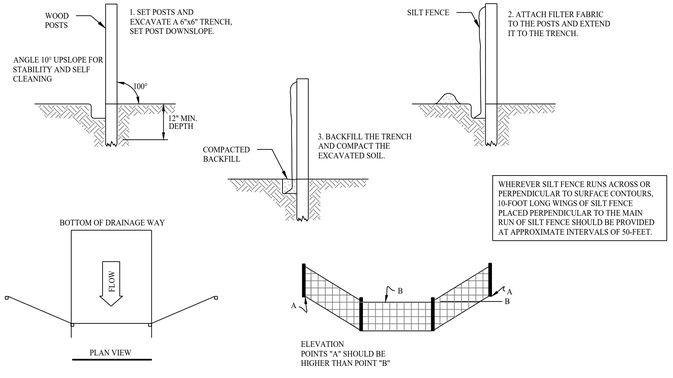
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NOTES:
1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF LIME, FERTILIZER,AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2" OVERLAP.
5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 4" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART.

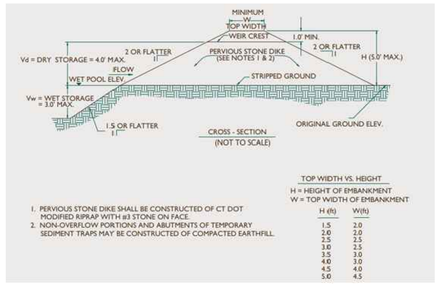
SLOPE STABILIZATION DETAIL

SCALE: NTS



SILT FENCE PROTECTION DETAIL

SCALE: NTS



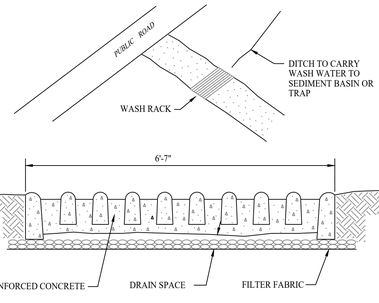
1. PERVIOUS STONE DIKE SHALL BE CONSTRUCTED OF CT DOT MODIFIED RIPRAP WITH #3 STONE ON FACE.
2. NON-OVERFLOW PORTIONS AND ABUTMENTS OF TEMPORARY SEDIMENT TRAPS MAY BE CONSTRUCTED OF COMPACTED EARTHFILL.

TOP WIDTH VS. HEIGHT
H = HEIGHT OF EMBANKMENT
W = TOP WIDTH OF EMBANKMENT

H (ft)	W(ft)
1.5	2.0
2.0	2.0
2.5	2.5
3.0	2.5
3.5	3.0
4.0	3.0
4.5	4.0
5.0	4.5

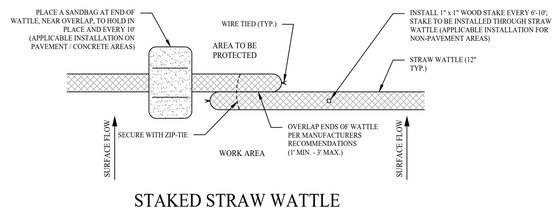
TYPICAL SEDIMENT TRAP DETAIL

SCALE: NTS



CONCRETE WASH RACK

SCALE: N.T.S



STAKED STRAW WATTLE

SCALE: NTS

SOIL EROSION & SEDIMENT CONTROL NOTES

SEDIMENT & EROSION CONTROL NARRATIVE
THE SEDIMENT AND EROSION CONTROL PLAN WAS DEVELOPED TO PROTECT THE EXISTING ROADWAY AND STORM DRAINAGE SYSTEMS, ADJACENT PROPERTIES, AND ANY ADJACENT WETLAND AREA AND WATER COURSE FROM SEDIMENT LADEN SURFACE RUNOFF AND EROSION.

CONSTRUCTION SCHEDULE
THE ANTICIPATED STARTING DATE FOR CONSTRUCTION IS SUMMER 2026 WITH COMPLETION ANTICIPATED BY SPRING 2027. APPROPRIATE EROSION CONTROL MEASURES AS DESCRIBED HEREIN, SHALL BE INSTALLED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF ALL SITE CLEARING OR CONSTRUCTION ACTIVITY. SCHEDULE WORK TO MINIMIZE THE LENGTH OF TIME THAT BARE SOIL WILL BE EXPOSED.

CONTINGENCY EROSION PLAN
THE CONTRACTOR SHALL INSTALL ALL SPECIFIED EROSION CONTROL MEASURES AND WILL BE REQUIRED TO MAINTAIN THEM IN THEIR INTENDED FUNCTIONING CONDITION. THE LAND USE AGENTS OF THE TOWN OF TRUMBULL AND SITE/CIVIL ENGINEER SHALL HAVE THE AUTHORITY TO REQUIRE SUPPLEMENTAL MAINTENANCE OR ADDITIONAL MEASURES IF FIELD CONDITIONS ARE ENCOUNTERED BEYOND WHAT WOULD NORMALLY BE ANTICIPATED.

OPERATION REQUIREMENTS
CLEARING AND GRUBBING OPERATIONS:
1. ALL SEDIMENTATION AND EROSION CONTROL MEASURES WILL BE INSTALLED PRIOR TO THE START OF CLEARING AND GRUBBING OPERATIONS.
2. FOLLOWING INSTALLATION OF ALL SEDIMENTATION AND EROSION CONTROL MEASURES, THE CONTRACTOR SHALL NOT PROCEED WITH GRADING, FILLING, OR OTHER CONSTRUCTION OPERATIONS UNTIL THE SITE/CIVIL ENGINEER HAS INSPECTED AND APPROVED ALL INSTALLATIONS.
3. THE CONTRACTOR SHALL TAKE EXTREME CARE DURING CLEARING AND GRUBBING OPERATIONS SO AS NOT TO DISTURB UNPROTECTED WETLAND AREAS OR SEDIMENTATION AND EROSION CONTROL DEVICES.
4. FOLLOWING THE COMPLETION OF CLEARING AND GRUBBING OPERATIONS, ALL AREAS SHALL BE STABILIZED WITH TOPSOIL AND SEEDING OR PROCESSED AGGREGATE STONE AS SOON AS PRACTICAL.
5. ALL REMOVED INVASIVE PLANT SPECIES MATERIAL SHALL BE FULLY REMOVED FROM THE SITE AND TAKEN TO AN APPROVED AND/OR ACCEPTABLE DISPOSAL LOCATION.

ROUGH GRADING OPERATIONS:
1. DURING THE REMOVAL AND/OR PLACEMENT OF EARTH AS INDICATED ON THE GRADING PLAN, TOPSOIL SHALL BE STRIPPED AND APPROPRIATELY STOCKPILED FOR REUSE.
2. ALL STOCKPILED TOPSOIL SHALL BE SEEDED, MULCHED WITH STRAW, AND ENCLOSED BY A SILTATION FENCE.

FILLING OPERATIONS:
1. PRIOR TO FILLING, ALL SEDIMENTATION AND EROSION CONTROL DEVICES SHALL BE PROPERLY IMPLEMENTED, MAINTAINED AND FULLY INSTALLED, AS DIRECTED BY THE SITE/CIVIL ENGINEER, OR REPRESENTATIVE, AND AS SHOWN ON THIS PLAN.
2. ALL FILL MATERIAL ADJACENT TO ANY WETLAND AREAS, IF APPLICABLE TO THIS PROJECT, SHALL BE GOOD QUALITY, WITH LESS THAN 5% FINES PASSING THROUGH A #200 SIEVE (BANK RUN), SHALL BE PLACED IN LIFT THICKNESS NOT GREATER THAN THAT SPECIFIED IN PROJECT SPECIFICATIONS. LIFTS SHALL BE COMPACTED TO 95% MAX. DRY DENSITY MODIFIED PROCTOR OR AS SPECIFIED IN THE CONTRACT SPECIFICATIONS OR IN THE GEOTECHNICAL REPORT.

PLACEMENT OF DRAINAGE STRUCTURES, UTILITIES, AND ROADWAY CONSTRUCTION OPERATIONS:
1. SILT FENCES SHALL BE INSTALLED AT THE DOWNHILL SIDES OF MUD PUMP DISCHARGES AND UTILITY TRENCH MATERIAL STOCKPILES. STRAW BALES MAY BE USED IF SHOWN ON THE EROSION CONTROL PLANS OR IF DIRECTED BY THE SITE/CIVIL ENGINEER.

FINAL GRADING AND PAVING OPERATIONS:
1. ALL INLET AND OUTLET PROTECTION SHALL BE PLACED AND MAINTAINED AS SHOWN ON EROSION CONTROL PLANS AND DETAILS, AND AS DESCRIBED IN SPECIFICATIONS AND AS DESCRIBED HEREIN.
2. NO CUT OR FILL SLOPES SHALL EXCEED 2:1 EXCEPT WHERE STABILIZED BY ROCK FACED EMBANKMENTS OR EROSION CONTROL BLANKETS, JUTE MESH AND VEGETATION. ALL SLOPES SHALL BE SEEDED, AND ANY ROAD OR DRIVEWAY SHOULDER AND BANKS SHALL BE STABILIZED IMMEDIATELY UPON COMPLETION OF FINAL GRADING UNTIL TURF IS ESTABLISHED.
3. PAVEMENT SUB-BASE AND BASE COURSES SHALL BE INSTALLED OVER AREAS TO BE PAVED AS SOON AS FINAL SUB-GRADES ARE ESTABLISHED AND UNDERGROUND UTILITIES AND STORM DRAINAGE SYSTEMS HAVE BEEN INSTALLED.
4. AFTER CONSTRUCTION OF PAVEMENT, TOPSOIL, FINAL SEED, MULCH AND LANDSCAPING, REMOVE ALL TEMPORARY EROSION CONTROL DEVICES ONLY AFTER ALL AREAS HAVE BEEN PAVED AND/OR GRASS HAS BEEN WELL ESTABLISHED AND THE SITE HAS BEEN INSPECTED AND APPROVED BY THE TOWN OF TRUMBULL.

INSTALLATION OF SEDIMENTATION AND EROSION CONTROL MEASURES

I. SILTATION FENCE:
- A. DIG A SIX INCH TRENCH ON THE UPHILL SIDE OF THE DESIGNATED FENCE LINE LOCATION.
- B. POSITION THE POST AT THE BACK OF THE TRENCH (DOWNHILL SIDE), AND HAMMER THE POST AT LEAST 1.5 FEET INTO THE GROUND.
- C. LAY THE BOTTOM SIX INCHES OF THE FABRIC INTO THE TRENCH TO PREVENT UNDERMINING BY STORM WATER RUN-OFF.
- D. BACKFILL THE TRENCH AND COMPACT.

II. SILT SACK INLET PROTECTION
- A. INLET PROTECTION SHALL BE IMMEDIATELY PROVIDED AND MAINTAINED FOR ALL INSTALLED CATCH BASINS AND YARD DRAINS UNTIL THE SITE IS PERMANENTLY STABILIZED.
- B. REMOVE CATCH BASIN GRATE AND PROPERLY PLACE THE SILT SACK INTO THE FRAME OF THE CATCH BASIN.
- C. PLACE GRATE BACK ONTO FRAME AND ENSURE NO PORTIONS OF THE SILT SACK HAVE SAGGED INTO THE CATCH BASIN.
- D. ONCE GRATE IS PLACED BACK ONTO FRAME OBSERVE TO SEE IF SILT SACK IS INSTALLED IN A MANNER THAT WILL ALLOW FOR SEDIMENT TO BE FILTERED OUT DURING STORM EVENTS.

III. CONSTRUCTION ENTRANCE
- A. REMOVE ALL VEGETATION AND OTHER MATERIALS FROM THE FOUNDATION AREA. GRADE AND CROWN FOUNDATION FOR POSITIVE DRAINAGE.
- B. PLACE 1-3IN STONE A MINIMUM OF 50FT ALONG THE FULL WIDTH OF THE CONSTRUCTION ACCESS ROAD. AGGREGATE SHOULD BE PLACED AT LEAST 6" THICK.
- C. GEOTEXTILE FILTER FABRIC SHALL BE PLACED BETWEEN STONE FILL AND EARTH SURFACE TO TO REDUCE THE MIGRATION OF SOIL PARTICLES FROM THE UNDERLYING SOIL INTO THE STONE AND VICE VERSA.
- D. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE.
- E. FILTER FABRIC FENCE SHALL BE INSTALLED DOWN GRADIENT FROM THE CONSTRUCTION ENTRANCE IN ORDER TO CONTAIN ANY SEDIMENT-LADEN RUNOFF FROM THE ENTRANCE.

IV. SEDIMENT TRAP
- A. CLEAR, GRUB, AND STRIP ALL VEGETATION FROM THE EMBANKMENT AREA.
- B. COMPACT AND FILL EMBANKMENT IN 9" LIFTS.
- C. OVERFILL EMBANKMENT 6" ABOVE DESIGN ELEVATION TO ALLOW FOR SETTLEMENT.
- D. EVACUATE TRAPEZOIDAL STONE OUTLET SECTION FROM COMPACTED EMBANKMENT. INSTALL FILER FABRIC UNDER RIPRAP.

OPERATION AND MAINTENANCE OF SEDIMENTATION AND EROSION CONTROL MEASURES

I. SILTATION FENCE:
- A. ALL SILTATION FENCES SHALL BE INSPECTED AS A MINIMUM WEEKLY OR AFTER EACH RAINFALL. ALL DETERIORATED FABRIC AND DAMAGED POSTS SHALL BE REPLACED AND PROPERLY REPOSITIONED IN ACCORDANCE WITH THIS PLAN.
- B. SEDIMENT DEPOSITS SHALL BE REMOVED FROM BEHIND THE FENCE WHEN THEY EXCEED A HEIGHT OF ONE FOOT.

II. SILT SACK INLET PROTECTION
- A. ALL SILT SACK INLET PROTECTION DEVICES SHALL BE INSPECTED AS A MINIMUM WEEKLY OR AFTER EACH RAINFALL. ALL DETERIORATE SILT SACKS AND SACKS THAT APPEAR TO HAVE AN EXCESS OF SEDIMENT SHALL BE REPLACED AND PROPERLY REPOSITIONED IN ACCORDANCE WITH THIS PLAN.
- B. SEDIMENT DEPOSITS SHALL BE REMOVED FROM THE SILT SACKS WHEN THEY EXCEED A COUPLE INCHES OF SEDIMENT WITHIN THE CATCH BASIN.

III. CONSTRUCTION ENTRANCE
- A. THE CONSTRUCTION ENTRANCE AND FENCE SHALL BE INSPECTED AT A MINIMUM WEEKLY AND AFTER HEAVY RAINS OR HEAVY USE.
- B. REMOVE MUD AND HEAVY SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROAD IMMEDIATELY.
- C. THE GRAVEL PAD SHALL BE TOPDRESSED WITH NEW STONE WHEN MUD AND SOIL PARTICLES CLOG THE VOIDS IN THE GRAVEL.
- D. RESHAPE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.
- E. REPAIR ANY BROKEN ROAD PAVEMENT IMMEDIATELY.

IV. SEDIMENT TRAP
- A. INSPECT SEDIMENT TRAP AFTER EACH SIGNIFICANT RAINFALL EVENT. REPAIR ANY EROSION OR PIPING HOLES IMMEDIATELY.
- B. SET A STAKE AT ONE HALF THE DESIGN DEPTH OF THE SEDIMENT TRAP. REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH.
- C. CLEAN OR REPLACE SPILLWAY GRAVEL FACING IF CLOGGED.
- D. PROMPTLY REPLACE ANY DISPLACED RIPRAP.
- E. INSPECT VEGETATION; RESEED AND REMULCH IF NECESSARY.
- F. CHECK SPILLWAY DEPTH PERIODICALLY. FILL ANY LOW AREAS OF THE EMBANKMENT TO MAINTAIN DESIGN ELEVATION.

EROSION AND SEDIMENT CONTROL PLAN
1. CATCH BASINS WILL BE PROTECTED WITH STRAW BALE FILTERS, SILT SACKS, SILTATION FENCE, OR OTHER INLET PROTECTION DEVICES PER DETAILS. THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL ALL DISTURBED AREAS ARE THOROUGHLY STABILIZED.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL MANUAL, LATEST EDITION.
3. EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED PRIOR TO CONSTRUCTION WHENEVER POSSIBLE.
4. ALL CONTROL MEASURES WILL BE MAINTAINED IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD.
5. ADDITIONAL CONTROL MEASURES WILL BE INSTALLED DURING THE CONSTRUCTION PERIOD, IF NECESSARY OR REQUIRED OR AS DIRECTED BY THE SITE/CIVIL ENGINEER, OR REPRESENTATIVE OF, OR BY LOCAL GOVERNING OFFICIALS.
6. SEDIMENT REMOVED FROM EROSION CONTROL STRUCTURES WILL BE DISPOSED IN A MANNER WHICH IS CONSISTENT WITH THE INTENT AND REQUIREMENTS OF THE EROSION CONTROL PLANS, NOTES, AND DETAILS.
7. THE OWNER IS ASSIGNED THE RESPONSIBILITY FOR IMPLEMENTING THIS EROSION AND SEDIMENT CONTROL PLAN. THIS RESPONSIBILITY INCLUDES THE INSTALLATION AND MAINTENANCE OF CONTROL MEASURES, INFORMING ALL PARTIES ENGAGED ON THE CONSTRUCTION SITE OF THE REQUIREMENTS AND OBJECTIVES OF THE PLAN.

SEDIMENT AND EROSION CONTROL NOTES
1. THE OWNER IS RESPONSIBLE FOR IMPLEMENTING THIS SEDIMENT AND EROSION CONTROL PLAN. THIS RESPONSIBILITY INCLUDES THE PROPER INSTALLATION AND MAINTENANCE OF EROSION CONTROL MEASURES, INFORMING ALL PARTIES ENGAGED WITH CONSTRUCTION ON THE SITE OF THE REQUIREMENTS AND OBJECTIVES OF THIS PLAN, INFORMING THE GOVERNING AUTHORITY OR INLAND WETLANDS AGENCY OF ANY TRANSFER OF THIS RESPONSIBILITY, AND FOR CONVEYING A COPY OF THE SEDIMENT & EROSION CONTROL PLAN IF THE TITLE TO THE LAND IS TRANSFERRED.
2. AN EROSION CONTROL BOND MAY BE REQUIRED TO BE POSTED WITH THE TOWN OF TRUMBULL TO ENSURE IMPLEMENTATION OF THE EROSION CONTROL MEASURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE POSTING OF THIS BOND AND FOR INQUIRIES TO THE TOWN OF TRUMBULL FOR INFORMATION ON THE METHOD, TYPE AND AMOUNT OF THE BOND POSTING UNLESS OTHERWISE DIRECTED BY THE OWNER.
3. VISUAL SITE INSPECTIONS SHALL BE CONDUCTED WEEKLY, AND AFTER EACH MEASURABLE PRECIPITATION EVENT OF 0.25 INCHES OR GREATER BY QUALIFIED PERSONNEL, TRAINED AND EXPERIENCED IN EROSION AND SEDIMENT CONTROL, TO ASCERTAIN THAT THE EROSION AND SEDIMENT CONTROL (E&S) BMPS ARE OPERATIONAL AND EFFECTIVE IN PREVENTING POLLUTION. A WRITTEN REPORT OF EACH INSPECTION SHALL BE KEPT, AND INCLUDE:
   A) A SUMMARY OF THE SITE CONDITIONS, E&S BMPS, AND COMPLIANCE; AND
   B) THE DATE, TIME, AND THE NAME OF THE PERSON CONDUCTING THE INSPECTION
4. THE CONTRACTOR SHALL CONSTRUCT ALL SEDIMENT AND EROSION CONTROLS IN ACCORDANCE WITH THE CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, PREPARED BY CTDEEP, LATEST EDITION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, AND AS DIRECTED BY THE TOWN OF TRUMBULL. THE CONTRACTOR SHALL KEEP A COPY OF THE GUIDELINES ON-SITE FOR REFERENCE DURING CONSTRUCTION.
5. ADDITIONAL AND/OR ALTERNATIVE SEDIMENT AND EROSION CONTROL MEASURES MAY BE INSTALLED DURING THE CONSTRUCTION PERIOD IF FOUND NECESSARY BY THE CONTRACTOR, OWNER, SITE/CIVIL ENGINEER, TOWN OF TRUMBULL, OR GOVERNING AGENCIES. THE CONTRACTOR SHALL CONTACT THE OWNER AND APPROPRIATE GOVERNING AGENCIES FOR APPROVAL IF ALTERNATIVE CONTROLS OTHER THAN THOSE SHOWN ON THE PLANS ARE PROPOSED.
6. THE CONTRACTOR SHALL INSPECT ALL SEDIMENT AND EROSION CONTROLS BEFORE AND AFTER EACH STORM (0.25 INCHES OR GREATER RAINFALL), OR AT LEAST WEEKLY, TO VERIFY THAT THE CONTROLS ARE OPERATING PROPERLY AND MAKE REPAIRS WHERE NECESSARY.
7. THE CONTRACTOR SHALL KEEP A SUPPLY OF EROSION CONTROL MATERIAL (STRAW BALES, SILT FENCE, JUTE MESH,RIP RAP ETC.) ON-SITE FOR MAINTENANCE AND EMERGENCY REPAIRS.
8. INSTALL PERIMETER SEDIMENT CONTROLS PRIOR TO CLEARING OR CONSTRUCTION. ALL CONSTRUCTION SHALL BE CONTAINED WITHIN THE LIMIT OF DISTURBANCE, WHICH SHALL BE MARKED WITH SILT FENCE, SAFETY FENCE, STRAW BALES, RIBBONS, OR OTHER MEANS PRIOR TO CLEARING. CONSTRUCTION ACTIVITY SHALL REMAIN ON THE UPHILL SIDE OF THE SILT FENCE UNLESS WORK IS SPECIFICALLY CALLED FOR ON THE DOWNHILL SIDE OF THE FENCE.
9. TOPSOIL SHALL BE STRIPPED AND STOCKPILED FOR USE IN FINAL LANDSCAPING. ALL EARTH STOCKPILES SHALL HAVE STRAW BALES OR SILT FENCE AROUND THE LIMIT OF PILE. PILES SHALL BE TEMPORARILY SEEDED IF PILE IS TO REMAIN IN PLACE FOR MORE THAN 7 DAYS.
10. MINIMIZE LAND DISTURBANCES. SEED AND MULCH DISTURBED AREAS WITH TEMPORARY MIX AS SOON AS PRACTICABLE (2 WEEK MAXIMUM UNSTABILIZED PERIOD) USING PERENNIAL RYEGRASS AT 40 LBS PER ACRE. MULCH ALL CUT AND FILL SLOPES AND SWALES WITH LOOSE STRAW AT A RATE OF 2 TONS PER ACRE. IF NECESSARY, REPLACE LOOSE STRAW ON SLOPES WITH EROSION CONTROL BLANKETS OR JUTE CLOTH. MODERATELY GRADED AREAS, ISLANDS, AND TEMPORARY CONSTRUCTION STAGING AREAS MAY BE HYDROSEEDED WITH TACKIFIER.
11. SILT FENCE AND OTHER SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH CONTRACT DRAWINGS AND MANUFACTURER'S RECOMMENDATIONS PRIOR TO WORK IN ANY UPLAND AREAS.
12. INSTALL SILT FENCE ACCORDING TO MANUFACTURER'S INSTRUCTION, PARTICULARLY, BURY LOWER EDGE OF FABRIC INTO GROUND. SILT FENCE SHALL BE MIRAFI ENVIROFENCE, AMOCO SILT STOP OR EQUIVALENT APPROVED BY THE SITE/CIVIL ENGINEER. FILTER FABRIC USED SHALL BE MIRAFI 100X OR EQUIVALENT. SEE SPECIFICATIONS FOR FURTHER INFORMATION.
13. DIRECT ALL DEWATERING PUMP DISCHARGE TO A SEDIMENT CONTROL DEVICE SUCH AS TEMPORARY PITS OR GRASS FILTERS WITHIN THE APPROVED LIMIT OF DISTURBANCE. DISCHARGE TO STORM DRAINAGE SYSTEM OR SURFACE WATERS FROM SEDIMENT CONTROLS SHALL BE CLEAR.
14. SWEEP AFFECTED PORTIONS OF OFF SITE ROADS ONE OR MORE TIMES A DAY (OR LESS FREQUENTLY IF TRACKING IS NOT A PROBLEM) DURING CONSTRUCTION. OTHER DUST CONTROL MEASURES TO BE USED AS NECESSARY INCLUDE WATERING DOWN DISTURBED AREAS, USING CALCIUM CHLORIDE, AND COVERING LOADS ON DUMP TRUCKS.
15. CLEAN ACCUMULATED SEDIMENT FROM CATCH BASIN SUMPS AS NECESSARY AND AS DIRECTED BY THE SITE/CIVIL ENGINEER OR OWNER'S CONSTRUCTION REPRESENTATIVE. REMOVE ACCUMULATED SEDIMENT FROM BEHIND STRAW BALES AND SILT FENCE WHEN LEVEL REACHES HALF THE HEIGHT OF THE STRAW BALE OR ONE FOOT AT SILT FENCE. DISPOSE OF SEDIMENT LEGALLY EITHER ON OR OFF SITE.
16. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO ELIMINATE THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.
17. ALL PUMPING OF SEDIMENT LADEN WATER SHALL BE THROUGH A SEDIMENT CONTROL BMP, SUCH AS A PUMPED WATER FILTER BAG OR EQUIVALENT SEDIMENT REMOVAL FACILITY, OVER UNDISTURBED VEGETATED AREAS.
18. ALL EXCAVATED MATERIAL SHALL BE PLACED ON THE HIGH SIDE OF UTILITY AND STORM PIPE TRENCHES SO AS TO ALLOW THE TRENCH TO INTERCEPT ALL SILT LADEN RUNOFF.
19. CONTRACTOR SHALL ONLY EXCAVATE AS MUCH UTILITY AND STORM PIPE TRENCH WORK AS CAN BE COMPLETED, BACKFILLED AND STABILIZED IN ONE DAY SO AS TO LIMIT THE AMOUNT OF OPEN, DISTURBED TRENCHING.
20. ANY STOCKPILES OF STRIPPED MATERIALS ARE TO BE PERIODICALLY SPRAYED WITH WATER OR A CRUSTING AGENT TO STABILIZE POTENTIALLY WIND-BLOWN MATERIAL. HAUL ROADS BOTH INTO AND AROUND THE SITE ARE TO BE SPRAYED AS NEEDED TO SUPPRESS DUST. TRUCKS HAULING IMPORT FILL MATERIAL ARE TO BE TARPED TO AID IN THE CONTROL OF AIRBORNE DUST. DURING HIGH WIND EVENTS (20 TO 30 MPH SUSTAINED) CONSTRUCTION ACTIVITY SHALL BE LIMITED OR CEASED IF DUST CANNOT BE CONTROLLED BY WETTING.
21. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM OF 70% UNIFORM PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING OR OTHER MOVEMENTS.
22. MAINTAIN ALL PERMANENT AND TEMPORARY SEDIMENT CONTROL DEVICES IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD. UPON COMPLETION OF WORK SWEEP PARKING LOT AND REMOVE ALL TEMPORARY SEDIMENT CONTROLS WHEN AUTHORIZED BY LOCAL GOVERNING AUTHORITY. FILE NOT (NOTICE OF TERMINATION) WITH GOVERNING AUTHORITY RESPONSIBLE FOR REGULATING STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES PER NPDES.

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Rev. #:	Date	Description
2	03/04/26	Re-Filing Set
1	02/13/26	Rev. Per Town Comments

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Drawn By:	DJR
Checked By:	LAM
Approved By:	KMS
Project #:	24116901
Plan Date:	11/07/25
Scale:	AS NOTED

STATE OF CONNECTICUT KEVIN M. SOLLI 26778 LICENSED PROFESSIONAL ENGINEER
Kevin Solli, P.E.
CT 25759

Project:

PROPOSED REDEVELOPMENT

2135, 2145, & 2155 RESERVOIR AVENUE
TRUMBULL, CONNECTICUT

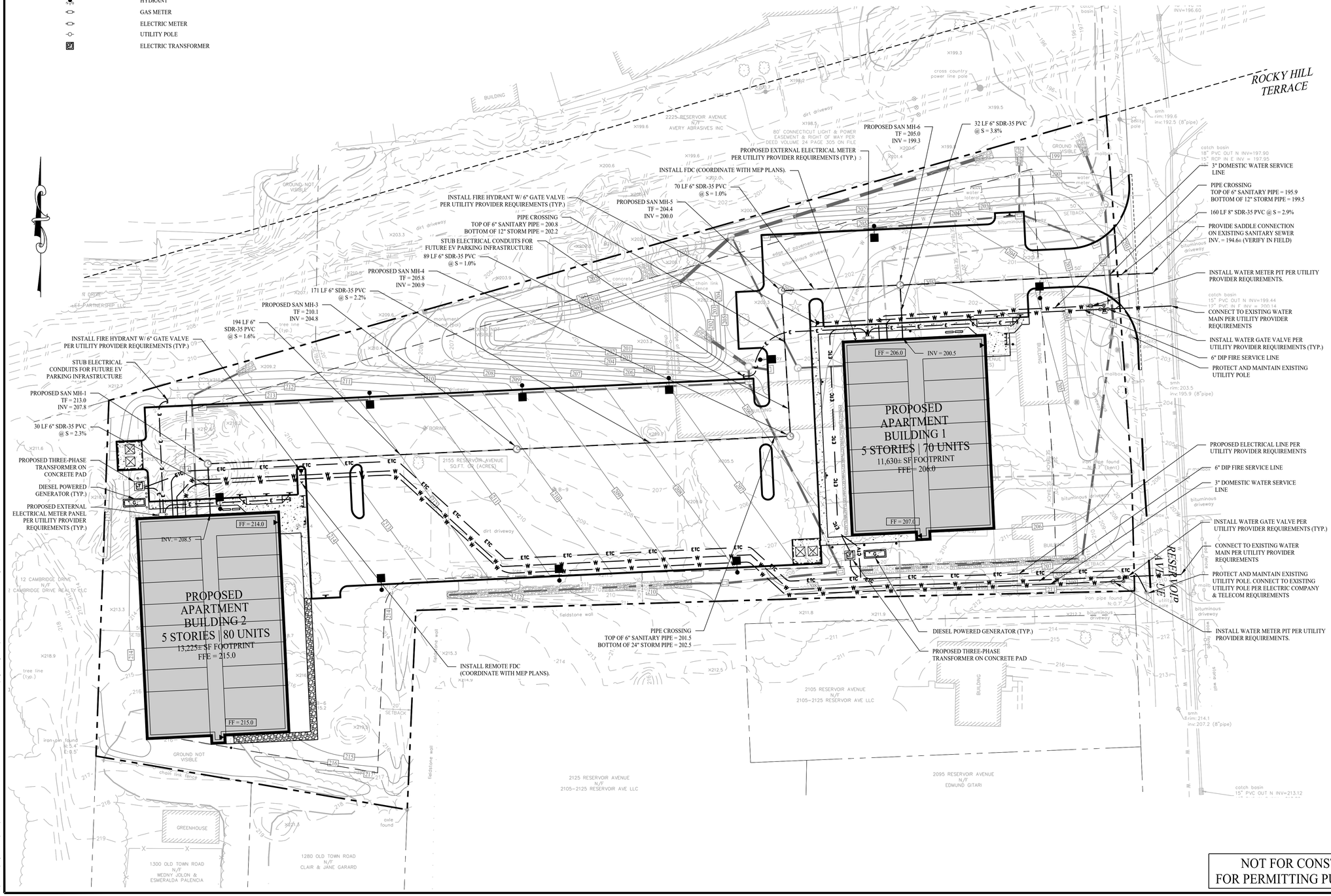
Sheet Title:
SOIL EROSION & SEDIMENT CONTROL NOTES AND DETAILS

Sheet #:
2.41

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LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJOINING LOT LINE
- WATER MAIN / LATERAL
- GAS LINE
- ELECTRIC CONDUIT
- CABLE & TELEPHONE CONDUIT
- UNDERGROUND ELECTRIC, TELEPHONE AND CABLE LINES
- SANITARY SEWER PIPE
- SANITARY SEWER MANHOLE
- WATER VALVE
- HYDRANT
- GAS METER
- ELECTRIC METER
- UTILITY POLE
- ELECTRIC TRANSFORMER



GENERAL NOTES

1. THESE PLANS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT FOR CONSTRUCTION. NO CONSTRUCTION OR DEMOLITION SHALL BEGIN UNTIL FINAL APPROVAL OF THIS PLAN IS GRANTED BY ALL GOVERNING AND REGULATORY AGENCIES.
2. ALL PROPOSED SITE WORK IS TO BE COMPLETED IN ACCORDANCE WITH ALL PERMITS, APPROVALS, AND CONDITIONS OF APPROVALS ISSUED BY LOCAL, STATE AND/OR FEDERAL REVIEWING AGENCIES.
3. EXISTING BOUNDARY AND TOPOGRAPHY IS BASED ON DRAWING TITLED "PROPERTY SURVEY OF 2135, 2145 & 2155 RESERVOIR AVENUE, TRUMBULL, CONNECITCUT, PREPARED FOR VESSEL TECHNOLOGIES", SCALE 1"=30', DATED JULY 24, 2025, PERFORMED BY ACCURATE LAND SURVEYING, LLC.
4. ALL CONSTRUCTION SHALL COMPLY WITH TOWN OF TRUMBULL STANDARDS, CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS IN THE ABOVE REFERENCED INCREASING HIERARCHY. IF SPECIFICATIONS ARE IN CONFLICT, THE MORE STRINGENT SPECIFICATION SHALL APPLY. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE OSHA, FEDERAL, STATE AND LOCAL REGULATIONS.

SITE UTILITY NOTES

1. SEE SHEET 2.21 FOR DETAILS REGARDING THE PROPOSED GRADING AND DRAINAGE FEATURES, STORMWATER CONVEYANCE, AND STORMWATER DETENTION FACILITIES.
2. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, UTILITY LOCATIONS, AND INVERTS PRIOR TO CONSTRUCTION. ANY CONDITIONS FOUND TO DIFFER FROM THOSE SHOWN IN THE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE SITE/CIVIL ENGINEER.
3. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR ACTUAL LOCATIONS OF ALL UTILITY ENTRANCES TO INCLUDE SANITARY SEWER LATERALS, DOMESTIC AND FIRE PROTECTION WATER SERVICE, ELECTRICAL, TELEPHONE AND GAS SERVICE, ROOF DRAINS, AND ALL OTHER UTILITIES. CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES IN SUCH A MANNER AS TO AVOID CONFLICTS AND TO ENSURE PROPER DEPTHS ARE ACHIEVED AS WELL AS COORDINATING WITH THE REGULATORY AGENCY AS TO LOCATION OF AND SCHEDULING OF CONNECTIONS TO THEIR FACILITIES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING UTILITY COMPANIES 72 HOURS PRIOR TO BEGINNING EXCAVATION AND INSTALLATION.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND ALL PAVEMENT REPAIRS REQUIRED AS A RESULT OF ANY UTILITY WORK.
6. ALL TRENCHING, PIPE LAYING, AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS.
7. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 2 FEET OF COVER FOR ALL UNDERGROUND ELECTRIC AND TELEPHONE UTILITIES.
8. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 4.5 FEET OF COVER FOR ALL WATER DISTRIBUTION PIPING.
9. ALL NEW WATER LINES SHALL BE PRESSURE TESTED AND LEAKAGE TESTED IN ACCORDANCE WITH THE LATEST EDITION OF AWWA STANDARD C600.
10. ALL NEW WATER MAINS SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA STANDARD C651.
11. ALL DOMESTIC WATER AND SANITARY SEWER STUBS TO BE TERMINATED 5 FEET OUTSIDE OF THE BUILDING UNLESS OTHERWISE NOTED. THE END OF THESE SERVICE LINES SHALL BE TIGHTLY PLUGGED OR CAPPED AND MARKED UNTIL SUCH TIME AS CONNECTION IS MADE INSIDE BUILDING BY PLUMBING CONTRACTOR.
12. ALL WORK SHALL COMPLY WITH ALL APPLICABLE CODES, REGULATIONS, AND/OR LOCAL STANDARDS IMPOSED BY LOCAL UTILITY AUTHORITIES.
13. CONTRACTOR SHALL ADJUST LOCATION OF PROPOSED WATER LINES AS REQUIRED TO AVOID CONFLICTS WITH STORM SEWER OR OTHER UTILITIES AT NO EXTRA COST.
14. ALL MATERIAL SHALL BE APPROVED BY THE LOCAL UTILITY COMPANIES UNLESS DIRECTED OTHERWISE BY THE SITE/CIVIL ENGINEER.
15. SHOULD LATENT SOIL CONDITIONS NECESSITATE, CONTRACTOR SHALL INSTALL SPECIAL SUPPORTS FOR PIPING AND/OR APPURTENANCES INCLUDING THE REMOVAL OF UNSUITABLE MATERIAL AND BACKFILLING WITH GRAVEL OR OTHER APPROVED MATERIAL. CONTRACTOR SHALL PERFORM ANY SUCH WORK AS DIRECTED BY THE SITE/CIVIL ENGINEER AND/OR SOILS ENGINEER AT NO COST TO OWNER.
16. V.I.F. = VERIFY IN FIELD
17. PROJECT MUST BE CONSTRUCTED TO ALL WATER COMPANY SPECIFICATIONS.
18. COPPER AND/OR DUCTILE IRON SERVICE LATERAL MATERIAL REQUIRED.
19. GATE VALVES OPEN LEFT.
20. SITE CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND INSTALLING ANY REQUIRED CONNECTORS/ADAPTORS TO CONNECT SITE PIPING/CONDUITS, ETC. TO BUILDING UTILITIES INSTALLED BY OTHERS.
21. EXISTING WATER SERVICES SHALL BE ABANDONED BY TERMINATING AT THE WATER MAIN.

Rev. #:	Date	Description
1	03/04/26	Re-Filing Set

Graphic Scale: 30 0 30 60

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Drawn By:	ARM
Checked By:	LAM
Approved By:	KMS
Project #:	24116901
Plan Date:	11/07/25
Scale:	1" = 30'

STATE OF CONNECTICUT · KEVIN M. SOLLI · 25759 · LICENSED PROFESSIONAL ENGINEER
Kevin Solli, P.E.
CT 25759

Project:

PROPOSED REDEVELOPMENT

2135, 2145, & 2155 RESERVOIR AVENUE
TRUMBULL, CONNECTICUT

Sheet Title:	Sheet #:
UTILITY PLAN	2.51

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PLANTING NOTES

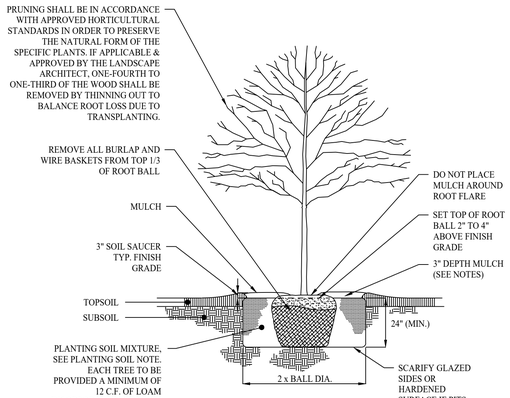
1. BE AWARE OF ALL UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION OR PLANTING OPERATIONS. USE CARE TO PROTECT EXISTING UTILITIES FROM DAMAGE, CONTACT "CALL BEFORE YOU DIG" PRIOR TO EXCAVATION.
2. ALL PLANTINGS ARE TO BE INSTALLED BY A QUALIFIED LANDSCAPE CONTRACTOR.
3. THE CONTRACTOR SHALL BE REQUIRED TO CARRY WORKMEN'S COMPENSATION INSURANCE AND COMPREHENSIVE GENERAL LIABILITY INSURANCE. CERTIFICATES WILL BE REQUIRED PRIOR TO SIGNING CONTRACTS.
4. CONTRACTOR IS RESPONSIBLE FOR JOBSITE SAFETY. CONTRACTOR SHALL MAINTAIN A SAFE JOBSITE AT ALL TIMES.
5. CONTRACTOR SHALL BE FAMILIAR WITH THE SITE TO VERIFY ALL DIMENSIONS, GRADES, AND EXISTING CONDITIONS. REPORT ANY DISCREPANCIES TO LANDSCAPE DESIGNER.
6. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS AND LICENSES REQUIRED FOR COMPLETING WORK.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF ALL EXCAVATED SOIL, BRUSH, AND DEBRIS OFF-SITE IN A SAFE AND LEGAL MANNER.
8. NOTIFY OWNER OR LANDSCAPE DESIGNER 72 HOURS MINIMUM IN ADVANCE OF STARTING PLANTING OPERATIONS. RECEIVE APPROVAL FOR LAYOUT OF ALL BED LINES AND MATERIAL LOCATIONS PRIOR TO INSTALLATION.
9. PROTECT EXISTING VEGETATION TO REMAIN FROM DAMAGE DURING CONSTRUCTION. IT IS THE INTENT OF THIS CONTRACT TO AVOID ANY DISTURBANCE TO EXISTING VEGETATION ON THE SITE OTHER THAN THOSE SPECIFICALLY DESIGNATED FOR REMOVAL. ADJUSTMENTS SHALL BE MADE IN THE FIELD AT THE DIRECTION OF THE LANDSCAPE DESIGNER.
10. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL PLANTING, SEEDING, AND TREE WORK WITH OTHER TRADES. RESPECT OTHER TRADES WORK AT ALL TIMES.
11. CONTRACTOR IS TO EXERCISE EXTREME CARE DURING THE COURSE OF DEMOLITION AND REMOVALS. ANY DAMAGE TO EXISTING FACILITIES, UTILITIES, OR TREES TO REMAIN SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE IN KIND.
12. CONTRACTOR IS RESPONSIBLE FOR RESTORING ALL AREAS DAMAGED TO PRE-EXISTING CONDITIONS AS A RESULT OF PLANTING OPERATIONS TO OWNERS AND/OR LANDSCAPE DESIGNERS APPROVAL.
13. VEGETATION TO BE REMOVED, NOT INDICATED ON PLAN, SHALL BE TAGGED IN FIELD BY LANDSCAPE DESIGNER.
14. THE LANDSCAPE DESIGNER RESERVES THE RIGHT TO REJECT INFERIOR PLANT MATERIALS AND SUBSTITUTIONS. THE LANDSCAPE DESIGNER IS WILLING TO MAKE TWO TRIPS TO SUPPLIERS TO TAG, REVIEW AND APPROVE MATERIALS. PREVIOUSLY UNAPPROVED MATERIALS MAY BE REJECTED AT THE SITE. MINIMALLY, ALL MATERIALS WILL CONFORM TO THE "AMERICAN STANDARD FOR NURSERY STOCK" (ANSI Z60.1 - 2004) OF THE AMERICAN ASSOCIATION OF NURSERYMEN.
15. ALL PLANT MATERIAL SHALL BE GUARANTEED BY THE CONTRACTOR TO BE IN GOOD, HEALTHY, AND FLOURISHING CONDITION FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE. THE CONTRACTOR SHALL REPLACE, AS SOON AS WEATHER AND SEASONAL CONDITIONS PERMIT, ALL DEAD PLANTS AND ALL PLANTS NOT IN A VIGOROUS, THRIVING CONDITION, AS DETERMINED BY THE LANDSCAPE DESIGNER DURING, AND AT THE END OF THE GUARANTEE PERIOD. WARRANTY REPLACEMENT WILL BE PROVIDED AT NO COST TO THE OWNER AND INCLUDE MATERIALS AND LABOR. CONTRACTOR IS RESPONSIBLE FOR REPAIR OF ANY DAMAGE INCURRED DURING REPLACEMENT OF WARRANTY MATERIALS.
16. WHEN THERE IS A DISCREPANCY BETWEEN PLANT QUANTITIES SHOWN ON THE PLANT SCHEDULE AND THE PLAN, USE THE QUANTITIES FROM THE PLAN.
17. PERENNIALS, GROUNDCOVERS & GRASSES TO BE FIELD LOCATED BY LANDSCAPE DESIGNER. COORDINATE TO NOTIFY LANDSCAPE DESIGNER AT LEAST 72 HOURS IN ADVANCE OF EXPECTED INSTALLATION DATE. ON THAT DATE ALL BEDS SHALL BE PREPARED AND ALL PLANT MATERIAL SHALL BE ON SITE.
18. PROVIDE A MINIMUM 4" TOPSOIL FOR ALL DISTURBED AREAS. SUBMIT SAMPLE OF TOPSOIL AND SOIL TEST RESULTS FOR LANDSCAPE DESIGNER APPROVAL PRIOR TO DELIVERING TO SITE.
19. ALL PLANT MATERIALS TO BE SOURCED FROM LOCALLY GROWN GROWERS.

PLANTING SOIL NOTES

1. ALL PLANTING MIXES SHALL BE PREPARED PRIOR TO DELIVERY TO SITE.
2. PLANTING MIX FOR TREES AND SHRUBS SHALL BE AS FOLLOWS:
   3 PARTS SCREENED TOPSOIL
   1 PART CLEAN WASHED COARSE SAND
   1 PART PEAT HUMUS
   5 LBS. SUPER PHOSPHATE PER CUBIC YARD OF MIX
3. MYCORRHIZAL INNCOULANT TO BE MYCOR TREE SAVER TRANSPLANT BY PLANT HEALTH CARE, INC. (1-800-421-9051) OR APPROVED EQUAL.
4. TERRASORB AVAILABLE FROM PLANT HEALTH CARE, INC. OR APPROVED EQUAL.
5. SUBMIT CERTIFICATION OF PLANTING MIX FOR TREES AND SHRUBS FROM SOIL DISTRIBUTOR.
6. TOPSOIL MIX SHALL INCLUDE:
   3 PARTS SCREENED TOPSOIL
   1 PART SAND
   1 PART HUMUS
   5 LBS. SUPER PHOSPHATE PER CU. YD. OF MIX
7. TOPSOIL:
   A. PROVIDE A NATURAL, FERTILE, FRIABLE, NATURAL LOAM SURFACE SOIL CAPABLE OF SUSTAINING VIGOROUS PLANT GROWTH OF UNIFORM COMPOSITION THROUGHOUT AND WITHOUT ADMIXTURES OF SUBSOIL, AND FREE OF STONES, LUMPS, PLANTS, ROOTS, STICKS OR OTHER EXTRANEOUS MATTER.
   B. TOPSOIL SHALL CONTAIN NOT LESS THAN 4% NOR MORE THAN 20% ORGANIC MATTER AS DETERMINED BY THE WET COMBUSTION METHOD.
   C. MECHANICAL ANALYSIS

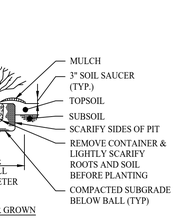
SCREEN SIZE	% BY WEIGHT PASSING
1"	100
1/4"	97 - 100
NO. 200	20 - 65

   D. CONTRACTORS SHALL BE RESPONSIBLE FOR ALL TESTING AND ANALYSIS OF EXISTING AND IMPORTED SOILS. FURNISH A SOIL ANALYSIS MADE BY A QUALIFIED INDEPENDENT SOIL-TESTING AGENCY STATING PERCENTAGES OF ORGANIC MATTER, INORGANIC MATTER (SILT, CLAY, AND SAND), DELETERIOUS MATERIAL, PH, AND MINERAL AND PLANT-NUTRIENT CONTENT OF TOPSOIL.
   E. REPORT SUITABILITY OF TOPSOIL FOR LAWN AND SHRUB PLANTING GROWTH. RECOMMEND QUANTITIES OF NITROGEN, PHOSPHORUS, AND POTASH NUTRIENT AND ANY LIMESTONE, ALUMINUM SULFATE, OR OTHER SOIL AMENDMENTS TO BE ADDED TO PRODUCE A SATISFACTORY TOPSOIL.



DECIDUOUS TREE PLANTING

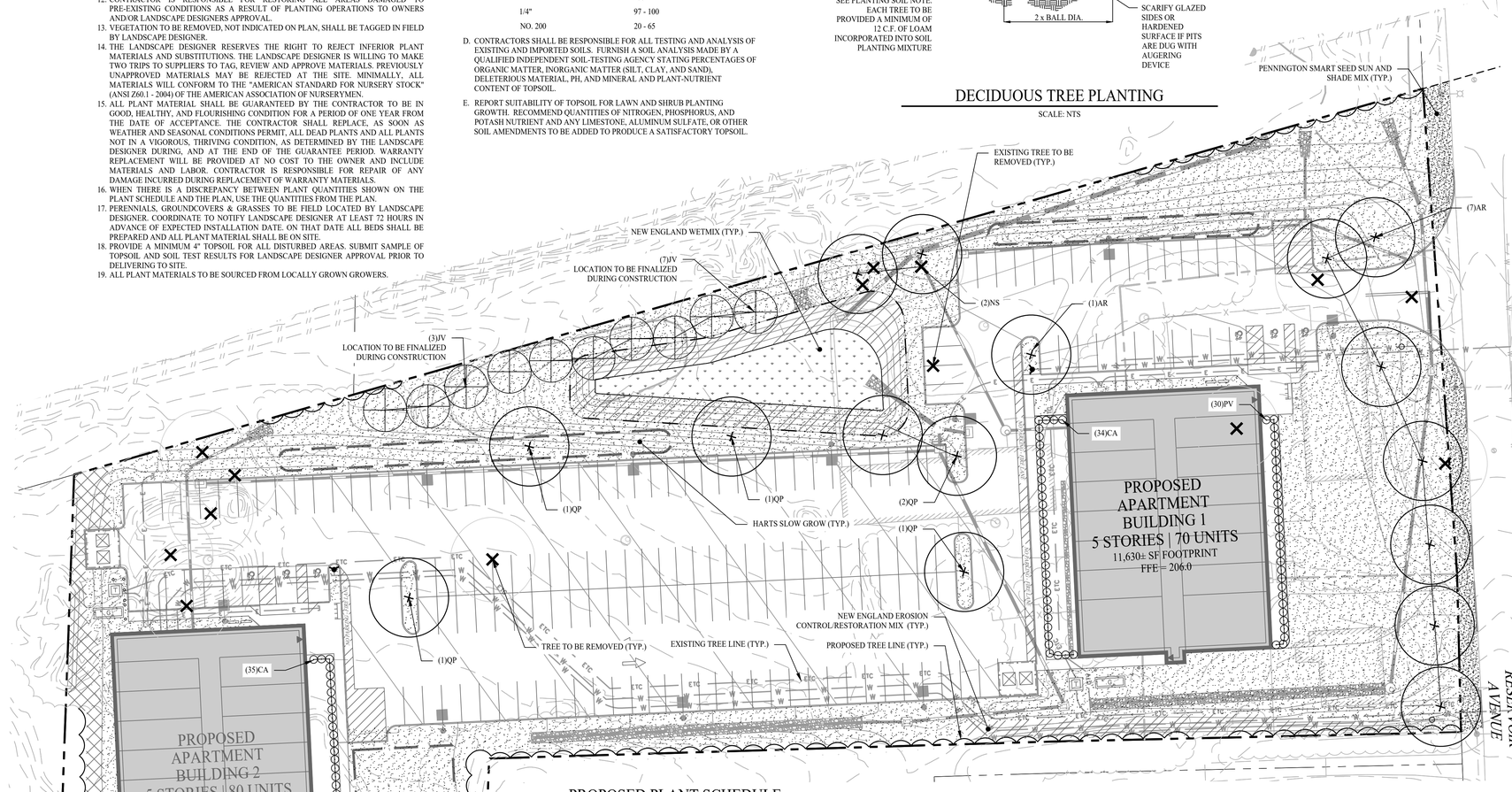
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NOTE
1. IN AREAS OF MASS PLANTING, CONTINUOUSLY EXCAVATE AND MULCH ENTIRE BED.
2. VERIFY THAT ALL PLANT PITS ARE FREE DRAINING. NOTIFY LANDSCAPE ARCHITECT IF PITS ARE NOT FREE DRAINING.
3. PRUNE, DEAD, DEFORMED, OR BROKEN BRANCHES.

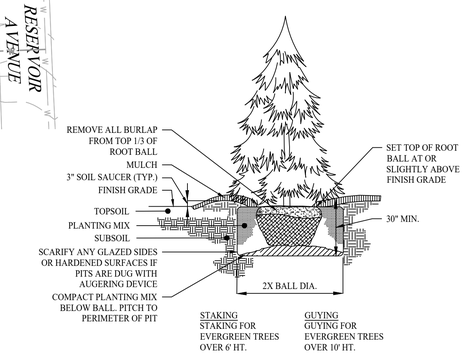
ORNAMENTAL GRASS PLANTING

SCALE: NTS



PROPOSED PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	COMMENTS
TREES						
AR	8	ACER RUBRUM	RED MAPLE	B&B	3"-3 1/2" CAL	FULL, EXTRA HEAVY
JV	10	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	B&B	6'-7' HT	FULL, EXTRA HEAVY
NS	2	NYSSA SYLVATICA	BLACK TUPELO	B&B	3"-3 1/2" CAL	FULL, EXTRA HEAVY
QP	6	QUERCUS PALUSTRIS	PIN OAK	B&B	3"-3 1/2" CAL	FULL, EXTRA HEAVY
UPLAND SHRUBS / GRASSES / VINES						
CA	69	CALAMAGROTIS X ACUTIFLORA	KARL FOERSTER	CONT	24"-36" HT	FULL, EXTRA HEAVY
PV	30	PANICUM VIRGATUM 'RUBBY RIBBONS'	SWITCH GRASS	CONT	18"-24" HT	FULL, EXTRA HEAVY
SEED MIXES						
HARTS (S)LOW GROWSEED MIX						
SEED TO LIMIT OF DISTURBANCE & SEE MFG INSTRCUTION FOR RATE						
NEW ENGLAND CONSERVATION/ WILDLIFE MIX (NEW ENGLAND WETLAND PLANTS, INC.)						
APPLICATION RATE: 1 LB/1,750 S.F.						
NEW ENGLAND EROSION CONTROL/RESTORATION MIX (NEW ENGLAND WETLAND PLANTS, INC.)						
APPLICATION RATE: 1 LB/2,500 S.F.						
NEW ENGLAND WETMIX (NEW ENGLAND WETLAND PLANTS, INC.)						
APPLICATION RATE: 1 LB/1,250 S.F.						
LAWN: PENNINGTON SMART SEED SUN AND SHADE						
APPLICATION RATE NEW LAWNS: 9LB/1,000 S.F						



EVERGREEN TREE PLANTING

SCALE: NTS

NOT FOR CONSTRUCTION, FOR PERMITTING PURPOSES ONLY

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJOINING LOT LINE
- EXISTING TREE LINE
- PROPOSED TREE LINE
- OVERSTORY TREE
- EXISTING TREE
- ORNAMENTAL GRASSES/ SHRUBS
- HARTS SLOW GROW SEED MIX
- PENNINGTON SMART SEED SUN AND SHADE MIX
- NEW ENGLAND CONSERVATION/WILDLIFE MIX
- NEW ENGLAND EROSION CONTROL/RESTORATION MIX
- NEW ENGLAND WETMIX
- TREE TO BE REMOVED

GENERAL NOTES

1. THESE PLANS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT FOR CONSTRUCTION. NO CONSTRUCTION OR DEMOLITION SHALL BEGIN UNTIL FINAL APPROVAL OF THIS PLAN IS GRANTED BY ALL GOVERNING AND REGULATORY AGENCIES.
2. ALL PROPOSED SITE WORK IS TO BE COMPLETED IN ACCORDANCE WITH ALL PERMITS, APPROVALS, AND CONDITIONS OF APPROVALS ISSUED BY LOCAL, STATE, AND/OR FEDERAL REVIEWING AGENCIES.
3. EXISTING BOUNDARY AND TOPOGRAPHY IS BASED ON DRAWING TITLED "PROPERTY SURVEY OF 2135, 2145 & 2155 RESERVOIR AVENUE, TRUMBULL, CONNECITCUT, PREPARED FOR VESSEL TECHNOLOGIES", SCALE 1"=30', DATED JULY 24, 2025, PERFORMED BY ACCURATE LAND SURVEYING, LLC.
4. ALL CONSTRUCTION SHALL COMPLY WITH, TOWN OF TRUMBULL STANDARDS, AND THE CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS IN THE ABOVE REFERENCED INCREASING HIERARCHY. IF SPECIFICATIONS ARE IN CONFLICT, THE MORE STRINGENT SPECIFICATION SHALL APPLY. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE OSHA, FEDERAL, STATE, AND LOCAL REGULATIONS.
5. INFORMATION ON EXISTING UTILITIES AND STORM DRAINAGE SYSTEMS HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING UTILITY PROVIDER AND MUNICIPAL RECORD MAPS AND/OR FIELD SURVEY AND IS NOT GUARANTEED CORRECT OR COMPLETE. UTILITIES AND STORM DRAINAGE SYSTEMS ARE SHOWN TO ALERT THE CONTRACTOR TO THEIR PRESENCE AND THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STORM DRAINAGE SYSTEMS INCLUDING SERVICES. PRIOR TO DEMOLITION OR CONSTRUCTION, THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" 72 HOURS BEFORE COMMENCEMENT OF WORK AT "(800) 922-4455" AND VERIFY ALL UTILITY AND STORM DRAINAGE SYSTEM LOCATIONS.
6. NO PART OF THE PROJECT PARCEL IS LOCATED WITHIN ANY FEMA DESIGNATED FLOOD HAZARD AREAS.

Rev. #:	Date	Description
1	03/04/26	Re-Filing Set

Graphic Scale: 30 0 30 60

SOLLI ENGINEERING
MONROE, CT | W. HARTFORD, CT | NORWOOD, MA
SOLLIENGINEERING.COM
T: (203) 880-5455 | F: (203) 880-9695

Drawn By:	MPD
Checked By:	MFB
Approved By:	KMS
Project #:	24116901
Plan Date:	11/07/25
Scale:	1" = 30'

STATE OF CONNECTICUT · MARY E. BLACKBURN · LICENSED LANDSCAPE ARCHITECT

Mary Blackburn, P.L.A.
CT 1499

Project:

PROPOSED REDEVELOPMENT

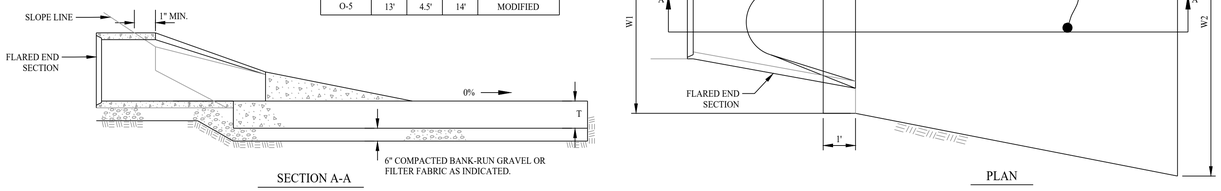
2135, 2145, & 2155 RESERVOIR AVENUE
TRUMBULL, CONNECTICUT

Sheet Title:	Sheet #:
LANDSCAPE PLAN	2.61

Mar 05, 2026 - 1:32pm omopoulos
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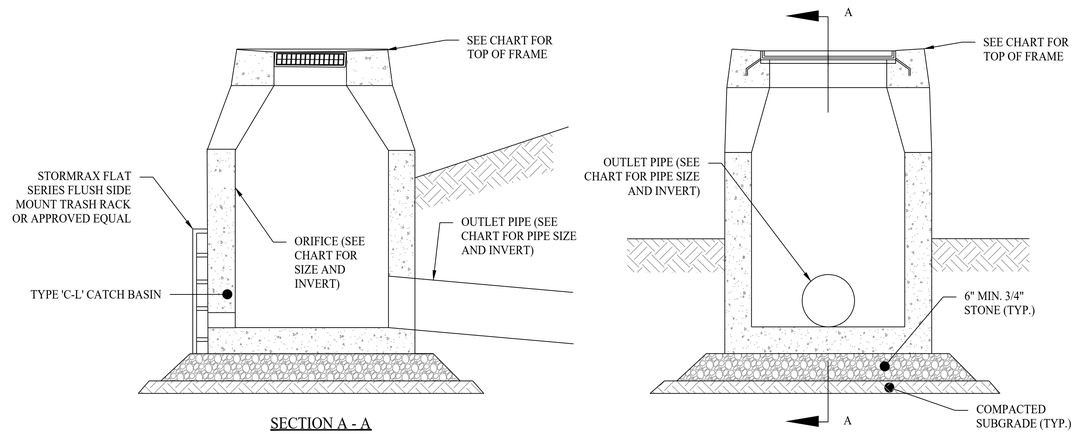
RIPRAP TYPE	"T" (INCHES)
MODIFIED	12
INTERMEDIATE	18
STANDARD	36

OUTLET	La	W1	W2	RIPRAP
O-1	10'	3'	10'	MODIFIED
O-2	14'	6'	16'	MODIFIED
O-3	14'	6'	16'	MODIFIED
O-4	10'	3'	10'	MODIFIED
O-5	13'	4.5'	14'	MODIFIED



TYPE 'A' RIPRAP APRON

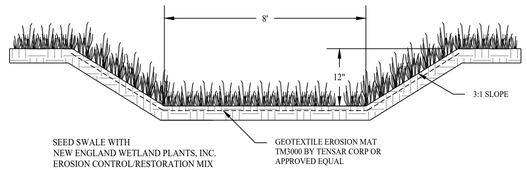
SCALE: NTS



OUTLET I.D.	ORIFICE SIZE (IN.)	ORIFICE ELEV. (FT.)	TOP OF FRAME ELEV. (FT.)	OUTLET SIZE (IN.)	OUTLET ELEV. (FT.)
OCS-1	8"Ø	200.3	203.5	24	200.3

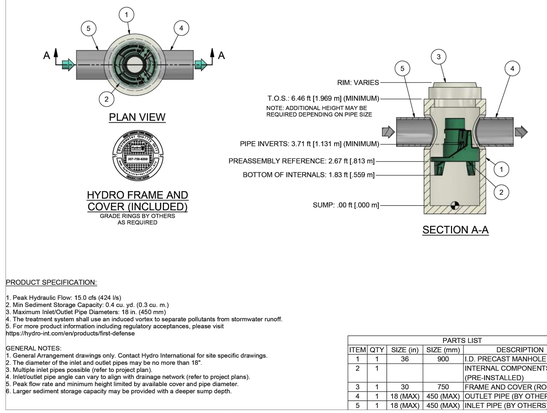
OUTLET CONTROL STRUCTURE

SCALE: NTS



GRASS DRAINAGE SWALE DETAIL

SCALE: NTS



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. Maximum Inlet/Outlet Pipe Diameters: 18 in. (450 mm)
4. The treatment system shall use an induced vortex to separate pollutants from stormwater runoff.
5. 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 plans).
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.

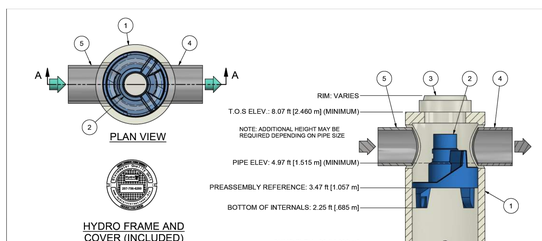
PARTS LIST				
ITEM	QTY	SIZE (in)	SIZE (mm)	DESCRIPTION
1	1	36	900	I.D. PRECAST MANHOLE
2	1			INTERNAL COMPONENTS (PRE-INSTALLED)
3	1	30	750	FRAME AND COVER (ROUND)
4	1	18 (MAX)	450 (MAX)	OUTLET PIPE (BY OTHERS)
5	1	18 (MAX)	450 (MAX)	INLET PIPE (BY OTHERS)

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.

PROJECTION
IF IN DOUBT ASK
DATE: 11/2/2021 SCALE: 1:30
DRAWN BY: ER CHECKED BY: MRJ APPROVED BY:
3-ft DIAMETER
FIRST DEFENSE
GENERAL ARRANGEMENT
Hydro International
hydro-int.com
HYDRO INTERNATIONAL
WEIGHT: MATERIAL:
STOCK NUMBER:
DRAWING NO: FD GA-3
SHEET SIZE: B SHEET: 1 OF 1 Rev: -

FIRST DEFENSE FDHC-3 HYDRODYNAMIC SEPARATOR

SCALE: NTS



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. Maximum Inlet/Outlet Pipe Diameters: 24 in. (600 mm)
4. The Treatment System Shall Use An Induced Vortex To Separate Pollutants From Stormwater Runoff.
5. 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 plans).
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.

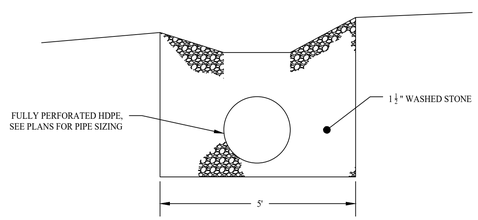
PARTS LIST				
ITEM	QTY	SIZE (in)	SIZE (mm)	DESCRIPTION
1	1	48	1200	I.D. PRECAST MANHOLE
2	1			INTERNAL COMPONENTS (PRE-INSTALLED)
3	1	30	750	FRAME AND COVER (ROUND)
4	1	24 (MAX)	600 (MAX)	OUTLET PIPE (BY OTHERS)
5	1	24 (MAX)	600 (MAX)	INLET PIPE (BY OTHERS)

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.

PROJECTION
IF IN DOUBT ASK
DATE: 11/2/2021 SCALE: 1:30
DRAWN BY: ER CHECKED BY: MRJ APPROVED BY:
4-ft DIAMETER
FIRST DEFENSE
GENERAL ARRANGEMENT
Hydro International
hydro-int.com
HYDRO INTERNATIONAL
WEIGHT: MATERIAL:
STOCK NUMBER:
DRAWING NO: FD GA-4
SHEET SIZE: B SHEET: 1 OF 1 Rev: -

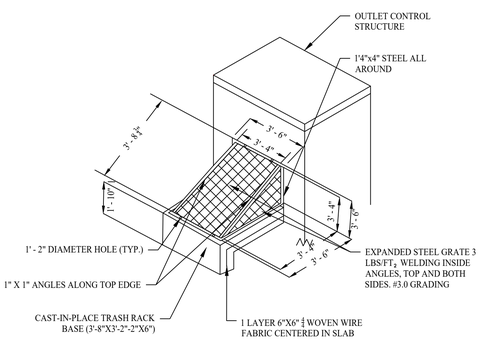
FIRST DEFENSE FDHC-4 HYDRODYNAMIC SEPARATOR

SCALE: NTS



FRENCH DRAIN TRENCH SECTION

SCALE: NTS



PRIMARY OUTLET TRASH RACK DETAIL

SCALE: NTS

NOT FOR CONSTRUCTION, FOR PERMITTING PURPOSES ONLY

Rev. #:	Date	Description
1	03/04/26	Re-Filing Set

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SOLLIENGINEERING.COM
T: (203) 880-5455 | F: (203) 880-9695

Drawn By:	DJR
Checked By:	LAM
Approved By:	KMS
Project #:	24116901
Plan Date:	11/07/25
Scale:	AS NOTED

STATE OF CONNECTICUT — KEVIN M. SOLLI — 25759 LICENSED PROFESSIONAL ENGINEER

Kevin Solli, P.E.
CT 25759

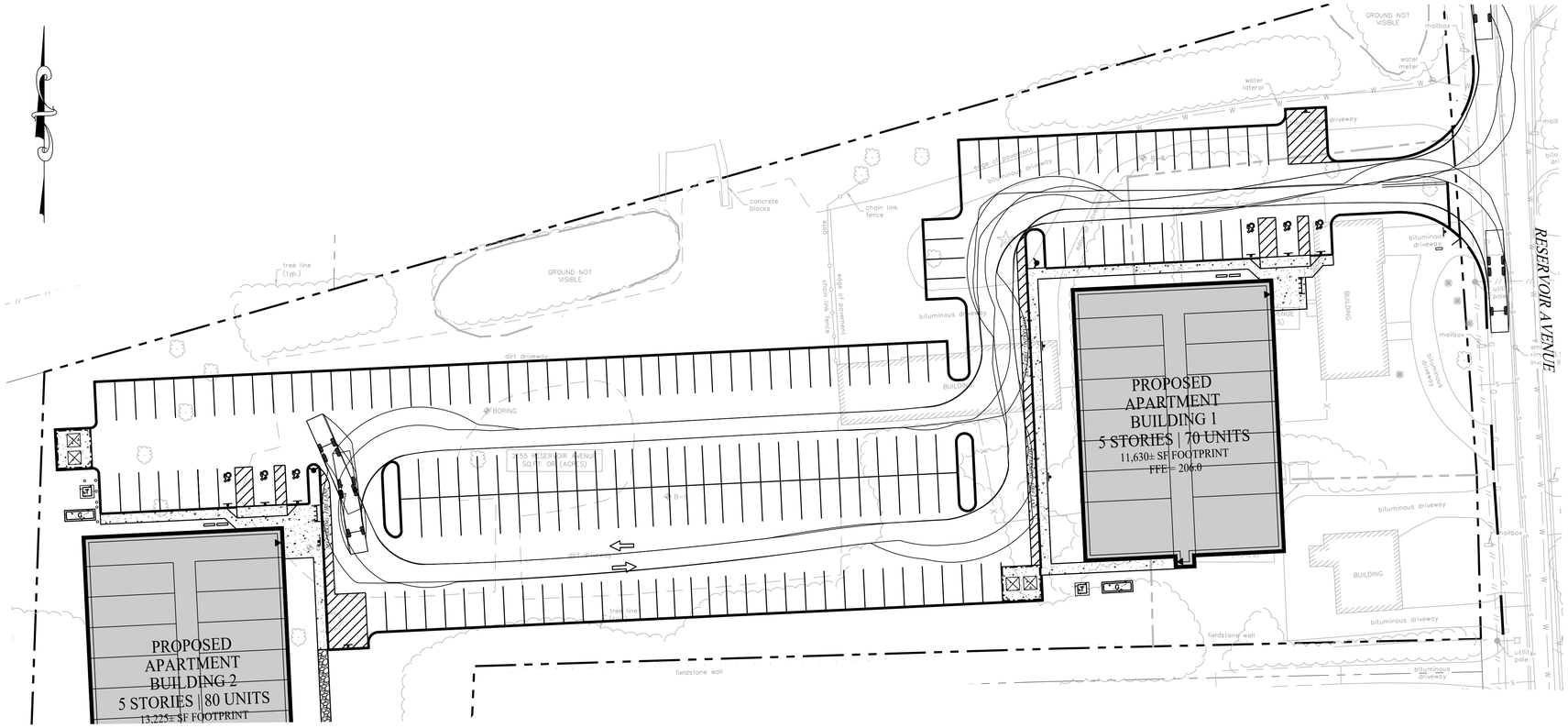
Project:

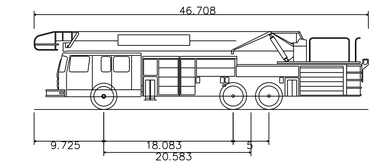
PROPOSED REDEVELOPMENT

2135, 2145, & 2155 RESERVOIR AVENUE
TRUMBULL, CONNECTICUT

Sheet Title:	Sheet #:
DETAIL SHEET	3.03

Mar 05, 2026 - 3:11pm omopoulos
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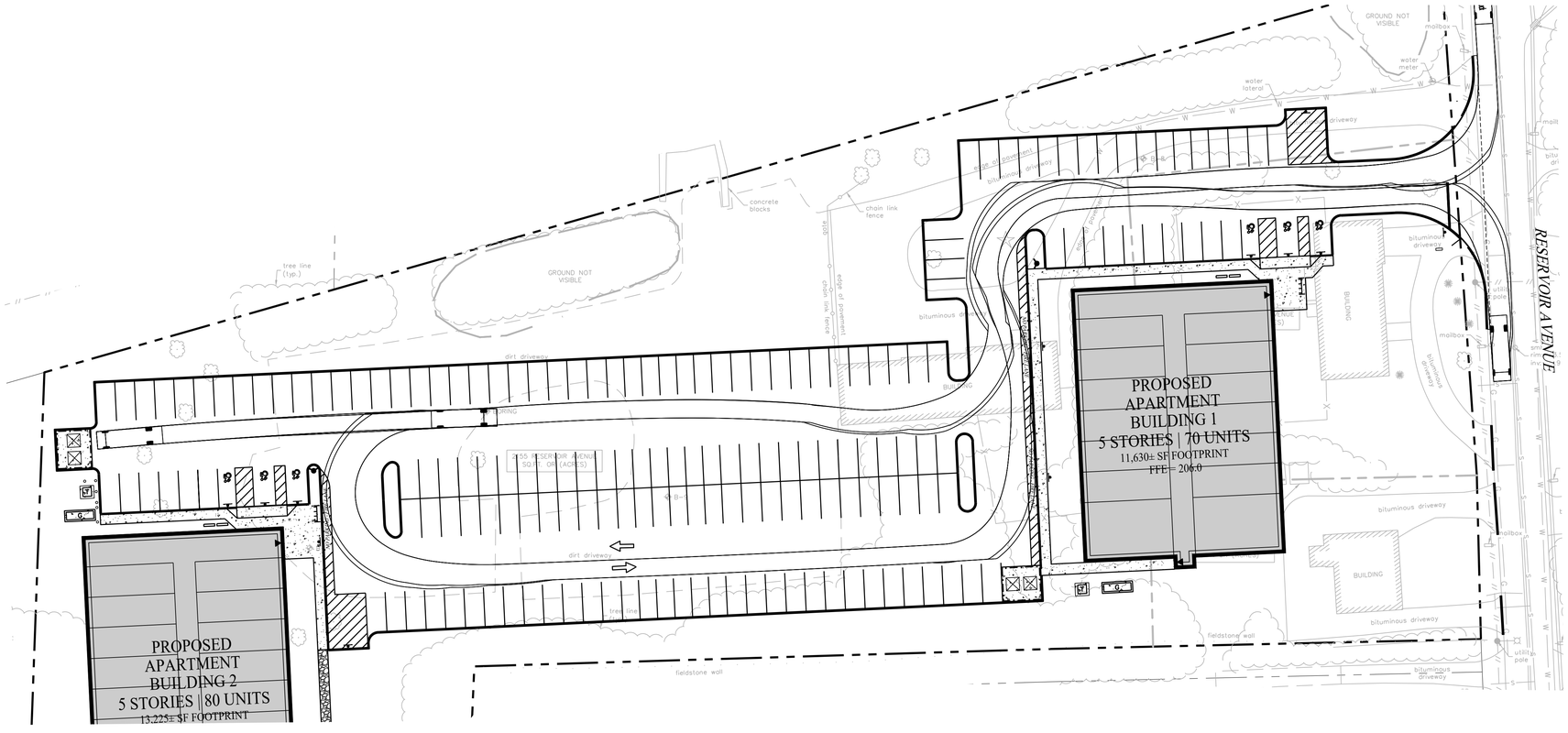


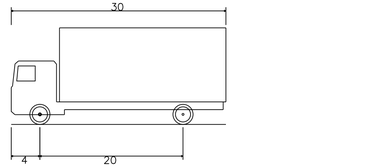


Trumbull Fire Truck	
Overall Length	46.708ft
Overall Width	8.000ft
Overall Body Height	10.893ft
Min Body Ground Clearance	1.324ft
Track Width	8.000ft
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	39.500ft

TRUMBULL FIRE APPARATUS

SCALE: NTS





SU-30 - Single Unit Truck	
Overall Length	30.000ft
Overall Width	8.000ft
Overall Body Height	13.500ft
Min Body Ground Clearance	1.367ft
Track Width	8.000ft
Lock-to-lock time	5.00s
Max Steering Angle (Virtual)	31.80°

SU-30

SCALE: NTS

Rev. #:	Date	Description
3	03/04/26	Re-Filing Set
2	02/18/26	Rev. Per Fire Marshal Comments
1	12/17/25	Rev. Per Fire Marshal Comments

Graphic Scale: 30 0 30 60

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MONROE, CT | W. HARTFORD, CT | NORWOOD, MA
SOLLIENGINEERING.COM
T: (203) 880-5455 | F: (203) 880-9695

Drawn By:	ARM
Checked By:	LAM
Approved By:	KMS
Project #:	24116901
Plan Date:	11/07/25
Scale:	1" = 30'

STATE OF CONNECTICUT · KEVIN M. SOLLI · 25759 · REGISTERED PROFESSIONAL ENGINEER

Kevin Solli, P.E.
CT 25759

Project:

PROPOSED REDEVELOPMENT

2135, 2145, & 2155 RESERVOIR AVENUE
TRUMBULL, CONNECTICUT

Sheet Title: TRUCK TURNING FIGURE

Sheet #: TT-1

Mar 05, 2026 - 1:28pm amagoulas
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Vessel

May 1, 2026

Robert Librandi
Planning & Zoning Administrator
Town of Trumbull
5866 Main Street
Trumbull, CT 06611

RE: Resubmission – 2135, 2145 & 2155 Reservoir Avenue

Dear Mr. Librandi:

On behalf of Vessel RE Holdings LLC, I am writing to formally submit supplemental materials in response to the comments and questions raised by the Commission, Town staff, and their consultants during the public hearing process for the above-referenced application.

This resubmission is intended to directly and comprehensively address the primary areas of concern discussed, including environmental conditions, stormwater management coordination, wetlands jurisdiction, fire access and maneuverability, and overall site design feasibility.

Summary of Materials Submitted

The enclosed materials include:

- Environmental Response Memorandum (Reef Environmental)
- Supplemental Engineering Memorandum (Solli Engineering)
- Wetlands Delineation Report (James Sipperly)
- Coordination correspondence with Town Engineering
- Revised fire apparatus turning plan
- Fire Marshal coordination correspondence
- Additional Solli Engineering materials

Response to Key Review Comments:

Environmental Conditions & Site Suitability
The environmental reports confirm that all findings are localized, low-level, and below regulatory thresholds, with no impact to health or residential use.

Stormwater Design & Remediation Coordination
The engineering team has confirmed remediation will not impact stormwater design, resolving prior review limitations.

Wetlands Determination
No inland wetlands or watercourses are present; no wetlands permitting is required.

Fire Access and Emergency Operations
Updated truck turning plans demonstrate full access compliance and address prior Fire Marshal comments.

Consultant Qualifications

This submission is supported by a team including:

-Greg Grew, AIA
-Jay Soltis, LEP
-James Sipperly
-Joseph Versteeg
-Solli Engineering

Full resumes are attached.

Conclusion

This resubmission resolves the key technical issues raised and provides a complete basis for advancing the application.

Sincerely,

Joshua Levy

Josh Levy
Vessel RE Holdings LLC

REEF
environmental

April 30, 2026

Planning and Zoning Commission
Town of Trumbull
5866 Main Street
Trumbull, CT 06611

Re: Environmental Response Memorandum, Appeal Hearing
2135, 2145 & 2155 Reservoir Avenue, Trumbull, Connecticut
Reef Environmental Project No. 25-1012

Ladies/Gentlemen,

Based on the ongoing discussions at Commission Meetings and the previous communication with town staff and their consultants, we feel it is necessary to further clarify the information associated with the Phase I and Phase II environmental site assessment (ESA) reports for 2135, 2145 & 2155 Reservoir Avenue, Trumbull, Connecticut (collectively referenced as the "site" or "subject property").

Introduction and Purpose

We are providing this memorandum to facilitate a clear and comprehensive response regarding environmental conditions at the site including the scope of investigation completed to date and the implications for public health, safety, and site suitability for residential development. This memorandum establishes that:

- The environmental investigations completed to date are consistent with industry standards for pre-purchase/pre-development review;
- The Phase II testing completed to date confirms that soil impacts appear to be localized and shallow, and are well below state regulatory criteria ensuring that there are no health or safety issues or concerns that the property is not appropriate for multifamily housing;
- The proposed approach to further investigation and remediation will comply with industry practice and state regulations including the Connecticut Release-Based Cleanup Regulation (RBCR) program; and
- Any additional findings, if encountered, can be fully and effectively addressed through standard remediation protocols prior to and during construction.

Additionally, as discussed during our previous testimony, all the remediation work at the property will be done prior to vertical construction. This work will be directed and supervised by Reef Environmental, and the results will be submitted to both the town and the Connecticut Department of Energy and Environmental Protection (CT DEEP) confirming that there are no further environmental concerns and that the property meets all state regulations. To be clear this will not be based on our opinion, but rather on empirical data that will be generated during the additional investigation and remediation. The provisions of the RBCR program include defined investigation and reporting requirements, all of which are subject to CT DEEP review and potential auditing.

Phase I and Phase II Investigation

Phase I and Phase II ESAs of the site were completed in 2025. Key findings are outlined below.

Phase I ESA

The Phase I ESA included a site inspection, a review of site history, and a review of various environmental databases. Based on the findings, a subsurface investigation to determine soil and groundwater quality was recommended due to the long-term use of the site as a construction equipment, vehicle storage, and maintenance yard.

Phase II ESA

The Phase II ESA included the installation of 12 soil borings and 2 temporary groundwater monitoring wells. Sample locations were selected based on current uses (i.e. concrete form release oil storage area) or historical structures (i.e. former garage). Soil and groundwater samples were analyzed for extractable total petroleum hydrocarbons (ETPH) and volatile organic compounds (VOCs). These analyses were chosen as indicators of a release based on the nature of historical site construction yard operations, which typically include vehicle/equipment fluids (oils, greases, gasoline, diesel fuel, etc.) and maintenance-related chemicals (cleaners, solvents, etc.).

The soil analytical results identified low levels of gasoline-related VOCs near the southeastern corner of the construction yard (B-11), low levels of ETPH were identified adjacent to a former garage foundation slab (B-2), and low levels of ETPH were identified adjacent to aboveground storage tanks (ASTs) stored on-site. All contaminant concentrations were well below the RBCR residential criteria.

The groundwater analytical results identified low levels of gasoline-related VOCs in the groundwater sample (B-5) collected near the surficial staining, reportedly attributed to concrete form release oil. The contaminant concentrations were well below the most stringent RBCR groundwater criteria.

Health and Safety

No environmental concerns that would preclude residential development of the site have been identified to date. The site is currently primarily used as a residential home with only limited use of the construction yard for storage. The recommended removal of stained surface soil and stockpiled soil will further improve the environmental quality of the site for future residents.

Remedial Approach

The appropriate remediation will occur during the site work phase of the development and includes removal of visibly stained soils followed by confirmation sampling. This work will be overseen by a Connecticut Licensed Environmental Professional (LEP). Remediation will continue until confirmation sample results are below the RBCR residential criteria, which are protective of human health and the environment. A remedial action report will be prepared to document the work completed. This report will include photographs, laboratory analytical reports, soil disposal documentation, site layout maps, and other pertinent information. The report will be submitted to both the town and CT DEEP as part of compliance with the RBCR program requirements.

Based on our current understanding of site conditions, remediation will be limited to surficial and shallow soils. Should additional remediation be necessary, this would result in the replacement of excavated materials with clean fill, which would not require design changes to the new development.

Based on our understanding of the site and its history, there are no risks that would result in a health and safety concern or affect the usability of the site for residential purposes.

Future Steps

As discussed, Reef Environmental and the Applicant will be working together to complete a supplemental subsurface investigation during the pre-construction phase of the project. At a minimum, this will include the following:

- Visual inspection of the site once remaining stored equipment, roll-off containers, and heating oil aboveground storage tanks have been removed from the site.
- Additional soil sampling in areas where stained soil or other evidence of a release is identified.
- Delineation of low-level soil and groundwater contamination previously identified.
- Additional soil analysis for ETPH, VOCs, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and/or RCRA 8 metals.

- Reports prepared for this additional work will be submitted to the town and the CT DEEP as part of compliance with the RBCR program requirements.

During the site work phase of development, Reef Environmental will complete soil remediation as previously outlined. At the conclusion of the remediation, demonstration of compliance with the RBCR criteria for each release area will be documented. If required under the provisions of the RBCR program, groundwater monitoring wells will be installed and sampled to further demonstrate compliance.

Conclusion

Based on our experience with both residential and commercial/industrial projects in Connecticut, the steps outlined above will result in a property that is safe, fully compliant with the RBCR program, and suitable for multifamily development.

If you have any questions or would like to discuss the project further, please feel free to call me at (860) 841-5530.

Kind regards,
Reef Environmental, LLC



Jay Soltis, LEP
Principal

JAMES SIPPERLY
CERTIFIED SOIL SCIENTIST
CONNECTICUT WETLAND SCIENTIST
401 SALEM TURNPIKE BOZRAH, CT 06334
860-334-7073
james.sipperly.js@gmail.com

Tatiana Solovey, Assistant Engineer July 17, 2025
Staff to the Inland Wetlands and Watercourses Commission
Town of Trumball
366 Church Hill Road
Public Works Administration Building
Trumball, CT 06611

RE: INLAND WETLAND SOILS AND WATERCOURSES INVESTIGATION AND DELINEATION, 2135 – 2145 – 2155 RESERVOIR AVENUE, TRUMBALL, CT

Dear Ms. Solovey:

I am a Certified Soil Scientist and a Connecticut Wetland Scientist. I also feel compelled to tell you that I am the Environmental Planner for the City of Middletown and staff their Inland Wetland and Watercourses Agency. I also am the Wetland Agent for the Town of Portland and sit on the Wetland Commission in my home town of Bozrah.

On July 3, 2025 I visited the site referenced above to investigate and delineate any inland wetlands and/or watercourses that may be on the sites referenced above. I also met Paul Timpanelli the broker for the site who gained me access to the properties.

Site 2135 and 2145 are existing residential properties with people living in there presently.

I sampled the soil throughout the site using a soil auger to a depth of 2-3 feet.

Based on my field observations and using the guidelines established by the National Cooperative Soil Survey and as defined by the Connecticut General Statutes I did not find any inland wetland soils and or watercourses on the sites.

Along a small portion of the southern property line at 2155, there is a manmade ditch that was dug in the late 1960's or early 1970's as indicated by the present owner. His father planned on installing concrete drainage pipes that were not placed and still visible in piles near that location. He also indicated that there was some clearing and grading on the adjacent property at that time and his father wanted to ensure that there was no impact to his property. No additional work has been done there since that time.

The drainage ditch is approximately 3 feet wide and 3 feet deep. There ditch was dry and there is no indication of any flow. It does not meet the definition of an intermittent watercourse. There is a somewhat defined bank and channel because it was excavated. It is linear and one can see the piles of excavated material on one side of the bank.

There are no signs of scour or deposits of recent alluvium or detritus. There are no signs of standing water or flowing water. There is also no presence of hydrophytic vegetation.

The upland soils found on the site that have not been disturbed are classified as a moderately well drained Sutton fine sandy loam. These soils are typically found on glacial till moraines.

The majority of the soils on the site are classified as a udorthent or urban land classification. These soils are often disturbed by man, filled, excavated and graded thus eliminating any subsurface soil horizons. This site has been used as a staging area for various types of construction materials and machinery for a approximately 50 years.

The site is partially wooded and dominated by invasive species such as multiflora rose, Japanese knotweed and autumn olive. The site also has been subject to dumping and storage of various containers and construction debris over the years.

I also witnessed recent soil boring holes from what I was told was the result of a Phase I and possibly a Phase II environmental study on the site at 2155 Reservoir Road.

If you have any questions, please contact me at the telephone number listed above.

Very truly yours,

James Sipperly

Certified Soil Scientist, Society of Soil Scientists of Southern New England
Connecticut Wetland Scientist, Connecticut Association of Wetland Scientists

Subject:	RE: [EXTERNAL]RE: Trumbull Vessel Resubmission
Date:	Thursday, April 23, 2026 at 5:29:51 PM Eastern Daylight Time
From:	Luke Mauro
To:	Tatiana Solovey, William Maurer
CC:	Jason A. Klein, Alex Magoulas, Roberto Librandi, James Cordone, Josh Levy, James Sipperly, Jay Soltis
Attachments:	image001.png, image002.png, 08 Trumbull Vessel - Sipperly Wetlands Report 2025-07-17.pdf, 26-04-20_PZ.pdf

Hi Tatiana,

A couple things:

- I believe you and I had discussed as part of the initial application, but there seems to be some confusion with the P&Z Commission regarding the presence of wetlands on the property. We submitted the attached letter from Jim Sipperly as part of our application, indicating there are no wetlands resources or intermittent watercourses on the property. **The Commission has asked that you provide a letter indicating that there are no wetlands present on the property and as such no submission to or permit from IWWC is required.**
- In regard to the engineering memo we received (attached), it notes that an environmental remediation approach for the site is required before a review of the stormwater design can be completed. We discussed with the Commission in detail last night along with our LEP Jay Soltis who is CC'd on the email chain. In discussing our stormwater management design with Jay, he is aware of where our proposed pond will be located and does not have concerns with the proposed grading, pond location or the stormwater infiltration that will occur. We will submit some additional documentation to that further reinforce that point. I guess our question is whether you are looking for the final remediation design to be completed before reviewing the stormwater design, because the remediation design would not occur until after tentative P&Z approvals, and the P&Z Commission is looking for some type of review comments indicating that our stormwater management design is acceptable.

Let us know if we can schedule a phone call or in person meeting to discuss these items and come up with a solution to move this all forward.

Thanks!

Luke Mauro, P.E., PTOE
Senior Project Manager

Solli

P: (203) 880-5455
C: (203) 927-2507

Subject:	RE: [EXTERNAL]RE: Trumbull Vessel Resubmission
Date:	Friday, May 1, 2026 at 3:14:59 PM Eastern Daylight Time
From:	Luke Mauro
To:	Tatiana Solovey, William Maurer
CC:	Jason A. Klein, Alex Magoulas, Roberto Librandi, James Cordone, Josh Levy, James Sipperly, Jay Soltis
Attachments:	549710494_1744832416590_6612.jpeg, image001.png, image001.png, image001.png, image002.png, image001.png, 25-1012 Environmental Summary Memo, Appeal Hearing 4-30-2026 .pdf, Trumbull Vessel - Stormwater Management Design & Environmental Considerations 2026-05-01.pdf

Tatiana,

Following up on my email below from last week, please find attached a memo prepared by our environmental consultant Reef summarizing their inspections to date, remediation approach and steps during preconstruction and site construction.

We have also prepared a supplemental memo attached explaining that any anticipated remediation should not have a substantial impact on the construction of the proposed stormwater management system.

Please let us know if there are any further questions or comments that need clarification in order to complete your engineering review of the stormwater management system.

We'd also like to request documentation from your office indicating that no wetlands review is required for this project.

Thanks!

Luke Mauro, P.E., PTOE
Senior Project Manager

Solli

sollillc.com

-------- Original message --------
From: Luke Mauro <Luke@sollillc.com>
Date: 4/23/26 5:29 PM (GMT-05:00)
To: Tatiana Solovey <tatianas@trumbull-ct.gov>, William Maurer <wmaurer@trumbull-ct.gov>
Cc: "Jason A. Klein" <jklein@carmodylaw.com>, Alex Magoulas <amagoulas@sollillc.com>, Roberto Librandi <rlibrandi@trumbull-ct.gov>, James Cordone <james@cordonelaw.com>, Josh Levy <jlevy@myvessel.com>, James Sipperly <james.sipperly.js@gmail.com>, Jay Soltis <jay@reefenvironmental.com>
Subject: RE: [EXTERNAL]RE: Trumbull Vessel Resubmission

May 1, 2026

Tatiana Solovey
Assistant Town Engineer
Town of Trumbull
203-452-5144

Re: Stormwater Management Design & Environmental Considerations
Trumbull Vessel
2135, 2145 & 2155 Reservoir Avenue, Trumbull, CT
Solli Project No.: 24116901

Dear Tatiana,

We are in receipt of your correspondence, dated April 20, 2026, indicating that the Engineering Department is unable to proceed with review of the revised stormwater management design due to identified environmental concerns within the proposed stormwater detention basin area.

We respectfully submit that sufficient information has been provided to allow the stormwater review process to continue.

As part of our due diligence, a site evaluation was performed by Reef Environmental, whose findings indicate that any soil contamination present on the site is both localized and shallow in nature. Importantly, their assessment concludes that there are no identified health risks associated with the observed conditions under current or anticipated site use. We have reviewed the "Environmental Response Memorandum, Appeal Hearing", prepared by Reef and dated April 30, 2026 and submitted under separate cover for staff and Commission review. Upon review of this memorandum, and based on ongoing coordination with Reef Environmental, we expect that the stormwater management facilities can be constructed substantially as designed and that any required remediation measures should not have a significant impact on the location, grading, or size of the proposed detention facilities shown on the design plans.

Additionally, based on Reef Environmental's analysis, any remediation activities are anticipated to involve little to no change in the overall site grading and are not expected to require substantial additional excavation or fill beyond what is currently contemplated as part of the engineering design. To the extent that additional material replacement may become necessary during construction, clean fill can readily be imported and placed without materially impacting the proposed stormwater management system, drainage patterns, or overall design intent. Accordingly, the stormwater and drainage design would remain consistent with the plans submitted for approval.

Furthermore, all necessary remediation measures will be completed prior to construction in accordance with applicable Connecticut Department of Energy and Environmental Protection (CT DEEP) requirements. In the event that any contaminated materials are encountered during construction, such materials will be properly handled, removed from the site, and disposed of at appropriately licensed facilities in full compliance with Connecticut regulatory standards.

Given the above, the presence of limited and manageable environmental conditions does not preclude advancement of the stormwater design review. The environmental considerations have been appropriately characterized and addressed through a clear plan for remediation and regulatory compliance.

Accordingly, we respectfully request that the Engineering Department proceed with review of the submitted stormwater management design. Should there be any specific technical concerns related to the interface between the environmental conditions and the proposed stormwater system, we would welcome the opportunity to address those directly.

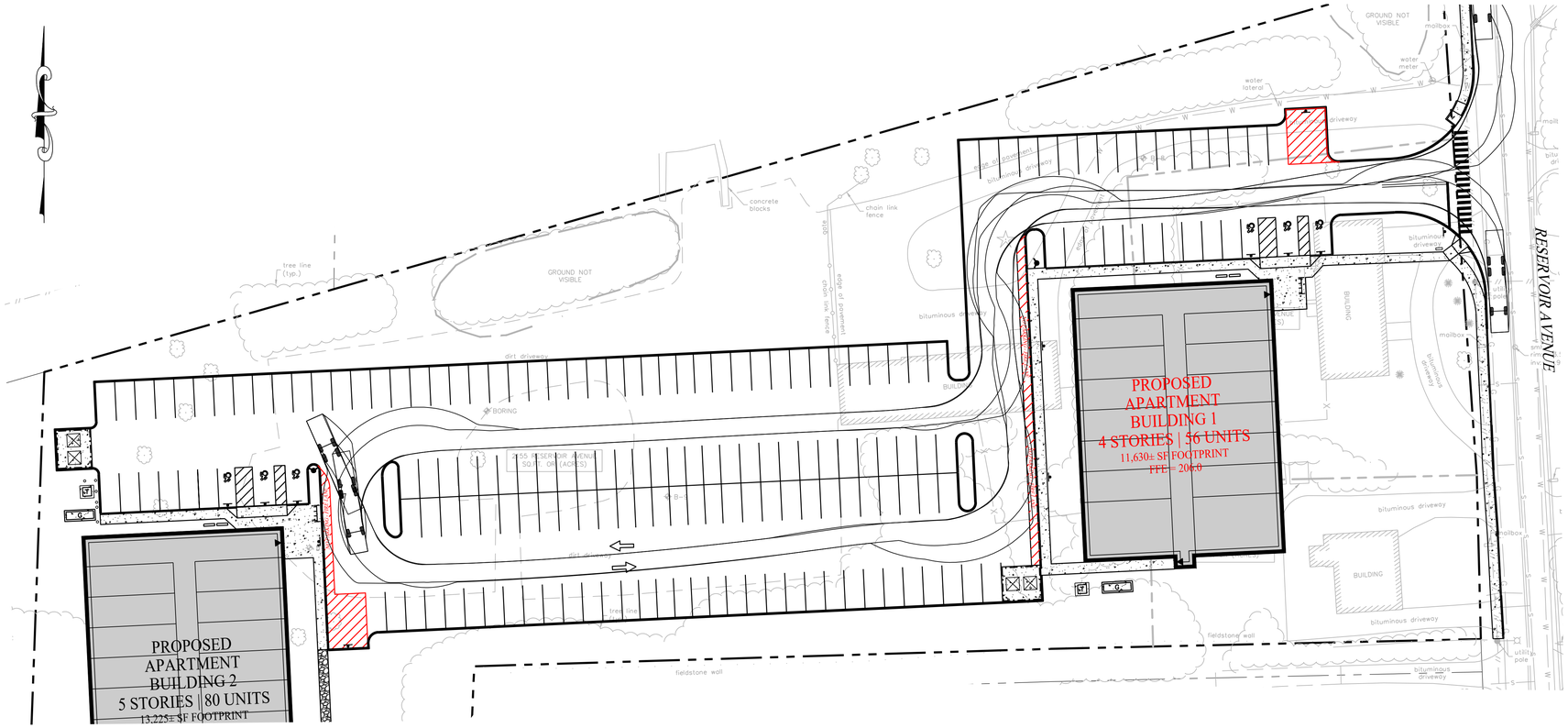
Please do not hesitate to contact our office if additional information or coordination is required.

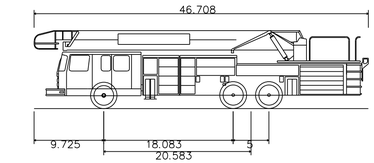
Sincerely,
Solli Engineering, LLC



Luke Mauro, P.E., PTOE
Senior Project Manager

X:\SE Files\Project Data\2024\24116901 - 2135, 2145, 2155 Reservoir Ave - Trumbull, CT\Office Data\Correspondence\Trumbull Vessel - Stormwater Management Design & Environmental Considerations 2026-05-01.docx

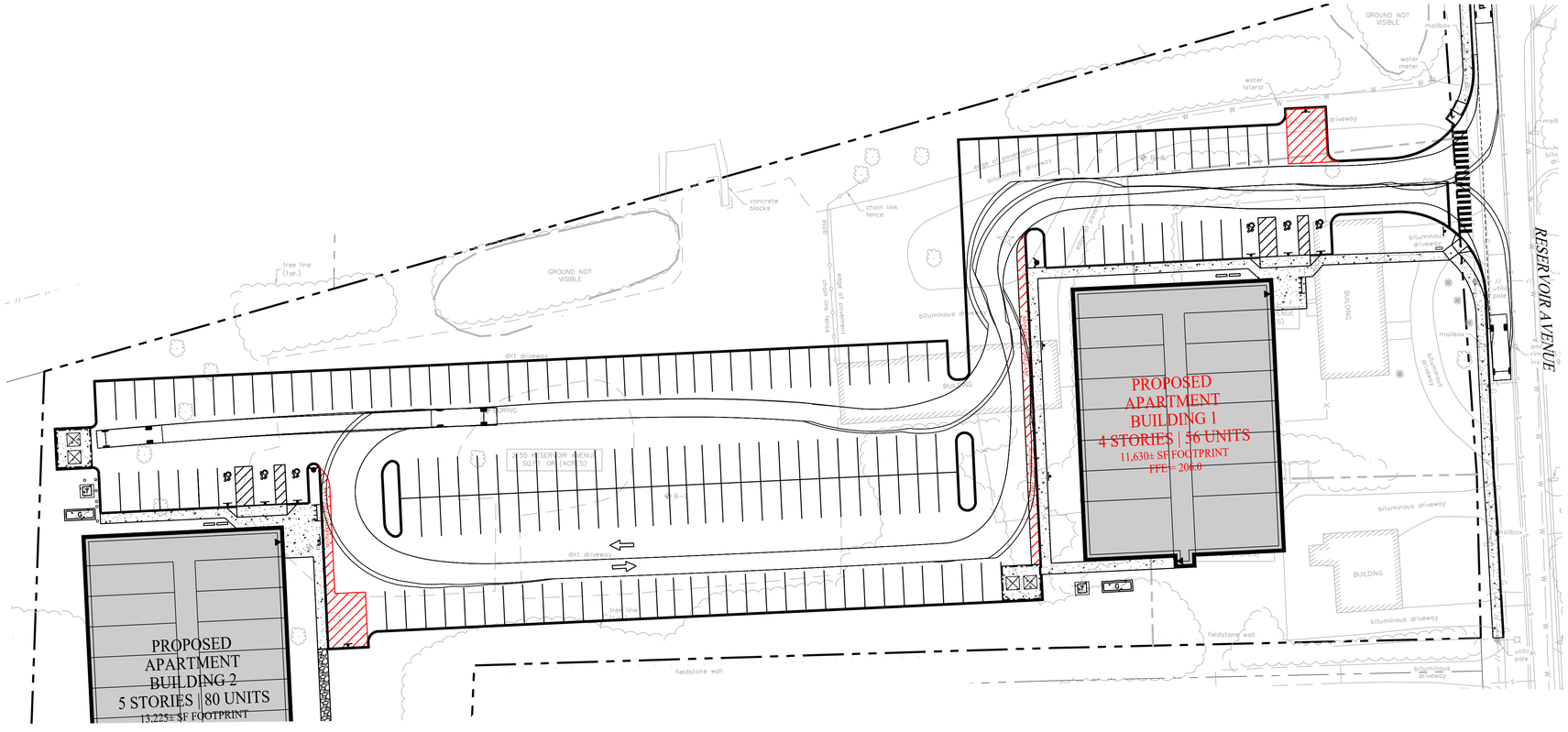


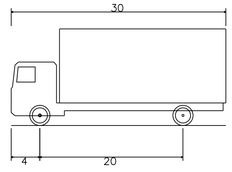


Trumbull Fire Truck	
Overall Length	46.708ft
Overall Width	8.000ft
Overall Body Height	10.893ft
Min Body Ground Clearance	1.324ft
Track Width	8.000ft
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	39.500ft

TRUMBULL FIRE APPARATUS

SCALE: NTS





SU-30 – Single Unit Truck	
Overall Length	30.000ft
Overall Width	8.000ft
Overall Body Height	13.500ft
Min Body Ground Clearance	1.367ft
Track Width	8.000ft
Lock-to-lock time	5.00s
Max Steering Angle (Virtual)	31.80°

SU-30

SCALE: NTS

Rev. #:	Date	Description
2	02/18/26	Rev. Per Fire Marshal Comments
1	12/17/25	Rev. Per Fire Marshal Comments

Graphic Scale: 30 0 30 60

SOLLI ENGINEERING
MONROE, CT | W. HARTFORD, CT | NORWOOD, MA
SOLLIENGINEERING.COM
T: (203) 880-5455 | F: (203) 880-9695

Drawn By:	ARM
Checked By:	LAM
Approved By:	KMS
Project #:	24116901
Plan Date:	11/07/25
Scale:	1" = 30'

STATE OF CONNECTICUT · KEVIN M. SOLLI · 25759 · LICENSED PROFESSIONAL ENGINEER

Kevin Solli, P.E.
CT 25759

Project:

PROPOSED REDEVELOPMENT

2135, 2145, & 2155 RESERVOIR AVENUE
TRUMBULL, CONNECTICUT

Sheet Title: TRUCK TURNING FIGURE

Sheet #: TT-1

Feb 18, 2026 – 11:46am omagoulas
X:\SE Files\Project Data\2024\24116901 – 2135, 2145, 2155 Reservoir Ave – Trumbull, CT\Engineering Data\CAD Files\24116901 – Truck Turn.dwg

Subject: RE: [EXTERNAL]RE: 2135, 2145 & 2155 Reservoir Avenue - Trumbull, CT
Date: Thursday, April 30, 2026 at 1:44:02 PM Eastern Daylight Time
From: Alex Magoulas
To: Megan Murphy
CC: james@cordonelaw.com, Jason A. Klein, Roberto Librandi, Josh Levy, Luke Mauro
Attachments: image001.png, image002.png, 2135, 2145 & 2155 Reservoir Avenue - Trumbull, CT - Revised Truck Turn Plan (2026-02-18).pdf

Hi Megan,

Following up on my email from February that included the firetruck template on our revised site plan (attached again here). Can you please confirm that this satisfies all of your concerns/comments from a site plan perspective as the P&Z commission has requested that we receive a close-out statement from your department.

Thank you,
Alex

Alex Magoulas
Assistant Project Manager

Solli

P: (203) 880-5455
C: (203) 417-1611
E: amagoulas@sollillc.com
sollillc.com

From: Alex Magoulas
Sent: Wednesday, February 18, 2026 11:51 AM
To: 'Megan Murphy' <mmurphy@trumbull-ct.gov>
Cc: james@cordonelaw.com; Jason A. Klein <jklein@carmodylaw.com>; Roberto Librandi <rlibrandi@trumbull-ct.gov>; Kyle Stein <kstein@myvessel.com>; Luke Mauro <Luke@sollillc.com>
Subject: RE: [EXTERNAL]RE: 2135, 2145 & 2155 Reservoir Avenue - Trumbull, CT

Hi Megan,

Attached is the fire truck turning figure overlaid on the most up to date site plan. For the record, the islands and parking striping is the same as the previous truck turn plan that was sent, so the turning radius hasn't been reduced, just the fire lanes and loading zones have been incorporated.

Please review and let us know if you have any further comments or if this satisfies what you are looking to see.

MILTON GREGORY GREW, AIA

Licensed Architect - Licensed Building Official - Codes Consultant

May 8, 2026

Chairman and Members of the Planning & Zoning Commission
Town of Trumbull
5866 Main Street
Trumbull, CT 06611

RE: Code Compliance and Life Safety Considerations
Proposed Multifamily Development
2135, 2145 & 2155 Reservoir Avenue

Dear Chairman and Members of the Commission:

As the code consultant and a Connecticut-licensed architect associated with this application, I have (i) reviewed the plans submitted for this project, (ii) reviewed prior Vessel building plans, and (iii) will oversee the preparation and submission of the permit-level construction documents. Based on this involvement, I can assure the Commission that the final construction documents will meet all applicable provisions of the Connecticut State Building Code, the Connecticut Fire Safety Code, and all local requirements.

In addition to my professional review, Vessel has retained Joseph Versteeg, a certified fire marshal who served for 20 years in the Office of the State Fire Marshal and is a recognized fire safety codes expert. Mr. Versteeg is collaborating with me to provide review and consultation of the plans to ensure that all fire code and life safety requirements are fully addressed.

It is important to recognize that Vessel represents an innovative approach to residential construction. It is not atypical for questions to arise during the permitting process for standard or traditional designs, so it is certainly not surprising that Vessel's building system would result in questions from code officials reviewing Vessel's plans for its first set of Connecticut projects. This has been the case with early projects, including Cheshire. However, the State-level review process has demonstrated that innovation does not equate to non-compliance or unsafe conditions; rather, it reflects the need for additional discussion, coordination, and education to ensure that all parties have the appropriate level of understanding. Based on the extensive review undertaken to date, that process has resulted in positive response from the State Building Inspector and State Fire Marshal with respect to the Vessel design and that comfort level has enabled them to move reviews of construction documents back to the local code officials.

The plans before you are the appropriate level of detail at the zoning review stage. Upon advancement to the permitting phase, a fully coordinated, site-specific permit set will be prepared and sealed by me and professional engineers and submitted for review.

241 Main Street South, Woodbury, Connecticut 06798-3440
(203).217-1074 MGGrew@GrewDesign.com

No building permit can be issued without full compliance being demonstrated to the satisfaction of the local building official and fire marshal.

While I was not the architect of record for the Cheshire project, I have been actively involved with Vessel at the State level and have independently evaluated the building systems and assemblies. Based on that work, it is my professional opinion that the design complies with all applicable codes and does not present any life safety concern.

1. Cheshire Project Comparisons

The issues referenced in Cheshire are not indicative of the Trumbull proposal. This project will be advanced with a fully coordinated, current permit set that reflects the latest design, testing, and regulatory input.

The State has already reviewed the relevant fire-resistant assemblies and confirmed their compliance. Accordingly, the Trumbull design will meet all applicable State and local codes. There are no inherent safety concerns associated with this project, nor with the system as it is currently being implemented.

2. Fire Safety – Assemblies

The fire-resistance-rated assemblies proposed for this building are:
- Code-compliant
- Independently tested by third-party laboratories
- Designed to meet required fire-resistance ratings

These assemblies are specifically intended to control and limit fire spread in accordance with the Connecticut State Building Code. They have also been tested by a third-party testing agency and found to meet all applicable code requirements. This testing has been reviewed by the Office of the State Building Inspector and Office of the State Fire Marshal and they have agreed that the testing is conclusive and the fire rated assemblies are code compliant. The suggestion that they present an elevated or atypical risk is not supported by the testing or by the code framework under which they are permitted. There should be no concern with respect to this aspect of the design.

3. Exterior Egress and Materials

Exterior stairs and open corridor systems are expressly permitted by code and are widely used in compliant building design.

At this stage, plans always lack specific materials. That is intentional. Final material selections and system details will be developed during the construction documents preparation and will be submitted to the building official and fire marshal for review. This allows the design team to utilize the most appropriate and current materials available at that time. All such materials and systems will meet applicable code requirements.

4. Zoning vs. Permitting

The Commission's role is to evaluate the site plan and general building concept. Detailed assembly design, structural coordination, and fire protection systems are properly addressed at the permitting stage. This is not a deferral of compliance—it is the required process. No construction can proceed until compliance is fully demonstrated and approved by the Authority Having Jurisdiction.

5. Coordination with Fire Marshal

During the permitting process, Vessel's design professionals will meet directly with the Trumbull Fire Marshal and all relevant authorities to review:

- Means of egress.
- Active fire protection.
- Passive fire protection.

All comments received will be incorporated into the final permit documents, which will be certified as compliant with applicable building and fire safety codes prior to permit issuance.

In conclusion, the concerns raised during the public hearing largely stem from:

- Misinterpretation of issues from unrelated projects, which have now been resolved, and
- Confusion between design and permit-level documentation.

The building system has been thoroughly vetted at the State level. The Trumbull project will proceed with a fully coordinated, compliant design subject to standard local review. There is no basis to conclude that the proposed design presents any life safety risk or falls outside the allowances of the Connecticut State Building Code or Fire Safety Code. I remain available to meet with staff, the Fire Marshal, or the Commission to review these matters further.

Sincerely,

Milton Gregory Grew

Milton Gregory Grew, AIA
Licensed Architect & Building Official



241 Main Street South, Woodbury, Connecticut 06798-3440
(203).217-1074 MGGrew@GrewDesign.com

MEMORANDUM

TO: Ms. Tatiana Solovey, P.E.
Assistant Town Engineer

FROM: Michael Manolakas, LEP, PG

DATE: May 18, 2026

SUBJECT: Third-Party Review of Environmental Investigations
2135, 2145, 2155 Reservoir Avenue, Trumbull, CT

Via Electronic Transmission

On behalf of the Town of Trumbull, WSP USA (WSP) documented its findings in a February 12, 2026 memorandum of the following environmental reports associated with the parcels located at 2135, 2145, 2155 Reservoir Avenue in Trumbull, Connecticut.

> *Phase I Environmental Site Assessment, 2135-2155 Reservoir Avenue, Trumbull, Connecticut 06611, Reef Environmental Project No. 25-1012, prepared by Reef Environmental, LLC, dated June 2025* (Phase I ESA); and
>
> *Phase II Subsurface Investigation Report, 2155 Reservoir Avenue, Trumbull, Connecticut Reef Environmental Project No. 25-1012, prepared by Reef Environmental, LLC, dated July 3, 2025.*

The findings identified the following:

Phase I ESA Findings

1) WSP concurred with findings of the Phase I ESA that the activities at the contractor storage yard at 2155 Reservoir Avenue warranted further environmental investigation.
2) The Site has poor management practices associated with the storage of liquid chemicals. It was unclear from the photographs if the total capacity of the chemical storage containers was above the 1,320-gallon capacity threshold that would require the preparation of a Spill Prevention Control and Countermeasure (SPCC) plan.
3) The photographs do not show secondary containment for any of the liquid chemical containers. WSP recommended secondary containment be installed for all liquid chemical containers onsite, and that all unsealed containers be removed and properly disposed, or placed in an appropriate container.

Phase II ESA Findings

1) Samples were only analyzed for extractable total petroleum hydrocarbons (ETPH) and volatile organic compounds (VOCs). Based on the history of the Site (including past site use identified as Park City Asphalt Co.), and lack of details regarding past operations and chemical usage, soil and groundwater samples should have been analyzed for additional constituents of concern

WSP USA
6 Research Drive, Suite 260
Shelton, CT 06484

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Fax: +1 (203) 926-9140
wsp.com

(COCs) including: polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and metals. As noted in our report recommendations, stained soils should be characterized and removed from the Site. Those soils should at minimum be analyzed for all of the aforementioned COCs. Health and safety concerns cannot be properly evaluated without a reasonable site characterization.

2) ETPH and VOCs were not detected in soil samples collected at Borings B-5 and B-6 where surficial staining was observed on the central portion of the parcel. Samples were not collected from the stained soils, but from soils at depth. The lack of detections in these samples does not indicate that COCs are not present above criteria in these areas, but rather that the release had not migrated to the underlying soils where the samples were collected.

3) While all detections in soil were below CTDEEP RSR criteria, releases of COCs to soil were identified at three locations located on the southern and northern portions of the parcel. Additional investigations are warranted prior to the development of the parcel to determine the nature and extent of the releases.

4) A release of VOCs to groundwater was identified in the central portion of the Site. Additional investigations are warranted prior to the development of the parcel to determine the nature and extent of the release(s). Groundwater issues in general were ignored and additional groundwater investigation will assist in determining site conditions and the extent of health and safety concerns.

5) On March 1, 2026, the new Released-Based Cleanup Regulations (RBCRs) will be effective in Connecticut. If the investigations detailed in this report were completed after March 1, 2026 then the results would have triggered requirements of the RBCRs for additional investigations to characterize the nature and extent of the impacts.

While not specifically discussed in the February 12, 2026 memorandum, Phase II field investigation identified a "sweet" smell in a soil boring B5. This field observation is typically associated with the presence of tetrachloroethylene (PCE). PCE was not detected in the single sample collected from this boring. This absence of the detection does not preclude the possibility that PCE contaminated soils or groundwater are present near this soil boring. Additional Phase II investigations are warranted in this area to determine if a release of PCE has occurred in the vicinity of the soil boring.

This memorandum includes a review of the following environmental documents which were issued after the WSP February 12, 2026 memorandum:

Third Party Review Response, 2155 Reservoir Avenue, Trumbull, Connecticut, Reef Environmental Project No. 25-1012, prepared by Jay Soltis of Reef Environmental, letter dated February 12, 2026

Environmental Summary Memo, 2155 Reservoir Avenue, Trumbull, Connecticut, Reef Environmental Project No. 25-1012, prepared by Jay Soltis of Reef Environmental, LLC, letter dated March 5, 2026.

Environmental Response Memorandum, Appeal Hearing, 2135, 2145 & 2155 Reservoir Avenue, Trumbull, Connecticut, Reef Environmental Project No. 25-1012 prepared by Jay Soltis of Reef Environmental, LLC, letter dated April 30, 2026.

Stormwater Management Design & Environmental Considerations, Trumbull Vessel, 2135, 2145 & 2155 Reservoir Avenue, Trumbull, CT, Solli Project No.: 24116901, prepared by Luke Mauro of Solli Engineering LLC, letter dated April 20, 2026.

February 12, 2026 Letter

The February 12, 2026 letter issued to the Town of Trumbull by Reef Environmental, LLC (Reef) provides responses to select findings identified in the WSP February 12, 2026 memorandum. The letter indicated that the Phase II investigation completed by Reef was as part of an initial, pre-purchase study of the Site to assess suitability for residential redevelopment. In general, the letter indicated the following:

1) Samples were not analyzed for a complete COC list because the Phase II investigation was completed as part of an "initial" pre-purchase study of the Site to assess the suitability of for residential development. Based on the aforementioned, the limited analyte list was used as indicators of historical releases, and that a fuller list would be analyzed as part of waste characterization. They stated that once equipment is removed from the Site that additional samples would be collected in stained areas that were not accessible, and that a fuller list of COCs would be analyzed as part of waste characterization for offsite disposal.

Response:

Not analyzing for a list of all Site COCs inhibits the ability to evaluate the Sites suitability for residential use and determine appropriate remedial actions that could impact the development of the Site, including health and safety concerns.

The Phase I identified past operations on the Site in the 1960s which included Park City Asphalt Co. The primary COC associated with these operations is PAHs. Many PAHs commonly associated with asphalt have a low residential regulatory exposure criterion, and based on this past use, PAHs may be present across the Site. By not analyzing for this constituent, it is impossible to assess the suitability of the Site for residential use.

Not analyzing the releases for all likely COCs to determine what they contain inhibits the ability to assess the suitability of the Site for residential use. Phase I ESA observations identified staining throughout the 2155 Reservoir Avenue parcel, which included 55-gallon drums partially filled with oil, and numerous smaller containers filled with oil and/or oily parts/equipment. The Phase I did not indicate if any of the chemical containers were properly labeled; as such, the chemical make-up the contents is unknown. Past operations included vehicle maintenance/repair. However, no records were identified with regard to how wastes were managed and disposed. Little is known about the past operations. Reef only analyzed samples for ETPH and VOCs. However, PCBs, metals PAHs are commonly associated with waste oils. PCBs are a special class of regulated chemicals, and if present, Connecticut Department of Energy and Environmental Protection (CTDEEP) regulations prohibit the use of the property for residential unless they are removed or addressed through an engineered control. PCB concerns cannot be ignored from a health and safety perspective.

2) Reef indicated that based on its initial sampling, impacts were relatively limited and were not significantly impacting groundwater. Reef also indicated they would collect soil confirmation samples following removal of stained soils.

Response:

The purpose of the Phase II ESA is to first identify if a release has occurred and verify the COCs. Additional sampling at depth is often completed at this stage to estimate the extent of releases. Reef made assumptions that may be unfounded associated with the nature of the release. The current data provides no insight regarding the full chemical make-up of the releases, the magnitude of the releases and how they compare to regulatory criteria, or if onsite or offsite receptors are at potential risk. It is impossible to determine based on the data gathered during the limited investigation as to the nature and magnitude of groundwater impacts. These are critical data points needed when assessing the suitability of land for residential use.

3) Reef indicated that a Phase III investigation of stained areas can be completed as a condition of approval of the redevelopment project.

Response:

The Phase II investigation was not completed to industry standards (ASTM E-1903-11, CTDEEP SCGD). As stated, the purpose of a Phase II ESA is to determine if a release has occurred, and what the release consists of. The Phase II ESA completed does not answer these basic questions as COCs were not analyzed to determine the nature of the overt observed releases, and if releases occurred from the former Park City Asphalt Co. operations. Additionally, little is known regarding impacts to groundwater. Phase II investigations should be completed to industry standards prior to any approval. Depending on the results of the Phase II investigation, Phase III investigations may be warranted prior to approval to assess the magnitude and extent of the releases to the various media (including groundwater), as this may impact the plans for the residential redevelopment.

4) Reef indicated that the Phase III investigations of groundwater could be completed as a condition of approval.

Response:

The Phase II identified impacts to groundwater, but the data was not sufficient for identify the nature and extent of groundwater impacts. As such, it is unclear if and/or what type of remedial measures would be required. This information is important, as it may impact the scope of the residential development.

5) Reef indicated that completion of any additional investigations will require reporting under the new RBCR program. They anticipate that the closure can be achieved prior to risk tier classification one year after the initial release report.

Response:

WSP concurs that additional investigations will require reporting under the RBCR program. If the current owner of the Site is aware of the investigations completed, and these ongoing investigations completed to assess the suitability of the Site for residential use, it is WSPs understanding the March 1, 2026 “file cabinet” exemption under the RBCRs may no longer

apply and the RBCRs may currently apply to the Site. WSP recommends consulting with legal counsel or the CTDEEP for clarification.

March 5, 2026 Letter

The March 5, 2026 concise letter from Reef to the planning and zoning board reiterates themes in their February 12, 2026 letter:

- Investigations completed to date are sufficient in the context of making a pre-purchase decision regarding the suitability of residential development.
- The analyses performed were appropriate for an initial assessment; and
- Supplemental sampling and remediation of the stained areas would likely be completed under the RBCRs.

Responses to these themes are addressed above.

April 30, 2026 Letter

The April 20, 2026 letter from Reef to the planning and zoning board included several of the themes discussed in their February 12, 2026 and March 5, 2026 letter and included:

- The environmental investigations completed to date are consistent with industry standards for pre-purchase/pre-development review;
- The Phase II testing completed to date confirms that soil impacts appear to be localized and shallow, and are well below State regulatory criteria ensuring that there are no health or safety issues or concerns that the property is not appropriate for multi-family housing;
- The proposed approach to further investigation and remediation will comply with industry practice and State regulations including the Connecticut RBCR program; and
- Any additional findings, if encountered, can be fully and effectively addressed through standard remediation protocols prior to and during construction.

Responses regarding these themes are general discussed above. The letter also discusses select content and findings from their Phase I and II ESAs, the results of the Site as they pertain to health and safety, proposed remedial actions and future steps. The following responds to excepts from this letter.

Health and Safety

Reef states that no environmental concerns that would preclude residential development of the Site have been identified to date.

Response:

As stated above, WSP does not believe that investigations are adequate to assess the reuse of the parcel for residential use. For example, investigations did not investigate past operations associated with the Park City Asphalt Co.., release areas were not analyzed for all COCs and soil samples were only collected at depths so comparison to regulatory criteria is not meaningful, and groundwater quality is not well understood and could present risks to onsite and offsite receptors.

Remedial Approach

Reef indicates the "appropriate remediation" will occur during the site work phase of the development and includes removal of visibly-stained soils followed by confirmation sampling.

Response:

As stated above, the Phase II ESA was not completed to industry standards, as such, it is difficult to define the meaning of "appropriate remediation" and how this could impact the Site redevelopment. To help define "appropriate remediation" and determine if the Site is appropriate for residential use, WSP recommends that a supplemental Phase II ESA be completed and at minimum include:

- Testing of all overt release areas (not just deep soil samples) for all COCs;
- Investigation of all areas of concern, including the past use for the asphalt operations and the area near boring B-5 which was identified with a sweet smell in soils. Testing should include all COCs; and
- Installation of permanent groundwater monitoring to evaluate groundwater flow, groundwater quality for all COCs and in sufficient locations to assess risk to on and offsite receptors.

Depending on the results of this investigation, Phase III investigations may be warranted prior to approval to assess the magnitude and extent of the releases to the various media, as this may impact the plans for the residential redevelopment.

Future Steps

The letter discusses supplemental subsurface investigation during the pre-construction phase of the project. The following were proposed in the letter:

- Visual inspection of the site once remaining stored equipment, roll-off containers, and heating oil aboveground storage tanks have been removed from the Site.
- Additional soil sampling in areas where stained soil or other evidence of a release is identified.
- Delineation of low-level soil and groundwater contamination previously identified.
- Additional soil analysis for ETPH, VOCs, PAHs, PCBs, and/or RCRA 8 metals.
- Reports prepared for this additional work will be submitted to the Town and the CTDEEP as part of compliance with the RBCR program requirements.

Response:

As noted in previous responses, it is appropriate to complete a supplement Phase II ESA and if necessary, Phase III investigations to determine if the Site is suitable for residential use, and development of the "appropriate remediation" necessary for this type of development on the parcel. With respect to the future actions identified, they do not identify investigations for the past asphalt operations and the sweet smell often associated with PCE near boring B-5. Additionally, the metal analyte list is limited and does not include all COCs.

SUMMARY

Phase I and II ESAs have been completed for parcels located at 2135, 2145, 2155 Reservoir Avenue in Trumbull, CT to evaluate the suitability of the parcels for residential development. Industrial/Commercial operations on 2155 Reservoir Avenue extend back to the 1950s until present. Operations included an asphalt company, equipment/vehicle repair and contractor yard. Site inspections identified staining throughout the yard, and poorly maintained chemical storage containers including at least four aboveground storage tanks, 55-gallon drums (some damaged), and smaller container (several without covers). None of the chemical storage containers were identified with secondary containment, and significant staining was observed near one of the storage areas. WSP continues to recommend that secondary containment be installed for all liquid chemical containers onsite, and that all unsealed containers be removed and properly disposed, or placed in an appropriate container.

The Phase II ESA completed was limited in nature, intent of the investigation was reported as part of an "initial" pre-purchase study of the Site to assess the suitability of for residential development. The investigation included the collection of 12 soil samples and 2 groundwater samples for ETPH and VOCs. Soil samples were collected at depth in stained areas with an intent to evaluate the extent of impacts. Soil samples of the overt release areas were not analyzed for all COCs, and investigations were not completed to evaluate past operations associated with the asphalt operations. The investigations revealed the specific deeper sample locations they analyzed did not contain elevated concentrations of ETPH and VOCs, and that groundwater was impacted by VOCs. The data provide no insight regarding the full chemical make-up of the releases, the magnitude of the releases and how they compare to regular criteria, or if onsite or offsite receptors are at potential risk. It is impossible to determine based on the data gathered during the limited investigation as to the nature and magnitude of groundwater impacts. These are critical data points needed when assessing the suitability of land for residential use.

The Phase II was not completed in accordance with industry standards, and the data generated is not sufficient to assess risks to human health and the environment. To help define "appropriate remediation" and determine if the Site is appropriate for residential use, WSP recommends that a supplemental Phase II ESA be completed and at minimum include:

- Testing of all overt release areas (not just deep soil samples) for all COCs;
- Investigation of all areas of concern, including the past use for the asphalt operations and the area near boring B-5 which was identified with a sweet smell in soils. Testing should include all COCs; and
- Installation of permanent groundwater monitoring to evaluate groundwater flow and groundwater quality for all COCs. The monitoring wells need to be in sufficient locations to assess risk to on and offsite receptors.

Depending on the results of this investigation, Phase III investigations may be warranted prior to approval to assess the magnitude and extent of the releases to the various media, as this may impact the plans for the residential redevelopment.

cmm
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REFERENCES

"Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process", ASTM E1903-11.

"Site Characterization Guidance Document", prepared by CTDEEP, dated September 2007/Revised 2010 (CTDEEP SCGD).

MICHAEL MANOLAKAS, LEP, CPG, PG

Northeast Regional Leader, Earth and Environment



Years with the firm

31

Years total

31

Professional qualifications

Licensed Environmental Professional: Connecticut, 2003 (429)

Certified Professional Geologist, American Institute of Professional Geologists, 2009 (27133)

Professional Geologist: New York, 2018 (000755)

Areas of practice

Hydrogeology, environmental investigation, remediation, estimating and construction management

Languages

English

CAREER SUMMARY

Michael Manolakas is WSP's Northeast Regional Leader for Earth and Environment. Michael is a Licensed Environmental Professional (LEP) in Connecticut, a Certified Professional Geologist (CPG) with the American Institute of Professional Geologists and a Professional Geologist (PG) licensed in the state of New York. Michael has 31 years' experience in the environmental and water supply field with work on small and large sites. His environmental experience includes managing investigations and remediation on two of the highest profile sites in Connecticut. He has extensive experience in Phase I through III environmental site assessments, feasibility studies, remedial action plans, implenting remedial actions, construction management, comprehensive environmental liability assessments for individual sites, portfolios and businesses, managing ecological assessments and remediation, preparing detailed lifecycle construction/ remediation project cost estimates, construction contract administration, and preparing bidding documents.

Michael has implemented innovative technologies and strategies to save millions in achieving site closures. Michael has successfully directed Sites to closure under Consent Orders, Connecticut Property Transfer Act and RCRA Corrective Action. He also manages sites in the New York Brownfield Program. His experience includes investigation and remediation of releases in accordance with the Toxic Substances Control Act. Michael also has experience in permitting and design of multiple solar fields, minimization of waste material, received the first CTDEEP approval to reuse lead based painted building materials as clean fill prior to demolition, and incorporated innovative designs to address flooding which allowed for the construction of a solar field in a flood zone. Michael's water supply experience includes management of aquifer tests, preparation of water supply plans, groundwater modeling used for Level A mapping, and design of nearly 100 water supply production wells.

EDUCATION

B.S., Geological Sciences, The Ohio State University, Columbus, Ohio	1994

ADDITIONAL TRAINING

Hazardous Waste Operations and Emergency Response (HAZWOPER), 29 CFR 1910.120(e)(3), 40 hours	1994
HAZWOPER 8-Hour Refresher, 29 CFR 1910.120	2021
DOT Hazardous Material Training, 40 CFR 172.704	2018

PROFESSIONAL MEMBERSHIPS

American Institute of Professional Geologists (AIPG)

Environmental Professionals Organization of Connecticut (EPOC)

PROFESSIONAL EXPERIENCE

Environmental Site Investigation and Remediation

— Environmental Investigations, Remedial Planning and Remediation of Large Former Manufacturing Facility, Bridgeport, Connecticut: LEP and project manager responsible for local, state and federal permitting, investigations and remediation of a 76.5-acre former industrial site. This RCRA TSD facility included an approximate two million square foot manufacturing building, an inactive industrial landfill, 55 former underground storage tanks, and two former metal hydroxide sludge beds. Investigations included the drilling of over 1,600 soil borings, installation of over 300 monitoring wells, ~350 soil-vapor point, collection of ~200 sediment samples, electromagnetic geophysics, ground penetrating radar, down-hole geophysics, aquifer test, groundwater flow modeling, collection and analyses of numerous soil and groundwater samples for various constituents of concern (COCs). COCs included PCBs, VOCs, SVOCs, petroleum hydrocarbons, metals, and pesticides. Remedial actions included the removal and offsite disposal of thousands of tons of PCB remediation waste in accordance with 40 CFR 761, in-situ stabilization of over 3,000 tons of characteristically hazardous waste and disposal of this waste containing PCBs and non-aqueous phase liquids as PCB remediation waste, closure of multiple greater than 90-day RCRA waste storage areas, and remediation of four areas containing light non-aqueous phase liquids (LNAPL), in-situ treatment of deep bedrock aquifer using emulsified zero valent iron, dredging of an approximately five acre pond and several brooks, relocation of over 150,000 cubic yards of polluted soils and sediments, installation of approximate 12-acre engineered control and recording of an environmental land use restriction for the engineered control. Remediation also included the screening and removal of solid waste from 40,000 cubic yards of landfilled materials. Michael manages the operation and maintenance obligations for the engineered control. Michael verified six subdivided areas of the Site, and received certificates of completions for each. Project received the 2023 Brownfield Coalition of the Northeast, Sustainable Communities Redevelopment Project of the Year Award.

— Environmental Site Investigation and Remediation, Hamden, Connecticut to satisfy CTDEEP Consent Order for South Central Connecticut Regional Water Authority (SCCRWA): LEP and project manager for responsible for investigation and remediation of an approximately 21.8-acre industrial waste landfill site located on residential and public school parcels. Tasks included development and implementation of investigation work plans, quality assurance project plans, community outreach, local and state permitting, bench and treatability studies, feasibility analyses, preparation of remedial action plan, and implementation of focused and phased remedial actions. Field investigations included the drilling over 200 soil borings, excavation of 8 test pits, installation of 44 monitoring wells, and collection and analysis of soil and groundwater samples for a full suite of COCs. Tasks included active public involvement, working with other responsible parties to investigate and develop acceptable remedial actions, lead the change in the regional groundwater classification, review of technical submittals of government agencies and primary responsible parties, negotiations with CTDEEP regarding obligations of SCCRWA and remedial actions necessary to satisfy the Consent Order, preparation of bid packages and specifications for various phases of remediation, preparation of multiple environmental land use restriction applications for various parcels, and preparation of remedial action report and post remedial groundwater monitoring plan. Remediation completed included removal of PCB “hot spot” in accordance with 40 CFR 761, demonstration of

compliance for soils containing elevated volatile organic compounds, excavation, relocation and backfilling over approximately 14 acres. Final remedy was a creative and cost-effective solution that allowed COCs, other than elevated PCBs, to remain on Site and be rendered inaccessible. Project received the American Council of Engineering Companies of Connecticut, Engineering Excellence Award in 2022. Compliance with the Consent Order was achieved in July 2023.

- Environmental Investigation and Soil Remediation, East Haven, Connecticut: project manager responsible for characterization and remediation of PCB bulk product waste and PCB remediation waste at water-supply sedimentation basin in accordance with the self-implementing option for cleanup and disposal of PCB remediation waste (40 CFR 761.61(a)). The investigation and remediation were completed with the corporation of the CTDEEP and EPA Region 1 Administrator.
- Environmental Investigation and Soil/LNAPL Remediation, North Cheshire, Connecticut: Investigations completed to evaluate remedial options to address 30-year-old LNAPL release within a public water supply well field. Remediation included deep shored exaction with a complex network of underground utilities, restoration with highly permeable materials and pumping well network to capture residual LNAPL, and upgrading or groundwater treatment system. Remediation was successfully removed residual LNAPL, and vastly improved groundwater quality.
- Contract employee for four months at Fortune 100 Company in Fairfield, Connecticut: Duties over four months included review of over a hundred environmental investigation and remedial action reports to determine potential environmental risks with respect to acquisition, leasing or selling of properties or businesses, and working with environmental health and safety managers to reduce risks associated with these types of transactions. Property and businesses reviewed were located throughout the world and ranged from leasing of office space to acquisition of billion dollar corporations. Review of larger acquisitions often included development of work plans and determination of potential environmental liability.
- Investigation, remedial planning, remediation and verification of General Electric Company former headquarters in Fairfield, Connecticut. Investigation and remediation was completed to satisfy Connecticut Property Transfer Act.
- Investigation, remedial planning, remediation and verification of former General Electric Capital site located in Stamford, Connecticut. Investigation and remediation were completed to satisfy Connecticut Property Transfer Act.
- Investigation, remedial planning, remediation and verification of former GE Additive site located in Shelton, Connecticut. Investigation and remediation were completed to satisfy Connecticut Property Transfer Act.
- Investigation, remedial planning, remediation and verification of former body shop located in Stamford, Connecticut. Investigation and remediation was completed to satisfy Connecticut Property Transfer Act.
- Investigation, remedial planning, remediation and verification of former manufacturing facility in Bridgeport, Connecticut. Investigation and remediation was completed to satisfy Connecticut Property Transfer Act.
- Investigation, remedial planning, remediation and verification of former NEC Corporation manufacturing facility in Shelton, Connecticut. Investigation and remediation were completed to satisfy Connecticut Property Transfer Act.

- Investigation, remedial planning, remediation and verification of former manufacturing facility in Wilton, Connecticut. Investigation and remediation was completed to satisfy Connecticut Property Transfer Act.
- Investigation, remedial planning, remediation and verification of auto body shop in Danbury, Connecticut. Investigation and remediation was completed to satisfy Connecticut Property Transfer Act.
- Investigation, remedial planning, remediation and verification of former auto body shop in Greenwich, Connecticut. Investigation and remediation was completed to satisfy Connecticut Property Transfer Act.
- Environmental investigation of wetland in Greenwich, Connecticut. Review and comment of subsequent ecological risk assessment and remedial plan. Expert witness associated with assessment and remedial planning for Site.
- Regional Environmental Assessment and Design of Groundwater Treatment, Danbury, Connecticut: project manager responsible for identifying offsite source of contamination through environmental file review and review of regional hydrogeologic setting. Designed and coordinated installation of potable water treatment system. Coordinated repairs of onsite well and distribution system to the satisfaction of the Connecticut Department of Public Health.
- Investigation, remedial planning and remediaion of former manufacturing facility in Chester, Connecticut. Received CTDEEP clean closure for former metal hydroxide seepage lagoons. On-going remedial actions to address solvent plume in bedrock and overburden aquifers. Solvent plume has been significantly reduced through remedial actions that included the operation of both a multi-phase extraction and pump and treat system.
- Norwalk, Connecticut: responsible for research and identification of inexpensive new technology (jet cavitation) for treatment of contaminated groundwater. Technology is proposed to be used in conjunction with a pump and treat system to remove halogenated volatile organic compounds from bedrock and overburden aquifers.
- Winsted, Connecticut: project manager responsible for investigations and remediation at a former thread manufacturing facility. Tasks included identification and characterization of 22 potential release areas, and successful remediation of all identified release areas.
- Sag Harbor, New York: responsible for characterization of halogenated VOC plume and design of pump and treat system to remediate groundwater. Tasks included development of solute transport groundwater flow model which was used for development of treatment system that included life cycle for the remedial action. Remedial action successfully remediated the groundwater plume within the time frame identified as part of the modeling.
- Detroit, Michigan: onsite supervisor for environmental investigations and remediation activities at three automotive plants. Tasks included operation and maintenance of phytoremediation berm, supervising closure of hazardous waste storage areas, excavation of petroleum, VOC and metal impacted soils and supervision of site investigations.
- Responsible for completing several hundred Phase I environmental site assessments throughout the United States.

Groundwater Supply and Modeling

- Suffolk County, New York: responsible for completing detailed salt-water and iron investigation as they responded to pumpage of eleven pumping wells in the Montauk area. The study included pumpage recommendations intended to maximize potable water while limiting seasonal and long-term chloride and iron impacts. The study also provided alternative management approaches for rehabilitating impacted well fields and maximizing existing well fields.
- New Haven County, Connecticut: responsible for analysis and evaluation of groundwater levels, stream flows, precipitation and wetland conditions to determine the impact of groundwater withdrawals on the aquifers and surface-water systems in four well fields.
- Southington, Connecticut: responsible for conducting pumping and induced infiltration tests of municipal water supply wells.
- Town of Wappinger Falls, New York: responsible for conducting several geophysical investigations. Analyzed pump test to determine aquifer parameters and stream infiltration rates. Calculated optimal placement of an additional production well.
- New Haven County, Connecticut: responsible for evaluation of pumping test data and development of water table maps.
- Suffolk County, New York: responsible for conducting numerous geophysical investigations. Investigations required determination of optimal screen setting and size for design of production wells.
- Suffolk County, New York: responsible for development of numerous groundwater flow and salt-water intrusion models for locations in Suffolk County to determine optimal well field withdrawal rates in order to avoid potential adverse impacts to the Upper Glacial Aquifer, Magothy Aquifers and surrounding wetlands. Specifically, the models were utilized to determine pumping rates that would avoid salt-water upcoming or lateral encroachment or dewater of wetlands. Projects included management and analysis of pumping tests, design of monitoring well networks and response to concerns of the NYSDEC.
- Southold, New York: responsible for hydrogeologic assessment for proposed well field. Evaluated potential impacts from salt water upcoming. Project included a 72-hour pump test, collection of samples and evaluation.
- Carlin, Nevada: responsible for calibration of groundwater flow model (MODFLOW) to evaluate optimal use of pumpage for dewatering of gold mine.
- New Haven County, Connecticut: responsible for modification and calibration of groundwater flow model (MODFLOW) to determine the zone of influence during drought conditions for four existing well fields. The modification involved updating three separate 2-D models to 3-D models to better evaluate the effects of the surface-water bodies.
- Town of Thomaston, Connecticut: responsible for use of groundwater flow model (MODFLOW) and particle tracking program (PATH3D) to determine most efficient and economical remedial design for the characterized MTBE and BTEX plume in the groundwater.
- Sag Harbor, New York: responsible for development and calibration of groundwater flow model (MODFLOW), particle tracking program (PATH3D) and

solute transport program (MT3D) used to determine optimal remedial design for historical DNAPL Plume.

- Town of Wappinger Falls, New York: responsible for utilizing 2-D groundwater flow model (Capzone) and particle tracking program (GWPATH) to determine safe and maximum yield of well field. Model output helped determine capture zone and optimum discharge rate of future production well.
- Litchfield County, Connecticut: responsible for development and calibration of groundwater flow model (MODFLOW) to determine the zone of influence during drought conditions for four existing well fields. Use of particle tracking program (PATH3D) to determine area of contribution for existing well field.
- Westchester County, New York: responsible for development and calibration of groundwater flow model (MODFLOW) to determine extent of mounding from proposed septic discharge.
- Fairfield County, Connecticut: responsible for development and calibration of groundwater flow model (MODFLOW) to determine the zone of influence during average conditions of existing well fields. Use of particle tracking software (PATH3D) for determination of area of contribution. Model was used to evaluate safe yield for southern well field with respect to salt water intrusion.
- Orange County, New York: responsible for development and calibration of several groundwater flow models (MODFLOW) to determine zone of influence in drought conditions of existing well fields. Use of particle tracking software (PATH3D) for determination of area of contribution for travel times.
- Carlin, Nevada: responsible for calibration of groundwater flow model (MODFLOW) to evaluate optimal use of pumpage for dewatering of gold mine.
- Thomaston, Connecticut: responsible for using groundwater flow model (MODFLOW) and particle tracking program (PATH3D) to determine most efficient and economical remedial design for the characterized MTBE and BTEX plume.
- Suffolk County, New York: responsible for development of more than 20 groundwater flow (MODFLOW), particle tracking (PATH3d and MODPATH) and salt-water intrusion (SHARP) models for locations in Suffolk County which were utilized to determine optimal well field withdrawal rates to avoid potential adverse impacts to the Upper Glacial Aquifer, Magothy Aquifers and surrounding wetlands. Specifically, the models were utilized to determine pumping rates that would avoid salt-water upcoming or lateral encroachment or dewater of wetlands.
- Sag Harbor, New York: responsible for modification and calibration of groundwater flow model (MODFLOW), particle tracking program (PATH3D) and solute transport program (MT3D) to determine optimal remedial design for historical DNAPL plume. Through modeling determined contaminant removal times and optimum pumping locations and rates for focused source/contaminant removal actions.
- Wappinger Falls, New York: responsible for using 2-D groundwater flow model (Capzone) and particle tracking program (GWPATH) to determine safe and maximum yield of well field. Model output helped determine capture zone and optimum discharge rate of future production well.
- Litchfield County, Connecticut: responsible for development and calibration of groundwater flow model (MODFLOW) to determine the zone of influence during drought conditions for four existing well fields. Use of particle tracking program (PATH3D) to determine area of contribution for existing well field.

— Westchester County, New York: responsible for development and calibration of groundwater flow model (MODFLOW) to determine extent of mounding from proposed septic discharge.

PUBLICATIONS, PRESENTATIONS AND AWARDS

Publications

— Manolakas, Michael. "Achieving Compliance through Development of Alternative Soil Criteria," *Monitor*, Spring 2004.

— Manolakas, Michael. "Guidance for EPA Technical Impracticability of Ground Water Restoration," *LBG Short Notes*, Spring 1999.

— Manolakas, Michael. "Aquifer Mapping Integral to Well Field Protection Efforts", *Land and Water*, July/August 1998.

— Manolakas, Michael. "The Use of Computer Models in Well Field Protection delineations," *CE News*, April 1999.

Presentations

— Manolakas, Michael. "Stabilization of Characteristically Hazardous Volatile Organic Compounds and Metals Using Rice Hull Ash and Lime Kiln Dust." Battelle Eighth International Conference on Remediation of Chlorinated and Recalcitrant Compounds. May 2012.

— Manolakas, Michael. "Effectiveness of a Metal Stabilizer when Treating Hazardous Waste with Modified Fenton's Reagent and Sodium Persulfate: A Laboratory Treatability Study." Battelle Seventh International Conference on Remediation of Chlorinated and Recalcitrant Compounds. May 2010.

— Manolakas, Michael. "Investigation of Site Specific Mobility and Leaching Characteristics of Dieldrin in Soils." Battelle Fourth International Conference on Remediation of Chlorinated and Recalcitrant Compounds. May 2004.

Awards

— 2022 American Council of Engineering Companies of Connecticut, Engineering Excellence Award "Former Hamden Middle School Site"

— 2023 Brownfield Coalition of the Northeast, Sustainable Communities Redevelopment Project of the Year Award "Former General Electric Site, Bridgeport, Connecticut"