PLANNING BOARD MEETING

Tuesday, May 09, 2023 at 6:00 PM

Town Hall - 41 South Main Street Randolph, MA 02368

AGENDA

Pursuant to the temporary provisions pertaining to the Open Meeting Law, public bodies may continue holding meetings remotely without a quorum of the public body physically present at a meeting location until March 31, 2025. The public is invited to participate in the meeting via telephone or computer..

A. Call to Order - Roll Call

B. Chairperson Comments

C. Approval of Minutes

1. Minutes from 4-25-2023

D. Public Speaks

E. Public Hearings

1. Site Plan and Design Review - 34 Scanlon Drive (continuation at 6:15pm)
2. Subdivision - Mill Street Definitive (continuation at 7:00pm)

F. Old/Unfinished Business

1. 19 Highland Avenue - windows at commercial unit
2. Trim Way Definitive Subdivision

G. New Business

1. 60/64 Mazzeo - site plan revision request from 68 Mazzeo Drive
2. Special Permit Application Form - possible edits

H. Staff Report
***Active Subdivision Review**
***Active Project Review**
***Upcoming Projects**

1. Stormwater Pollution Prevention Guide

I. Board Comments

J. Adjournment
Notification of Upcoming Meeting Dates

PLANNING BOARD MEETING

Tuesday, April 25, 2023 at 6:00 PM

Town Hall - 41 South Main Street Randolph, MA 02368

MINUTES

In accordance with Governor Baker's Order Suspending Certain Provisions of the Open Meeting Law, G. L. c. 30A, § 20, relating to the 2020 COVID 19 emergency, the Planning Board shall meet remotely to avoid group congregation.

A. Call to Order - Roll Call

Called to order at 6:02pm

PRESENT
Tony Plizga
Nereyda Santos-Pina
Peter Taveira
Lou Sahlu

ABSENT
Alexandra Alexopoulos

B. Chairperson Comments

C. Approval of Minutes

1. Minutes of 4-11-2023

   Motion made by Plizga, Seconded by Taveira to approve the meeting minutes of 4-11-2023 as written.
   Voting Yea: Plizga, Santos-Pina, Taveira, Sahlu

D. Public Speaks

None

E. Public Hearings

1. Site Plan and Design Review - 34 Scanlon Drive

   Chairman Plizga noted the hearing for 34 Scanlon Drive is being continued from the meeting of April 11, 2023 at the applicant's request. The public hearing notice was read into the record at that time.

Planner Tyler explained that the project for 34 Scanlon Drive is subject to a pu hearing, which is a Tier 3 hearing under the Subdivision and Design Review, Article 11 of the Town's Zoning Ordinance. The hearing was previously opened on April 11, 2023. At that time, the applicant requested a continuation to resolve items on the civil plans as a result of watershed, wetland and protection overlay districts. While the zoning of this project is by right, it is subject to a site plan and design review by the Planning Board. Location also requires review and approval by the Conservation Commission and the Storm Water Authority, which is the DPW.

The documents received into the record by the Planning Board include: Civil Plans, Architectural Plans, Fire Apparatus Turning Plan, Storm Management Plan, A Narrative of the Project outlining the civil set, Proposed Operations, Development Impact Statement, Storm Water Pollution Prevention Plan, Pest Control Plan, Traffic Analysis, Erosion Control Plan and Correspondence from the Randolph Fire Department.

Mr. Douglas McGarrah,ESQ provided an introduction by first introducing the team:

Don Dunham, Founder of Yankee Bus Lines

CORE Investments, Inc.: Dave Pogorelc, Founder of CORE Investments; John Cissel, President of CORE; Gary Lilienthal, CORE General Counsel; Adela Kolar, CORE Associate Counsel; Michael Cahill, CORE Senior Vice President of Development; Art Campbell, CORE Development Manager.

TGAS - The Galante Architecture Studio, Inc.: Ted Galante, Founder of TGAS; Chris Collins, Architect; Kylie Simpson, Architect, John Raybock, Plumbing/Mechanical Engineer.

Samiotes Consultants - Michelle Kayserman; Civil Engineer.

Mr. McGarrah provided a summary of Yankee Bus Lines history and operations. He indicates that this location works well because it's near the interstate system and will have minimal intrusion into the Town of Randolph. This is a long-term investment in the Town of Randolph.

Mr. Galante reviewed aerial view of the site showing the existing conditions. Existing conditions include the structure and some green space around the perimeter, but the site is largely impervious. CoreInvest has been working on the property to improve the area around the intermittent stream and clean it up.

The proposal is to remove the existing structure and most of the asphalt and replace it with a structure that is 3 stories with the middle section being about 1.5 stories. The new building is sited closer to High Street to avoid the surface water protection zone with employee parking at the northeastern side of the site and bus parking around the perimeter and the building sited in the middle.

The first floor will include offices and entrance to be located largely in the upper left corner closest to 20 Scanlon Drive. The lower left corner will be storage for parts; 5 maintenance bays in the middle and additional storage and wash bays at the rear. This is all at grade level. The repair bays are tucked in to the facade with a small canopy that runs around the building.

The second floor has storage areas on the north and south ends. The area ov maintenance bays is open.

The third floor has additional offices, a training room and restrooms. The middle portion is open to the maintenance bays below with skylights to bring in natural light.

Mr. Galante provided building elevations and discussed the building treatments that include glass curtain walls, glass block, concrete panels, windows and various facade treatments. These are designed to have an attractive face on Scanlon Street as well as break up the building massing.

Mr. McGarrah pointed out that the height maintenance bays is specific ally designed to accommodate electric vehicles anticipating that there will be EV busses in the not too distant future.

Michelle Kayserman of Samiotes reviewed the civil plans discussing existing conditions first. She then outlined construction entrances, drainage and grading, stormwater management plans, proposed curb cuts and traffic circulation, fire apparatus access, parking plan and photometrics.

Mr. McGarrah provided additional comments regarding fencing and landscaping designed to absorb sound from the site to reduce impact on neighbors and that lighting is shielded so as not to intrude onto adjacent properties.

Don Dunham, owner of Yankee Bus Lines provided an overview of the company history and operations, outgrowing their current HQ in South Boston, connection to Randolph and desire to relocate here. Their work providing charter and tour coaches takes them to a variety of locations up and down the east coast so proximity to the interstate system is a critical factor for them. Randolph offers a great location where there will be little to no impact on the streets and residential areas. He provided an overview of intended operations at the new Randolph location with administrative staff, maintenance of the coaches and bus movement.

Mr. Dunham explained that the site is designed specifically designed for one way traffic circulation to reduce interference and minimize the need for the motorcoaches to back up. The buses don't idle a lot, they don't beep horns on the site and they have a headlight policy to be cognizant of lights intruding on neighboring properties. The site is designed to allow motorcoaches to operate without the need for additional lighting.

Chairman Plizga asked the applicant to briefly explain the project connection to the property at 20 Scanlon. Mr. Galante explained that there is an existing building at #20 Scanlon that will serve as administrative offices for the Yankee Bus Line operations. There may be some interior renovations to the site but the structure will remain. Mr. Plizga pointed out that the Board is not reviewing 20 Scanlon Drive at all but wanted everyone to understand the connection to the overall project proposal.

Public Comments

Malachy Campbell of 27 Sarah Street appreciates the investment in the community and the efforts taken to minimize impact to the neighboring residents and understands there will likely be more bus traffic and an increase in operations. There is currently noise and pollution from buses idling on the site and he can hear the back-up alarms

after midnight. He understands it's the nature of operations but wonders if Ya do other things to mitigate the impact such as limiting operations during regular sleeping hours, moving things around, etc.

No other public comments were made and Chairman Plizga closed the public comment section. Mr. Plizga points out that there are uses permitted in this zoning district that would have a far greater impact on the neighborhood than the proposal before them.

Don Dunham addressed the concern. He indicated that the back-up alarms cannot be disabled due to federal law. Even the decibel level of the alarms is regulated and he believes their motorcoaches are at the lowest level possible. He restates that the site was designed to minimize the need for maneuvering the vehicles that would require frequent backing up. He also indicates that any buses on the site now are not part of the Yankee Bus operations.

Mr. Dunham spoke about the idling policy in place: maximum idle time is 3 minutes. The vehicles have a "high idle" and a "low idle" switch. They don't use the 'high idle' in the parking lots. There also is currently no fencing around the property. The design includes additional vegetation and fencing which will help to buffer noise in addition to light.

Planning Board Comments

Chairman Plizga indicates that he has not had sufficient time to thoroughly review the plan sets that were delivered on Friday and would anticipate a detailed review and discussion at a future meeting. He notes that a traffic study was conducted and asked about the volume of vehicles that would be using High Street. Mr. McGarrah indicated that most traffic will use Scanlon Street with no level of service change at the intersection with Route 28. Mr. Dunham indicated that he expected no buses to use High Street. They need to use Scanlon to easily access the highway system.

Chairman Plizga confirmed the figures on the Zoning Matrix that specify the percentage of the lot that will be covered by building or impervious surfacing and the improvements that will be made. Mr. McGarrah and Ms. Kayserman confirmed the figures.

Chairman Plizga addressed curbing heights and notes that the plans do not indicate the specific height. He requests at least a 6 inch reveal. He confirms that light pole details are listed on the plans and also asked them to consider whether bollards would be helpful to install around the transformers. Mr. Galante will review.

Chairman Plizga asked if the general public would be accessing the facility for inquiries about using Yankee Bus services. Mr. Dunham specifies that if anyone were to "walk in" to book a tour, they would do so at #20 Scanlon - but likely most of that is done via phone.

Member Taveira asked about the likelihood of any charter tours loading passengers at the 34 Scanlon site wondering if the passengers would arrive via car, park there and board the bus. Mr. Dunham indicates that currently it is rare but may happen 3-4 times per year. Typically when it does, a group carpools to the South Boston site and boards the bus.

Mr. Taveira then inquired about environmental protection from fuel, oil and oth chemicals that would be used on site. Ms. Kayserman described the types of water quality treatment systems and locations are on site that will reduce impact. Mr. Galante outlined systems internal to the building while Mr. Fair discussed the double walled fuel tanks and monitoring systems.

Mr. Taveira asked about snow storage plans and Ms. Kayserman outlined the areas identified on the civil set.

Mr. Sahlu asked about they typical daily operations with the number of buses that may come in and out of the property. Mr. Dunham outlined what could be anticipated . Buses out in the morning between 6am and 10am and then any returns in the late afternoon/early evening between 4pm and 8pm. This isn't consistent though because there is a lot of charter tour work: school trips to Washington DC, may pick up a sports team at the airport, leaf-peeping trips in the fall.

Mr. Sahlu asked the process for managing break-downs of the buses if there are passengers on board - especially if they are close to the Randolph location; will people be transported back to Randolph for a new bus? Mr. Dunham responded that he can't recall any similar situation but their response would be to immediately send a new coach to load the passengers and continue transporting them to their destination.

Mr. Plizga notes that he finds that the civil plan and the architectural plans may have some inconsistencies with the size of the canopy.

Member Santos-Pina outlined general topics that she would like to discuss at a next meeting including any green design features, the potential for water collection and reuse and alternative energy (solar panels on the roof). She also wonders where the roof access hatches are located.

Motion made by Plizga, Seconded by Santos-Pina to continue the hearing to May 9 at 6:15pm

Voting Yea: Plizga, Santos-Pina, Taveira, Sahlu

2. Subdivision - Mill Street Definitive (continuation)

Planner Tyler noted that the hearing was previously opened and has been continued to allow the Board additional time to review the comments from Nitsch engineering. Mr. Burke is presenting for Decelle-Burke-Sala this evening as Mr. Magoon is no longer with the firm. Chairman Plizga asked Mr. Burke to run through the Peer review comments. Mr. Burke noted that the changes as a result of the review were fairly minor. They needed to firm up some calculations to comply with storm water management.

Chairman Plizga asked if the applicant pursued an easement for a water connection through the adjacent property on Prospect Street? Mr. Burke noted that at this time, the abutter is not interested. He said it could be a condition and the applicant could continue to pursue it. The alternative to connecting to Prospect is a loop, not uncommon for a dead-end. Those plans were reviewed by Town Engineer and

awaiting comments from DPW Superintendent Chris Pellitteri. The loop is not according to our Engineer, but requires further review.

Chairman Plizga noted a discrepancy between the updates to Form D and the drawings and requested they be updated before the Board signs the plans.

Chairman Plizga would like documentation added outlining the responsibility of the property owner to the maintain the stormwater collection systems.

Chairman called on Board members for questions. Hearing none, moved on.

Chairman Plizga asked for Mr. Burke to add a column for “zoning provided” to the plans for future reference.

Planner Tyler will provide Mr. Burke with a draft decision for his review and comments. Chairman Plizga would like to firm up the water connection plans prior to a vote.

Motion made by Plizga, Seconded by Santos-Pina to continue the Public Hearing on May 9, 2023 at 7:00pm.
Voting Yea: Plizga, Santos-Pina, Taveira, Sahlu (4-0-0) Passes

F. Old/Unfinished Business

1. 19 Highland Avenue - facade samples for commercial area

Miraj Ahmed, Mo Ahmed and Chi Man were present to discuss the commercial facade and several other project related items.

Mo Ahmed provided 5 stone façade samples for the Board to consider. After a brief discussion about the samples, Chairman Plizga asked the Board to select their top two preferences: Taveira 4 & 2; Alexopoulos 3 & 5; Santos-Pina 3 & 5; Plizga 3 & 5; Sahlu 2 & 4. The Board agreed on selection 3, Gobi Mix.

Motion made by Plizga, Seconded by Sahlu to approve style 3, Gobi Mix, as the preferred material for the commercial section of the building.
Voting Yea: Plizga, Santos-Pina, Taveira, Sahlu (4-0-0) Passes

Chi Man noted the existing panel on the building will be removed prior to the stone facade installation.

Concerns over the height of the light poles was addressed. Mr. Man took measurements and determined the finished installation of the pole lights will be under the maximum height of 22 feet.

Mr. Man noted that the applicant would like to extend the white fencing in the "pan handle" section of the lot. He explained that the fence would enclose the area to prevent cut-through onto the property. Planner Tyler would like Conservation Commission to review it. She does not anticipate a challenge.

Motion made by Plizga, Seconded by Santos-Pina to approve the extension fence as designated on the plan, subject to the acceptance by Conservation Commission.
Voting Yea: Plizga, Santos-Pina, Taveira, Sahlu (4-0-0) Passes

The applicant is seeking approval from the Board of Health to dig a private well for irrigation for landscaping. The proposed well is designated on the plan on the left-hand side of the drive entrance tucked behind landscaping. Chairman Plizga was concerned the well would interfere with an existing drain line. Mr. Man said the drain line was diverted.

Motion made by Plizga, Seconded by Santos-Pina to approve a well and wellhead system as presented on the drawing at this location plus or minus a foot or two (plan to be provided to Planner Tyler).
Voting Yea: Plizga, Santos-Pina, Taveira, Sahlu (4-0-0) Passes

The applicant would like to switch from dumpsters to compactors. The Board has no preference, as long as the height of the surround is above the compactor.

Mr. Man noted that the applicant wants to add a window to an office along the commercial space wall. The space was originally intended for restaurant so the wall was left blank for kitchen equipment, but now that it is retail they would like to add a window to match the windows on the floors above. The Board asks that the window match the exact size and alignment of the windows above, from top of trim. Mr. Taveira would like to see a larger window, possibly in a different style that distinguishes it as retail space. The Board will take the matter up at the next meeting. Chairman Plizga asked Mr. Man to bring a few photo images for the Board to review.

G. New Business

1. 84 Mazzeo Drive - Access to Circuit Drive

Planner Tyler provided background related to the development at 84 Mazzeo Drive - Popeyes Restaurant. The project came before the Board in 2017 as a tier 2 Site Plan and Design Review. Plans presented to the Board referenced an adjacent property as Circuit Drive. Despite the street sign it is not a road public or private way and there is no evidence it is an actual right-of-way. The Board presumed it was a right-of-way by the way it was referenced and laid out on the plan, which resulted in the curb cut from 84 Mazzeo Drive onto the access point described as Circuit Drive.

The new owners of 68 Mazzeo Drive have done there due diligence and, through their legal team, discovered there is no such thing as Circuit Drive. The owners have been having issues with customers of Popeyes using their lot to park and eat, leaving trash behind. Temporary bollards were installed preventing access to/from 84 Mazzeo Drive and "do not enter" signs have been put up.

Planner Tyler has online this evening, Attorney Stephen Greenbaum of Greenbaum, Nagel, Fisher & Paliotti, LLP representing the owners of 68 Mazzeo Drive and, Attorney Kevin Reilly, representing the owners of 84 Mazzeo Drive. Planner Tyler called on Mr. Greenbaum for comment, he did not respond.

Planner Tyler received correspondence from Mr. Greenbaum on April 13, 202 requesting that the Planning Board reverse or correct the site plan errors. She then reached out to the Randolph Fire Department to see what impact a closure of that curb cut would have on emergency access. Chief Cassford via Captain Austrino requests that the curb cut remain open and encourages the property owners to come to an agreement to allow access via a locked system/gate for emergency access only.

Planner Tyler called on Mr. Greenbaum again. Without a response, the Board moved on to Mr. Reilly. Chairman Plizga asked if any part of Circuit Drive is on Popeyes property? Mr. Reilly responded he does not believe so. Chairman Plizga made note that in correspondence it shows that (Grow) 68 Mazzeo Drive owns a 12.5 feet right of way, yet the drive is approximately 24 feet wide, he wonders who's property it might be incringing on?

Planner Tyler still does not see Mr. Greenbaum available to speak. Mr. Reilly asked Planner Tyler if she sees Ed Baksh and Attorney Shanahan on the (virtual) meeting and if she would introduce them. She noted that they represent the adjacent property located at 84 Mazzeo Drive.

Planner Tyler called on Mr. Greenbaum numerous time in an attempt to allow him to speak. Mr. Greenbaum seems to be working through technical difficulties.

Chairman Plizga asked the Board if they had any questions.

Mr. Reilly noted that the assumption always was that there was some sort of "way" there, referring back to previous businesses that used the access in the past. His client is open to closing off the area with concrete berms, possibly some landscaping or a gate if that is what needs to happen. Chairman Plizga does not believe closing it off is a viable option from a safety standpoint, according to Randolph Fire, so they will be seeking a gate.

Kelly Shanahan represents the owners of 84 Mazzeo Drive. They have been working with the representation for 68 Mazzeo Drive and stopped using the access point to Circuit Drive, as requested. It was brought to their attention that the Fire Department would become involved, so they were waiting to see what was recommended at this meeting before reaching out to them regarding their property. Ms. Shanhnan noted the parties have been unable to reach an agreement for a dollar amount to continue to use the access.

Chairman Plizga wonders if the Fire Department would still have access down a private way/drive (Circuit Drive) in an emergency. Planner Tyler said in an emergency that would be acceptable. He also asked, if they were to make a motion to clarify the record, would they be able to remove the gate if the parties came to an agreement in the future to do so? Planner Tyler said yes, any future decision would be subject to any ordinances related to site plan and design review.

Planner Tyler called on Mr. Greenbaum, with no response.

Chairman Plizga believes even with signage people will still try to use that drive even with the access to Popeyes closed off.

Ms. Shanahan said her understanding is that the access to Mazzeo Drive can closed off at the main road/Mazzeo Drive because the movie theatre has legal access to use it prohibiting them from closing it off at the end, so they agreed to close off their access on the driveway side.

Planner Tyler called on Mr. Greenbaum again.

Planner Tyler explained to the Board for clarification, that tonight's hearing is for 84 Mazzeo Drive, but that she also sent correspondence to the property across the way at 60 and 64 Mazzeo Drive, which is the hotel and Mexicali Grill. The owner was out of the country and just became aware of this so he is not on the meeting for discussion.

Chairman Plizga asks if the Board has questions or comments before making a motion.

Motion made by Plizga, Seconded by Sahlu, in order to correct construction items approved by the Planning Board, October 3, 2017, that were based upon errors in the original plan set submitted to the Planning Board, and as a result of the request by the attorney representing the owners of 68 Mazzeo Drive, the Randolph Planning Board requires the following modifications to the property at 84 Mazzeo Drive (assessors map 57-D-4.020), the owner Mazzeo Drive shall install a locked gate accessible to emergency vehicles only at the existing eastern curb cut to 68 Mazzeo Drive (Lot 57-D-46) in consultation with the Fire Department. To remove the bollards and temporary concrete barriers that were installed to protect the temporary propane gas tanks. All work shall be completed by June 23, 2023 (60 days from today) unless otherwise approved by the Planning Director.
Voting Yea: Plizga, Santos-Pina, Taveira, Sahlu (4-0-0) Passes

Chairman Plizga noted that the temporary concrete barriers were put in place to protect temporary propane gas tanks that have since been removed. The barriers create a driving hazard, so they would like to them removed.

Mr. Taveira asks if they need to specify anything about the gate. Chairman Plizga noted the Fire Department has a standard they have used at various projects that will be used with a lockbox on it for access.

Planner Tyler called to Mr. Greenbaum, with no response, apparently due to ongoing technical difficulties.

Chairman Plizga noted that the backside of the dumpster enclosure is missing and another part of the enclosure is broken. He would like to see that repaired with gates equal to the height of the dumpster. As of now, you can see the dumpster over the enclosure.

Planner Tyler gave Mr. Greenbaum one last opportunity to see if his audio was working, which it was not.

H. Staff Report
***Active Subdivision Review**
***Active Project Review**
***Upcoming Projects**

Active Project Review

50 Thomas Patten Drive - there had been some work being conducted without review by the Planning Board to the entire parking area, landscaping, and installation of fieldstone. Work had been done to the rear of the property with the Conservation Commission approval, but they did not have permits for paving and had not done any stormwater management with DPW. Planner Tyler has been working with the owner and engineer to put in place a stormwater management plan that the DPW Superintendent has reviewed and approved. Some site plan items were discussed and resolved with the engineer to allow the owner to move forward. The owner will be required to install some green space on the edge of the property. They will be installing granite slabs and fieldstone for pedestrian access, and a rain garden at the rear of the property sufficient to manage stormwater. They have been coordinating with the neighbor, Care One, for some additional landscaping. Planning Board review is complete and a decision has been written for the modifications.

33 Mazzeo Drive/Splash Car Wash - work is proceeding, all existing structures have been removed, lot has been grubbed and graded, and the foundation is in. Chairman Plizga noted they have an onsite concrete patch plant set up. Planner Tyler has observed them maintaining their stabilized construction entrance.

South Main Street/Step Ahead Early Education - the Board had approved a modification to the roof for a canopy over the entrance which is complete. Signage needs to be completed but may require Zoning Board of Appeals approval for the location. The tenant is working through their plans with the owner.

Allen Street/Convenience Store - work is progressing, permits have been issued for interior work. General Contractor says there may be issues with the grade at the front of the building, the grade of the concrete at the pedestrian entrance and the elevation of the front of the building believed to be a miscalculation by the engineer regarding plans versus existing conditions. Chairman Plizga wants to ensure any minor changes still comply with ADA requirements.

Short Street/Rocco's Tavern - Planner Tyler sent an email to the owner outlining the Boards concerns and actions to take if they wish to proceed including more detailed plans. Any plans must also be sent to the Building Commissioner for review as it may require Zoning Board of Appeals approval for the rear setback and potentially the side setback. Upon resubmittal, plans will be sent to Fire for review.

Subdivisions - have not sent out letters requesting status updates. Need an extension on Lafayette Estates. Orchard Estates needs bounds, final coat of asphalt, not sure if it is complete. Perry Estates - Mr. Perry picked up and recorded mylars at the Registry of Deeds. Once it is recorded the address will need to change. They are working with Assessor and Town Engineer to complete that process. Pham Estates - still no electrical service. Planner Tyler will ask them to get an update from National Grid.

647 North Main Street/Day Care - awaiting an update from Mass DOT regarding th signal.

Upcoming Projects

Planner Tyler anticipates a pre-application plan set for the property off of 11 Randolph Road. The Board recently approved the discontinuance of roads and the property owner seeks to combine nonconforming lots to develop the property in the Industrial District. She has a pre-application meeting to identify any issues before it is presented to the Board in June.

Planner Tyler would like to bring before the Board recommendations for adjustments to the Site Plan and Design Review Application. She has a draft ready that will make the process clearer as to when the applicant needs to seek review and approval from other Boards/Committees/Commissions.

Active Subdivision Review

Regarding Lafayette Estates, Planner Tyler will meet with Joe Marotta to go over the application for extension before he comes before the Board.

I. Board Comments

Planner Tyler sent an email to the consulting firm reviewing our zoning for an update. She has not received a response.

Mr. Sahlu asked if charging stations for electric vehicles is allowed as part of a project? Planner Tyler noted that it would be up for Planning Board review, currently there is nothing in Zoning regulations. There is a goal to draft Zoning ordinances related to EV for the Town Attorney and Town Council to review.

J. Adjournment

Notification of Upcoming Meeting Dates

5/9/23 5/23/23
6/13/23 6/27/23

Motion made by Taveira, Seconded by Santos-Pina to adjourn the meeting.
Voting Yea: Plizga, Santos-Pina, Taveira, Sahlu (4-0-0) Passes

Adjourned at 8:45pm

34 SCANLON DR

LEGAL NOTICE
Public Hearing

The Randolph Planning Board will conduct a public hearing on Tuesday, April 11, 2023 at 6:00pm on the petition of Scanlon Suburban LLC/451 High Street LLC of 800 Boylston Street, Boston MA 02116 for proposed transportation hub on the parcel located at 34 Scanlon Drive and adjacent parcels (assessor's map 5-A-45.422). This meeting is conducted via ZOOM with remote participation. The link to join the meeting is on the Town of Randolph website. Plans and materials may be viewed in the office of the Town Clerk at 41 South Main Street Randolph during regular business hours.

AD# 8603972
PL 03/24 & 03/31/2023

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April 7, 2023

Via E-mail

Tony Pizga, Chair
Randolph Planning Board
Town Hall
Randolph, MA

Re: 34 Scanlon Drive Site Plan Application

Dear Chairman Pizaga:

I write this letter on behalf of Scanlon Suburban LLC/451 High Street LLC (Applicant). This letter confirms the Applicant's discussion earlier this week with Planning Director Michelle Tyler, due to a number of unanticipated but required further refinements that we are making to the proposed development plan for 34 Scanlon Drive, I hereby request a continuance of the public hearing on this matter to Tuesday, April 25th at 6:15 pm. Thank you for your consideration in this matter.

Sincerely,

/s/ Ethan Severance
Ethan A. Severance
Associate

PLANNING DEPARTMENT

APPLICATION FOR A SPECIAL PERMIT OR SITE PLAN & DESIGN REVIEW

Project Type	○ Tier 1 Review ○ Tier 2 Review ☒ Tier 4 Site Plan/Design Review	○ In-Law ○ Two-Family ○ Special Permit	
Assessor Parcel ID *map-block-parcel*	05-A-45.422	**Norfolk County Registry of Deeds**	*Book/Page or Cert #* 17103, 192
Parcel Address	34 Scanlon Drive		
Current use	Warehouse/ Church		
Zoning District	BRHD	**Size of Parcel**	5.6 +/- Acres
Parcel Attributes	☒ Wetland ☒ Flood Plain ☒ Wetland Resource		
Project Description	See Project Narrative Yankee Bus Headquarters 		

Applicant	Scanlon Suburban LLC/ 451 High Street LLC		
Contact person	Art Campbell		
Applicant Status	☒ Owner ○ Tenant ○ Licensee ○ Buyer ○ Other_____		
Address	800 Boylston St; Boston, MA 02116		
Phone	908-239-4642	**Email**	acampbell@coreinvestmentinc.com

Surveyor	CHA Consulting, Inc.		
Contact person			
Address	141 Longwater Drive; Norwell, MA 02061		
Phone	781-982-7700	**Email**	

Engineer	Samiotes Consultants, Inc		
Contact person	Stephen Garvin, PE		
Address	20 A Street; Framingham, MA 01701		
Phone	508-877-6688	**Email**	sgarvin@samiotes.com

If property owner is not the Applicant, authorization from the owner is required

Property Owner			
Address			
Phone		**Email**	

I hereby certify, under the pains and penalties of perjury, that the information contained in this application is true, accurate and complete to the best of my knowledge and belief. I agree to abide by the Randolph Zoning Ordinances and complete construction of the project in accordance with said rules and any conditions of the Planning Board.

Applicant — Date: 3/13/23

Agent/Representative — Date

TGAS
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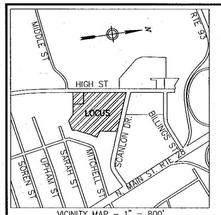
Yankee Line Bus HQ

34 Scanlon Drive, Randolph, MA 02368

RANDOLPH PLANNING BOARD: SITE PLAN APPROVAL

DRAWING INDEX



VICINITY MAP – 1" = 800'

GENERAL NOTES:

1. INFORMATION SHOWN HEREON IS THE RESULT OF AN ON-THE-GROUND SURVEY PERFORMED BY CHA CONSULTING, INC. IN JUNE OF 2019, MARCH OF 2021 AND APRIL 2022.

2. ALL DEED REFERENCES ARE TO NORFOLK COUNTY REGISTRY OF DEEDS UNLESS OTHERWISE NOTED.

3. LOCUS OWNERS OF RECORD:

   SCANLON DEVELOPMENT, LLC
   DEED BOOK 39654 PAGE 348
   PARCEL ID: 05-A-45.422 05-A-006.A, 05-A-006.02, 05-A-006.04, 05-A-001.2, 05-A-002.389 & 05-A-007.01

   451 HIGH STREET, LLC
   DEED BOOK 41032 PAGE 26
   PARCEL ID: 05-A-7.404

4. TOPOGRAPHY, CONTOURS AND BENCHMARKS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). TEMPORARY BENCHMARKS, REFERENCED TO THE DATUM ARE INDICATED ON THE SURVEY.

   IN THE EVENT THAT BENCHMARKS (TBM'S), ESTABLISHED FOR THIS PROJECT AND PUBLISHED ON THIS SURVEY ARE DESTROYED, NOT RECOVERABLE OR A DISCREPANCY IS FOUND, THE USER SHOULD NOTIFY THIS FIRM IN WRITING PRIOR TO COMMENCING OR CONTINUING ANY WORK.

5. PLAN REFERENCES:

   LAND COURT PLAN 49215
   PLAN BOOK 382 PAGE 570
   PLAN BOOK 437 PAGE 117
   PLAN BOOK 541 PAGE 682
   PLAN BOOK 480 PAGE 645
   PLAN BOOK 67 PAGE 3227
   PLAN BOOK 4915 PAGE 153
   PLAN BOOK 4998 PAGE 667
   PLAN BOOK 4709 PAGE 407
   PLAN BOOK 221 PAGE 683
   PLAN BOOK 1773 PAGE END
   PLAN BOOK 4813 PAGE 209
   PLAN BOOK 4899 PAGE 700
   PLAN BOOK 4842 PAGE 385
   PLAN BOOK 4335 PAGE 354
   PLAN BOOK 230 PAGE 164
   PLAN BOOK 204 PAGE 1072-1076
   PLAN BOOK 4707 PAGE 50
   PLAN BOOK 596 PAGE 30
   PLAN BOOK 480 PAGE 645
   PLAN BOOK 5116 PAGE 585
   PLAN BOOK 253 PAGE 91
   PLAN BOOK 694 PAGE 99

   PLAN ENTITLED "PLAN SHOWING THE ALTERATION OF PORTIONS OF HIGH STREET, RANDOLPH, MA" PREPARED BY CHA CONSULTING, INC. DATED JUNE 15, 2020, SCALE: 1" = 40'.

6. WETLAND/BANK LINES SHOWN HEREON ARE BASED ON A COMBINATION OF FIELD LOCATIONS BY CHA CONSULTING, INC. AND ADDITIONAL LOCATIONS PROVIDED BY PARE CORP.

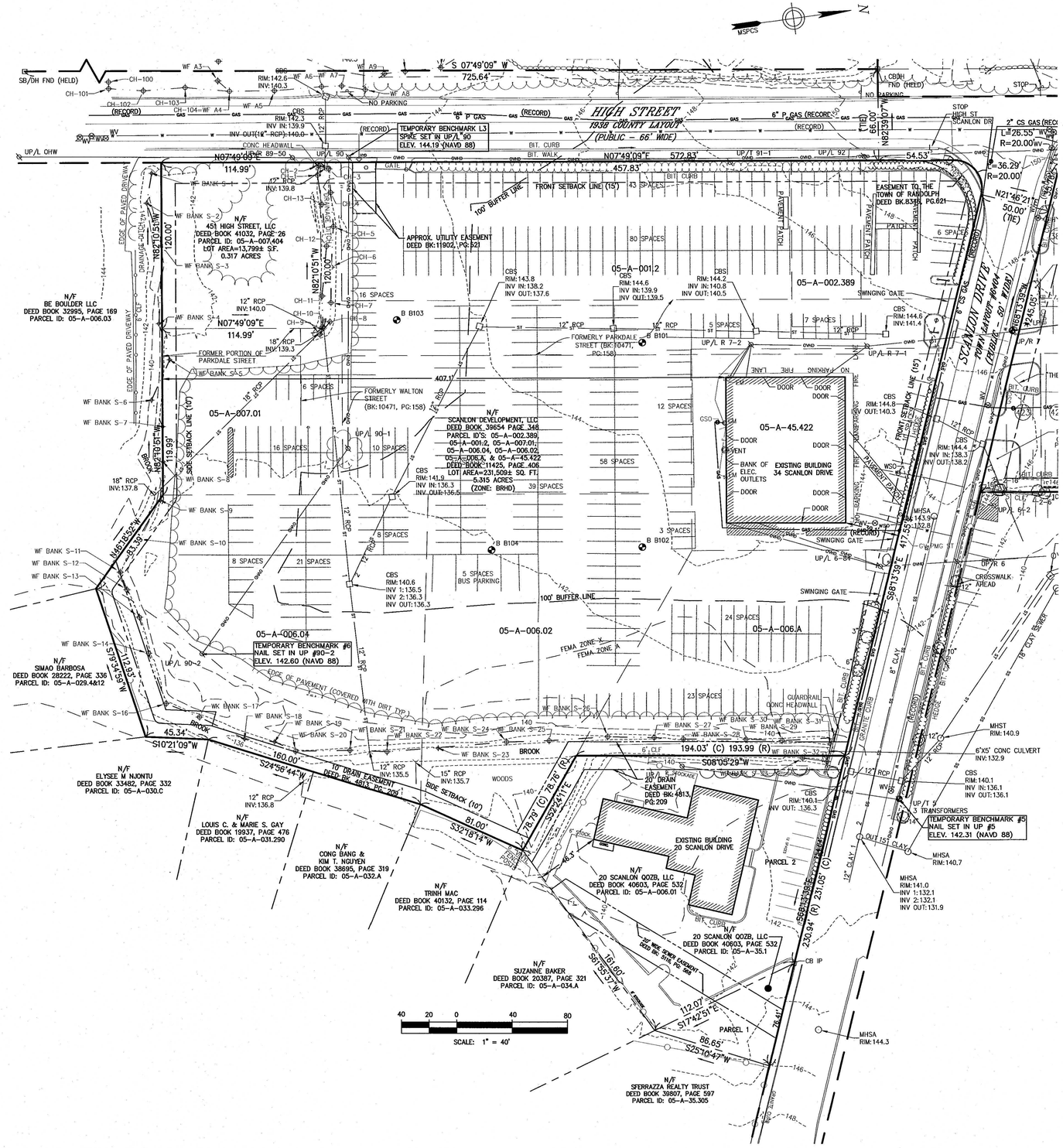
7. THE LOCUS PARCEL IS LOCATED IN THE TOWN OF RANDOLPH BLUE HILL RIVER HIGHWAY DISTRICT (BRHD) AS DEFINED BY THE TOWN OF RANDOLPH ZONING MAP.

   MINIMUM SETBACK REQUIREMENTS ARE:

   FRONT SETBACK:.....15'
   SIDE SETBACK:.....10'
   REAR SETBACK:.....15'
   LOT FRONTAGE:.....130'
   LOT WIDTH:.....100'
   LOT DEPTH:.....100'
   LOT AREA:.....20,000 S.F.

LEGEND:

- BUILDING LINE
- PARCEL BOUNDARY LINE
- EASEMENT LINE
- ADJOINING PARCEL LINE
- STREET/HIGHWAY LINE
- EDGE OF ASPHALT
- EDGE OF CONCRETE
- STONE WALL
- CHAIN LINK FENCE LINE
- CH-11 · · · CH-12 · · · CH-13 — BANK/WETLAND LINE
- SB/DH — STONE BOUND
- UTILITY POLE
- TREE



CHA
141 Longwater Drive - Suite 104
Norwell, MA 02061
781.982.5400 • www.chacompanies.com

PREPARED FOR:

CORE INVESTMENTS DEVELOPMENT LLC
800 BOYLSTON STREET
30TH FLOOR
BOSTON, MA 02199

COMMONWEALTH OF MASSACHUSETTS
WILLIAM J. DORGAN
No. 49622
REGISTERED LAND SURVEYOR

3/13/2023

PROJECT LOCATION:

451 HIGH STREET,
&
34 SCANLON DRIVE

RANDOLPH, MA
02368

No.	Submittal / Revision	App'd	By	Date
0	Issued As Final	WJD	CDE	03/09/2023

EXISTING CONDITIONS PLAN OF LAND

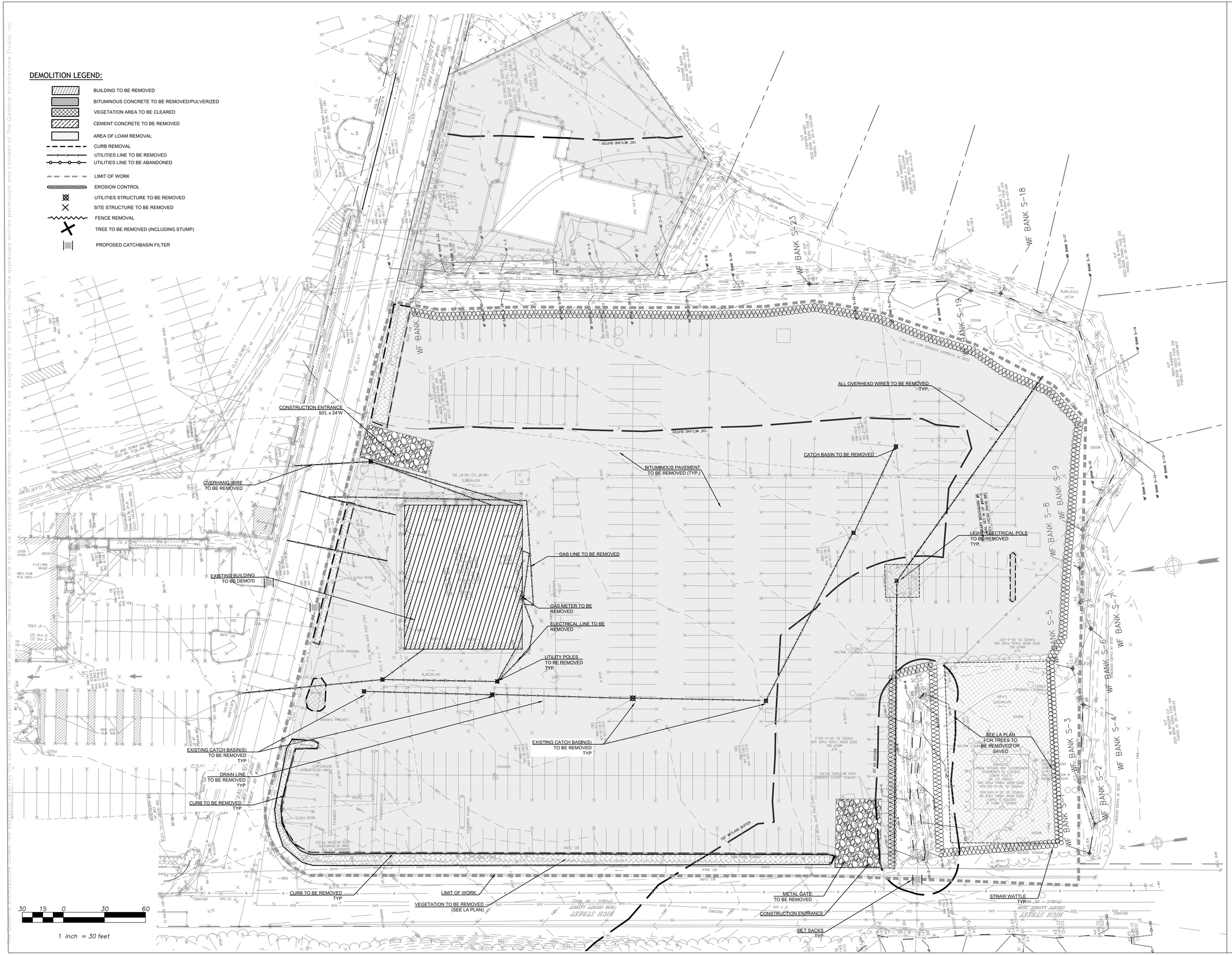
Designed By:	Drawn By:	Checked By:
—	CDE	WJD
Issue Date:	Project No:	Scale:
03/13/2023	068668	1" = 40'

Drawing No.:

SHEET 1 OF 1

DEMOLITION LEGEND:

- BUILDING TO BE REMOVED
- BITUMINOUS CONCRETE TO BE REMOVED/PULVERIZED
- VEGETATION AREA TO BE CLEARED
- CEMENT CONCRETE TO BE REMOVED
- AREA OF LOAM REMOVAL
- CURB REMOVAL
- UTILITIES LINE TO BE REMOVED
- UTILITIES LINE TO BE ABANDONED
- LIMIT OF WORK
- EROSION CONTROL
- UTILITIES STRUCTURE TO BE REMOVED
- SITE STRUCTURE TO BE REMOVED
- FENCE REMOVAL
- TREE TO BE REMOVED (INCLUDING STUMP)
- PROPOSED CATCHBASIN FILTER



TGAS
THE GALANTE ARCHITECTURE STUDIO INC
146 MT AUBURN ST CAMBRIDGE, MA 02138
6 1 7 5 7 6 2 5 0 0
WWW.GALANTEARCHITECTURE.COM

N

Project Number
2221

Project Title
Yankee Bus Line HQ

34 Scanlon Drive
Randolph, MA 02368

samiotes
Samiotes Consultants Inc.
Civil Engineers + Land Surveyors
20 A Street
Framingham, MA 01701
T 508.877.6688
F 508.877.8349
www.samiotes.com

Drawing Title

DEMO & SOIL EROSION PLAN

Date/Issued For
03.14.23

Planning Board Submission

NOT FOR CONSTRUCTION

Print 24x36

Scale
As Noted

Drawn By
MEK

Drawing Number
C-101

LEGEND:

VGC	PROPOSED VERTICAL GRANITE CURB
- - - -	LIMIT OF WORK
4	PROPOSED SIGN

PROPOSED YANKEE BUS HEADQUARTERS
FFE=144

20,000 GAL UNDERGROUND FUEL STORAGE TANKS

TRANSFORMER
GENERATOR

FENCE (SEE LANDSCAPE PLANS)
& FENCE MOUNTED LIGHTS

BOLLARDS

BOLLARDS

LIGHT POLES TYP

HEAVY DUTY BITUMINOUS PAVEMENT

RECYCLE

DUMPSTER

PROPOSED BUILDING OVERHANG

CONCRETE APRON

RAIN GARDEN

BITUMINOUS ASPHALT

BITUMINOUS ASPHALT

SWINGING GATE

SWINGING GATE

TOP WETLAND BUFFER

100' WETLAND BUFFER

AREA SUBJECT TO RIGHT TO ENFORCE RESTRICTION DEED BK-14434, PG:078

WF BANK S-23

WF BANK S-18

WF BANK S-1

WF BANK S-2

WF BANK S-3

WF BANK S-4

WF BANK S-5

WF BANK S-6

WF BANK S-7

WF BANK S-8

WF BANK S-9

WF BANK S-10

WF BANK S-11

WF BANK S-12

WF BANK S-13

WF BANK S-14

WF BANK S-15

WF BANK S-16

WF BANK S-17

HIGH STREET

30 15 0 30 60

1 inch = 30 feet

TGAS

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LAYOUT PLAN

Date/Issued For
03.14.23

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Scale
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Drawn By
MEK

Drawing Number
C-201

LEGEND:

129	PROPOSED INTERMEDIATE CONTOUR
130	PROPOSED INDEX CONTOUR
130.0 ×	PROPOSED SPOT GRADE
(130.0) ×	EXISTING GRADE TO REMAIN (V.I.F.)
TW=131.87 BW=130.50 ×	PROPOSED TOP/BOTTOM OF WALL (NOT FOUNDATION)
TC=131.87 BC=130.50 ×	PROPOSED TOP/BOTTOM OF CURB
TS=131.87 BS=130.50 ×	PROPOSED TOP/BOTTOM OF STEP
RIM=130.20 ×	PROPOSED RIM ELEVATION (TO FINAL GRADE)
V.I.F.	VERIFY GRADE IN FIELD \ TO BE SET

PROPOSED YANKEE BUS HEADQUARTERS FFE=144

30 15 0 30 60

1 inch = 30 feet

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GRADING PLAN

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Scale
As Noted

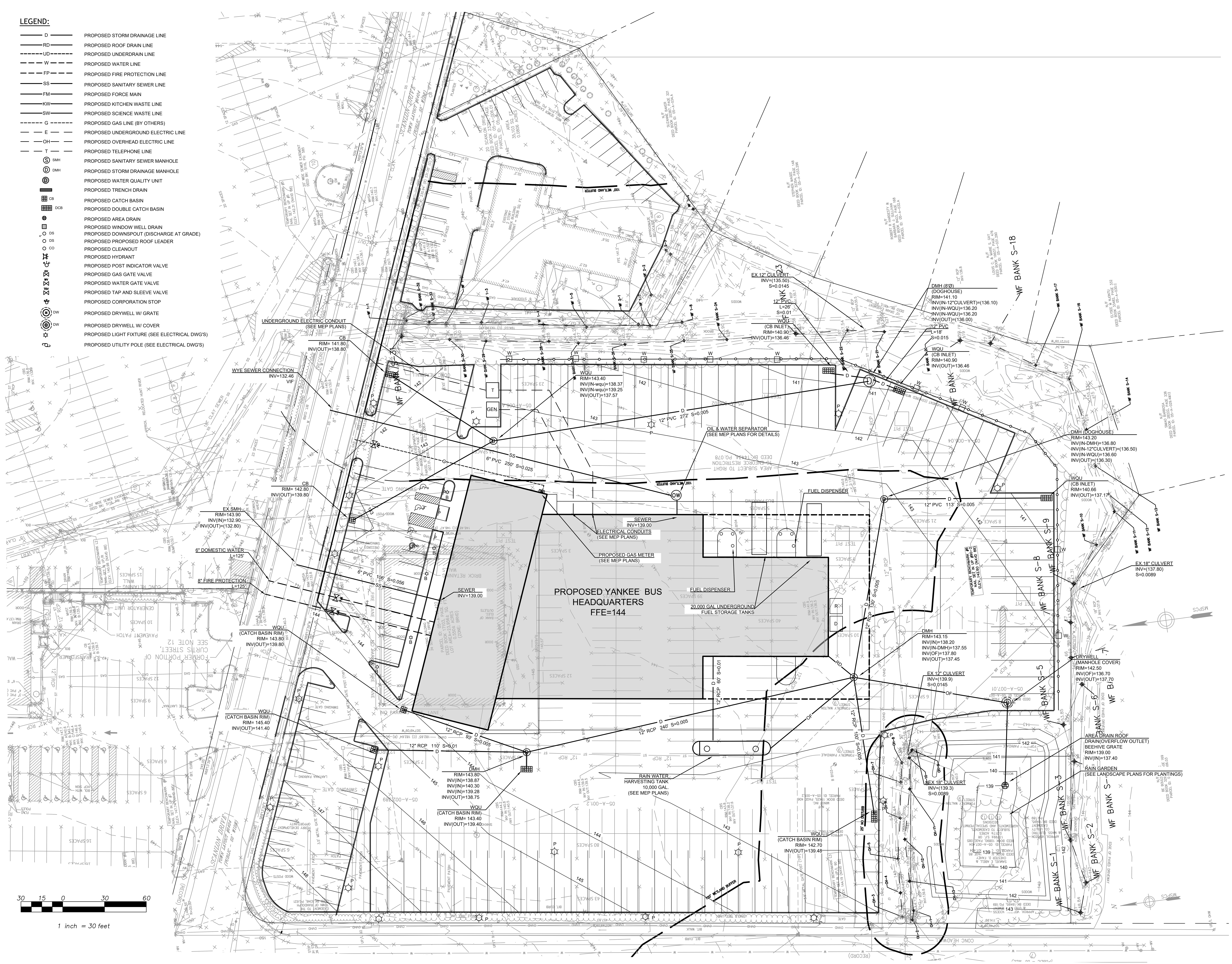
Drawn By
MEK

Drawing Number
C-301

Section E, Item1.

LEGEND:

- D — PROPOSED STORM DRAINAGE LINE
- RD — PROPOSED ROOF DRAIN LINE
- UD — PROPOSED UNDERDRAIN LINE
- W — PROPOSED WATER LINE
- FP — PROPOSED FIRE PROTECTION LINE
- SS — PROPOSED SANITARY SEWER LINE
- FM — PROPOSED FORCE MAIN
- KW — PROPOSED KITCHEN WASTE LINE
- SW — PROPOSED SCIENCE WASTE LINE
- G — PROPOSED GAS LINE (BY OTHERS)
- E — PROPOSED UNDERGROUND ELECTRIC LINE
- OH — PROPOSED OVERHEAD ELECTRIC LINE
- T — PROPOSED TELEPHONE LINE
- SMH — PROPOSED SANITARY SEWER MANHOLE
- DMH — PROPOSED STORM DRAINAGE MANHOLE
- PROPOSED WATER QUALITY UNIT
- PROPOSED TRENCH DRAIN
- CB — PROPOSED CATCH BASIN
- DCB — PROPOSED DOUBLE CATCH BASIN
- PROPOSED AREA DRAIN
- PROPOSED WINDOW WELL DRAIN
- DS — PROPOSED DOWNSPOUT (DISCHARGE AT GRADE)
- DS — PROPOSED PROPOSED ROOF LEADER
- CO — PROPOSED CLEANOUT
- PROPOSED HYDRANT
- PROPOSED POST INDICATOR VALVE
- PROPOSED GAS GATE VALVE
- PROPOSED WATER GATE VALVE
- PROPOSED TAP AND SLEEVE VALVE
- PROPOSED CORPORATION STOP
- DW — PROPOSED DRYWELL W/ GRATE
- DW — PROPOSED DRYWELL W/ COVER
- PROPOSED LIGHT FIXTURE (SEE ELECTRICAL DWG'S)
- PROPOSED UTILITY POLE (SEE ELECTRICAL DWG'S)



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CIVIL UTILITIES PLAN

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MEK

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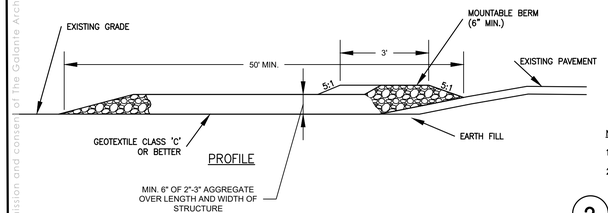
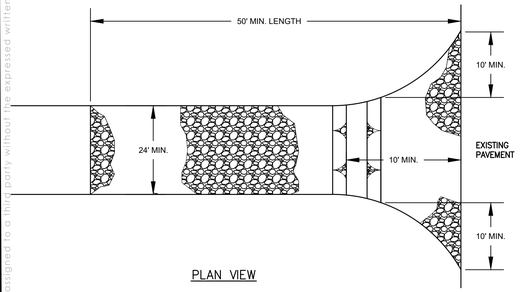
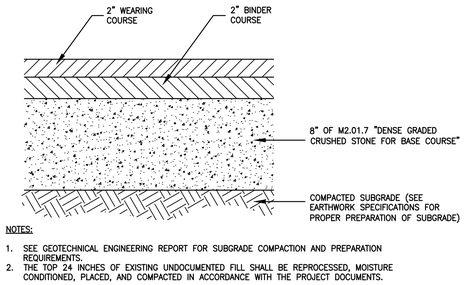
C-401





1 STABILIZED CONSTRUCTION ENTRANCE

NTS

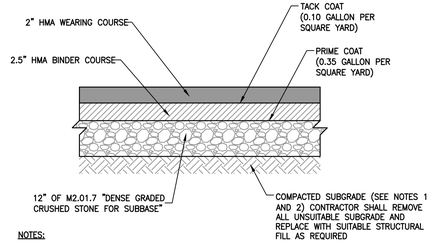


NOTES:

1. SEE GEOTECHNICAL ENGINEERING REPORT FOR SUBGRADE COMPACTION AND PREPARATION REQUIREMENTS.
2. THE TOP 24 INCHES OF EXISTING UNDOCUMENTED FILL SHALL BE REPROCESSED, MOISTURE CONDITIONED, PLACED, AND COMPACTED IN ACCORDANCE WITH THE PROJECT DOCUMENTS.

2 STANDARD ASPHALT PAVEMENT DETAIL

NTS

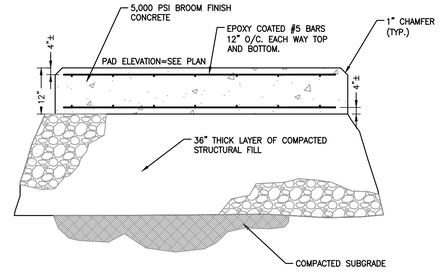


NOTES:

1. SEE GEOTECHNICAL ENGINEERING REPORT FOR SUBGRADE COMPACTION AND PREPARATION REQUIREMENTS.
2. THE TOP 24 INCHES OF EXISTING UNDOCUMENTED FILL SHALL BE REPROCESSED, MOISTURE CONDITIONED, PLACED, AND COMPACTED IN ACCORDANCE WITH THE PROJECT DOCUMENTS.

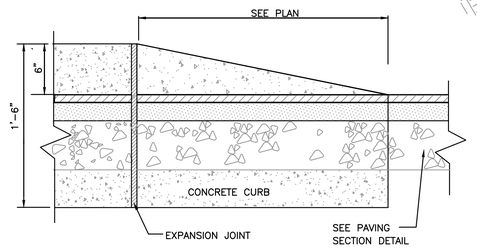
5 HEAVY DUTY ASPHALT PAVEMENT DETAIL

NTS



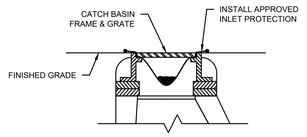
3 CONCRETE PAD FOR GENERATOR AND DUMPSTER

NTS



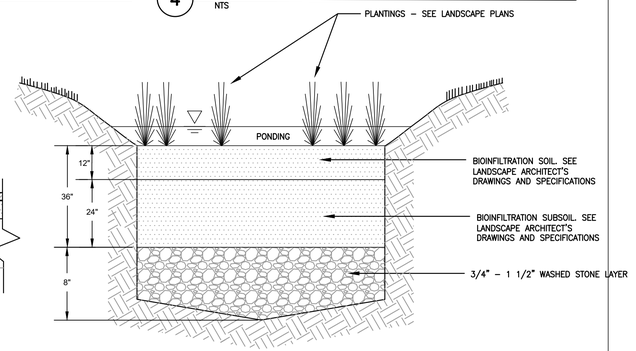
6 CURB TRANSITION

NTS



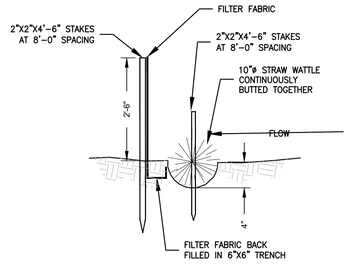
4 CATCH BASIN W/ INLET PROTECTION

NTS



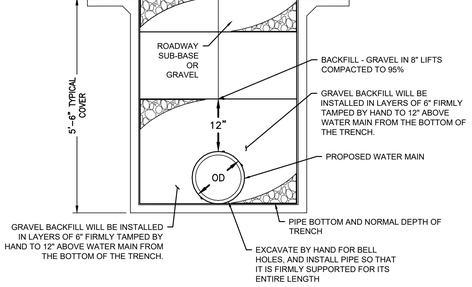
7 RAIN GARDEN CROSS SECTION

NTS



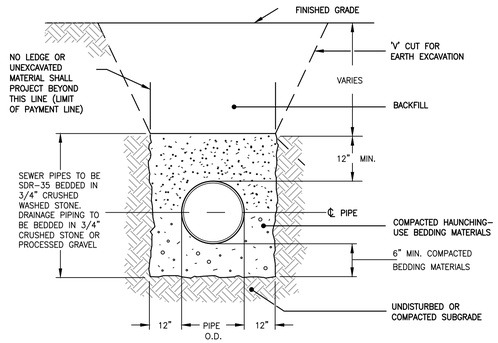
8 SILT FENCE WITH STRAW WATTLE

NTS



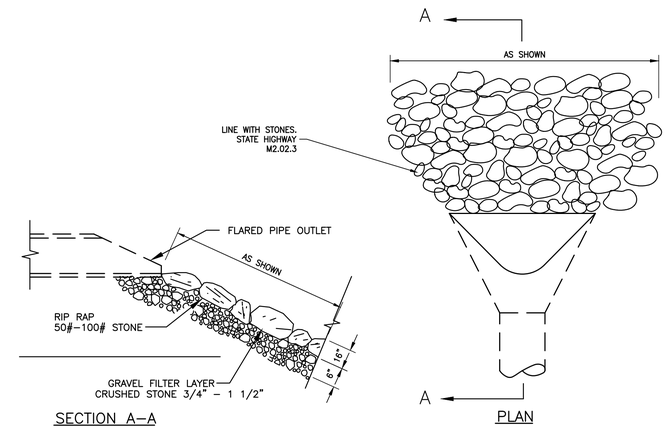
9 WATER MAIN TRENCH IN FIRM GROUND

NTS



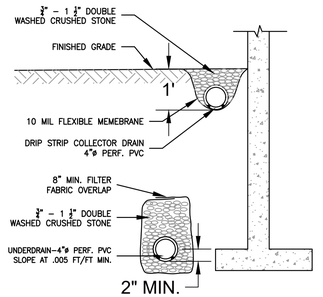
10 TRENCH DETAILS FOR HDPE/PVC/RCP GRAVITY PIPE

NTS



11 FLARED END SECTION AND RIP RAP DETAIL

NTS



NOTE: EXCAVATION SHALL BE DONE IN A MANNER THAT WILL ALLOW THE UNDERDRAIN TO BE CORRECTLY SLOPED ALONG THE FOOTING.

12 FOUNDATION UNDERDRAIN

NTS

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146 MT AUBURN ST CAMBRIDGE, MA 02138
6 1 7 5 7 6 2 5 0 0
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N

Project Number
2221

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www.samiotes.com

Drawing Title
CIVIL DETAILS

Date/Issued For
03.14.23

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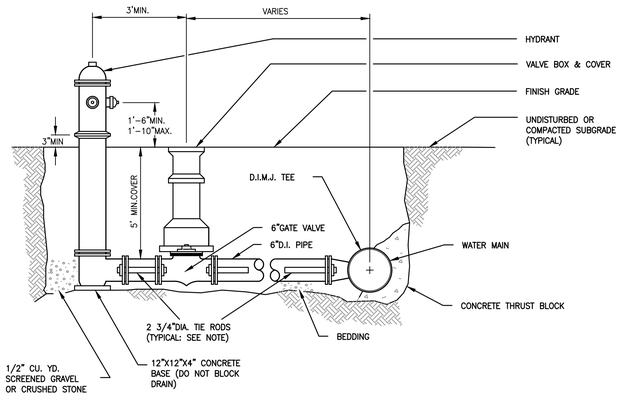
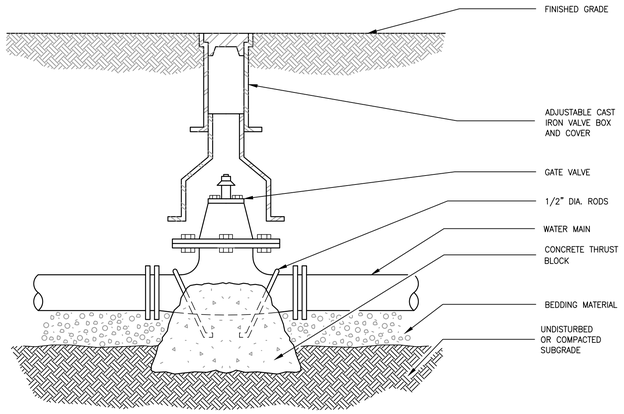
C-500



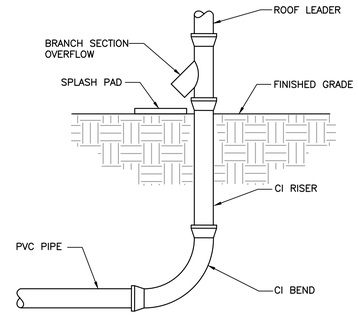
1 HYDRANT

NTS



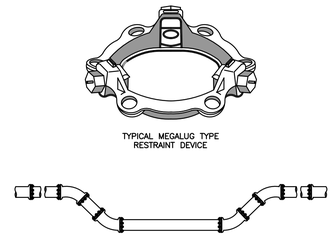
2 GATE VALVE AND BOX

NTS



3 ROOF LEADER

NTS



4 MEGALUG DETAIL

NTS

END OF LINE CLEANOUT

MID – LINE CLEANOUT

5 CLEANOUT

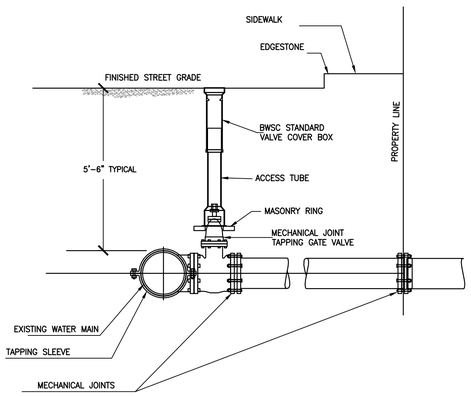
NTS

MINIMUM THRUST BLOCK AREA REQUIRED (Y x W)		
PIPE SIZE	WATER PIPE	
	TEE, DEAD END, 90° BEND	45° & 22½-8° BENDS
4" OR LESS	3 SQ. FEET	3 SQ. FEET
6"	4 SQ. FEET	3 SQ. FEET
8"	6 SQ. FEET	3 SQ. FEET
10"	9 SQ. FEET	5 SQ. FEET
12"	13 SQ. FEET	7 SQ. FEET
16"	23 SQ. FEET	12 SQ. FEET

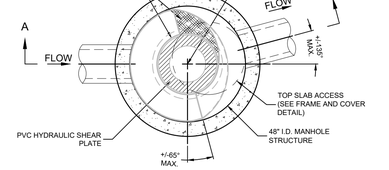
1. THRUST BLOCKS TO EXTEND TO UNDISTURBED GROUND.
2. ALL CONCRETE SHALL BE CLASS B.
3. TABLE IS BASED ON 3000 LB./SQ. FT. SOIL. IF SOIL CONDITIONS ARE FOUND TO INDICATE SOIL BEARING LESS, THE AREAS SHALL BE INCREASED ACCORDINGLY.
4. AREAS FOR PIPES GREATER THAN 16" SHALL BE CALCULATED FOR EACH PROJECT.
5. FOR ALL NON BEARING VERTICAL SURFACES.

7 THRUST BLOCKS (WATER SYSTEM)

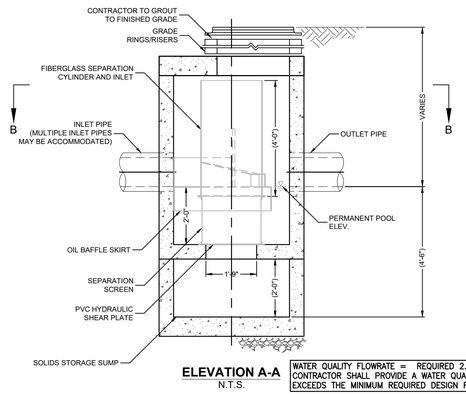
NTS



6 WATER PIPE CONNECTION WITH TAPPING SLEEVE AND GATE VALVE



PLAN VIEW B-B
N.T.S.



ELEVATION A-A
N.T.S.

WATER QUALITY FLOWRATE = REQUIRED 2.60 CFS
CONTRACTOR SHALL PROVIDE A WATER QUALITY UNIT THAT EXCEEDS THE MINIMUM REQUIRED DESIGN FLOW RATE

8 WATER QUALITY UNIT DETAIL

NTS

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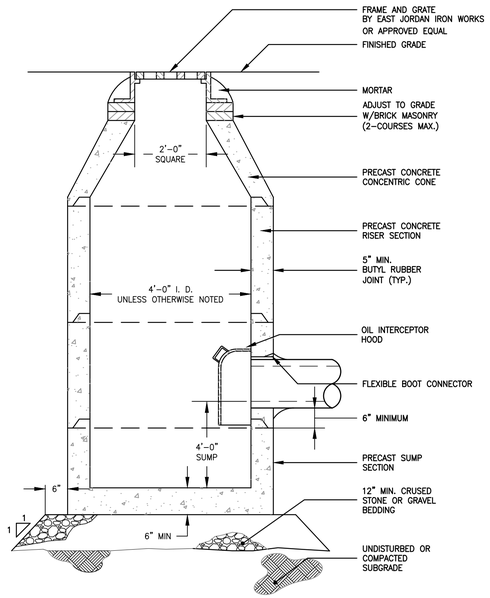
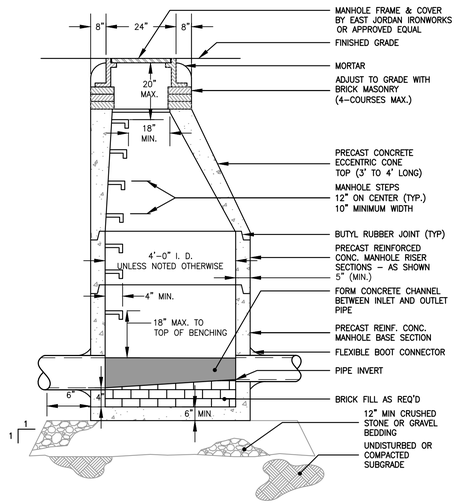
MEK

Drawing Number
C-501



1 CATCH BASIN

NTS



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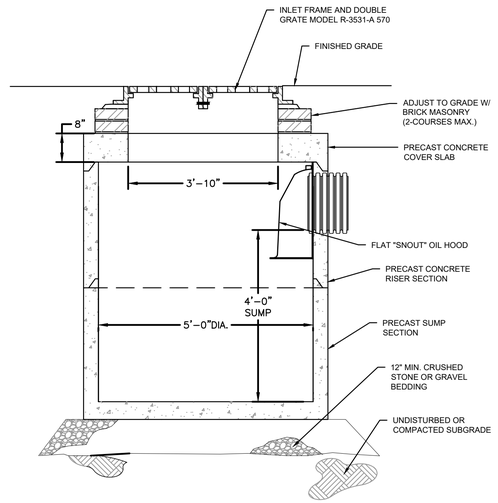

X DOUBLE CATCH BASIN

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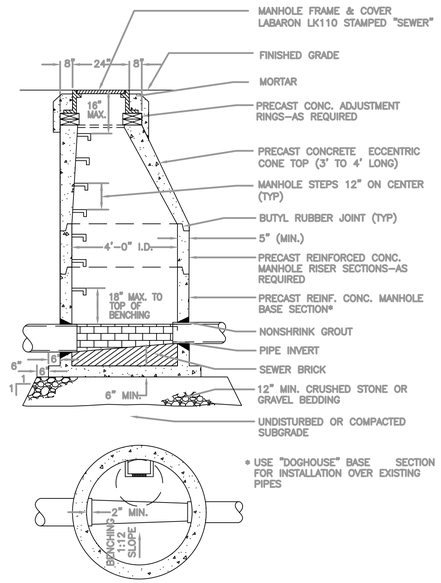
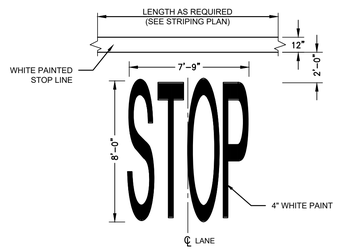


3 PRECAST SANITARY MANHOLE

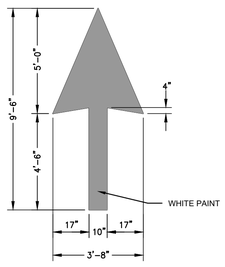
NTS

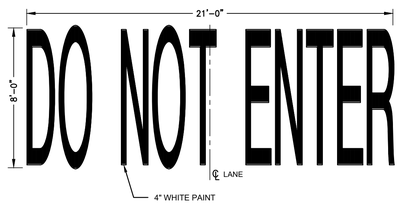
4 HANDICAP PARKING STALL DETAIL

NTS



NOTE: PAVEMENT MARKINGS TO BE INSTALLED IN LOCATIONS SHOWN ON THE PLANS





NOTE: PAVEMENT MARKINGS TO BE INSTALLED IN LOCATIONS SHOWN ON THE PLANS

5 PAVEMENT MARKING DETAIL

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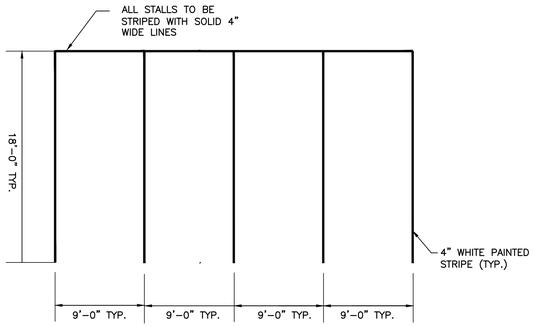

6 PAVEMENT MARKING DETAIL

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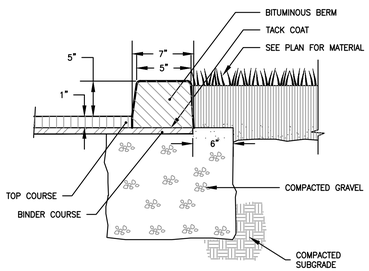

7 BITUMINOUS BERM

NTS

TGAS
THE GALANTE ARCHITECTURE STUDIO INC
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Project Number
2221

Project Title
Yankee Bus Line HQ

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Randolph, MA 02368

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Drawing Title

CIVIL DETAILS

Date/Issued For
03.14.23

Planning Board Submission

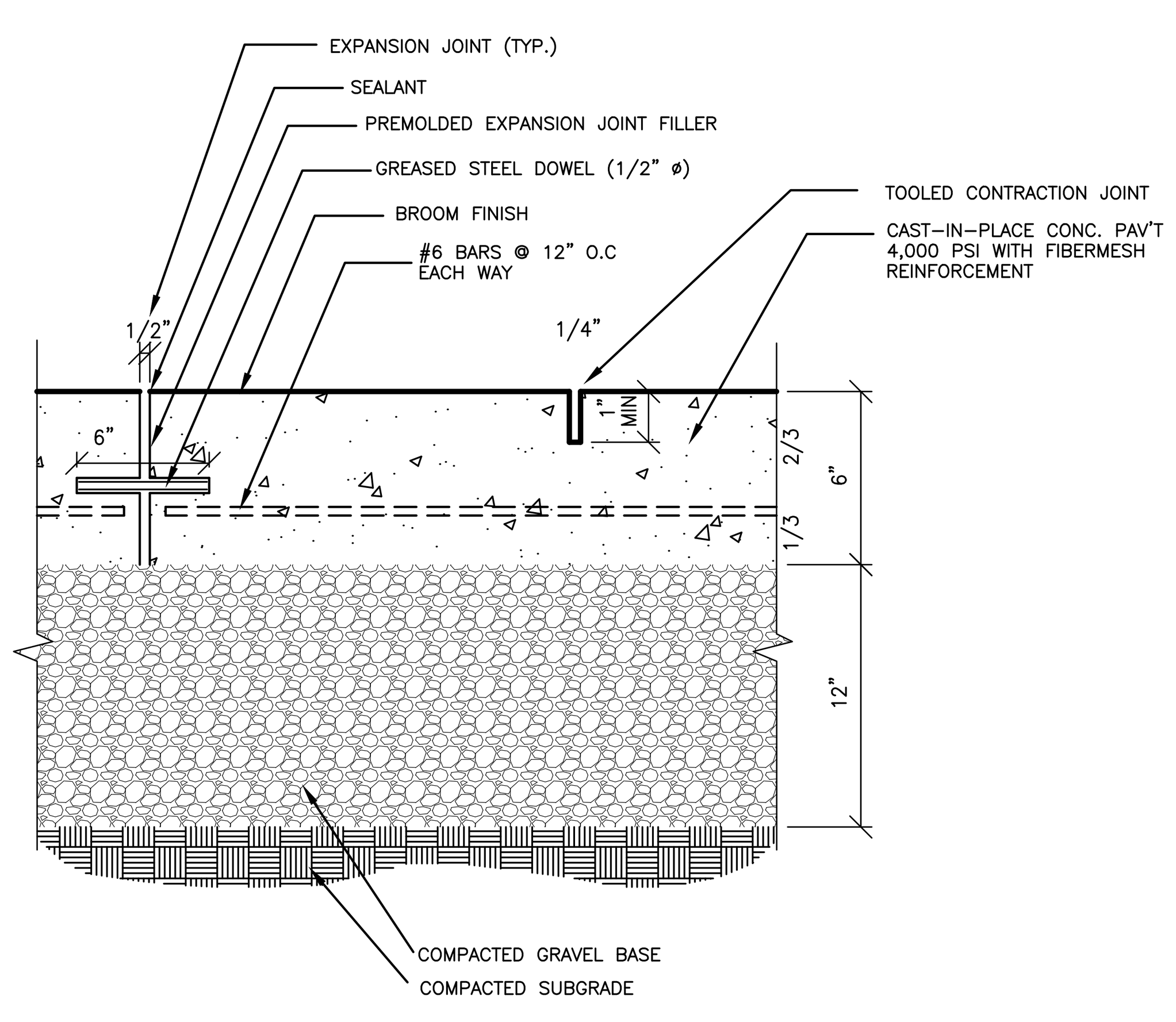
NOT FOR CONSTRUCTION

Print 24x36

Scale
As Noted

Drawn By

Drawing Number
C-502



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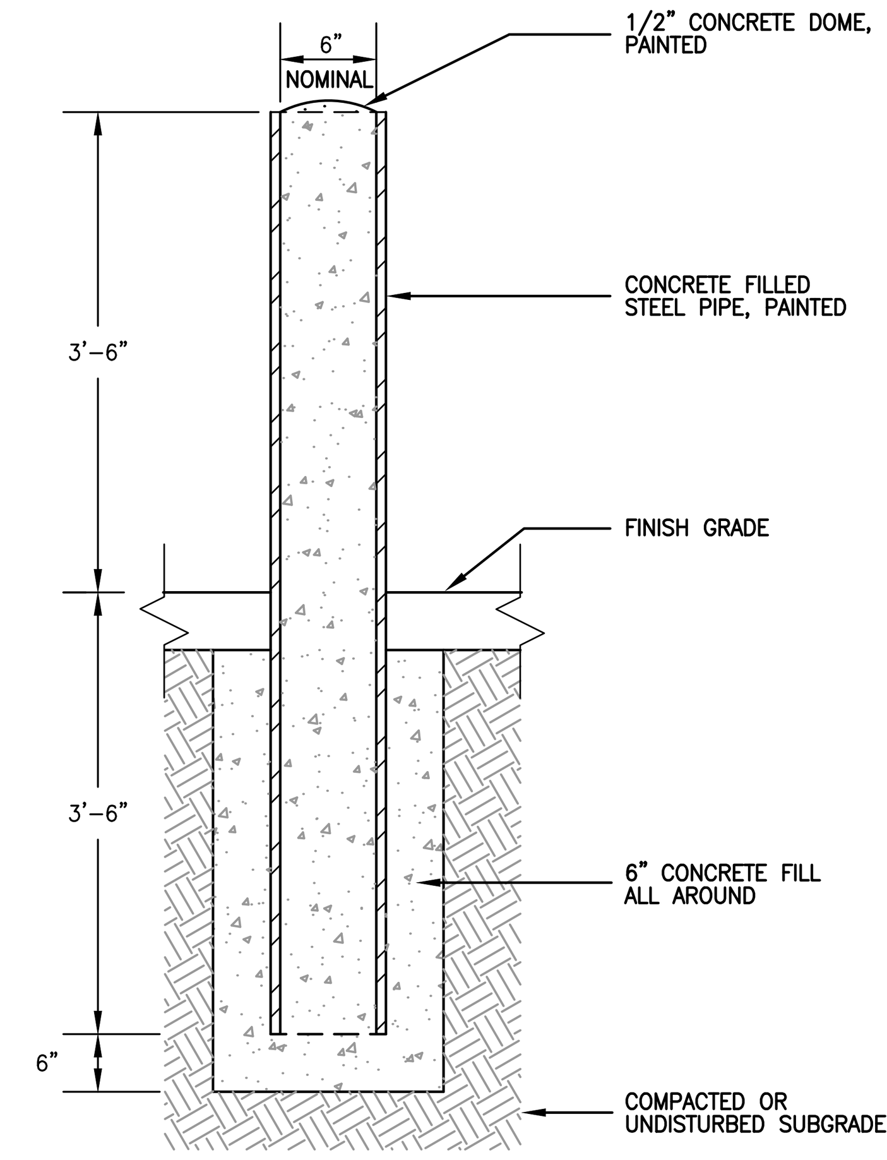


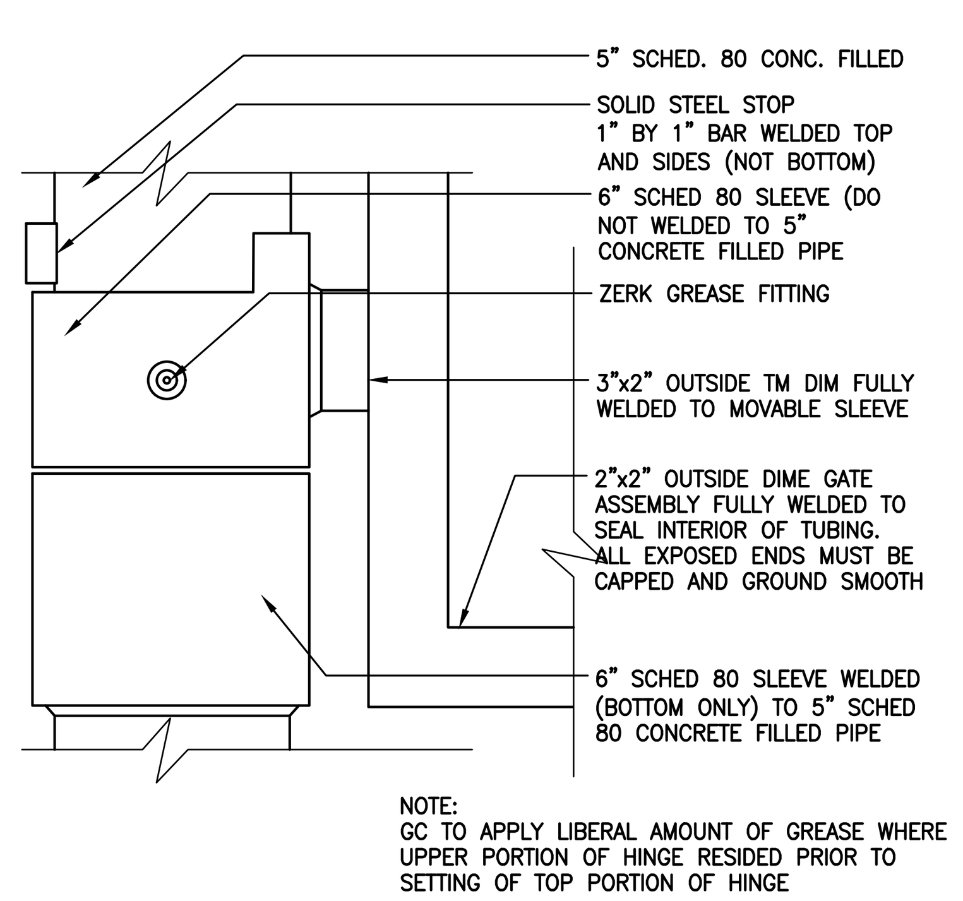
3 CONCRETE FILLED STEEL PIPE BOLLARD

NTS

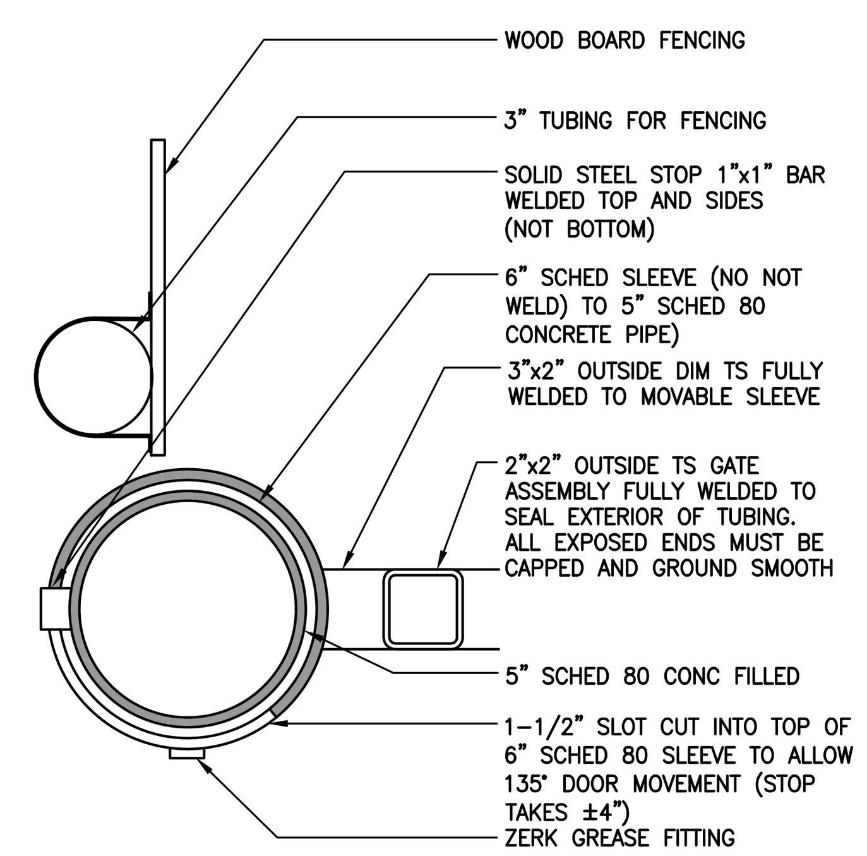
TRAFFIC CONTROL SIGNAGE SCHEDULE						
IDENTIF-ICATION NUMBER	SIZE OF SIGN (INCHES) WIDTH	HEIGHT	UNIT AREA SF	TEXT (SEE MUTCD 2009 FOR TEXT DIMENSIONS AND COLORS)	NUMBER OF SIGNS REQUIRED	AREA IN SQUARE FEET
R1-1	30"	30"	5.18	STOP	TBD	10.36
R7-8	12"	18"	1.50	RESERVED PARKING	TBD	6.00
R7-8P	18"	9"	1.13	VAN ACCESSIBLE	TBD	4.52
R5-1	30"	30"	6.25	DO NOT ENTER	TBD	12.50
R6-1(L)	36"	12"	3.00	ONE WAY	TBD	3.00

3 TRAFFIC SIGNAGE SCHEDULE

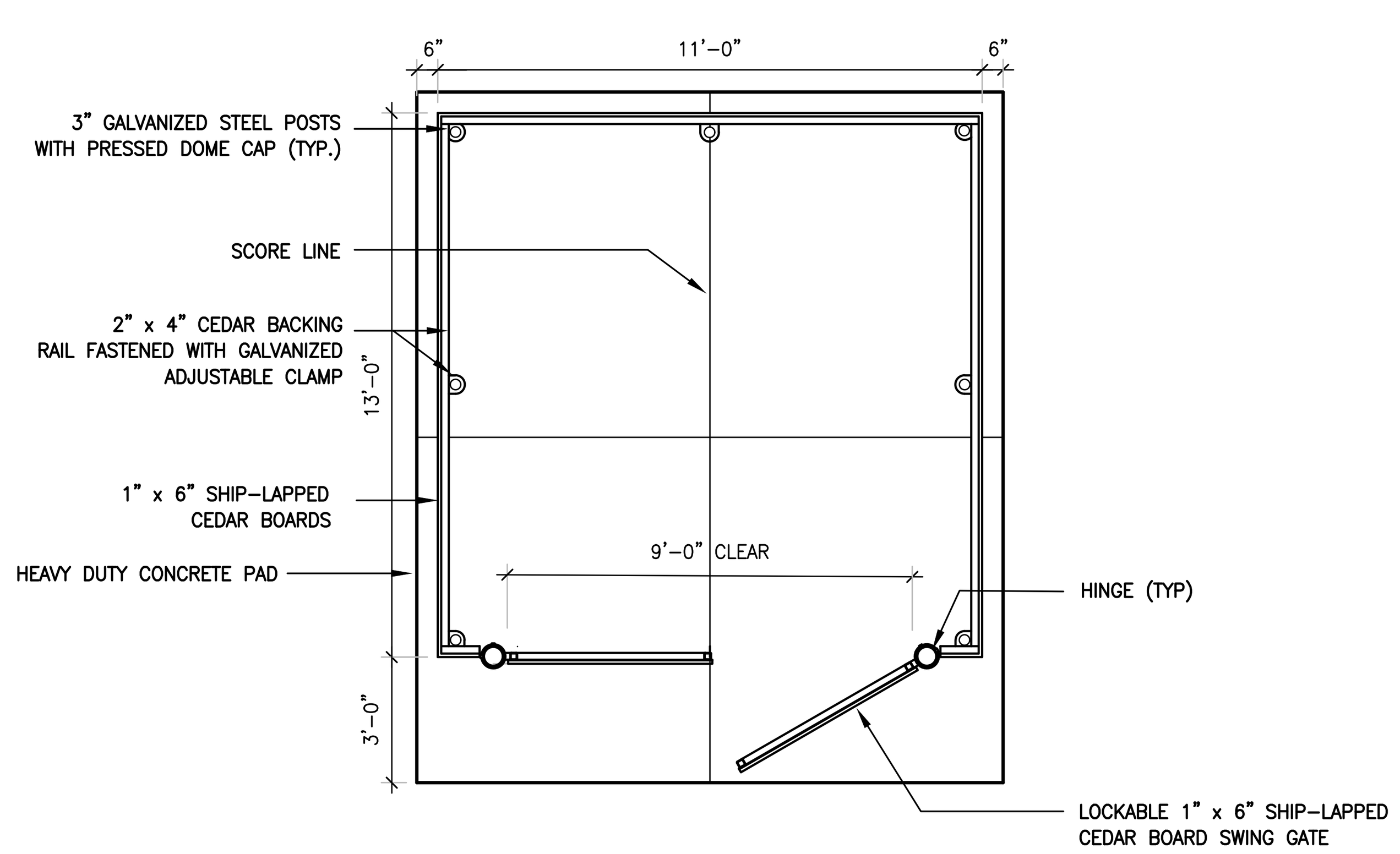
NTS

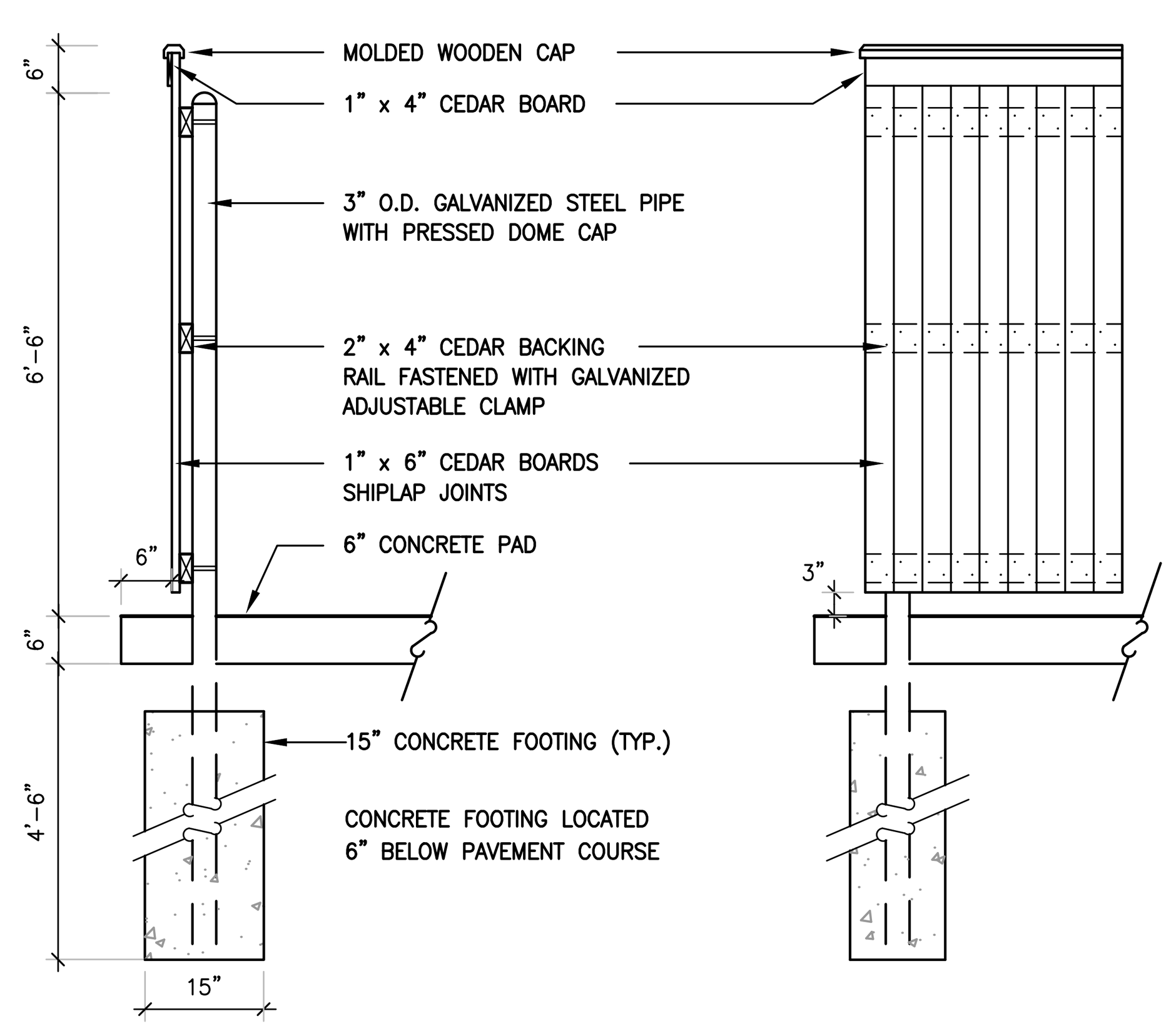


HINGE DETAIL

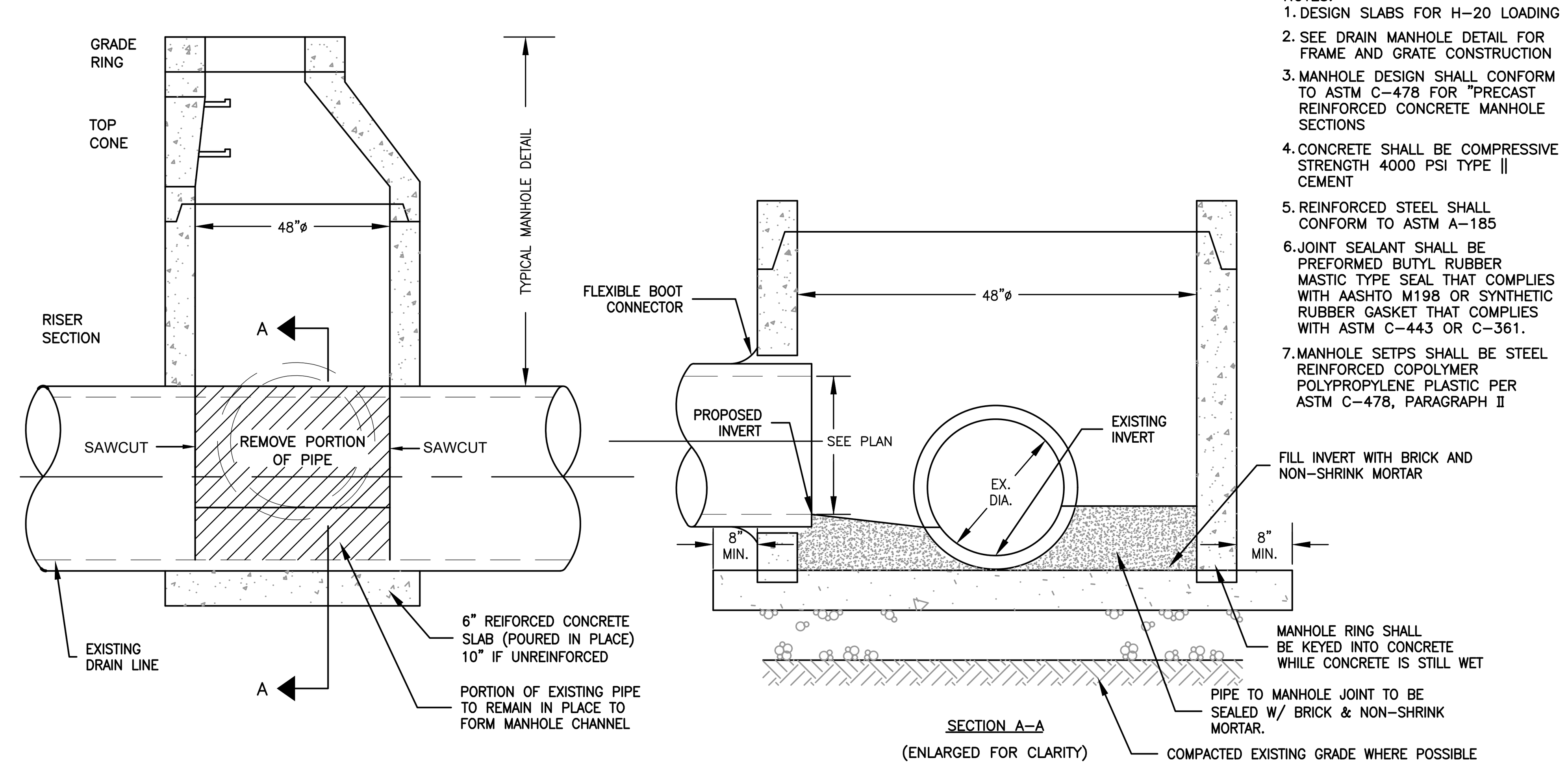


HINGE DETAIL (PLAN)





DUMPSTER ENCLOSURE PLAN & ENCLOSURE



NOTES:
1. DESIGN SLABS FOR H-20 LOADING
2. SEE DRAIN MANHOLE DETAIL FOR FRAME AND GRATE CONSTRUCTION
3. MANHOLE DESIGN SHALL CONFORM TO ASTM C-478 FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS
4. CONCRETE SHALL BE COMPRESSIVE STRENGTH 4000 PSI TYPE II CEMENT
5. REINFORCED STEEL SHALL CONFORM TO ASTM A-185
6. JOINT SEALANT SHALL BE PREFORMED BUTYL RUBBER MASTIC TYPE SEAL THAT COMPLIES WITH AASHTO M198 OR SYNTHETIC RUBBER GASKET THAT COMPLIES WITH ASTM C-443 OR C-361.
7. MANHOLE SETPS SHALL BE STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC PER ASTM C-478, PARAGRAPH II

13 DOGHOUSE MANHOLE DETAIL

NTS

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Drawing Title

CIVIL UTILITIES PLAN

Date/Issued For
03.14.23

Planning Board Submission

NOT FOR CONSTRUCTION

Print 24x36

Scale
As Noted

Drawn By

Drawing Number
C-503

April 10, 2023

DeCelle-Burke-Sala & Associates, Inc.

Ms. Michelle Tyler, Director of Planning
Town of Randolph Planning Department
41 South Main Street
Randolph, MA 02368

Re: 217 Mill Street, Randolph, MA
Peer Review for Definitive Subdivision Plan
Nitsch Project #11123.10

Dear Ms. Tyler,

DeCelle-Burke-Sala & Associates, Inc. (DBS) has revised the site design for the project located at 217 Mill Street based on recent public hearings and the Peer Review Letter prepared by Nitsch Engineering (NEI) dated March 28, 2023. DBS has prepared a written response to each item listed in the NEI letter where our responses to NEI's recommendations include making revisions to DBS's site plans and engineering report. These revised documents are attached to this letter with a revision date of April 7, 2023. Our responses for each item are in a bold font following the EBI narrative from the referenced letter. DBS's responses are as follows:

Waivers

1. *Section VIII Design Standards under B3 states that the Intersection Spacing and Offset measured between the nearest curb returns shall follow the minimum intersection spacing distance of 200-feet in Residential Districts.*
   A waiver has been requested for the minimum intersection spacing. Given the proximity of the locus to Curran Terrace the 200 foot minimum separation between intersections cannot be met.

2. *Section VIII.D19 states that drainage facilities in the form of detention or retention basins or subsurface infiltration systems may not be located within any street right-of-way, nor on any proposed building lot, nor within any open space area intended to be conveyed to the Town. Such facilities, if required as part of a subdivision, shall be located on separate parcels which are to be retained by the Applicant or conveyed to a successor organization.*
   A waiver has been requested for the construction of the drainage facilities within easements instead of separate lots as required. Creating separate lots for the proposed drainage facilities is not feasible for this project.

3. *Section VIII.D3 states that the design storm should have a rainfall frequency of occurrence of once in ten (10) years shall be used for design computations for street drainage.*
   DBS has designed stormwater drainage systems and conveyance measures to be able to handle the 10-yr recurrence interval storm. Calculations supporting this are included in the revised engineering report.

4. *Section VIII.D4 states that runoff for any area shall be calculated using the Rational Formula.*
   The Rational Formula was used to determine the rainfall intensity for the pipe sizing calculations. The drainage program HydroCAD was used in calculating the peak flow rates for the existing and proposed conditions for the 2-, 10-, 25- and 100-year storm events. HydroCAD is based on the SCS TR-20 method and is used by engineering firms throughout the country.

PLANNING BOARD SITE PLAN RULES AND REGULATIONS
Section V. Definitive Subdivision Plans
Section A. Submission

5. *Section V.A4 states that two (2) sets of logs of results of all test pits made shall be submitted. No test pits appear to have been performed. Nitsch recommends the Applicant performs test pits within the footprint of the proposed subsurface infiltration systems and detention basins.*
   Four (4) test pits have been performed on-site to confirm soil conditions. Drainage design was initially done utilizing a infiltration rate of 2.41 in./hr. for sandy loam soils. Test pits conducted on-site revealed a sandy C layer. Drainage design was revised to reflect the sandy material by utilizing a 8.27 in./hr. infiltration rate. Given the location of proposed underground infiltration system 1 being located within the footprint of the existing driveway, a soil test pit was not conducted. Prior to installation of underground infiltration system 1, soil conditions in this area will be confirmed.

6. *Section V.A5 states that a written narrative describing methods to be used during construction to control erosion and sedimentation shall be submitted. It appears that a narrative was not provided. Nitsch recommends the Applicant submit the narrative or request a waiver.*
   A Stormwater Pollution Prevention Plan is provided in Appendix C of the Engineering Report describing methods to be used during construction to control erosion and sedimentation.

7. *Section V.A6 requires a certified list of abutters within three hundred feet of the subject property. The Applicant shall submit the certified list of abutters as requested.*
   The certified list of abutters was obtained by the Town of Randolph Director of Planning.

8. *Section V.A7 requires the submission of a Designers Certificate (Form E). The Applicant shall submit the Form E or request a waiver.*
   The Designers Certificate (Form E) was provided with the initial submittal package.

9. *Section V.A8 requires an application fee as part of Appendix A. The Applicant shall submit the Application fee if they have not already done so.*
   The Applicant has submitted the required Application fee with the initial submittal.

Section C. Review by Town Departments

10. *Section V.C.1 states the applicant shall also file with the Board of Health one (1) print of the Definitive Plan, and in unsewered areas, shall submit a topographic plan with two foot contour intervals and comply with the Board of Health requirements. The Applicant shall submit to the Board of Health or request a waiver.*
It is DBS's understanding that the Board of Health has received a copy of the Definitive Plan. DBS will provide the revised submittal package to the Board of Health, including a topographic plan with two-foot contour intervals.

Section D. Preparation of Plan

11. *Section V.D.1 states the definitive subdivision plan shall be drawn to a scale of 1"=40'. The scale provided appears to be 1"=30'. Nitsch recommends the Applicant request a waiver.*
DBS will be requesting a waiver for this requirement. A horizontal scale of 1"=30' is easier to read and was able to fit on the plan sheets, hence why it was utilized.

12. *Section V.D.1 states that the plan shall include a cover sheet that includes a zoning compliance table. The Applicant shall include the zoning compliance table on the cover sheet as required.*
A zoning table and waiver request table have been added to the cover sheet.

<u>Section VIII. Design Standards</u>
Section B. Streets

13. *Section VIII.D states the applicant shall provide drainage information pertaining to the site. The applicant is proposing that existing conditions are intended to remain, no work is proposed. The applicant submitted a stormwater assessment of the site in 2020 per the applicable town bylaw which was reviewed by the town.*
DBS has no further comment at this time.

SITE PLAN CONTENT

1. *Section V.A6 requires the Applicant submit a certified list of abutters within 300 feet of the subject property. Nitsch recommends the Applicant submit the required information.*
A certified list of abutters was prepared by the Town Planner within 300-ft. of the subject property.

2. *Section V.D1 requires the plans be drawn to a horizontal scale of 1"=40' and vertical scale of 1"=4'. In addition it requires a cover sheet that includes a locus at a scale of 1"=800', subdivision name, zoning compliance table, etc. The plans appear to be drawn at a horizontal scale of 1"=30' and the profile is drawn at an irregular scale. Nitsch recommends the Applicant request a waiver for this requirement, or update the plans to be the scale required by the regulations.*

DBS will be requesting a waiver for this requirement. A horizontal scale of 1"=30' is easier to read and was able to fit on the plan sheets, hence why it was utilized. A vertical scale of 1"=3' was utilized to maintain a 10:1 vertical exaggeration of the profile.

3. *Section VIII.C2 requires that secondary streets in Residential Zoning Districts shall have a minimum radius for a circular turnaround of 50 feet. The Applicant is providing a 42-foot radius. Nitsch recommends the Applicant submit a fire truck turning radius plan for Nitsch and the Randolph Fire Department to review. The Applicant should also request a waiver from this requirement if the Fire Department agrees the turning template is appropriate.*
The site plan has been revised to increase the circular turnaround from 42-ft. to the required 50-ft. A waiver will not be required.

4. *Section E1 Lighting states that the subdivision shall provide sufficient lighting. Nitsch recommends the Applicant provide lighting on the plan or request a waiver. IF lighting is provided Nitsch recommends that all lighting shall be Dark Sky compliant.*
Proposed light pole locations are provided on the plan and have been noted more clearly. The proposed lighting will utilize the Town of Randolph required street lights and post as detailed in Appendix B of the Planning Board Rules and Regulations Governing the Subdivision of Land.

5. *Section VIII.E3f requires a 1000 gallon per minute minimum flow shall be required for all new subdivisions. Nitsch recommends the Applicant confirm this requirement is met.*
A hydrant flow test will be performed prior to construction to confirm adequate flow rates are met. This office asks that the board allows this requirement to be a condition upon approval of the definitive subdivision.

6. *Section VIII.E4c requires all residential units shall be serviced by a water supply that provides a minimum flow in gallons per minute at 20 psi or current ISO and NFPA standards, whichever is more restrictive. In addition, Nitsch recommends the Applicant confirm the minimum flow requirement is met.*
DBS will confirm adequate pressure will be met prior to construction. This office asks that the board allows this requirement to be a condition upon approval of the definitive subdivision.

7. *Section VIIIJ4 states that all work regarding structural walls shall be certified after completion by a Structural Engineer.*
As noted in Section VIIIJ2, a structural Engineer will be consulted for any walls taller than 4-ft. in height prior to construction.

8. *Section VIII.K states that prior to submission of a Definitive Plan to the Planning Board, the Applicant should contact the local postmaster to determine the location of collection units and note the approved location on the plans. Nitsch recommends the Applicant confirm this was completed.*
DBS will reach out to the Postmaster to determine the location of collection units. This office asks that the board allows this requirement to be a condition upon approval of the definitive subdivision.

9. *Section M Street Trees and specifically under Section M2, states that street trees shall be planted on both sides of the new street at every 40-feet. The Applicant should review Section M and provide the required street trees in a revised plan or request a waiver.*
DBS has added proposed street tree locations on the revised plans. A waiver will not be requested.

10. *Section N indicates that the Department of Public Works must sign off on cuts (or fills) that are greater than six (6) feet. The proposed grading will provide an approximate 10-foot cut for the basin.*
The DPW receives a copy of the definite plans when they are submitted. This office has not received any comments regarding the cuts on site. DBS will follow up with the Randolph DPW to ensure there are no comments from their department.

DRAINAGE

11. *Section VIII.D5 states that the proper drain size shall be calculated by using the "Manning's Formula" with a Kutter's n value of 0.013 for concrete pipe, and 0.024 for corrugated metal pipe. Nitsch notes that there is only one 12-inch pipe which appear satisfactory for the application.*
Pipe sizing calculations have been performed and are included in the revised Engineering Report. The site plan has also been updated to note the size and material of all drain pipes.

12. *Section VIII.D6 states that all storm drains shall be reinforced concrete except that in off-street locations bituminous coated, galvanized, corrugated metal pipe or pipe arch may be used if approved by the Planning Board. All pipes shall conform to the Massachusetts Highway Department Standard Specifications for Highstreets and Bridges. Nitsch notes that the Applicant proposes HDPE pipe in the drainage easements and does not take exception to HDPE. The Applicant shall call out the drainage pipe in the roadway as Reinforced Concrete Pipe (RCP).*
All storm drain pipes have been labeled with the size and material.

13. *Nitsch recommends that the basin on Lot 3 should be redesigned so that there is at least a 10-foot separation from the edge of the basin and highest water elevation and the Lot 3 building foundation.*
The proposed 100-year storm elevation for the basin on Lot 3 is 127.52. The closest building foundation to the 100-year storm elevation is the conceptual building on Lot 2 with a separation distance of 13.1'. The conceptual building foundation on lot 3 has a separation of 13.3'. Both conceptual buildings meet the 10-separation as requested.

14. *Nitsch recommends that the drainage easements have conditions and agreements established between the Lot owners and the Town indicating that no fences, structures or other obstructions that would impact the easement, drainage system, or maintenance of the drainage systems, both underground and surface basin.*
The applicant agrees to any drainage easement requirement conditions imposed by the Planning Board as a condition of Subdivision approval.

15. *If easement agreements are not preferred, Nitsch recommends that the Home Owner Association (HOA) be established to maintain the drainage systems in the easement and that these systems are not conveyed to the Town as part of any street acceptance by the Town.*
The applicant will establish an HOA if it is required as a condition of Subdivision approval.

16. *Nitsch recommends that all test pits for drainage be provided for review to determine that infiltration systems and basin are at least 2-feet higher than estimated seasonal high groundwater or groundwater, whichever is higher. If estimated groundwater is within 4-feet of the bottom of the system, a mounding analysis shall be submitted for review.*
All proposed drainage systems have greater than 2-ft. of separation to groundwater. Subsurface system 3 has greater than 2-ft. of separation to groundwater but less than 4-ft. of separation to groundwater, a mounding analysis is included in the revised engineering ewport.

GENERAL COMMENTS

17. *Provide shut off valves for the water services for each lot, within the roadway layout.*
The utility sheet of the site plan has been revised to note water service shut off valve locations.

18. *Nitsch recommends sewer manholes where changes in sewer service directions are proposed. The Applicant should consider straight sewer service runs to sewer manholes to prevent possibilities of clogs at bends specifically at Lots 3 and 4. The plans should be revised so that the services do not have bends.*
A sewer manhole has been added, for a total of three (3) proposed sewer manholes. The added sewer manhole eliminates any bends in the sewer services for Lots 3 and 4.

19. *Section 200-10.C of the zoning regulations state that in a residential district, no one-family dwelling house shall cover more than twenty percent of the lot area. Please confirm that this requirement is met.*
All proposed conceptual buildings are proposed to have a footprint of 1,880 SF. With the smallest lot being 12,001 SF, the building coverage would be 15.7%, meeting the maximum requirement.

20. *Nitsch recommends the Applicant revise the pavement detail to match the Typical Road Cross-Section so that the stone depths match. Nitsch recommends 4-inch dense grade above 8-inches of gravel but is not opposed to 12-inches of only gravel material given the A-soils on the site.*
The pavement detail has been revised to utilize a 12-in. gravel base.

21. *Nitsch recommends the Applicant coordinate the sidewalk construction for the subdivision with the sidewalk in Mill Street.*
The applicant will coordinate the sidewalk construction of the subdivision with the sidewalk in Mill Street.

Michelle Tyler, Director of Planning
April 10, 2023

Please reach out to this office with any additional questions or comments you may have. We look forward to presenting these answers to these concerns raised by the peer review engineer to the Board at the April 25th Planning Board Meeting.

Sincerely,
DeCelle-Burke-Sala & Associates, Inc.

Kameron Campbell, E.I.T.
Project Manager

DeCelle-Burke-Sala & Associates, Inc.

ENGINEERING REPORT

Definitive Subdivision
Clifton Court Development
217 Mill Street
Randolph, MA 02368

CLIENT:
217 Mill St, LLC
228 Park Avenue S, PMB35567
New York, NY 10003

PREPARED BY:
DeCelle-Burke-Sala & Associates, Inc.
1266 Furnace Brook Parkway, Suite 401
Quincy, MA 02169

FEBRUARY 6, 2023
REVISED: APRIL 10, 2023

Table of Contents

Section 1.0 Existing Conditions

1.1 Site Location

The subject property is located at 217 Mill Street in the Town of Randolph. The Town of Randolph Assessor's office currently identifies the as Assessors ID 51-H-8.01 with a total area of approximately 77,512± square feet (SF). The property is located within the Residential Single Family High Density (RSFHD) zoning district.

Figure 1 - Aerial Map (MassGIS)

1.2 Existing Site Conditions

The site is bounded by Mill Street to the northeast, and is abutted by single-family residential properties to the east, south, and west. The dead end of Prospect Avenue is close to the locus, however, the property does not have any frontage on Prospect Avenue. The lot contains a 675± S.F. residential single-family dwelling that was constructed around 1950 per the Town's online property record database. In addition to the dwelling, there are two sheds located on the property. Vehicular access to the site is provided off Mill Street by a single-lane asphalt driveway to the west of the dwelling. The dwelling improvements include a deck on the westerly side of the building adjacent to the driveway, a concrete patio in the backyard and a concrete walkway along the front of the house. The vegetation in the northerly portion of the lot closest to Mill Street is predominately lawn, with several hedges and trees. The majority of the lot is covered by trees and considered wooded. A vinyl and chain-link fence traverse the rear of the property near the abutters

located on Hart Circle. Topography on the site varies throughout the property. Elevations along the frontage of the property on Mill Street range from approximately elevation 126 in the northeasterly corner, to elevation 132 in the northerly corner. Topography slopes up roughly 27% from the northeasterly corner at elevation 126 up to the house at elevation 136. The driveway slopes approximately 13% up from Mill Street to the peak of the driveway. The high elevation on-site is located towards the center of the property within the woods. From the high point, the topography generally slopes down to the abutters to the east down to a low elevation of approximately 122. All elevations refer to the North American Vertical Datum of 1988 (NAVD 88).

The existing building is serviced by sewer, domestic water and gas services, which connect to the respective mains in Mill Street. Overhead wires connect from the dwelling to the existing overhead wires in Mill Street to provide power and communication services to the existing dwelling. A roof gutter system on the existing dwelling captures the majority of roof runoff and downspouts direct the water to flow overland. No other stormwater controls are located on-site, as flows from the asphalt driveway are not collected and runoff to Mill Street. The site is not located within a Special Flood Hazard Zone as delineated on FIRM 25021C0217E, effective 07/17/2012. There do not appear to be any jurisdictional wetlands within 100-feet of the project locus.

1.3 Existing Soil Conditions

The on-site soils were identified using the USDA Natural Resources Conservation Services (NRCS) Soil Survey.

Figure 2 - Soil's Map

The site and surrounding soil types have been identified along with the corresponding Hydrologic Soil Groups (HSG) to include:

- 245B – Hinckley loamy sand, 3 to 8 percent slopes – HSG A
- 255B – Windsor loamy sand, 3 to 8 percent slopes – HSG A

The Natural Resources Conservation Service (NRCS) has mapped the local soils as predominately 245B Hinckley loamy sand 3-8% slopes, with a small portion of the lot adjacent to Mill Street as 255B Windsor loam sand 3-8% slopes. Four (4) test pits were performed on site in February, 2023. Each test pit contained sandy loam subsoils over top a coarse gravelly sand. Groundwater was observed in one of the four test pits. A rawls rate of 8.27 in/hr has been used due to a coarse gravelly sand being found in the location of each of the infiltration systems.

Section 2.0 Proposed Conditions

2.1 Proposed Site Conditions

The proposed project is a subdivision, which will include the construction of four (4) new single-family houses and a proposed roadway. Access to the subdivision will be provided off Mill Street by a 40-ft. wide private way, which ends at a cul-de-sac with a 42-ft. pavement radius. The proposed street layout will have 24-ft. of pavement with vertical granite curbing on both sides. Each proposed single-family house will be provided vehicular access to the proposed road by a curb cut and asphalt driveway.

The street will be graded to have a 2.9% grade for the first approximately 19-ft. before transition to a 100-ft. Type IV Sag Vertical Curve. The roadway will have a slope of approximately 7% for approximately 10-ft. before transitioning to a 150-ft. Type I Crest Vertical Curve. The highpoint of the roadway will be located towards the front of the cul-de-sac and will slope down toward the end of the road. A retaining wall is proposed along the easterly side of the roadway from approximately station 0+55 to approximately station 1+75. The retaining wall is approximately 5-ft. tall at its highest point.

The proposed subdivision will be improved by public utilities for the use of the four (4) proposed dwellings. A proposed 8-in. PVC gravity sewer main is proposed to be installed for the length of the roadway. The proposed sewer main will tie into the existing 8-in. PVC sewer main in Mill Street by constructing a doghouse manhole in Mill Street. A sewer manhole is proposed at the end of the proposed sewer main in the cul-de-sac of the proposed roadway. Each house will tie into the proposed sewer main by gravity with proposed 4-in. PVC sewer services. An 8-in. CLDI (cement-lined ductile iron) water main will be installed for the length of the roadway. The proposed water main will tie into the existing water main in Mill Street. Each house will be provided water service by a 1-in. “type K” copper pipe. A fire hydrant is proposed at the end of the proposed 8-in. water main and will be located within the cul-de-sac of the proposed roadway. A proposed gas main shall be installed by the local utility purveyor’s standards to provide gas service to each dwelling. Power and communication services will be provided by underground wires. A transformer will be installed within the subdivision.

2.2 Proposed Stormwater

Proposed stormwater controls shall comply with local, state and federal regulations. Stormwater generated by the proposed street will be collected, treated, and infiltrated to protect the down gradient abutting properties. The proposed stormwater management systems is comprised of a total of five (5) deep sump catch basins, two (2) proprietary water quality units, three (3) subsurface

infiltration systems constructed of precast concrete leaching galleys and two surface infiltration basins. The majority of the stormwater runoff on site is produced by the asphalt roadway and proposed buildings.

Subsurface Infiltration System 1 consists of nine (9) 4'x4'x4' precast concrete leaching galleys and surrounding stone. System 1 collects the majority of the roadway by two deep sump catch basins located near the intersection of the proposed roadway and Mill Street. The catch basins convey the stormwater runoff to a proprietary water quality unit which pretreats the runoff prior to it being released to the subsurface infiltration system. System 1 has been designed to infiltrate the required recharge volume, decrease the peak runoff flows leaving the site and contain the entirety of the 10-year storm event. In the event of a larger storm event the stormwater runoff will by-pass the proposed catch basins and be collected by the existing drainage system in Mill Street. Subsurface System 2 is centrally located on the site and collects the stormwater runoff from the remainder of the twenty four (24) foot wide roadway. Stormwater runoff is captured by two (2) deep sump catch basins and conveyed to a proprietary water quality unit for pretreatment before it is release to Subsurface System 2. System 2 consists of twelve (12) 4'x4'x4' precast concrete leaching galleys and surrounding stone. System 2 has been designed to infiltrate the required recharge volume, decrease the peak runoff flows leaving the site and contain the entirety of the 10-year storm event. In the event of larger storm events, System 2 has been fitted with a 12 inch outlet pipe which extends to Surface Basin 2 where it is released onto a riprap outlet protection apron. Subsurface system 3 collects the entirety of the cul-de-sac through a single deep sump catch basin. The deep sump catch basin conveys the stormwater runoff to a proprietary water quality unit for pretreatment before it is released to Subsurface System 3. System 3 consists of forty eight (48) 4'x4'x4' precast concrete leaching galleys and surrounding stone. System 2 has been designed to infiltrate the required recharge volume, decrease the peak runoff flows leaving the site and contain the entirety of the 10-year storm event. In the event of larger storm events, System 2 has been fitted with a 12 inch outlet pipe which extends to Surface Basin 1 where it is released onto a riprap outlet protection apron.

Surface Basin 1 is a 2,456± S.F. surface infiltration basin which contains and infiltrates stormwater runoff from overland flow, the proposed roofs and overflow from Subsurface System 3. Basin 1 has been designed to infiltrate the entirety of the 2-, 10-, and 25-year storm events with allowing a minor amount of sheet flow released for the 100-year storm event. Surface Basin 2 is a 1,435± S.F. surface infiltration basin which detains and infiltrates stormwater runoff from overland flow, the proposed roofs and overflow from Subsurface System 2. Basin 2 has been designed to infiltrate the entirety of the 2-, 10-, and 25-year storm events with allowing a minor amount of sheet flow released for the 100-year storm event. The basins shall be grassed with an emergency riprap outlet weir as an overflow.

Section 3.0 Stormwater Management

3.1 MassDEP Stormwater Performance Standards

It is the intent of this report to show compliance with the Massachusetts Stormwater Management Standards (the "Standards"). This office generated hydrographs for both existing and proposed conditions to compare overall storm water offsite for various storms. We calculated land coverage numbers (CN) using Hydrologic Group "A" soils and used minimums for Times of Concentration for proposed conditions for hydrograph generation. A Rawl's Rate of 2.41 in./hr. was used for exfiltration. Through the use of stormwater control BMP's, proposed peak stormwater discharge rates decrease in comparison to the peak existing discharge rates.

Stormwater Best Management Practices have been incorporated into the design of the project to mitigate the anticipated pollutant loading. An Operations and Maintenance Plan has been developed for the project, which addresses the long-term maintenance requirements of the proposed system.

Temporary erosion and sedimentation controls will be incorporated into the construction phase of the project. These temporary controls may include straw wattles and/or silt fence barriers, inlet sediment traps, slope stabilization, and stabilized construction entrances.

The Massachusetts Department of Environmental Protection has established ten (10) Stormwater Management Standards. A project that meets or exceeds the standards is presumed to satisfy the regulatory requirements regarding stormwater management. The Standards are enumerated below as well as descriptions and supporting calculations as to how the Project will comply with the Standards:

Standard 1

No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

All stormwater runoff with the potential for collecting suspended solids and pollutants is treated through the use of stormwater infiltration structures prior to its discharge to the surrounding environment.

Standard 2

Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.

Post-development discharge rates do not exceed pre-development through the use of underground and surface infiltration. The proposed site has been graded to capture the majority of the stormwater runoff so that it can be treated and released to best match the existing site hydraulics. The design points analyzed when comparing the pre- and post-development peak discharge rates are the flows to Mill Street, flows to the northeasterly abutters and flows to the easterly abutter. Through grading and stormwater BMP's, this

office was able to reduce the pre-development peak discharge rates to all three design points. A comparison chart for the pre- and post-development peak flows are included further in this report, and HydroCAD analyses included in Appendix A of this report.

Standard 3

Loss of annual recharge to groundwater shall be eliminated or minimized through the use of infiltration measures including environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

The proposed site was designed to ensure that the annual recharge for the post-development site shall approximate or exceed the annual recharge from the pre-development conditions based on the soil type. Calculations showing that this development meets the criteria for Standard 3, which includes the required recharge volume and that the infiltration systems will drain fully within 72 hours have been included in Appendix D of this report.

Standard 4

Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This standard is met when:

- *Suitable practices for source control and pollution prevention are identified in a longterm pollution prevention plan, and thereafter are implemented and maintained;*
- *Structural stormwater best management practices are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and*
- *Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.*

This site meets all aspects of Standard 4 by utilizing proprietary stormwater structures for TSS removal, sizing the infiltration system adequately to handle the required water quality volume, and providing a long-term pollution prevention plan.

Standard 5

For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

This project is not classified as a land with higher potential pollutant loads.

Standard 6

Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply, and stormwater discharges near or to any other critical area, require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A "storm water discharge" as defined in 314 CMR 3.04(2)(a)1 or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of a public water supply.

This project is not located within a Zone II, IWPA, or any other critical area.

Standard 7

A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

This project does not qualify as a redevelopment project due to the proposed increase in impervious area.

Standard 8

A plan to control construction-related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.

A plan to control construction related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities has been included in Appendix C.

Standard 9

A long-term operation and maintenance plan shall be developed and implemented to ensure that stormwater management systems function as designed.

A long term operation and maintenance plan has been developed for this property to ensure the stormwater management systems function as designed and is included in Appendix B.

Standard 10

All illicit discharges to the stormwater management system are prohibited.

No illicit discharges will be allowed to the proposed stormwater management system and a signed illicit discharge statement has been included in the Operation and Maintenance Plan.

Stormwater Runoff Comparison Chart for Pre- and Post-Construction Flows to Mill Street

2 Year Storm (3.40")			
Existing Conditions		Proposed Conditions	
Area Description	Flow (CFS)	Area Description	Flow (CFS)
Flow off-site	0.05	Flow off-site	0.00

10 Year Storm (5.20")			
Existing Conditions		Proposed Conditions	
Area Description	Flow (CFS)	Area Description	Flow (CFS)
Flow off-site	0.30	Flow off-site	0.00

25 Year Storm (6.33")			
Existing Conditions		Proposed Conditions	
Area Description	Flow (CFS)	Area Description	Flow (CFS)
Flow off-site	0.50	Flow off-site	0.20

100 Year Storm (8.06")			
Existing Conditions		Proposed Conditions	
Area Description	Flow (CFS)	Area Description	Flow (CFS)
Flow off-site	0.85	Flow off-site	0.63

Stormwater Runoff Comparison Chart for Pre- and Post-Construction Flows to Northeasterly Abutters

2 Year Storm (3.40")			
Existing Conditions		Proposed Conditions	
Area Description	Flow (CFS)	Area Description	Flow (CFS)
Flow off-site	0.00	Flow off-site	0.00

10 Year Storm (5.20")			
Existing Conditions		Proposed Conditions	
Area Description	Flow (CFS)	Area Description	Flow (CFS)
Flow off-site	0.00	Flow off-site	0.00

25 Year Storm (6.33")			
Existing Conditions		Proposed Conditions	
Area Description	Flow (CFS)	Area Description	Flow (CFS)
Flow off-site	0.01	Flow off-site	0.00

100 Year Storm (8.06")			
Existing Conditions		Proposed Conditions	
Area Description	Flow (CFS)	Area Description	Flow (CFS)
Flow off-site	0.04	Flow off-site	0.02

Stormwater Runoff Comparison Chart for Pre- and Post-Construction Flows to Easterly Abutters

2 Year Storm (3.40")			
Existing Conditions		Proposed Conditions	
Area Description	Flow (CFS)	Area Description	Flow (CFS)
Flow off-site	0.00	Flow off-site	0.00

10 Year Storm (5.20")			
Existing Conditions		Proposed Conditions	
Area Description	Flow (CFS)	Area Description	Flow (CFS)
Flow off-site	0.00	Flow off-site	0.00

25 Year Storm (6.33")			
Existing Conditions		Proposed Conditions	
Area Description	Flow (CFS)	Area Description	Flow (CFS)
Flow off-site	0.02	Flow off-site	0.02

100 Year Storm (8.06")			
Existing Conditions		Proposed Conditions	
Area Description	Flow (CFS)	Area Description	Flow (CFS)
Flow off-site	0.13	Flow off-site	0.12

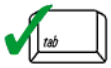
3.2 MassDEP Stormwater Checklist

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the Massachusetts Stormwater Handbook. The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.[1] This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8[2]
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

[1] The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

[2] For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.

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Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

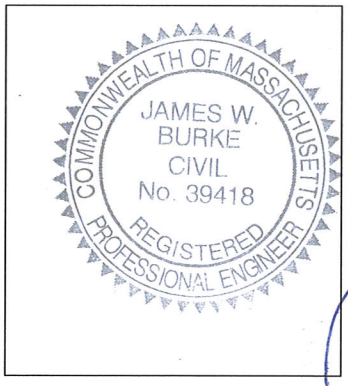
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



4/10/23

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

☒ New development

☐ Redevelopment

☐ Mix of New Development and Redevelopment

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Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

☒ No disturbance to any Wetland Resource Areas

☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)

☐ Reduced Impervious Area (Redevelopment Only)

☐ Minimizing disturbance to existing trees and shrubs

☐ LID Site Design Credit Requested:

- ☐ Credit 1
- ☐ Credit 2
- ☐ Credit 3

☐ Use of "country drainage" versus curb and gutter conveyance and pipe

☐ Bioretention Cells (includes Rain Gardens)

☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)

☐ Treebox Filter

☐ Water Quality Swale

☐ Grass Channel

☐ Green Roof

☐ Other (describe): Stormwater Infiltration

Standard 1: No New Untreated Discharges

☒ No new untreated discharges

☒ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth

☒ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.

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Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.

☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.

☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

☒ Soil Analysis provided.

☒ Required Recharge Volume calculation provided.

☐ Required Recharge volume reduced through use of the LID site Design Credits.

☒ Sizing the infiltration, BMPs is based on the following method: Check the method used.

☒ Static ☐ Simple Dynamic ☐ Dynamic Field[1]

☒ Runoff from all impervious areas at the site discharging to the infiltration BMP.

☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.

☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:

- ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
- ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
- ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
- ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

☒ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.

☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

[1] 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

☒ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.

☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
- Provisions for storing materials and waste products inside or under cover;
- Vehicle washing controls;
- Requirements for routine inspections and maintenance of stormwater BMPs;
- Spill prevention and response plans;
- Provisions for maintenance of lawns, gardens, and other landscaped areas;
- Requirements for storage and use of fertilizers, herbicides, and pesticides;
- Pet waste management provisions;
- Provisions for operation and management of septic systems;
- Provisions for solid waste management;
- Snow disposal and plowing plans relative to Wetland Resource Areas;
- Winter Road Salt and/or Sand Use and Storage restrictions;
- Street sweeping schedules;
- Provisions for prevention of illicit discharges to the stormwater management system;
- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.

☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.

☒ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:

- ☐ is within the Zone II or Interim Wellhead Protection Area
- ☐ is near or to other critical areas
- ☒ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
- ☐ involves runoff from land uses with higher potential pollutant loads.

☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.

☒ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.

Massachusetts Department of Environmental Protection
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Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

☒ The BMP is sized (and calculations provided) based on:

- ☒ The ½" or 1" Water Quality Volume or
- ☒ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.

☒ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.

☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.

☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted ***prior to*** the discharge of stormwater to the post-construction stormwater BMPs.

☒ The NPDES Multi-Sector General Permit does ***not*** cover the land use.

☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.

☐ All exposure has been eliminated.

☐ All exposure has ***not*** been eliminated and all BMPs selected are on MassDEP LUHPPL list.

☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.

☐ Critical areas and BMPs are identified in the Stormwater Report.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

☒ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:

- ☐ Limited Project
- ☒ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
- ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
- ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
- ☐ Bike Path and/or Foot Path
- ☐ Redevelopment Project
- ☐ Redevelopment portion of mix of new and redevelopment.

☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.

☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.

☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has ***not*** been included in the Stormwater Report but will be submitted ***before*** land disturbance begins.

☐ The project is ***not*** covered by a NPDES Construction General Permit.

☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.

☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:

- ☒ Name of the stormwater management system owners;
- ☒ Party responsible for operation and maintenance;
- ☒ Schedule for implementation of routine and non-routine maintenance tasks;
- ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
- ☒ Description and delineation of public safety features;
- ☒ Estimated operation and maintenance budget; and
- ☒ Operation and Maintenance Log Form.

☐ The responsible party is ***not*** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:

- ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
- ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

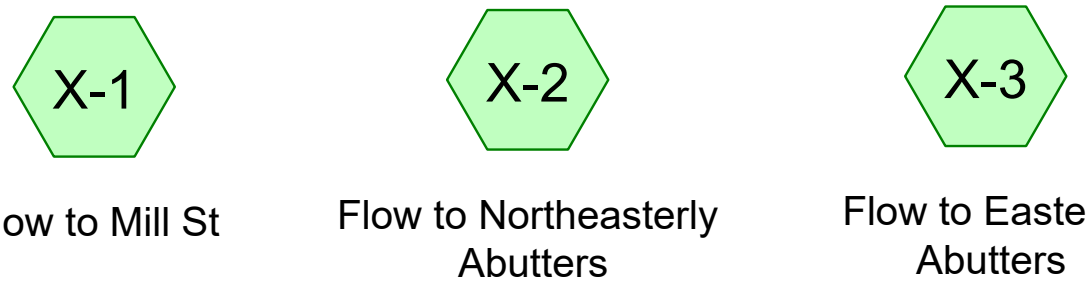
☒ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;

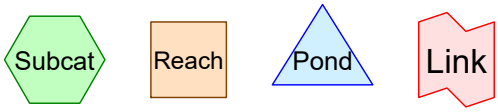
☒ An Illicit Discharge Compliance Statement is attached;

☐ NO Illicit Discharge Compliance Statement is attached but will be submitted ***prior to*** the discharge of any stormwater to post-construction BMPs.

Appendix A HydroCAD Reports

Existing HydroCAD Report





Routing Diagram for 217 Mill St - Existing Drainage (rev 2-6-23)
Prepared by DeCelle-Burke-Sala & Associates, Inc., Printed 4/10/2023
HydroCAD® 10.00-26 s/n 07920 © 2020 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
9,090	39	>75% Grass cover, Good, HSG A (X-1, X-2, X-3)
3,190	98	Paved parking, HSG A (X-1)
919	98	Roofs, HSG A (X-1)
64,313	30	Woods, Good, HSG A (X-1, X-2, X-3)

Summary for Subcatchment X-1: Flow to Mill St

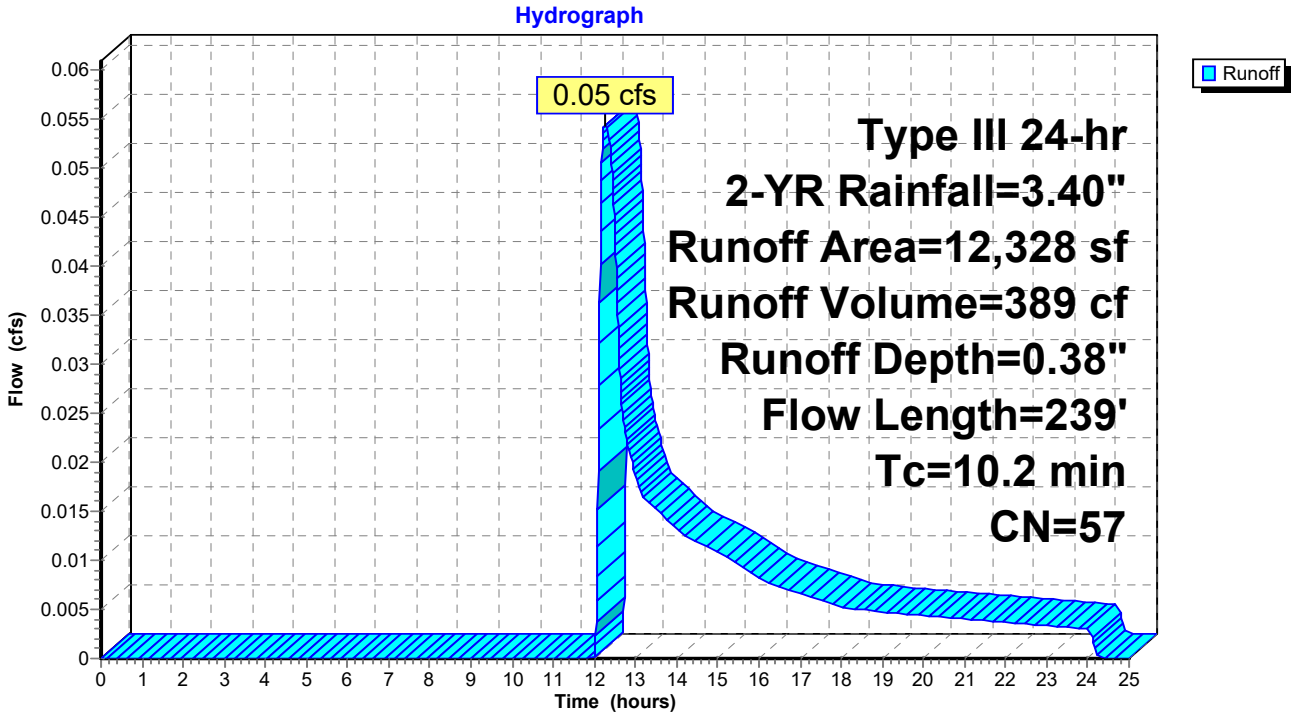
Runoff = 0.05 cfs @ 12.27 hrs, Volume= 389 cf, Depth= 0.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
3,190	98	Paved parking, HSG A
919	98	Roofs, HSG A
5,640	39	>75% Grass cover, Good, HSG A
2,579	30	Woods, Good, HSG A
12,328	57	Weighted Average
8,219		66.67% Pervious Area
4,109		33.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	50	0.0460	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.8	53	0.0530	1.15		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	22	0.0040	1.02		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	114	0.0700	5.37		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.2	239	Total			

Subcatchment X-1: Flow to Mill St



Summary for Subcatchment X-2: Flow to Northeasterly Abutters

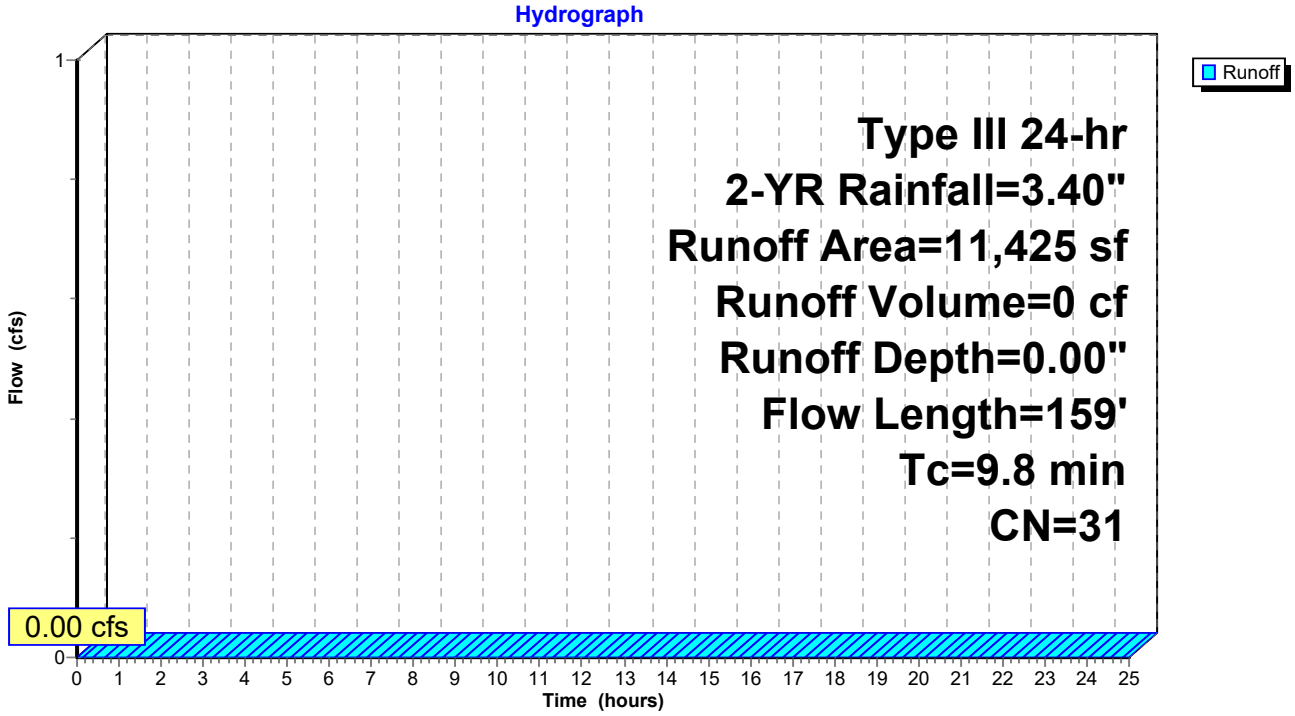
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Roofs, HSG A
1,467	39	>75% Grass cover, Good, HSG A
9,958	30	Woods, Good, HSG A
11,425	31	Weighted Average
11,425		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	50	0.0420	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.9	109	0.1670	2.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.8	159	Total			

Subcatchment X-2: Flow to Northeasterly Abutters



Summary for Subcatchment X-3: Flow to Easterly Abutters

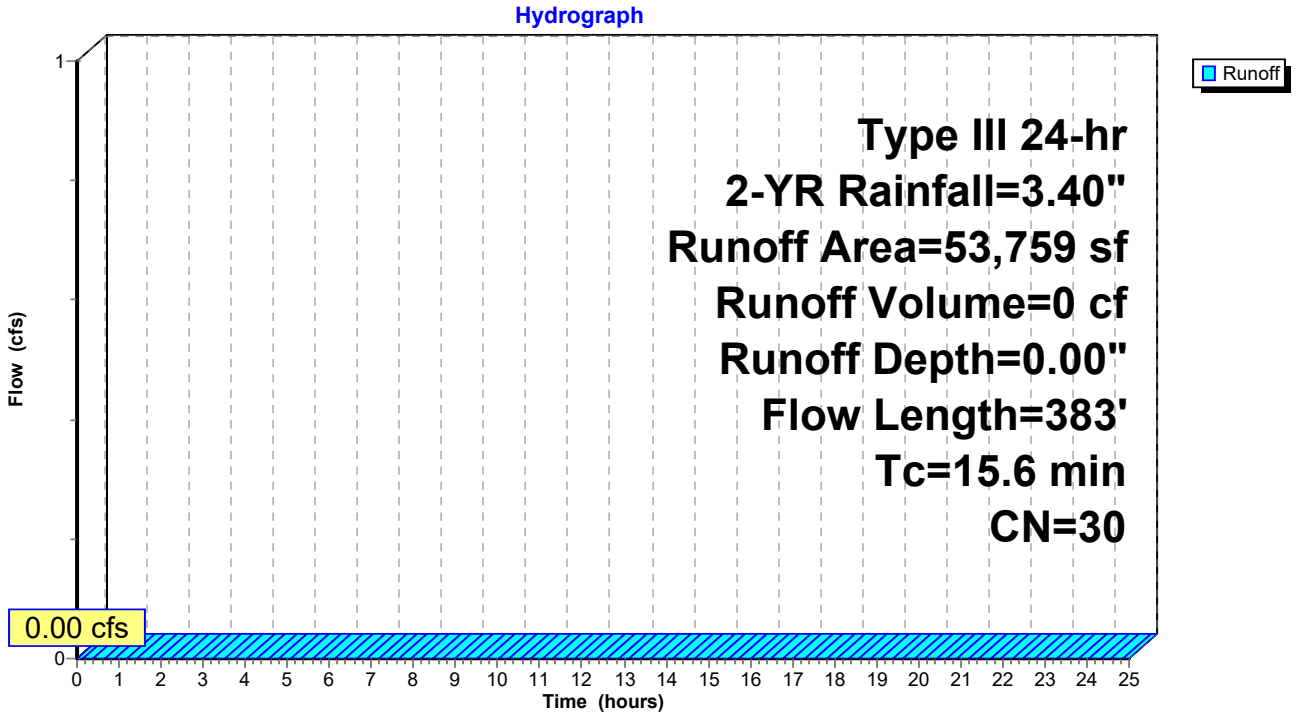
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Roofs, HSG A
1,983	39	>75% Grass cover, Good, HSG A
51,776	30	Woods, Good, HSG A
53,759	30	Weighted Average
53,759		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	50	0.0760	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
1.4	92	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.7	61	0.0030	0.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	78	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	102	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.6	383	Total			

Subcatchment X-3: Flow to Easterly Abutters



Summary for Subcatchment X-1: Flow to Mill St

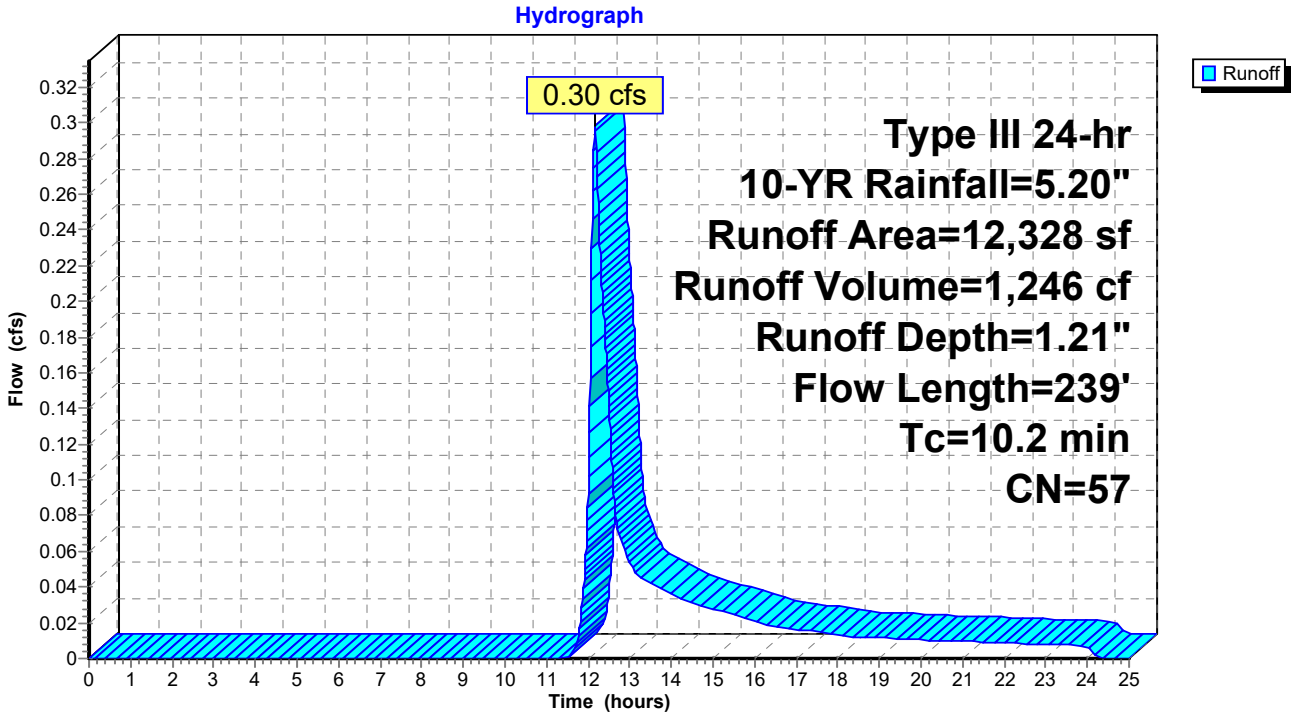
Runoff = 0.30 cfs @ 12.16 hrs, Volume= 1,246 cf, Depth= 1.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.20"

Area (sf)	CN	Description
3,190	98	Paved parking, HSG A
919	98	Roofs, HSG A
5,640	39	>75% Grass cover, Good, HSG A
2,579	30	Woods, Good, HSG A
12,328	57	Weighted Average
8,219		66.67% Pervious Area
4,109		33.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	50	0.0460	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.8	53	0.0530	1.15		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	22	0.0040	1.02		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	114	0.0700	5.37		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.2	239	Total			

Subcatchment X-1: Flow to Mill St



Summary for Subcatchment X-2: Flow to Northeasterly Abutters

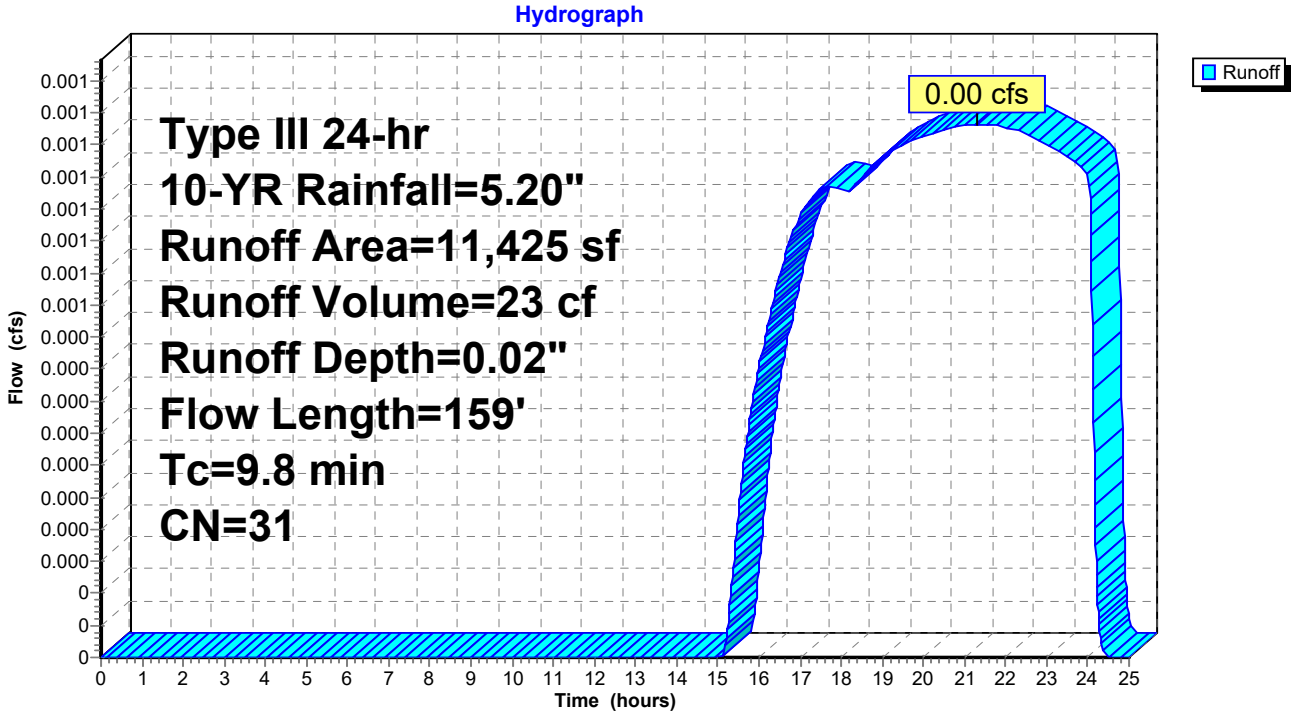
Runoff = 0.00 cfs @ 21.31 hrs, Volume= 23 cf, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.20"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Roofs, HSG A
1,467	39	>75% Grass cover, Good, HSG A
9,958	30	Woods, Good, HSG A
11,425	31	Weighted Average
11,425		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	50	0.0420	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.9	109	0.1670	2.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.8	159	Total			

Subcatchment X-2: Flow to Northeasterly Abutters



Summary for Subcatchment X-3: Flow to Easterly Abutters

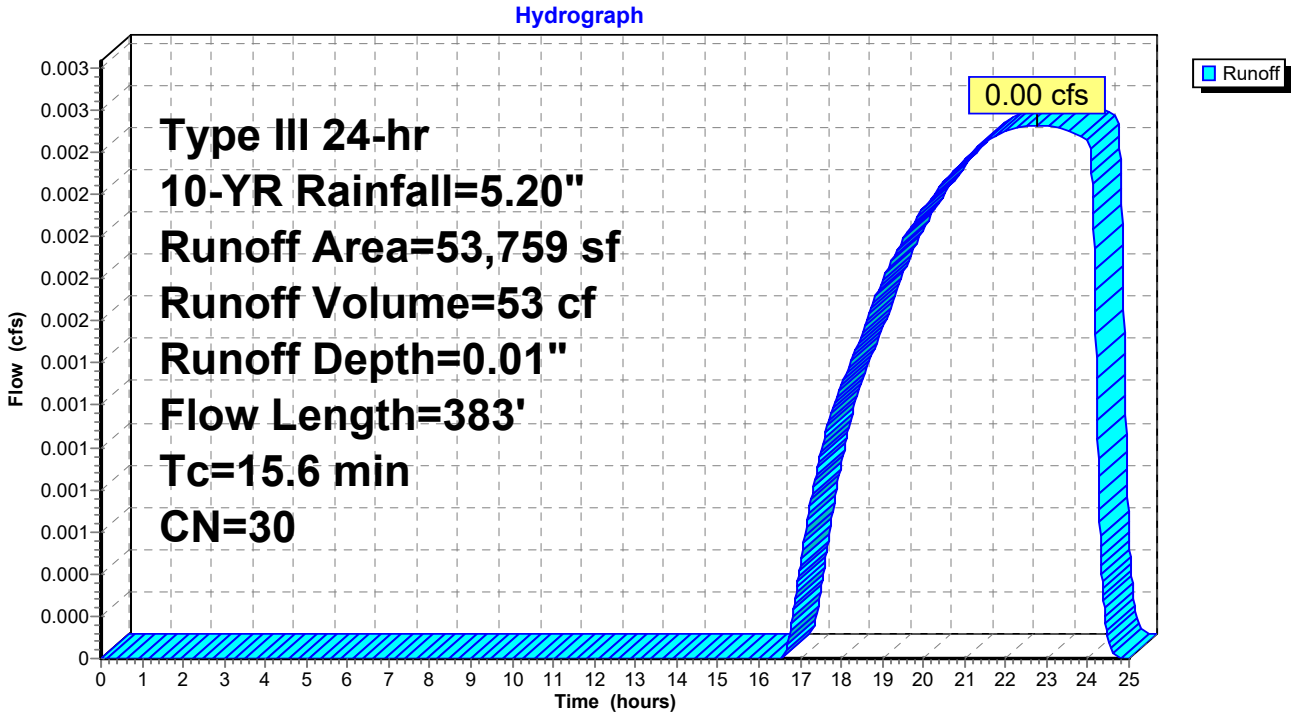
Runoff = 0.00 cfs @ 22.76 hrs, Volume= 53 cf, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.20"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Roofs, HSG A
1,983	39	>75% Grass cover, Good, HSG A
51,776	30	Woods, Good, HSG A
53,759	30	Weighted Average
53,759		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	50	0.0760	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
1.4	92	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.7	61	0.0030	0.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	78	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	102	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.6	383	Total			

Subcatchment X-3: Flow to Easterly Abutters



Summary for Subcatchment X-1: Flow to Mill St

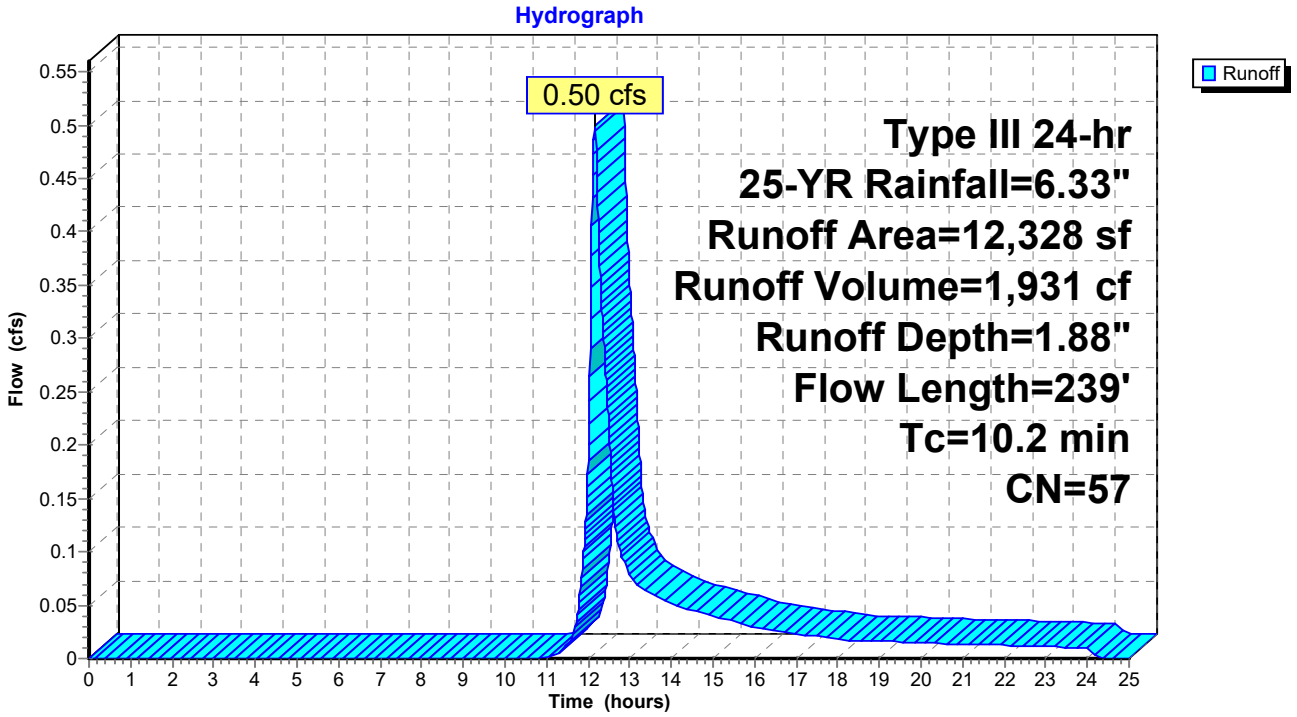
Runoff = 0.50 cfs @ 12.16 hrs, Volume= 1,931 cf, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=6.33"

Area (sf)	CN	Description
3,190	98	Paved parking, HSG A
919	98	Roofs, HSG A
5,640	39	>75% Grass cover, Good, HSG A
2,579	30	Woods, Good, HSG A
12,328	57	Weighted Average
8,219		66.67% Pervious Area
4,109		33.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	50	0.0460	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.8	53	0.0530	1.15		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	22	0.0040	1.02		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	114	0.0700	5.37		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.2	239	Total			

Subcatchment X-1: Flow to Mill St



Summary for Subcatchment X-2: Flow to Northeasterly Abutters

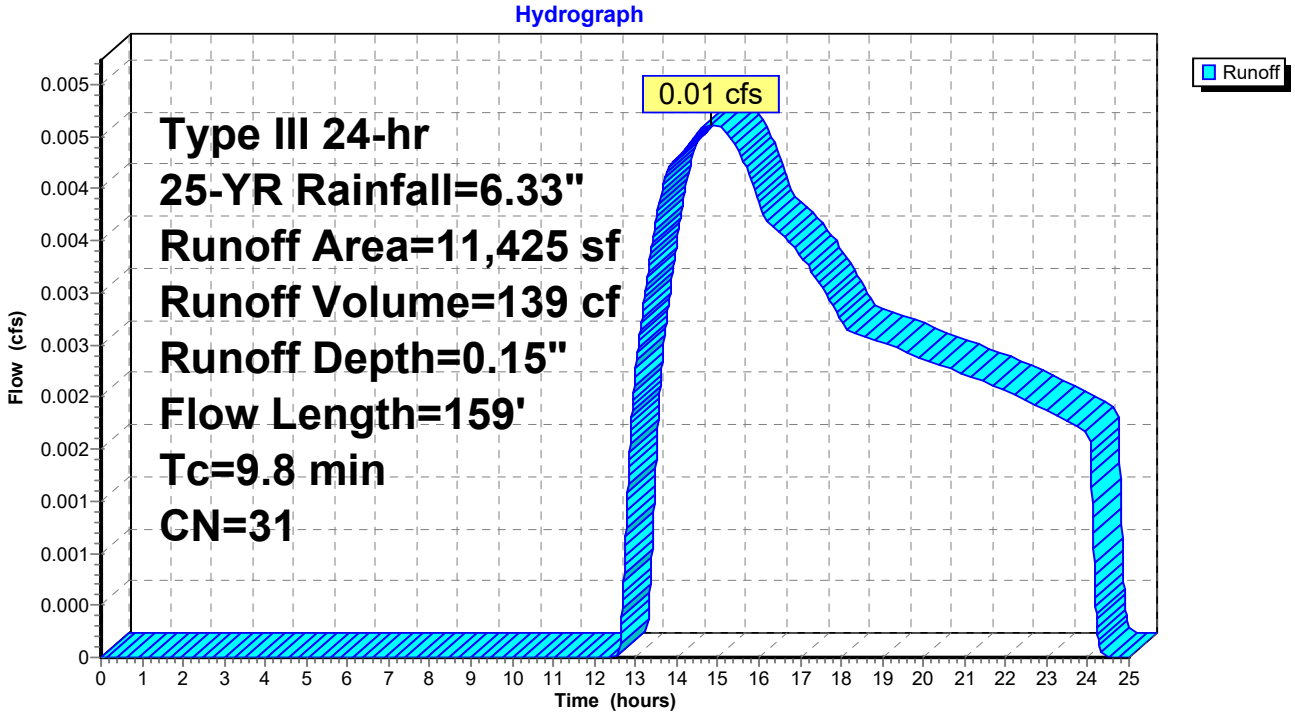
Runoff = 0.01 cfs @ 14.84 hrs, Volume= 139 cf, Depth= 0.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=6.33"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Roofs, HSG A
1,467	39	>75% Grass cover, Good, HSG A
9,958	30	Woods, Good, HSG A
11,425	31	Weighted Average
11,425		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	50	0.0420	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.9	109	0.1670	2.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.8	159	Total			

Subcatchment X-2: Flow to Northeasterly Abutters



Summary for Subcatchment X-3: Flow to Easterly Abutters

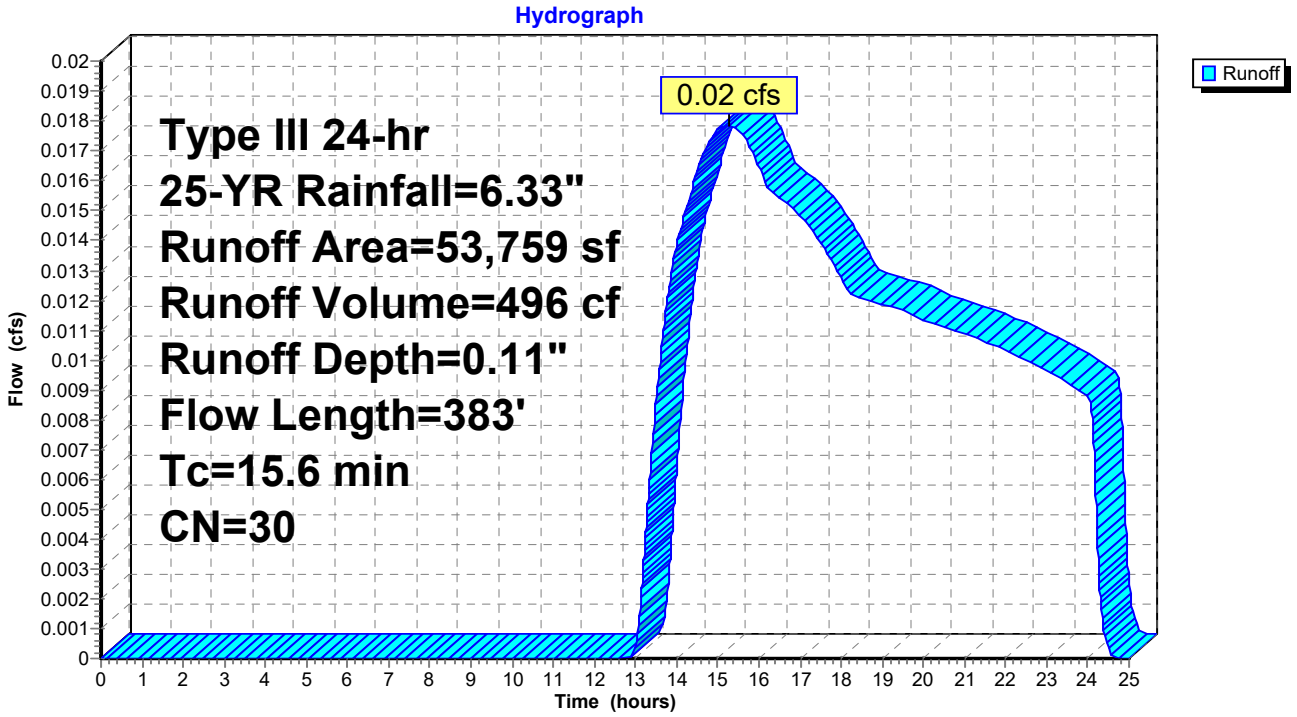
Runoff = 0.02 cfs @ 15.27 hrs, Volume= 496 cf, Depth= 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=6.33"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Roofs, HSG A
1,983	39	>75% Grass cover, Good, HSG A
51,776	30	Woods, Good, HSG A
53,759	30	Weighted Average
53,759		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	50	0.0760	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
1.4	92	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.7	61	0.0030	0.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	78	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	102	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.6	383	Total			

Subcatchment X-3: Flow to Easterly Abutters



Summary for Subcatchment X-1: Flow to Mill St

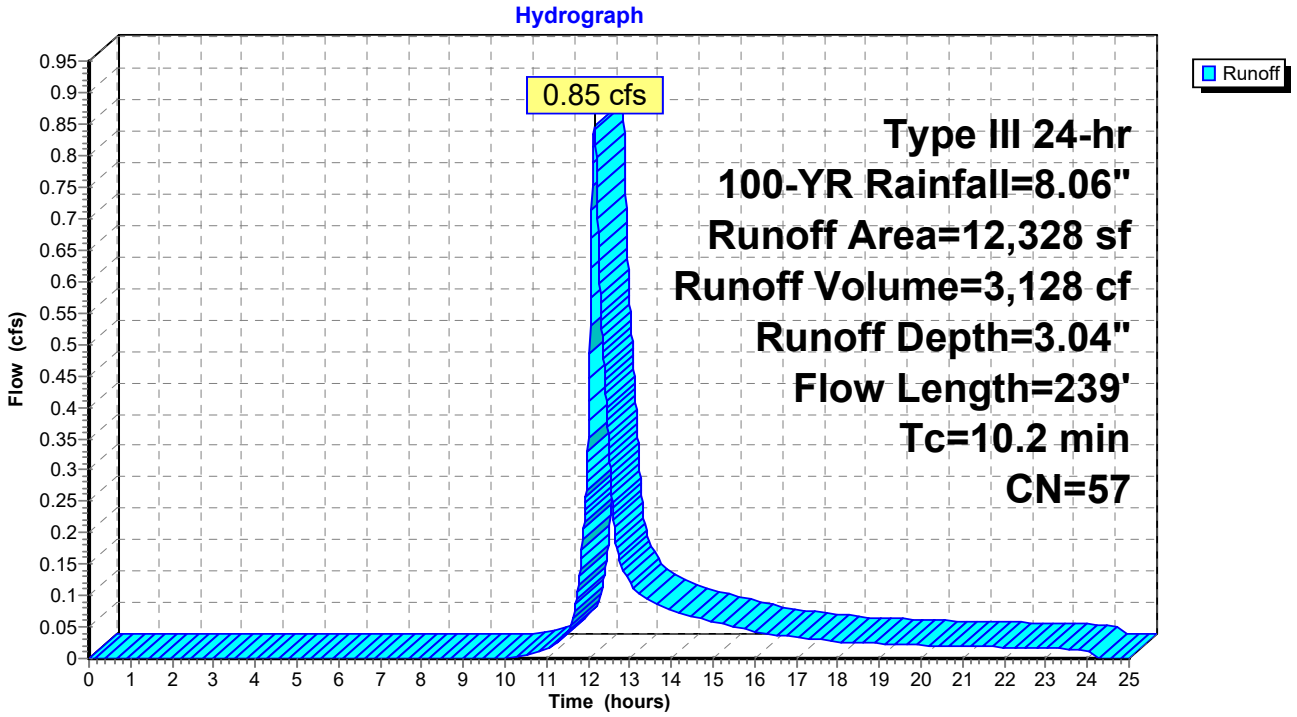
Runoff = 0.85 cfs @ 12.15 hrs, Volume= 3,128 cf, Depth= 3.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.06"

Area (sf)	CN	Description
3,190	98	Paved parking, HSG A
919	98	Roofs, HSG A
5,640	39	>75% Grass cover, Good, HSG A
2,579	30	Woods, Good, HSG A
12,328	57	Weighted Average
8,219		66.67% Pervious Area
4,109		33.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	50	0.0460	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.8	53	0.0530	1.15		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	22	0.0040	1.02		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	114	0.0700	5.37		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.2	239	Total			

Subcatchment X-1: Flow to Mill St



Summary for Subcatchment X-2: Flow to Northeasterly Abutters

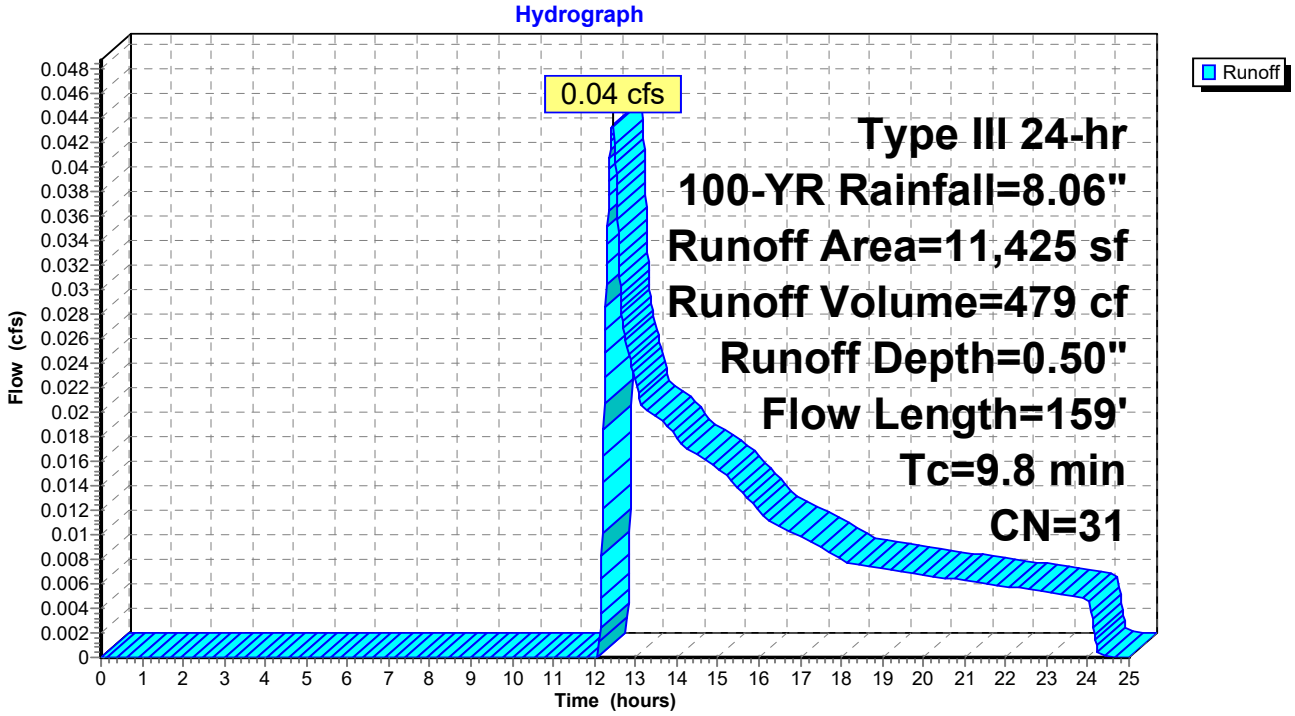
Runoff = 0.04 cfs @ 12.44 hrs, Volume= 479 cf, Depth= 0.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.06"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Roofs, HSG A
1,467	39	>75% Grass cover, Good, HSG A
9,958	30	Woods, Good, HSG A
11,425	31	Weighted Average
11,425		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	50	0.0420	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.9	109	0.1670	2.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.8	159	Total			

Subcatchment X-2: Flow to Northeasterly Abutters



Summary for Subcatchment X-3: Flow to Easterly Abutters

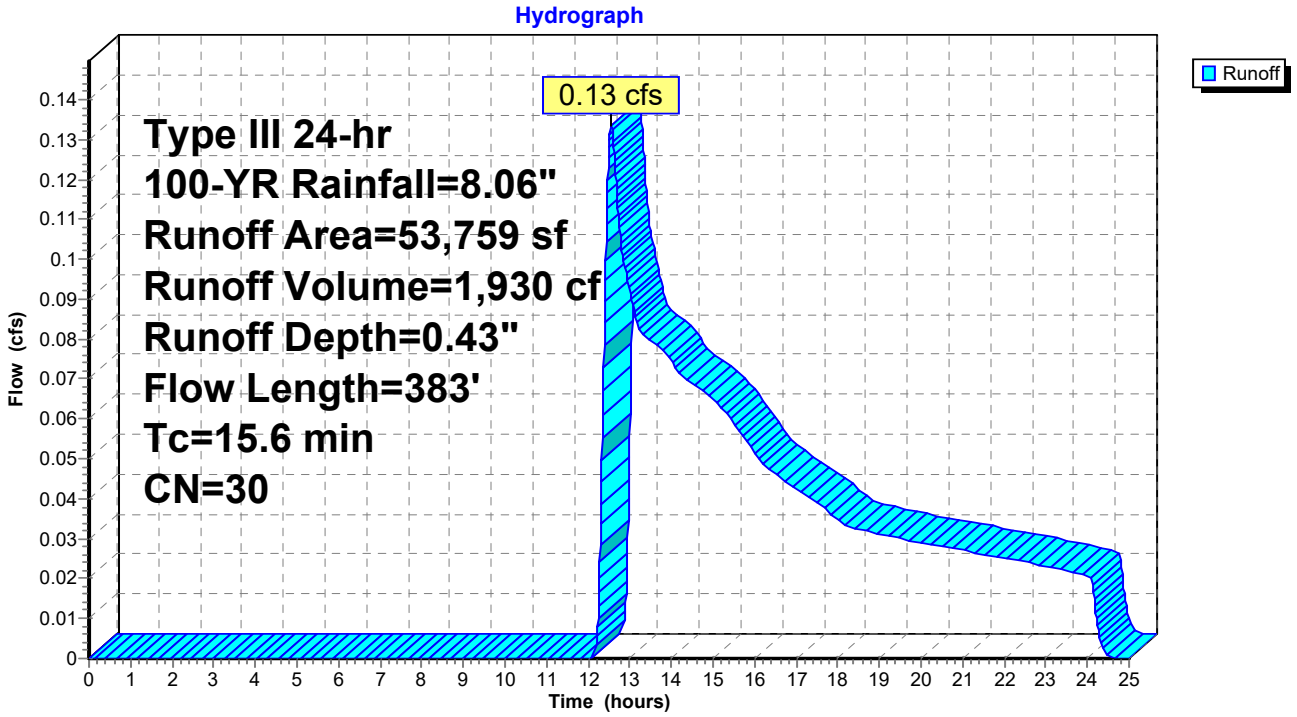
Runoff = 0.13 cfs @ 12.56 hrs, Volume= 1,930 cf, Depth= 0.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.06"

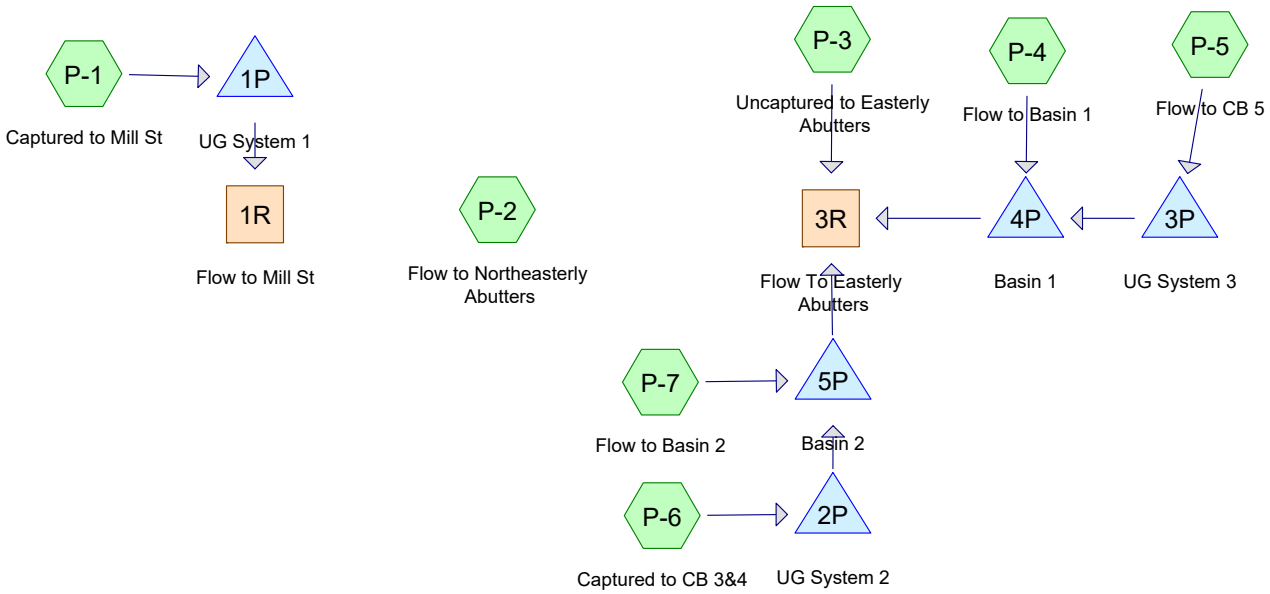
Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Roofs, HSG A
1,983	39	>75% Grass cover, Good, HSG A
51,776	30	Woods, Good, HSG A
53,759	30	Weighted Average
53,759		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	50	0.0760	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
1.4	92	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.7	61	0.0030	0.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	78	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	102	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.6	383	Total			

Subcatchment X-3: Flow to Easterly Abutters



Proposed HydroCAD Report



Subcat Reach Pond Link

Routing Diagram for 217 Mill St - Proposed Drainage (rev 4-6-23)
Prepared by DeCelle-Burke-Sala & Associates, Inc., Printed 4/10/2023
HydroCAD® 10.00-26 s/n 07920 © 2020 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
47,887	39	>75% Grass cover, Good, HSG A (P-1, P-2, P-3, P-4, P-5, P-6, P-7)
19,668	98	Paved parking, HSG A (P-1, P-5, P-6)
7,520	98	Roofs, HSG A (P-4, P-7)
2,437	30	Woods, Good, HSG A (P-2, P-3, P-4)

Summary for Subcatchment P-1: Captured to Mill St

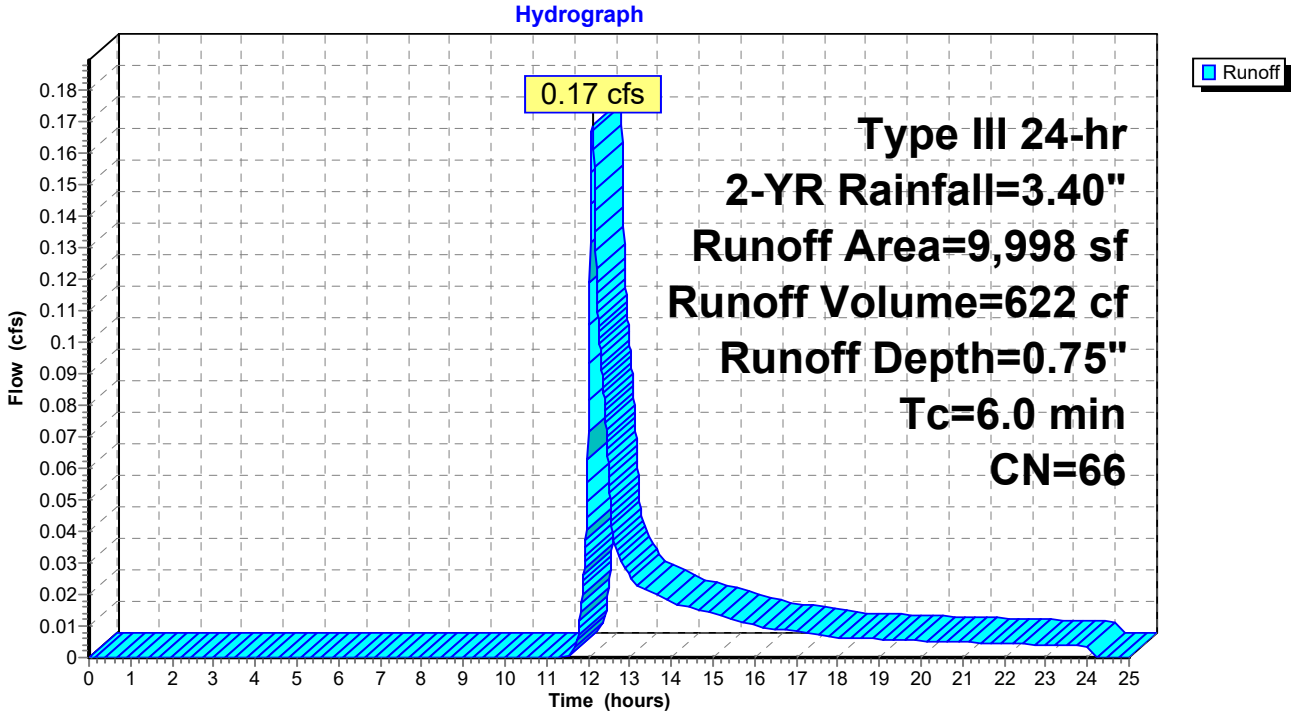
Runoff = 0.17 cfs @ 12.10 hrs, Volume= 622 cf, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
4,541	98	Paved parking, HSG A
5,457	39	>75% Grass cover, Good, HSG A
9,998	66	Weighted Average
5,457		54.58% Pervious Area
4,541		45.42% Impervious Area

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

Subcatchment P-1: Captured to Mill St



Summary for Subcatchment P-2: Flow to Northeasterly Abutters

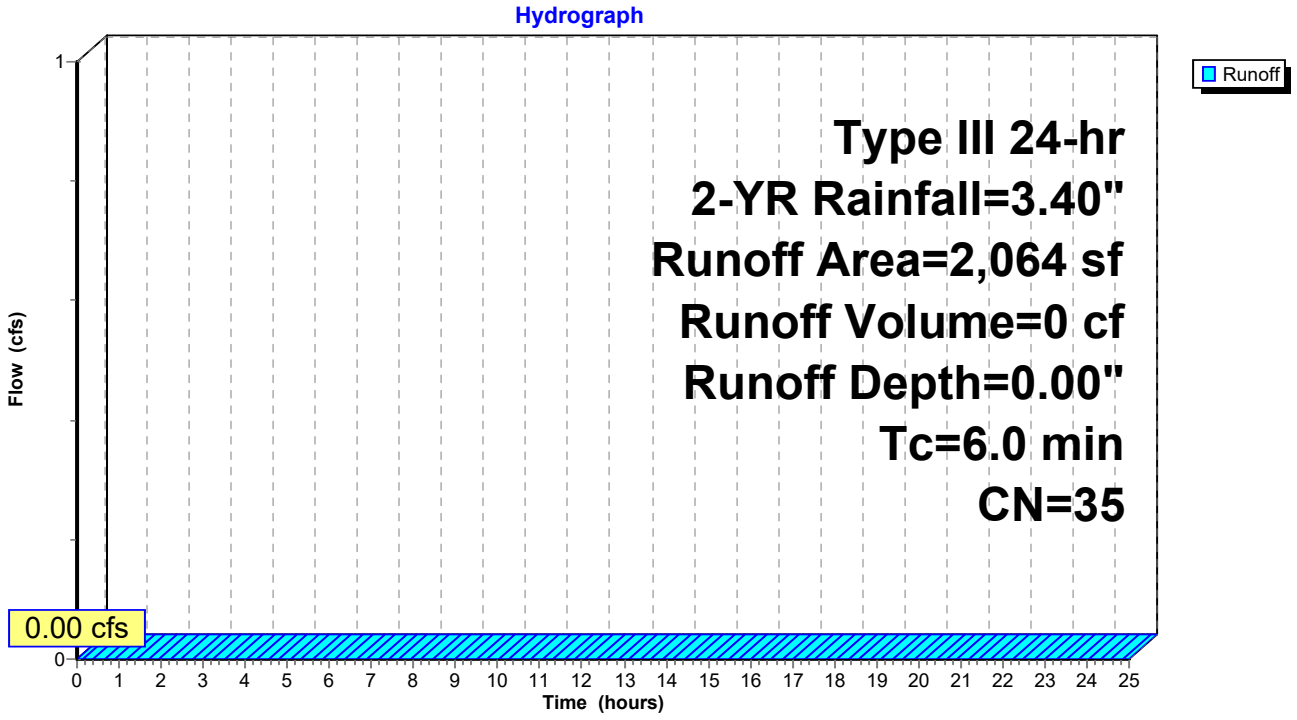
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
1,033	39	>75% Grass cover, Good, HSG A
0	98	Roofs, HSG A
1,031	30	Woods, Good, HSG A
2,064	35	Weighted Average
2,064		100.00% Pervious Area

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

Subcatchment P-2: Flow to Northeasterly Abutters



Summary for Subcatchment P-3: Uncaptured to Easterly Abutters

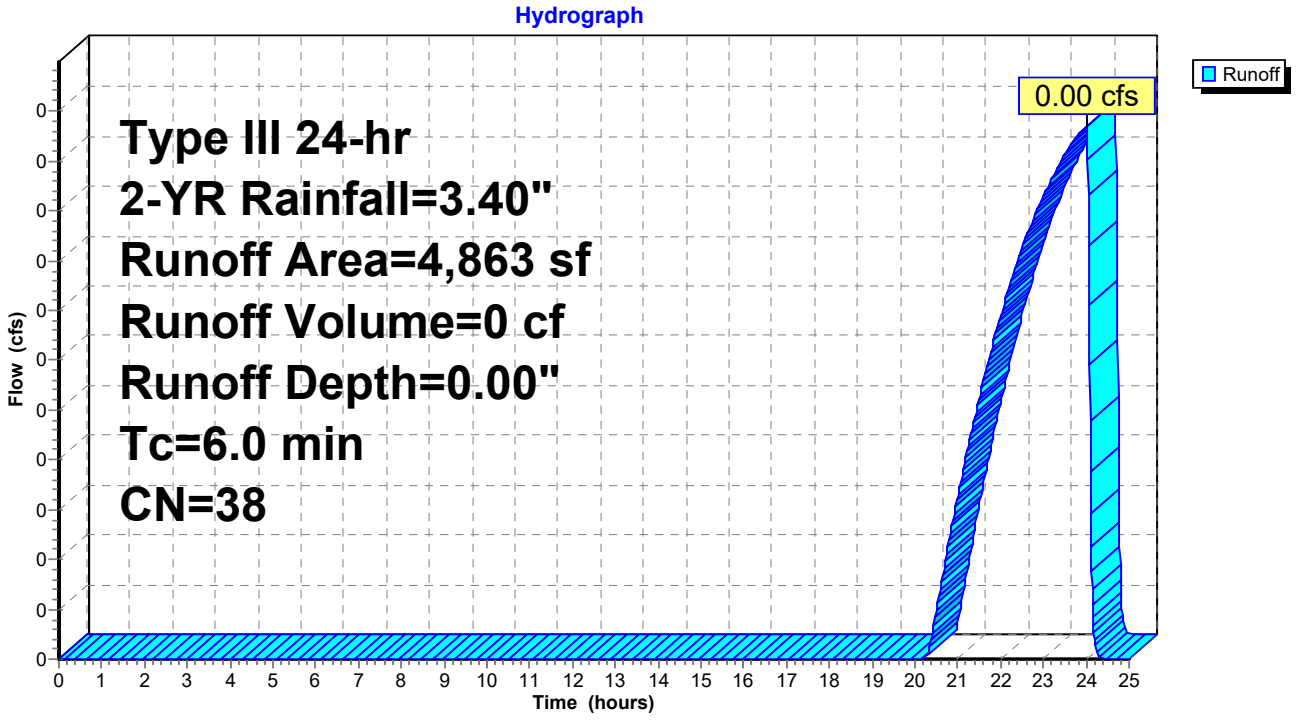
Runoff = 0.00 cfs @ 24.01 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
4,429	39	>75% Grass cover, Good, HSG A
0	98	Roofs, HSG A
434	30	Woods, Good, HSG A
4,863	38	Weighted Average
4,863		100.00% Pervious Area

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

Subcatchment P-3: Uncaptured to Easterly Abutters



Summary for Subcatchment P-4: Flow to Basin 1

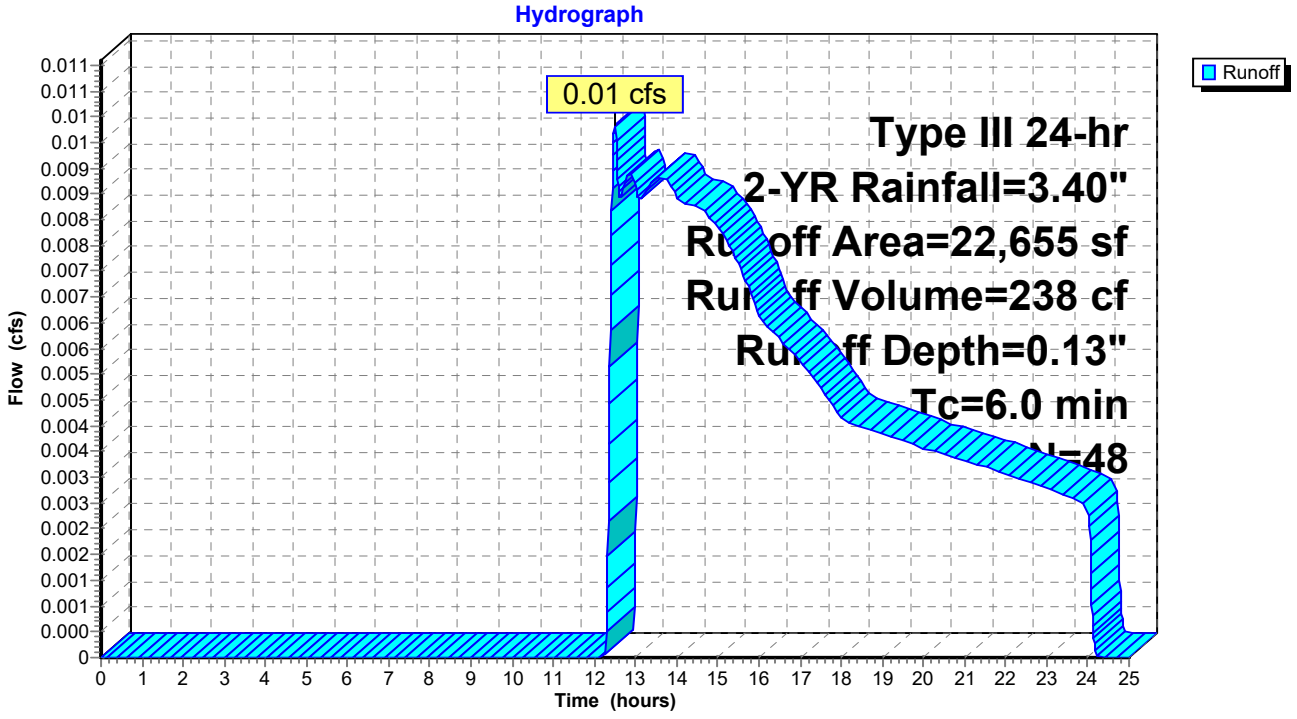
Runoff = 0.01 cfs @ 12.49 hrs, Volume= 238 cf, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
3,760	98	Roofs, HSG A
17,923	39	>75% Grass cover, Good, HSG A
0	98	Paved parking, HSG A
972	30	Woods, Good, HSG A
22,655	48	Weighted Average
18,895		83.40% Pervious Area
3,760		16.60% Impervious Area

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

Subcatchment P-4: Flow to Basin 1



Summary for Subcatchment P-5: Flow to CB 5

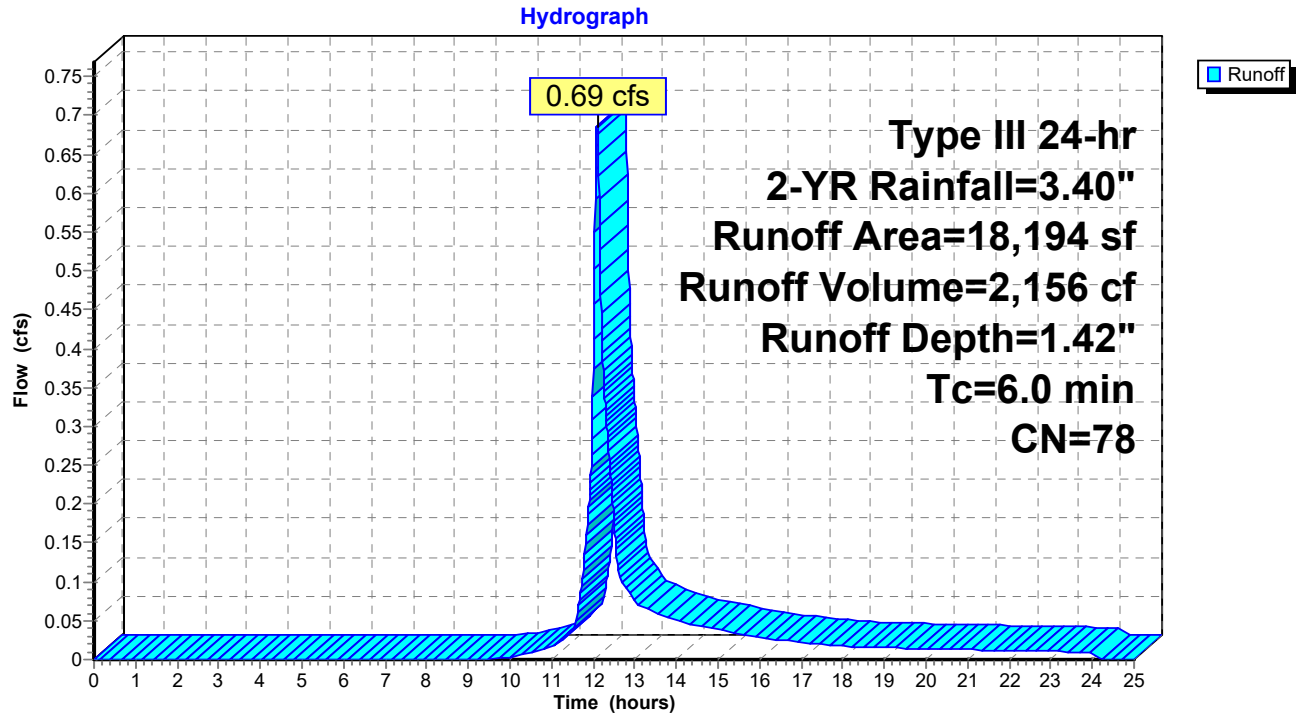
Runoff = 0.69 cfs @ 12.09 hrs, Volume= 2,156 cf, Depth= 1.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
11,917	98	Paved parking, HSG A
6,277	39	>75% Grass cover, Good, HSG A
18,194	78	Weighted Average
6,277		34.50% Pervious Area
11,917		65.50% Impervious Area

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

Subcatchment P-5: Flow to CB 5



Summary for Subcatchment P-6: Captured to CB 3&4

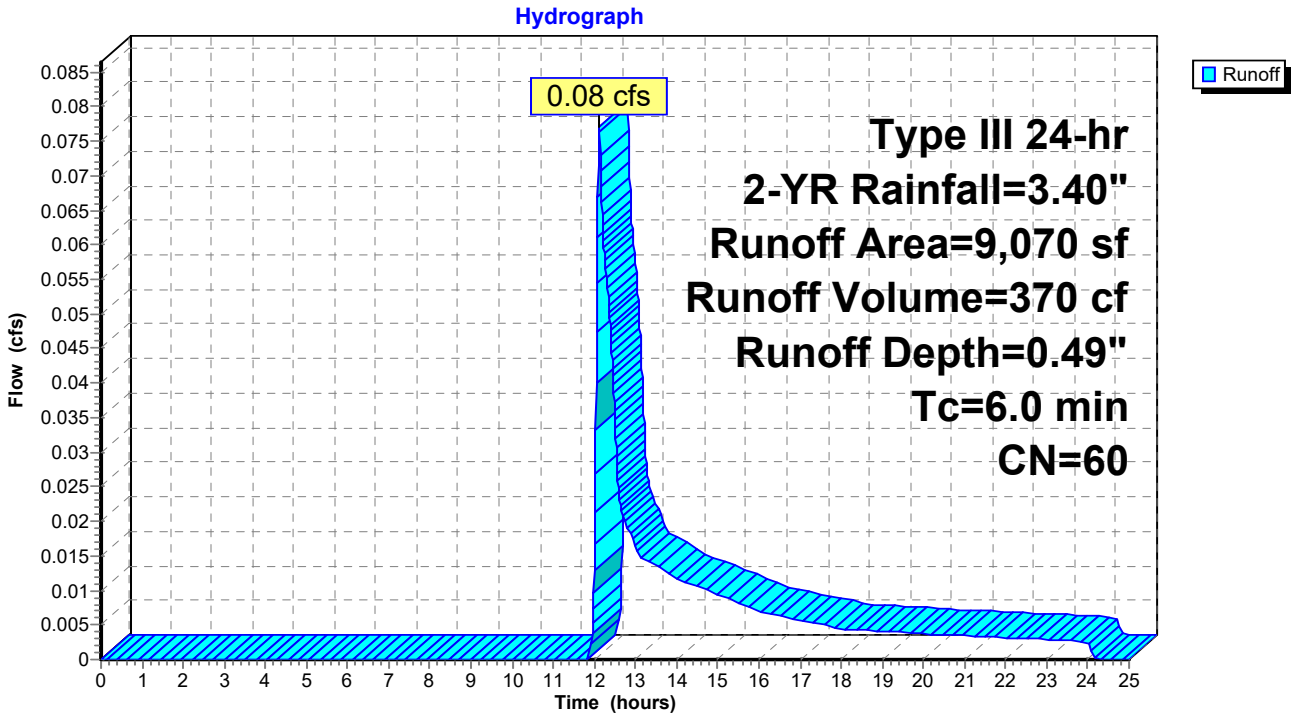
Runoff = 0.08 cfs @ 12.12 hrs, Volume= 370 cf, Depth= 0.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
3,210	98	Paved parking, HSG A
5,860	39	>75% Grass cover, Good, HSG A
9,070	60	Weighted Average
5,860		64.61% Pervious Area
3,210		35.39% Impervious Area

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

Subcatchment P-6: Captured to CB 3&4



Summary for Subcatchment P-7: Flow to Basin 2

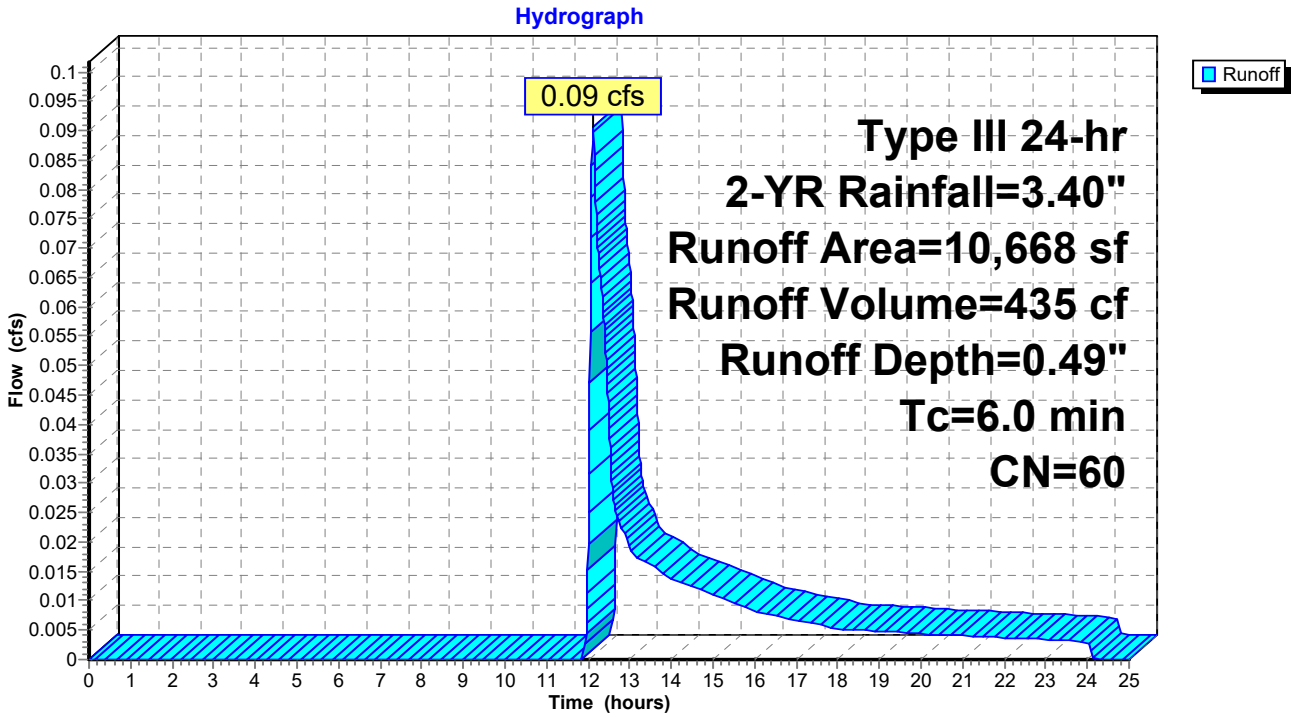
Runoff = 0.09 cfs @ 12.12 hrs, Volume= 435 cf, Depth= 0.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
3,760	98	Roofs, HSG A
6,908	39	>75% Grass cover, Good, HSG A
10,668	60	Weighted Average
6,908		64.75% Pervious Area
3,760		35.25% Impervious Area

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

Subcatchment P-7: Flow to Basin 2

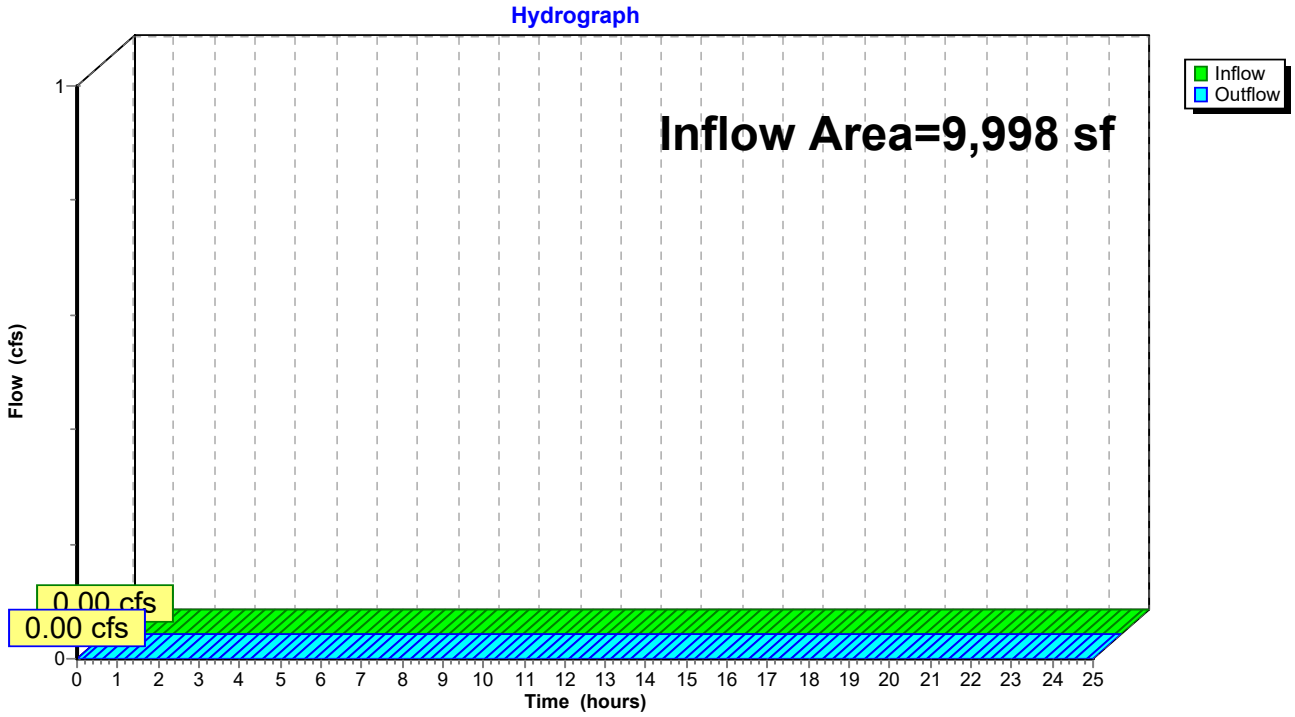


Summary for Reach 1R: Flow to Mill St

Inflow Area = 9,998 sf, 45.42% Impervious, Inflow Depth = 0.00" for 2-YR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Reach 1R: Flow to Mill St

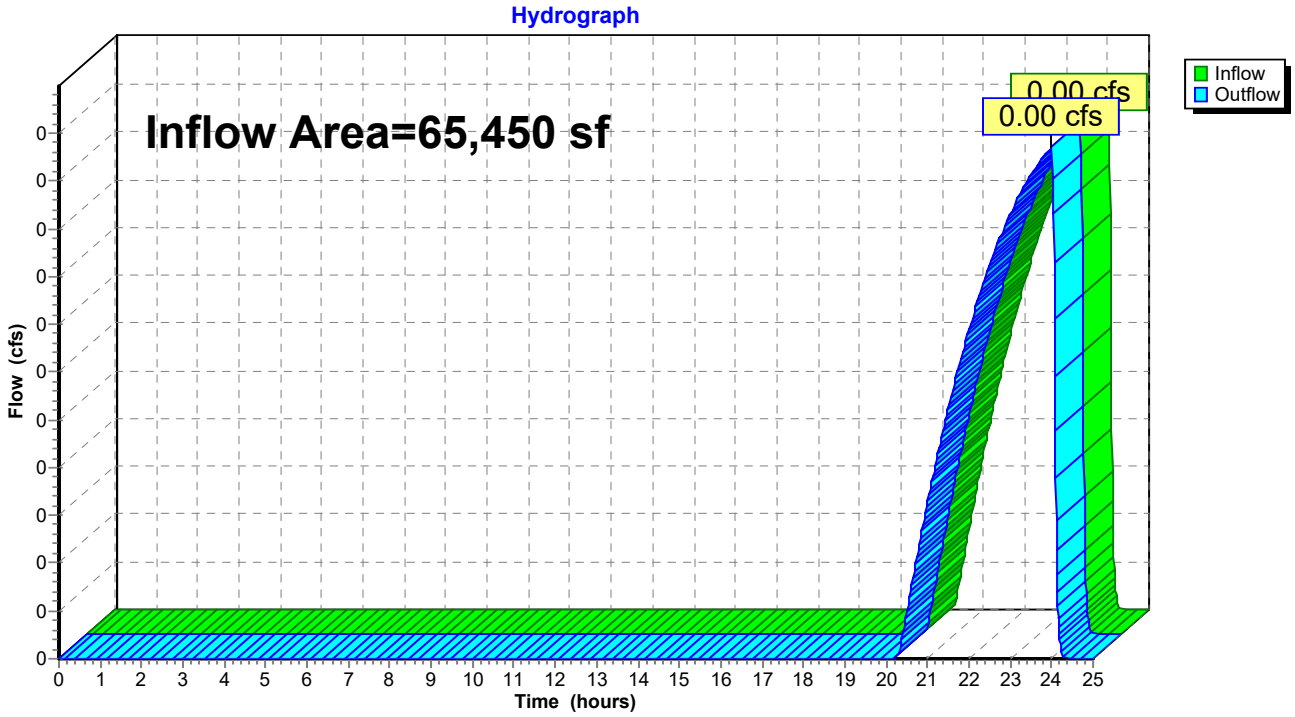


Summary for Reach 3R: Flow To Easterly Abutters

Inflow Area = 65,450 sf, 34.60% Impervious, Inflow Depth = 0.00" for 2-YR event
Inflow = 0.00 cfs @ 24.01 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 24.01 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Reach 3R: Flow To Easterly Abutters



Summary for Pond 1P: UG System 1

Inflow Area = 9,998 sf, 45.42% Impervious, Inflow Depth = 0.75" for 2-YR event
Inflow = 0.17 cfs @ 12.10 hrs, Volume= 622 cf
Outflow = 0.06 cfs @ 12.01 hrs, Volume= 622 cf, Atten= 67%, Lag= 0.0 min
Discarded = 0.06 cfs @ 12.01 hrs, Volume= 622 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 123.06' @ 12.50 hrs Surf.Area= 293 sf Storage= 98 cf

Plug-Flow detention time= 9.2 min calculated for 622 cf (100% of inflow)
Center-of-Mass det. time= 9.2 min (894.9 - 885.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	122.00'	292 cf	**7.50'W x 39.00'L x 5.25'H Field A** 1,536 cf Overall - 561 cf Embedded = 975 cf x 30.0% Voids
#2A	123.00'	417 cf	**Shea Leaching Chamber 4x4x4** x 9 Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf
#3	123.34'	5 cf	**10.0" Round Pipe Storage**-Impervious L= 9.3' S= 0.0050 '/'
#4	123.39'	11 cf	**10.0" Round Pipe Storage**-Impervious L= 20.1' S= 0.0050 '/'
#5	123.50'	38 cf	**4.00'D x 3.00'H Vertical Cone/Cylinder**-Impervious
#6	126.50'	22 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		785 cf	Total Available Storage

Storage Group A created with Chamber Wizard

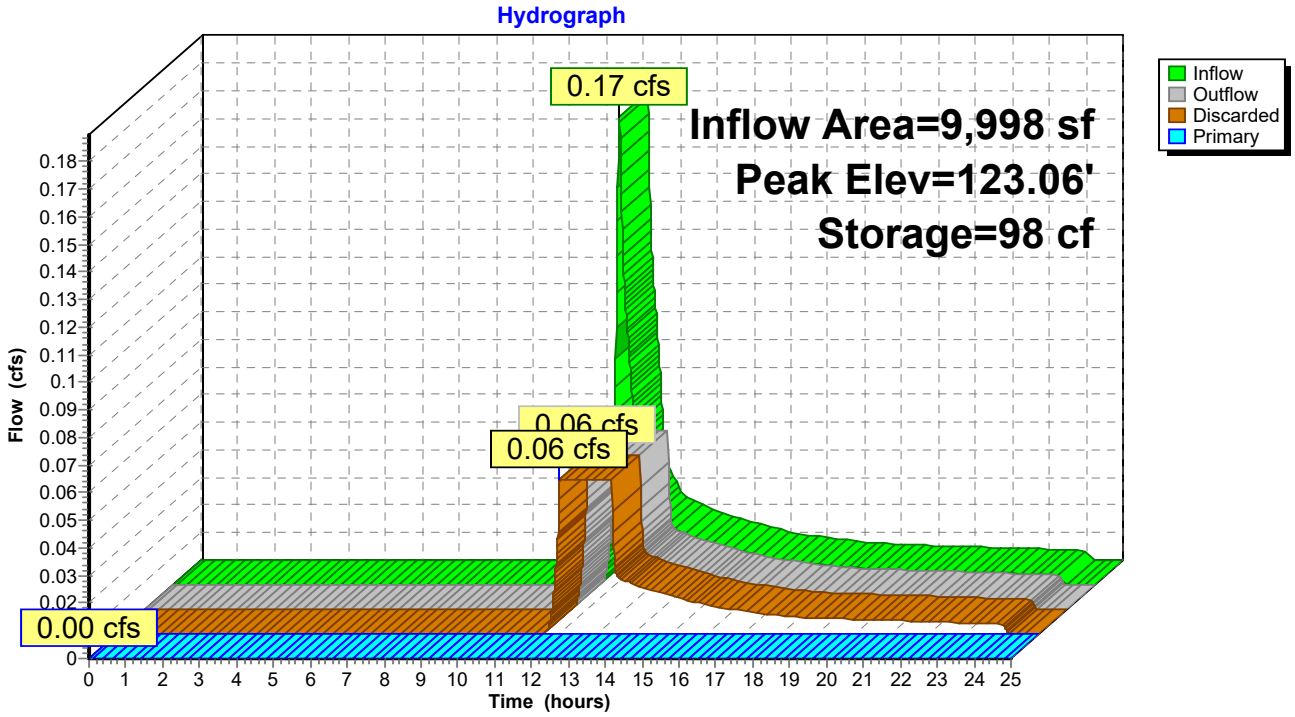
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
126.50	4	0	0
128.00	25	22	22

Device	Routing	Invert	Outlet Devices
#1	Discarded	122.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	126.50'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Discarded OutFlow Max=0.06 cfs @ 12.01 hrs HW=122.07' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=122.00' (Free Discharge)
↑**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: UG System 1



Summary for Pond 2P: UG System 2

Inflow Area = 9,070 sf, 35.39% Impervious, Inflow Depth = 0.49" for 2-YR event
Inflow = 0.08 cfs @ 12.12 hrs, Volume= 370 cf
Outflow = 0.07 cfs @ 12.11 hrs, Volume= 370 cf, Atten= 13%, Lag= 0.0 min
Discarded = 0.07 cfs @ 12.11 hrs, Volume= 370 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 128.82' @ 12.18 hrs Surf.Area= 350 sf Storage= 7 cf

Plug-Flow detention time= 1.4 min calculated for 369 cf (100% of inflow)
Center-of-Mass det. time= 1.4 min (913.8 - 912.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	128.75'	327 cf	**17.50'W x 20.00'L x 5.25'H Field A** 1,838 cf Overall - 748 cf Embedded = 1,090 cf x 30.0% Voids
#2A	129.75'	557 cf	**Shea Leaching Chamber 4x4x4** x 12 Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf 12 Chambers in 3 Rows
		883 cf	Total Available Storage

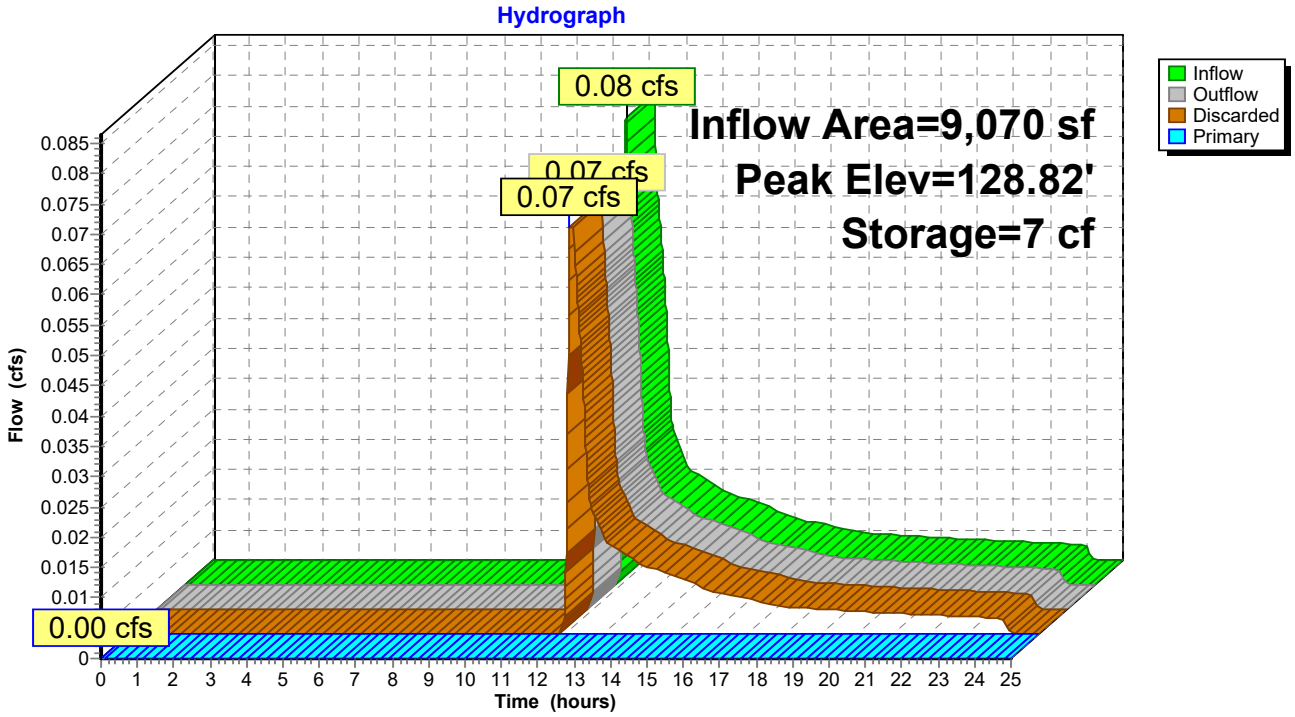
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	128.75'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	131.00'	**12.0" Round Culvert** L= 84.2' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 131.00' / 126.00' S= 0.0594 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.07 cfs @ 12.11 hrs HW=128.80' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=128.75' (Free Discharge)
↑—**2=Culvert** (Controls 0.00 cfs)

Pond 2P: UG System 2



Summary for Pond 3P: UG System 3

Inflow Area = 18,194 sf, 65.50% Impervious, Inflow Depth = 1.42" for 2-YR event
Inflow = 0.69 cfs @ 12.09 hrs, Volume= 2,156 cf
Outflow = 0.21 cfs @ 11.93 hrs, Volume= 2,156 cf, Atten= 70%, Lag= 0.0 min
Discarded = 0.21 cfs @ 11.93 hrs, Volume= 2,156 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 130.09' @ 12.46 hrs Surf.Area= 1,072 sf Storage= 385 cf

Plug-Flow detention time= 9.9 min calculated for 2,155 cf (100% of inflow)
Center-of-Mass det. time= 9.9 min (855.8 - 845.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	129.00'	835 cf	**15.76'W x 68.00'L x 4.50'H Field A** 4,823 cf Overall - 2,039 cf Embedded = 2,784 cf x 30.0% Voids
#2A	130.00'	1,464 cf	**Shea Leaching Chamber 4x4x3** x 48 Inside #1 Inside= 41.0"W x 30.0"H => 8.72 sf x 3.50'L = 30.5 cf Outside= 47.0"W x 36.0"H => 10.62 sf x 4.00'L = 42.5 cf 48 Chambers in 3 Rows
		2,299 cf	Total Available Storage

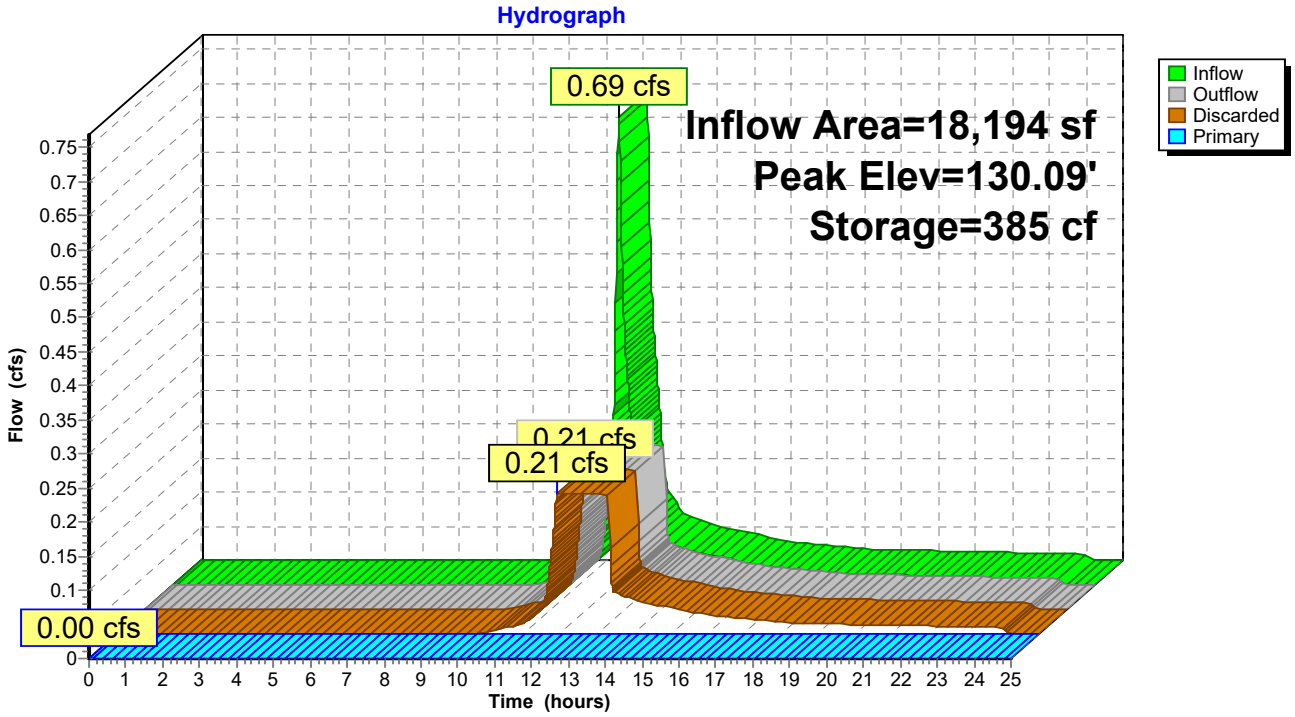
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	129.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	131.50'	**10.0" Round Culvert** L= 56.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 131.50' / 128.00' S= 0.0619 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Discarded OutFlow Max=0.21 cfs @ 11.93 hrs HW=129.05' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.21 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=129.00' (Free Discharge)
↑**2=Culvert** (Controls 0.00 cfs)

Pond 3P: UG System 3



Summary for Pond 4P: Basin 1

Inflow Area = 40,849 sf, 38.38% Impervious, Inflow Depth = 0.07" for 2-YR event
Inflow = 0.01 cfs @ 12.49 hrs, Volume= 238 cf
Outflow = 0.01 cfs @ 12.52 hrs, Volume= 238 cf, Atten= 2%, Lag= 1.8 min
Discarded = 0.01 cfs @ 12.52 hrs, Volume= 238 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 126.00' @ 12.52 hrs Surf.Area= 941 sf Storage= 1 cf

Plug-Flow detention time= 1.7 min calculated for 238 cf (100% of inflow)
Center-of-Mass det. time= 1.7 min (1,018.7 - 1,017.0)

Volume	Invert	Avail.Storage	Storage Description
#1	126.00'	3,407 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

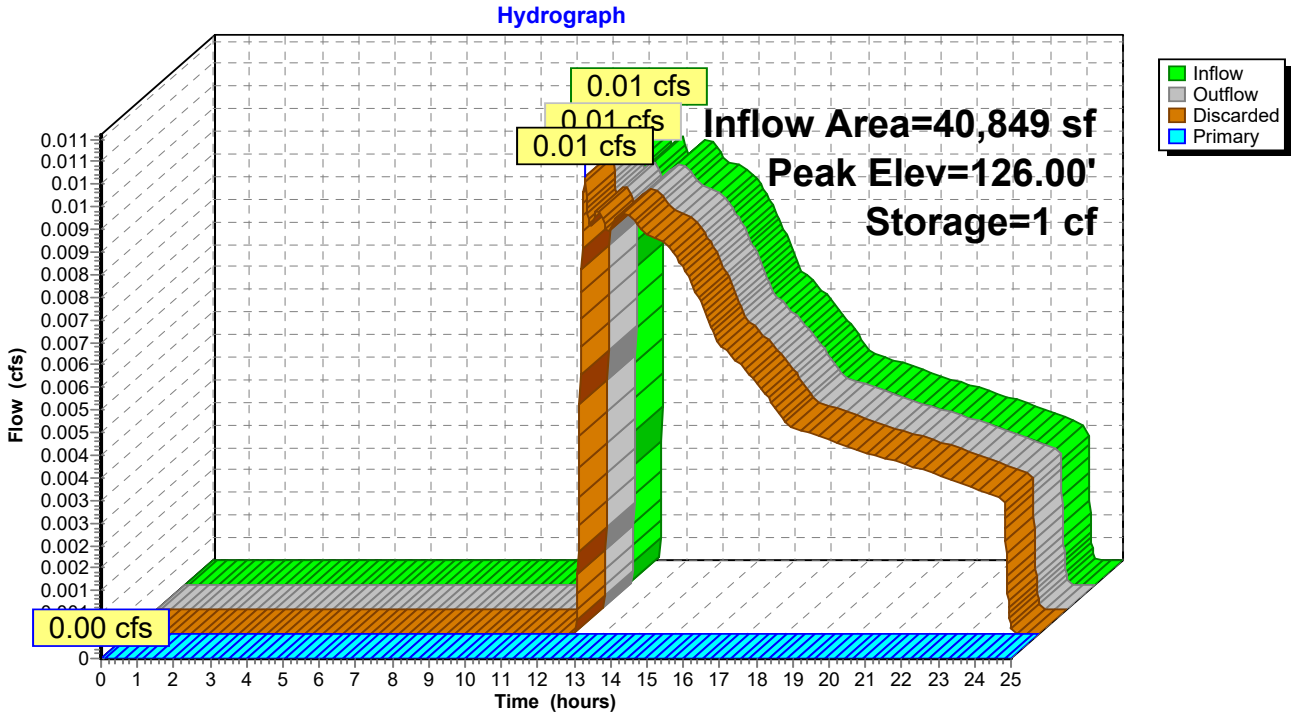
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
126.00	940	0	0
128.00	2,467	3,407	3,407

Device	Routing	Invert	Outlet Devices
#1	Discarded	126.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	127.50'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.18 cfs @ 12.52 hrs HW=126.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.18 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=126.00' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4P: Basin 1



Summary for Pond 5P: Basin 2

Inflow Area = 19,738 sf, 35.31% Impervious, Inflow Depth = 0.26" for 2-YR event
Inflow = 0.09 cfs @ 12.12 hrs, Volume= 435 cf
Outflow = 0.09 cfs @ 12.15 hrs, Volume= 435 cf, Atten= 5%, Lag= 1.9 min
Discarded = 0.09 cfs @ 12.15 hrs, Volume= 435 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 124.02' @ 12.15 hrs Surf.Area= 514 sf Storage= 9 cf

Plug-Flow detention time= 1.7 min calculated for 435 cf (100% of inflow)
Center-of-Mass det. time= 1.7 min (914.1 - 912.4)

Volume	Invert	Avail.Storage	Storage Description
#1	124.00'	1,971 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

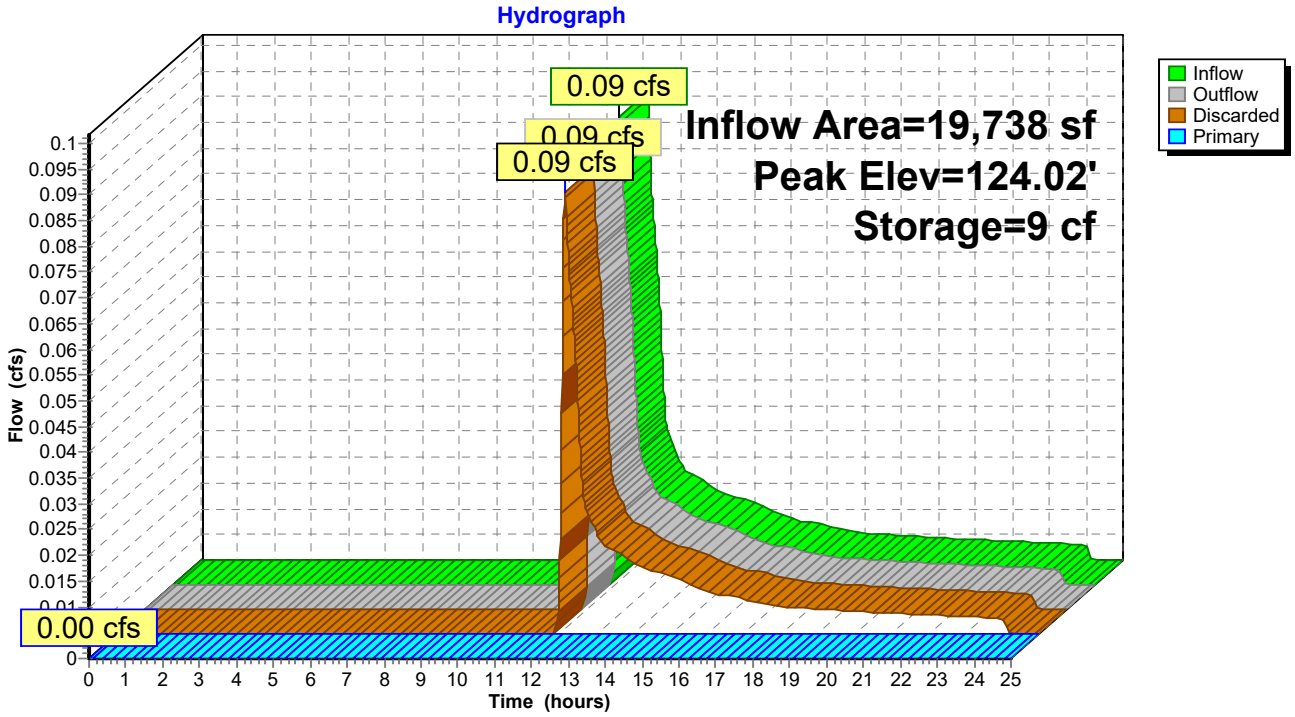
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
124.00	506	0	0
126.00	1,465	1,971	1,971

Device	Routing	Invert	Outlet Devices
#1	Discarded	124.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	125.50'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.10 cfs @ 12.15 hrs HW=124.02' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.10 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=124.00' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5P: Basin 2



Summary for Subcatchment P-1: Captured to Mill St

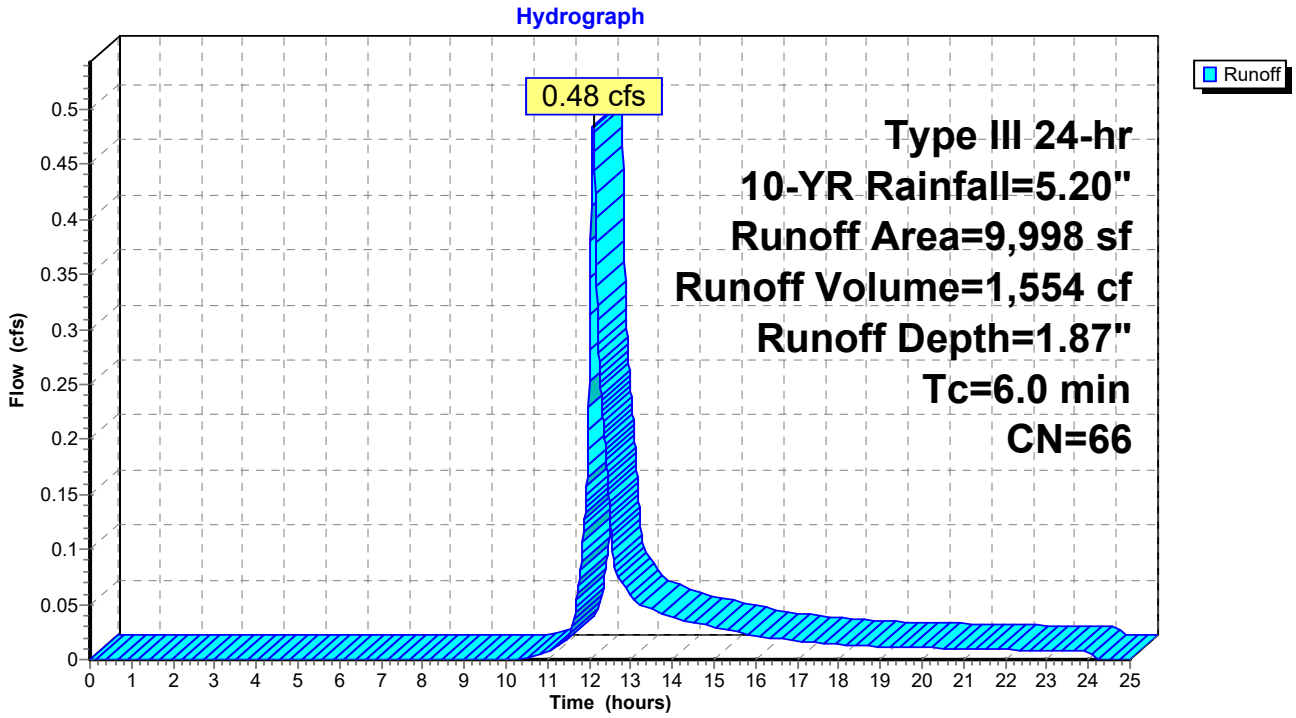
Runoff = 0.48 cfs @ 12.09 hrs, Volume= 1,554 cf, Depth= 1.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.20"

Area (sf)	CN	Description
4,541	98	Paved parking, HSG A
5,457	39	>75% Grass cover, Good, HSG A
9,998	66	Weighted Average
5,457		54.58% Pervious Area
4,541		45.42% Impervious Area

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

Subcatchment P-1: Captured to Mill St



Summary for Subcatchment P-2: Flow to Northeasterly Abutters

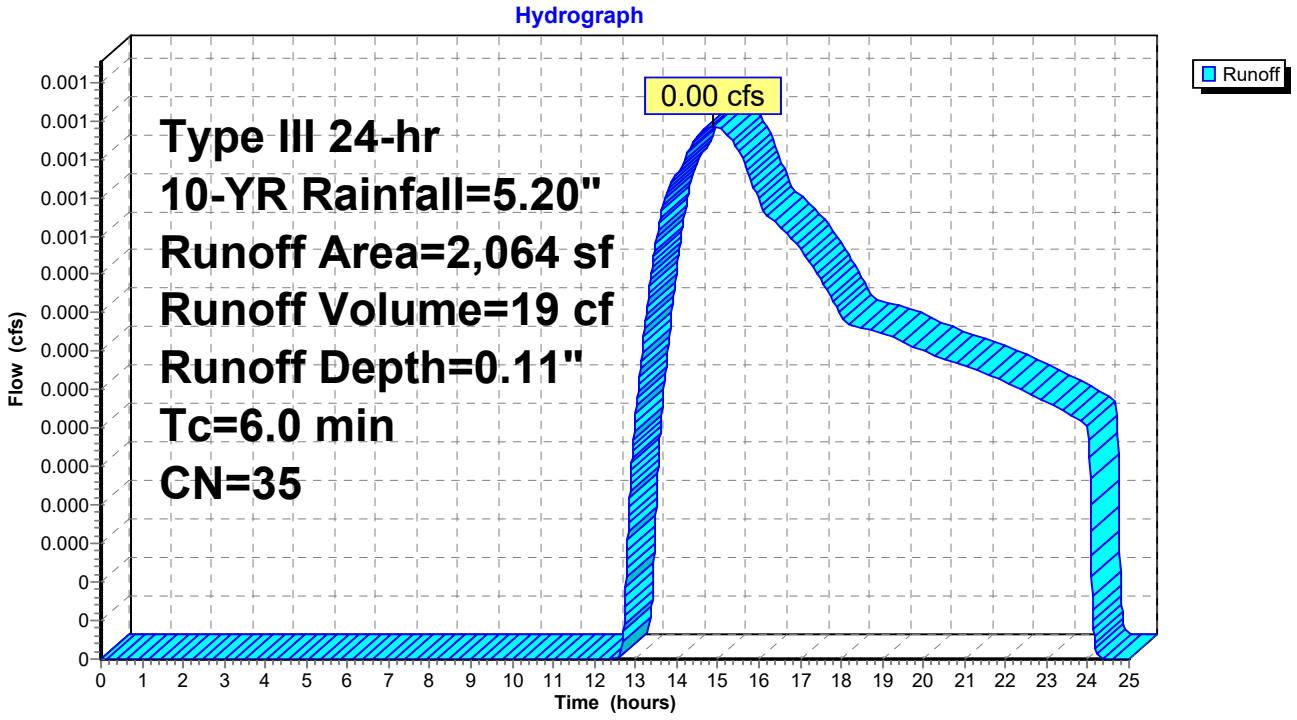
Runoff = 0.00 cfs @ 14.86 hrs, Volume= 19 cf, Depth= 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.20"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
1,033	39	>75% Grass cover, Good, HSG A
0	98	Roofs, HSG A
1,031	30	Woods, Good, HSG A
2,064	35	Weighted Average
2,064		100.00% Pervious Area

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

Subcatchment P-2: Flow to Northeasterly Abutters



Summary for Subcatchment P-3: Uncaptured to Easterly Abutters

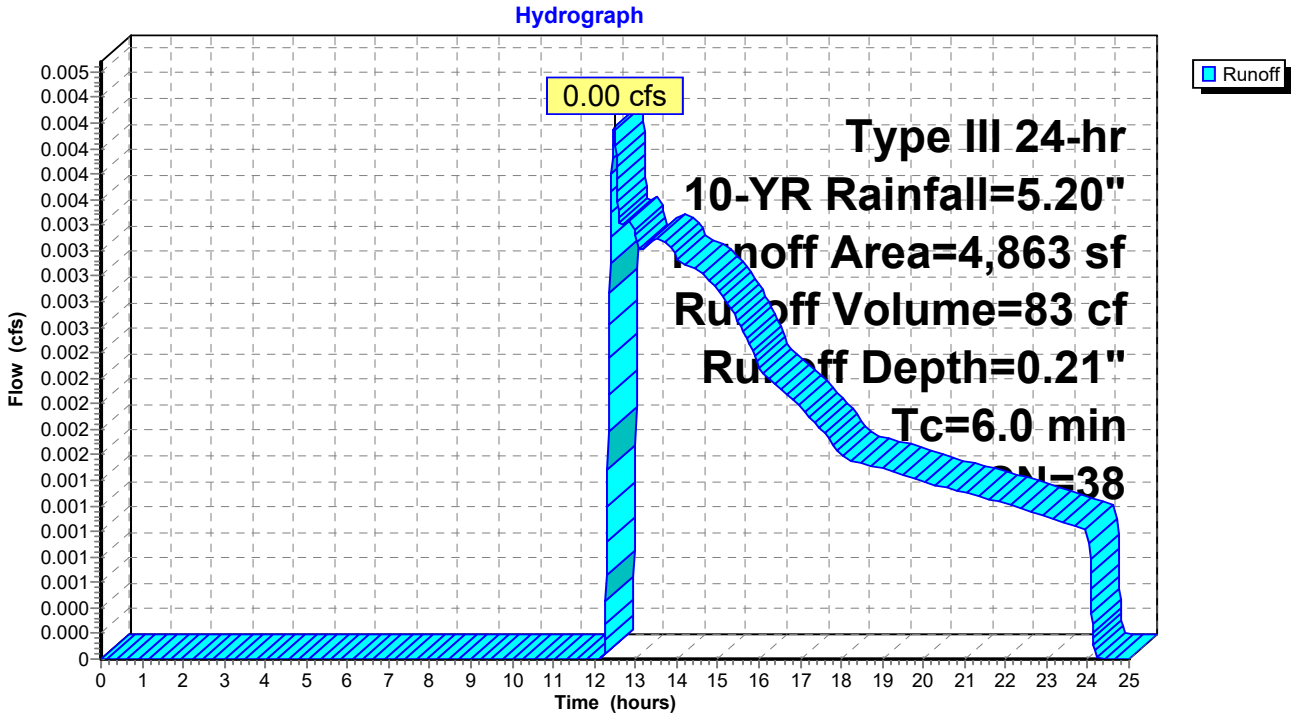
Runoff = 0.00 cfs @ 12.48 hrs, Volume= 83 cf, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.20"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
4,429	39	>75% Grass cover, Good, HSG A
0	98	Roofs, HSG A
434	30	Woods, Good, HSG A
4,863	38	Weighted Average
4,863		100.00% Pervious Area

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

Subcatchment P-3: Uncaptured to Easterly Abutters



Summary for Subcatchment P-4: Flow to Basin 1

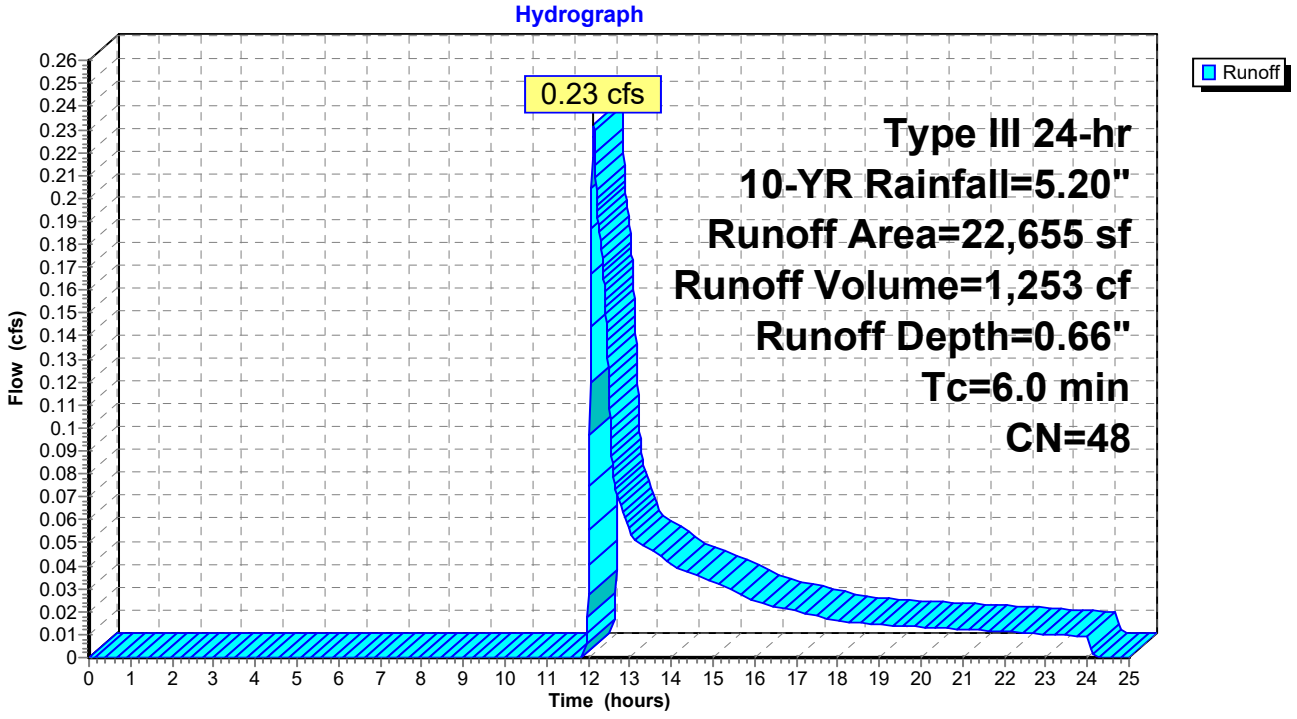
Runoff = 0.23 cfs @ 12.13 hrs, Volume= 1,253 cf, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.20"

Area (sf)	CN	Description
3,760	98	Roofs, HSG A
17,923	39	>75% Grass cover, Good, HSG A
0	98	Paved parking, HSG A
972	30	Woods, Good, HSG A
22,655	48	Weighted Average
18,895		83.40% Pervious Area
3,760		16.60% Impervious Area

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

Subcatchment P-4: Flow to Basin 1



Summary for Subcatchment P-5: Flow to CB 5

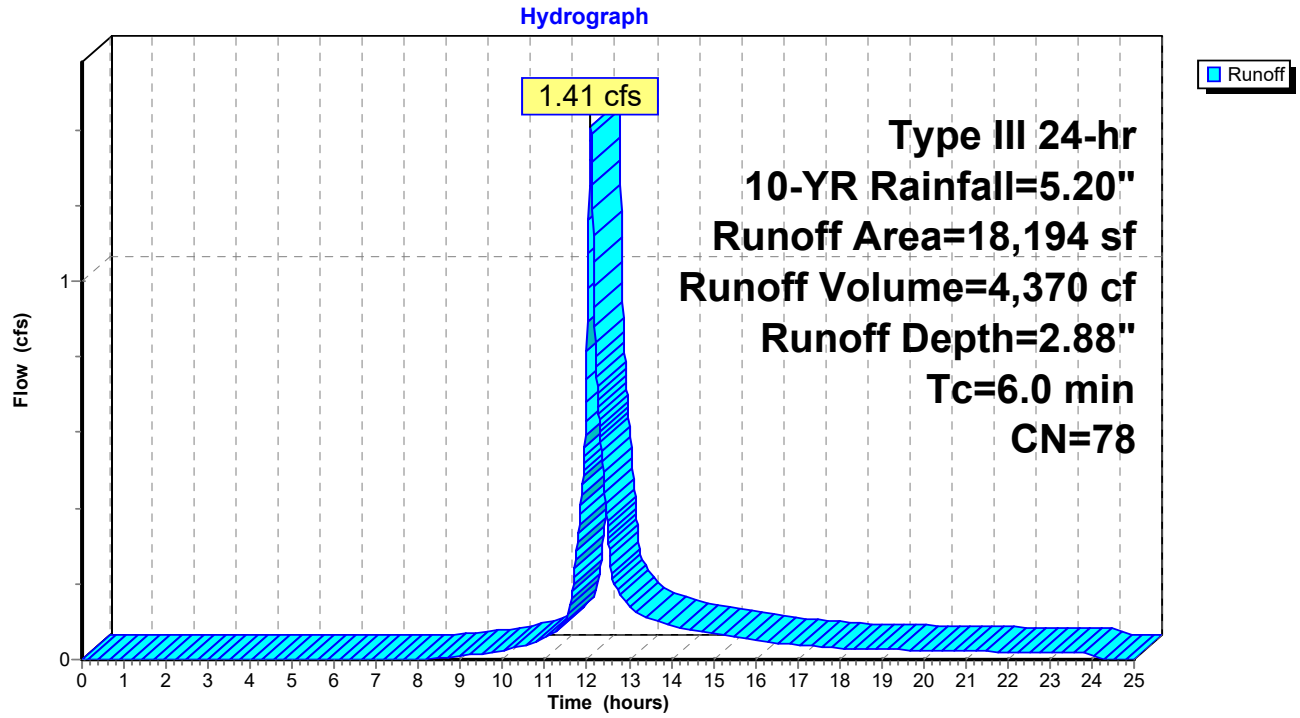
Runoff = 1.41 cfs @ 12.09 hrs, Volume= 4,370 cf, Depth= 2.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.20"

Area (sf)	CN	Description
11,917	98	Paved parking, HSG A
6,277	39	>75% Grass cover, Good, HSG A
18,194	78	Weighted Average
6,277		34.50% Pervious Area
11,917		65.50% Impervious Area

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

Subcatchment P-5: Flow to CB 5



Summary for Subcatchment P-6: Captured to CB 3&4

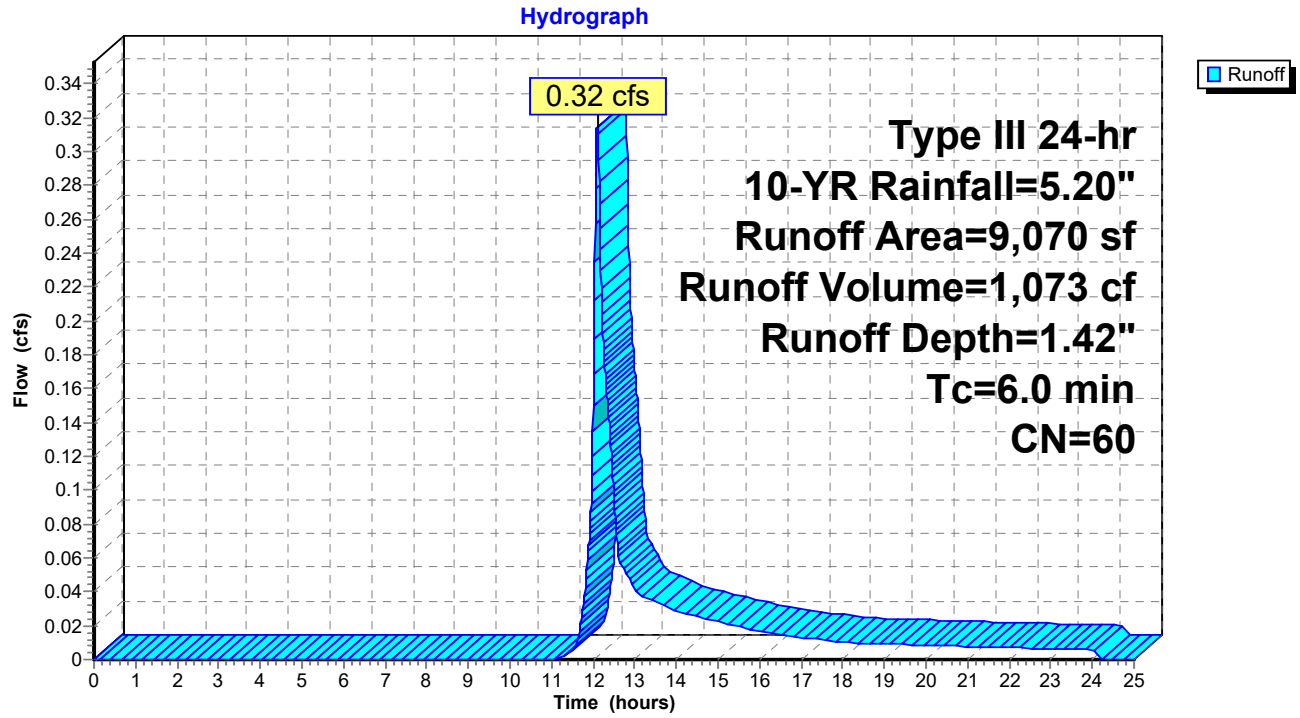
Runoff = 0.32 cfs @ 12.10 hrs, Volume= 1,073 cf, Depth= 1.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.20"

Area (sf)	CN	Description
3,210	98	Paved parking, HSG A
5,860	39	>75% Grass cover, Good, HSG A
9,070	60	Weighted Average
5,860		64.61% Pervious Area
3,210		35.39% Impervious Area

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

Subcatchment P-6: Captured to CB 3&4



Summary for Subcatchment P-7: Flow to Basin 2

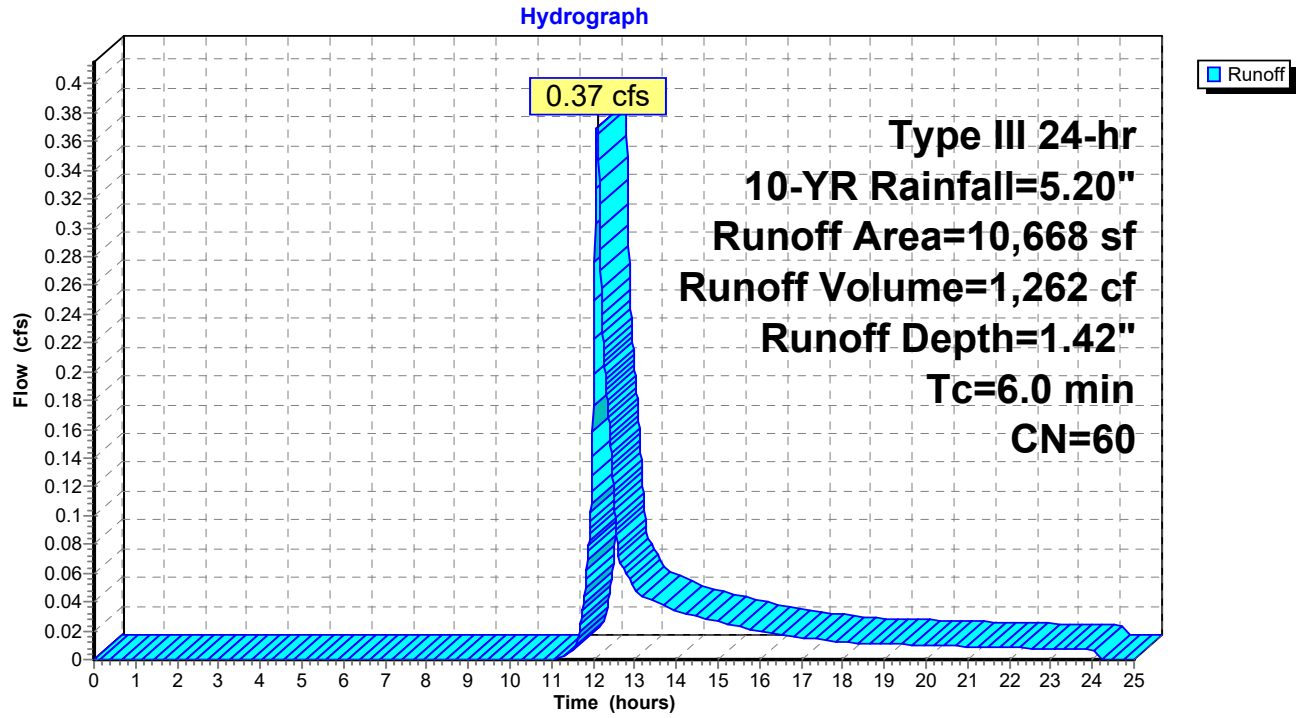
Runoff = 0.37 cfs @ 12.10 hrs, Volume= 1,262 cf, Depth= 1.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.20"

Area (sf)	CN	Description
3,760	98	Roofs, HSG A
6,908	39	>75% Grass cover, Good, HSG A
10,668	60	Weighted Average
6,908		64.75% Pervious Area
3,760		35.25% Impervious Area

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

Subcatchment P-7: Flow to Basin 2

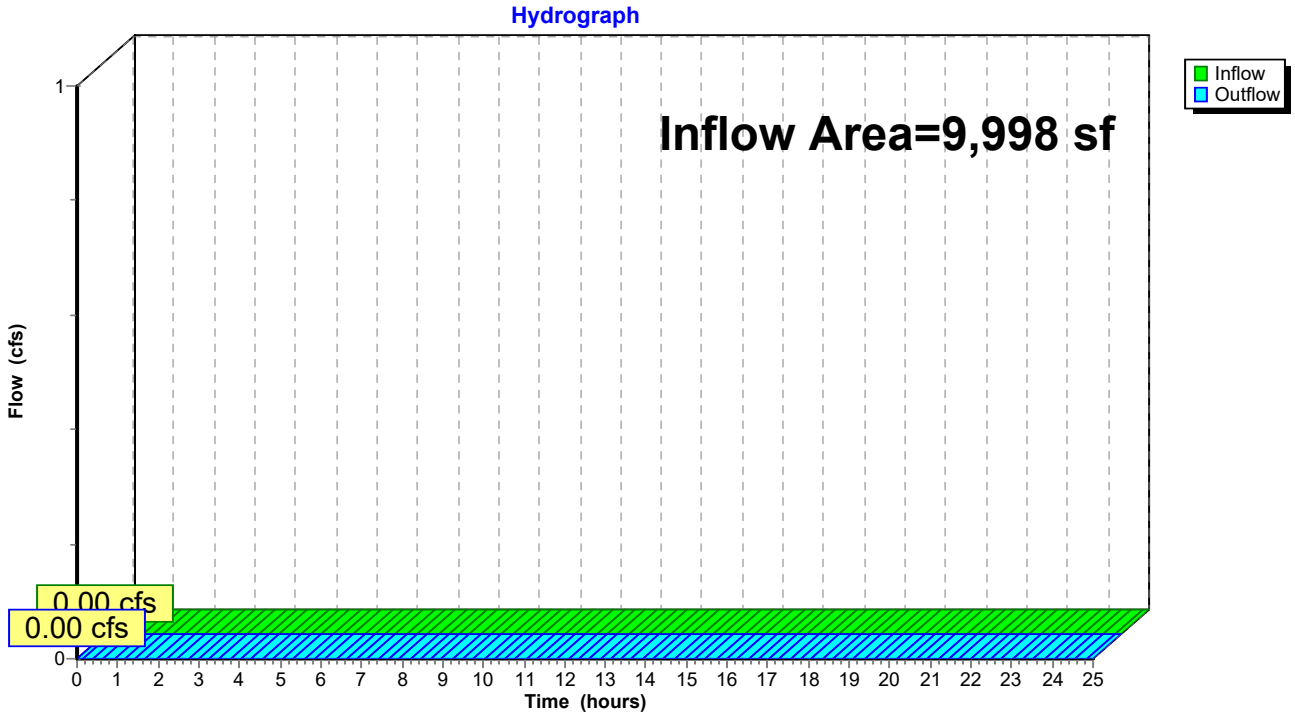


Summary for Reach 1R: Flow to Mill St

Inflow Area = 9,998 sf, 45.42% Impervious, Inflow Depth = 0.00" for 10-YR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Reach 1R: Flow to Mill St

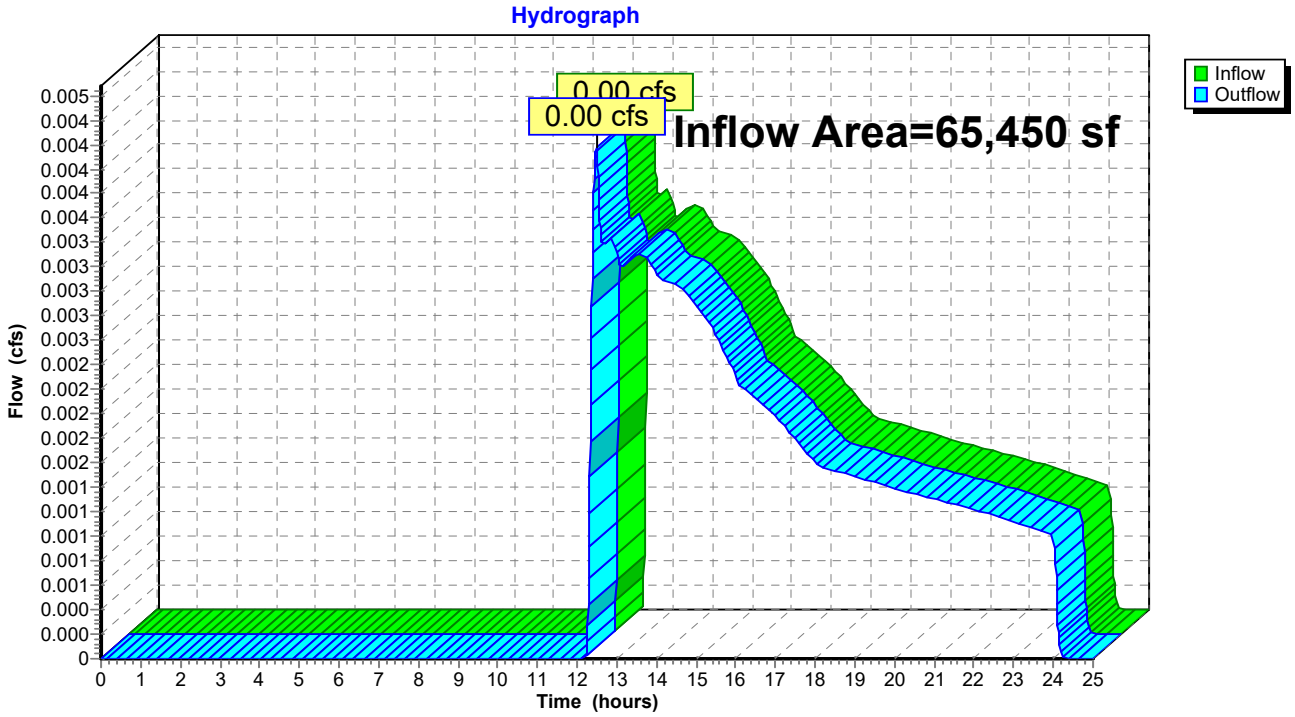


Summary for Reach 3R: Flow To Easterly Abutters

Inflow Area = 65,450 sf, 34.60% Impervious, Inflow Depth = 0.02" for 10-YR event
Inflow = 0.00 cfs @ 12.48 hrs, Volume= 83 cf
Outflow = 0.00 cfs @ 12.48 hrs, Volume= 83 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Reach 3R: Flow To Easterly Abutters



Summary for Pond 1P: UG System 1

Inflow Area = 9,998 sf, 45.42% Impervious, Inflow Depth = 1.87" for 10-YR event
Inflow = 0.48 cfs @ 12.09 hrs, Volume= 1,554 cf
Outflow = 0.06 cfs @ 11.74 hrs, Volume= 1,554 cf, Atten= 88%, Lag= 0.0 min
Discarded = 0.06 cfs @ 11.74 hrs, Volume= 1,554 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 125.48' @ 13.02 hrs Surf.Area= 293 sf Storage= 525 cf

Plug-Flow detention time= 80.2 min calculated for 1,553 cf (100% of inflow)
Center-of-Mass det. time= 80.2 min (936.0 - 855.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	122.00'	292 cf	**7.50'W x 39.00'L x 5.25'H Field A** 1,536 cf Overall - 561 cf Embedded = 975 cf x 30.0% Voids
#2A	123.00'	417 cf	**Shea Leaching Chamber 4x4x4** x 9 Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf
#3	123.34'	5 cf	**10.0" Round Pipe Storage**-Impervious L= 9.3' S= 0.0050 '/'
#4	123.39'	11 cf	**10.0" Round Pipe Storage**-Impervious L= 20.1' S= 0.0050 '/'
#5	123.50'	38 cf	**4.00'D x 3.00'H Vertical Cone/Cylinder**-Impervious
#6	126.50'	22 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		785 cf	Total Available Storage

Storage Group A created with Chamber Wizard

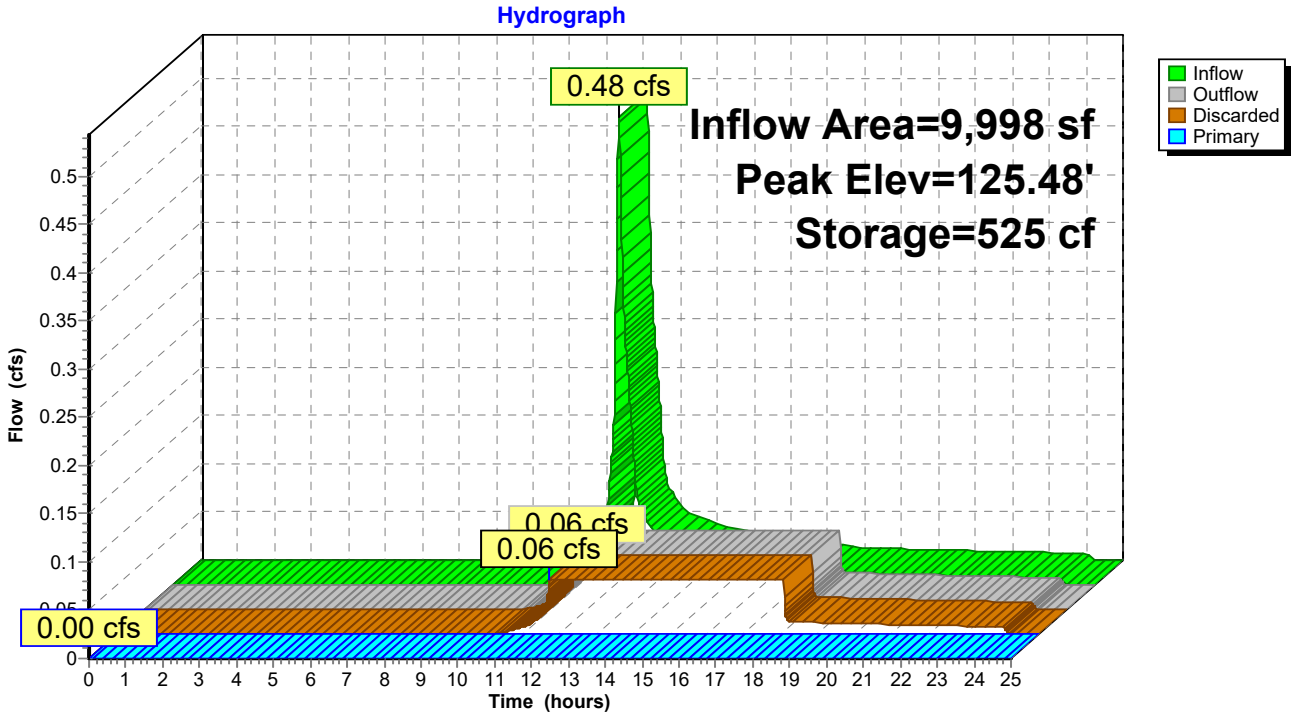
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
126.50	4	0	0
128.00	25	22	22

Device	Routing	Invert	Outlet Devices
#1	Discarded	122.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	126.50'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Discarded OutFlow Max=0.06 cfs @ 11.74 hrs HW=122.06' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=122.00' (Free Discharge)
↑**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: UG System 1



Summary for Pond 2P: UG System 2

Inflow Area = 9,070 sf, 35.39% Impervious, Inflow Depth = 1.42" for 10-YR event
Inflow = 0.32 cfs @ 12.10 hrs, Volume= 1,073 cf
Outflow = 0.07 cfs @ 11.92 hrs, Volume= 1,073 cf, Atten= 79%, Lag= 0.0 min
Discarded = 0.07 cfs @ 11.92 hrs, Volume= 1,073 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 130.46' @ 12.58 hrs Surf.Area= 350 sf Storage= 248 cf

Plug-Flow detention time= 23.3 min calculated for 1,072 cf (100% of inflow)
Center-of-Mass det. time= 23.3 min (895.8 - 872.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	128.75'	327 cf	**17.50'W x 20.00'L x 5.25'H Field A** 1,838 cf Overall - 748 cf Embedded = 1,090 cf x 30.0% Voids
#2A	129.75'	557 cf	**Shea Leaching Chamber 4x4x4** x 12 Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf 12 Chambers in 3 Rows
		883 cf	Total Available Storage

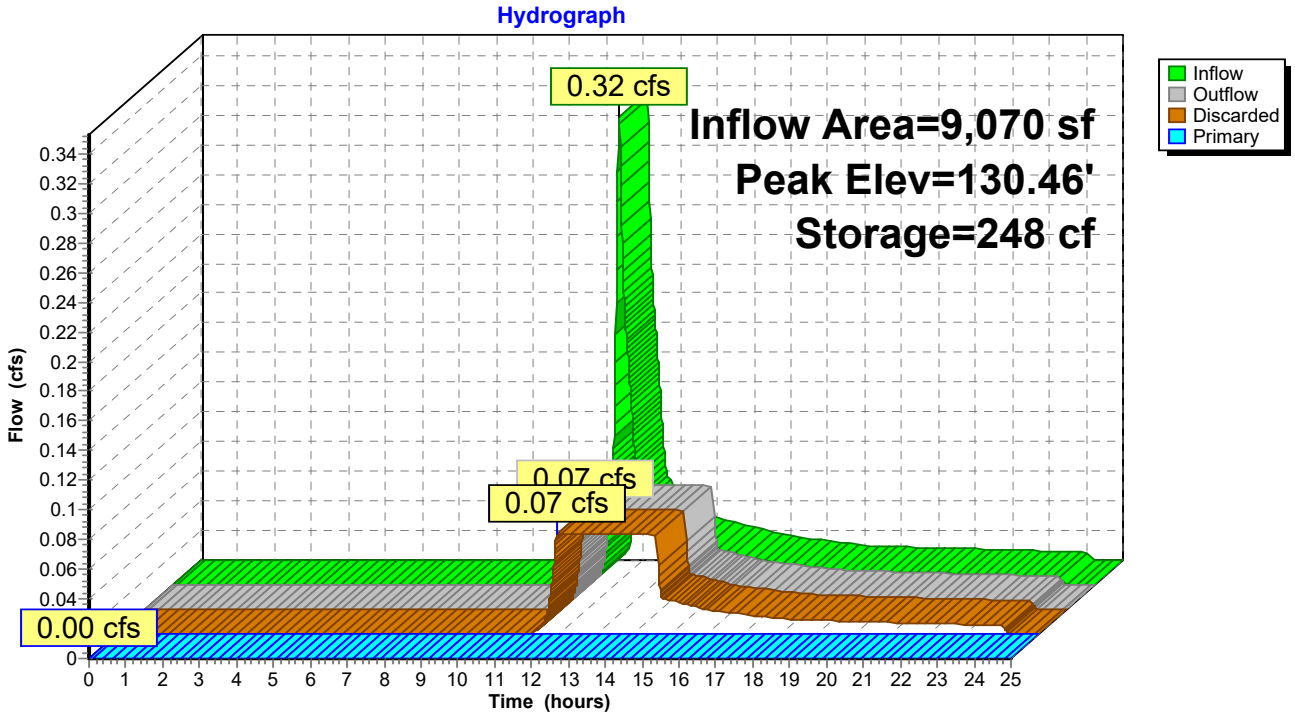
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	128.75'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	131.00'	**12.0" Round Culvert** L= 84.2' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 131.00' / 126.00' S= 0.0594 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.07 cfs @ 11.92 hrs HW=128.81' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=128.75' (Free Discharge)
↑—**2=Culvert** (Controls 0.00 cfs)

Pond 2P: UG System 2



Summary for Pond 3P: UG System 3

Inflow Area = 18,194 sf, 65.50% Impervious, Inflow Depth = 2.88" for 10-YR event
Inflow = 1.41 cfs @ 12.09 hrs, Volume= 4,370 cf
Outflow = 0.21 cfs @ 11.70 hrs, Volume= 4,370 cf, Atten= 85%, Lag= 0.0 min
Discarded = 0.21 cfs @ 11.70 hrs, Volume= 4,370 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 131.44' @ 12.63 hrs Surf.Area= 1,072 sf Storage= 1,342 cf

Plug-Flow detention time= 45.4 min calculated for 4,368 cf (100% of inflow)
Center-of-Mass det. time= 45.4 min (870.7 - 825.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	129.00'	835 cf	**15.76'W x 68.00'L x 4.50'H Field A** 4,823 cf Overall - 2,039 cf Embedded = 2,784 cf x 30.0% Voids
#2A	130.00'	1,464 cf	**Shea Leaching Chamber 4x4x3** x 48 Inside #1 Inside= 41.0"W x 30.0"H => 8.72 sf x 3.50'L = 30.5 cf Outside= 47.0"W x 36.0"H => 10.62 sf x 4.00'L = 42.5 cf 48 Chambers in 3 Rows
		2,299 cf	Total Available Storage

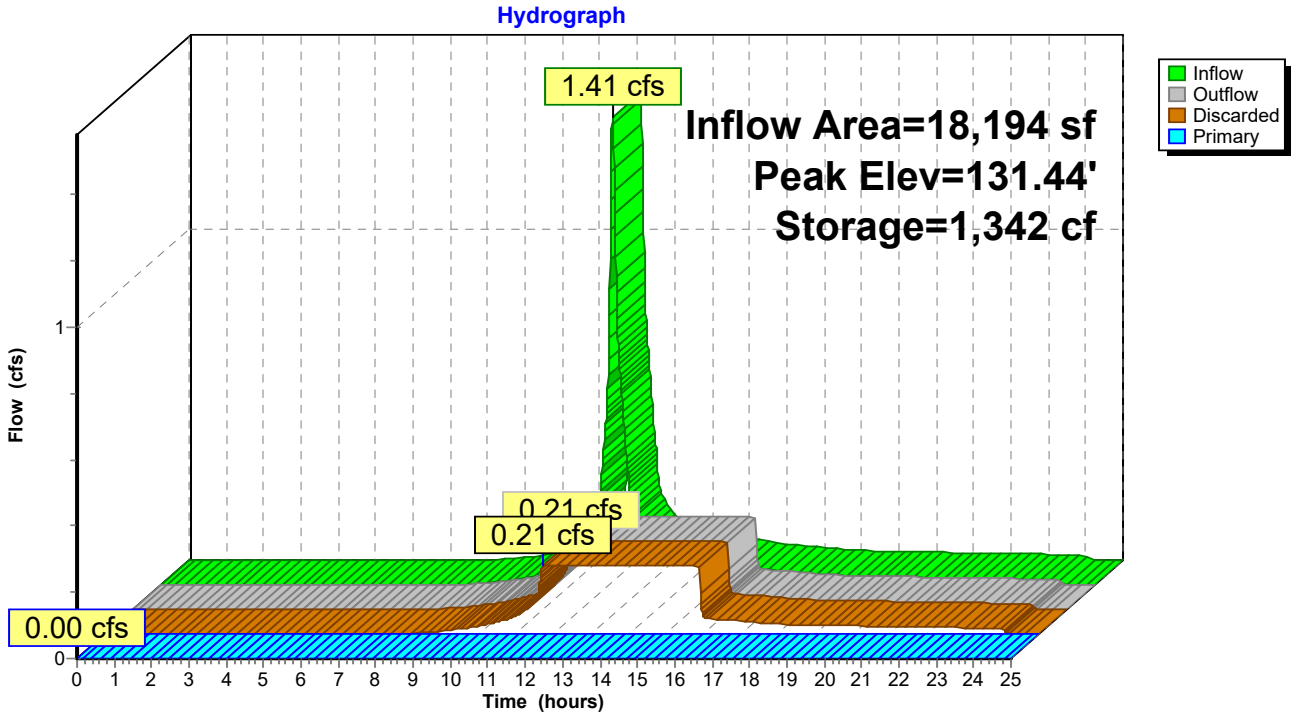
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	129.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	131.50'	**10.0" Round Culvert** L= 56.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 131.50' / 128.00' S= 0.0619 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Discarded OutFlow Max=0.21 cfs @ 11.70 hrs HW=129.05' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.21 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=129.00' (Free Discharge)
↑—**2=Culvert** (Controls 0.00 cfs)

Pond 3P: UG System 3



Summary for Pond 4P: Basin 1

Inflow Area = 40,849 sf, 38.38% Impervious, Inflow Depth = 0.37" for 10-YR event
Inflow = 0.23 cfs @ 12.13 hrs, Volume= 1,253 cf
Outflow = 0.18 cfs @ 12.28 hrs, Volume= 1,253 cf, Atten= 20%, Lag= 8.9 min
Discarded = 0.18 cfs @ 12.28 hrs, Volume= 1,253 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 126.03' @ 12.28 hrs Surf.Area= 966 sf Storage= 32 cf

Plug-Flow detention time= 1.9 min calculated for 1,253 cf (100% of inflow)
Center-of-Mass det. time= 1.9 min (922.3 - 920.4)

Volume	Invert	Avail.Storage	Storage Description
#1	126.00'	3,407 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

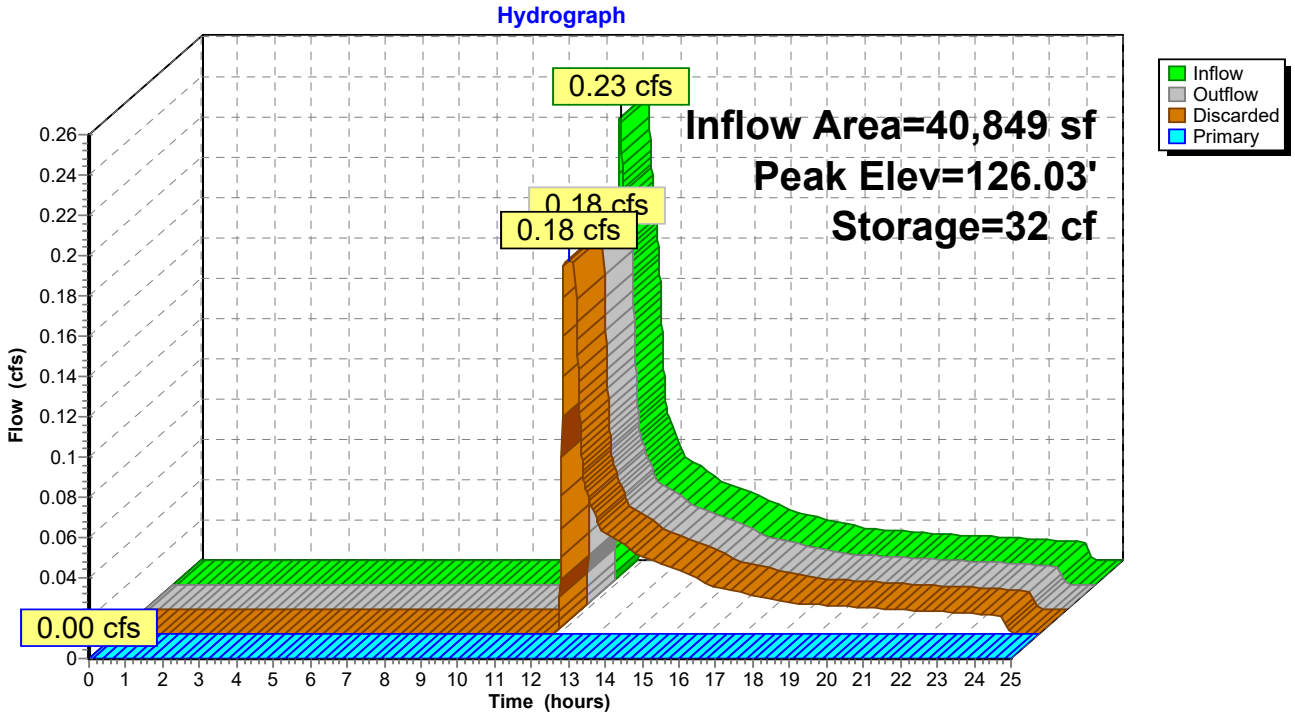
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
126.00	940	0	0
128.00	2,467	3,407	3,407

Device	Routing	Invert	Outlet Devices
#1	Discarded	126.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	127.50'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.18 cfs @ 12.28 hrs HW=126.03' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.18 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=126.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 4P: Basin 1



Summary for Pond 5P: Basin 2

Inflow Area = 19,738 sf, 35.31% Impervious, Inflow Depth = 0.77" for 10-YR event
Inflow = 0.37 cfs @ 12.10 hrs, Volume= 1,262 cf
Outflow = 0.13 cfs @ 12.46 hrs, Volume= 1,262 cf, Atten= 65%, Lag= 21.9 min
Discarded = 0.13 cfs @ 12.46 hrs, Volume= 1,262 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 124.35' @ 12.46 hrs Surf.Area= 676 sf Storage= 209 cf

Plug-Flow detention time= 9.5 min calculated for 1,261 cf (100% of inflow)
Center-of-Mass det. time= 9.5 min (882.0 - 872.5)

Volume	Invert	Avail.Storage	Storage Description
#1	124.00'	1,971 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

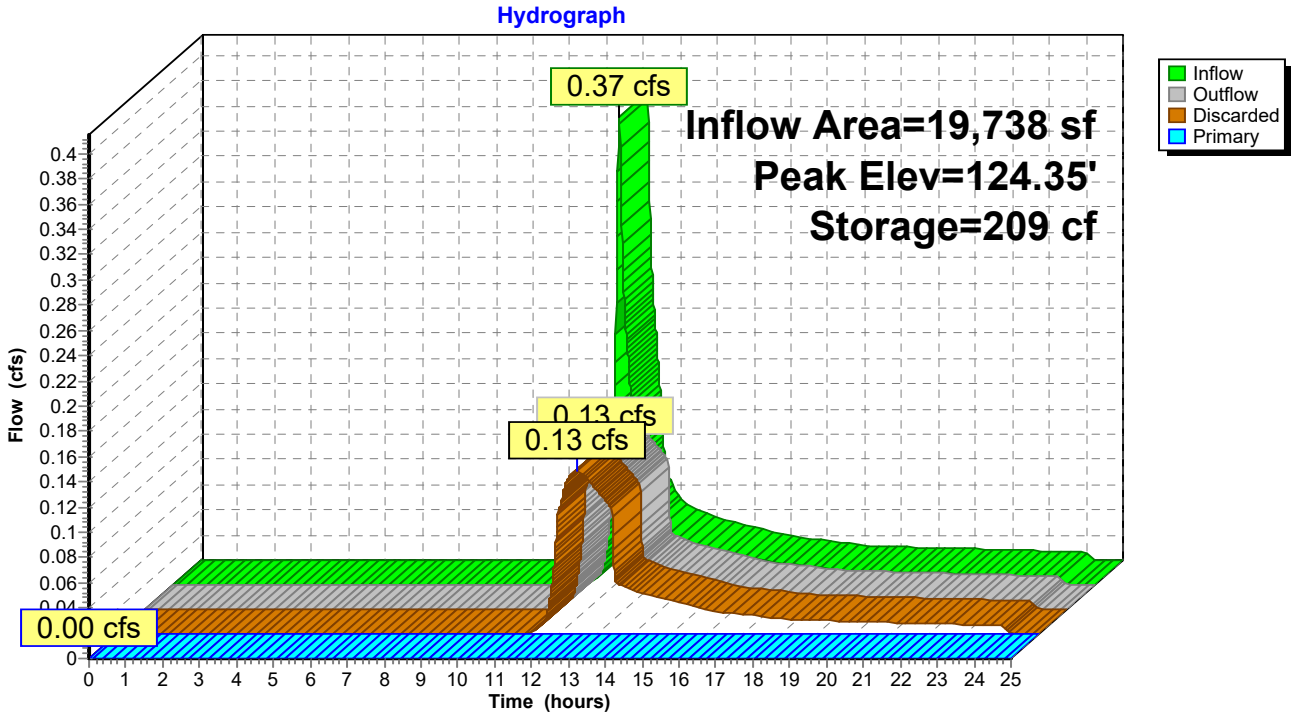
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
124.00	506	0	0
126.00	1,465	1,971	1,971

Device	Routing	Invert	Outlet Devices
#1	Discarded	124.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	125.50'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.13 cfs @ 12.46 hrs HW=124.35' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.13 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=124.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 5P: Basin 2



Summary for Subcatchment P-1: Captured to Mill St

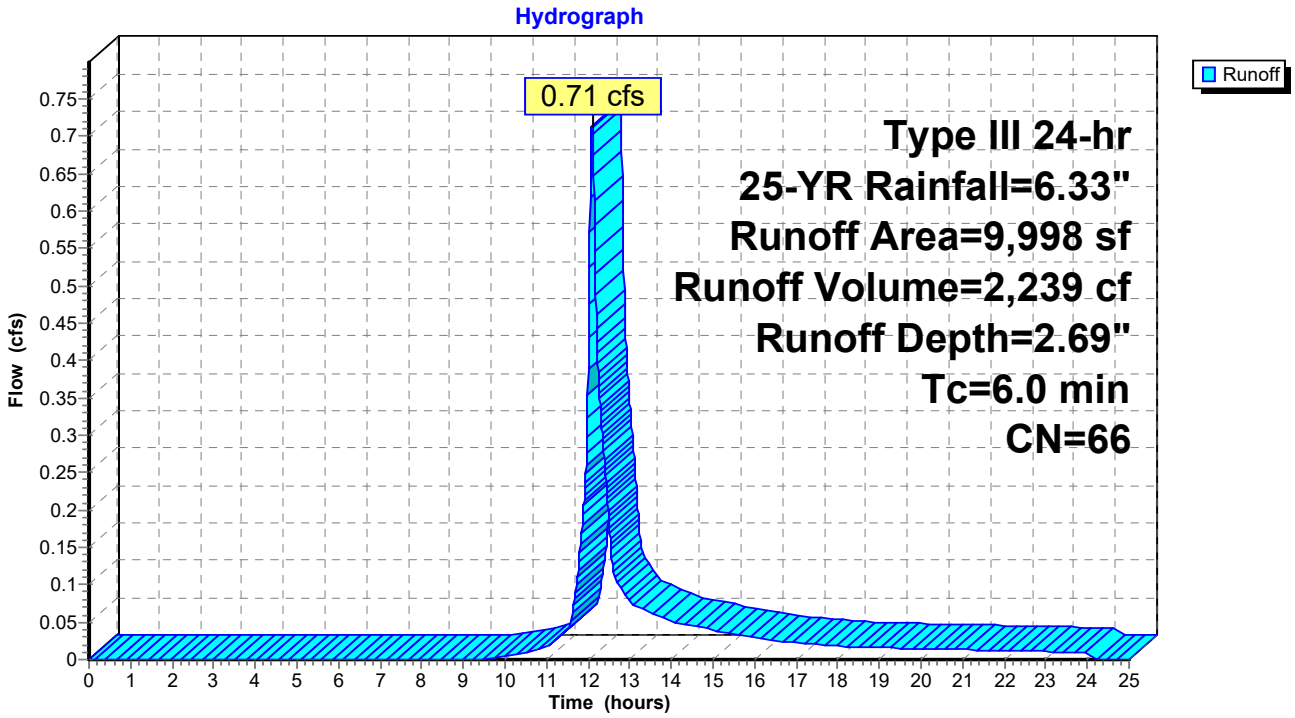
Runoff = 0.71 cfs @ 12.09 hrs, Volume= 2,239 cf, Depth= 2.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=6.33"

Area (sf)	CN	Description
4,541	98	Paved parking, HSG A
5,457	39	>75% Grass cover, Good, HSG A
9,998	66	Weighted Average
5,457		54.58% Pervious Area
4,541		45.42% Impervious Area

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

Subcatchment P-1: Captured to Mill St



Summary for Subcatchment P-2: Flow to Northeasterly Abutters

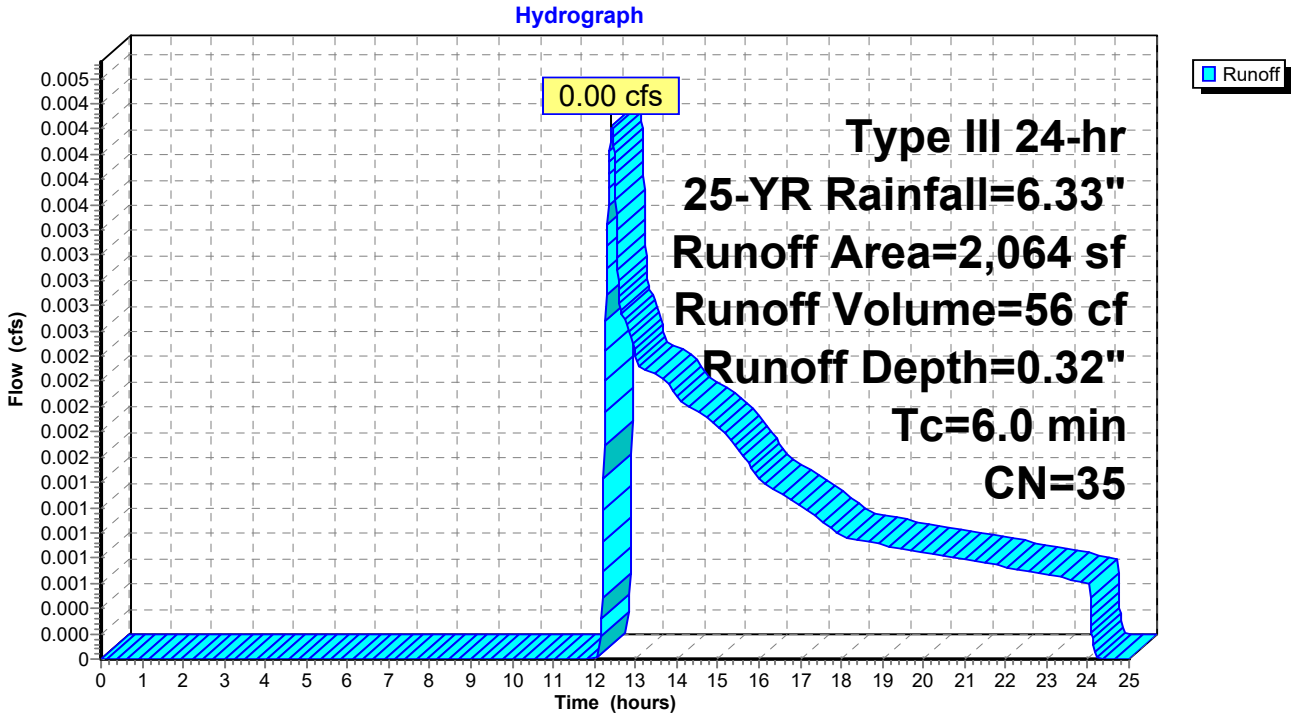
Runoff = 0.00 cfs @ 12.42 hrs, Volume= 56 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=6.33"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
1,033	39	>75% Grass cover, Good, HSG A
0	98	Roofs, HSG A
1,031	30	Woods, Good, HSG A
2,064	35	Weighted Average
2,064		100.00% Pervious Area

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

Subcatchment P-2: Flow to Northeasterly Abutters



Summary for Subcatchment P-3: Uncaptured to Easterly Abutters

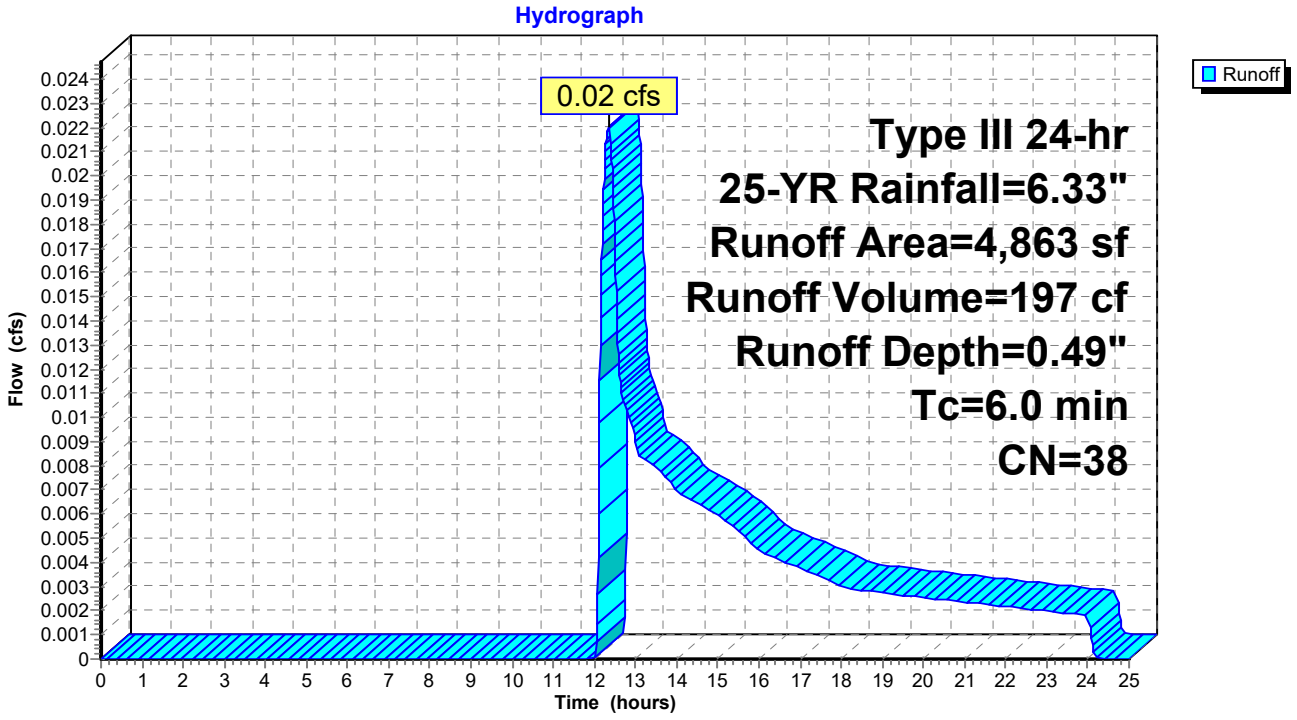
Runoff = 0.02 cfs @ 12.34 hrs, Volume= 197 cf, Depth= 0.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=6.33"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
4,429	39	>75% Grass cover, Good, HSG A
0	98	Roofs, HSG A
434	30	Woods, Good, HSG A
4,863	38	Weighted Average
4,863		100.00% Pervious Area

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

Subcatchment P-3: Uncaptured to Easterly Abutters



Summary for Subcatchment P-4: Flow to Basin 1

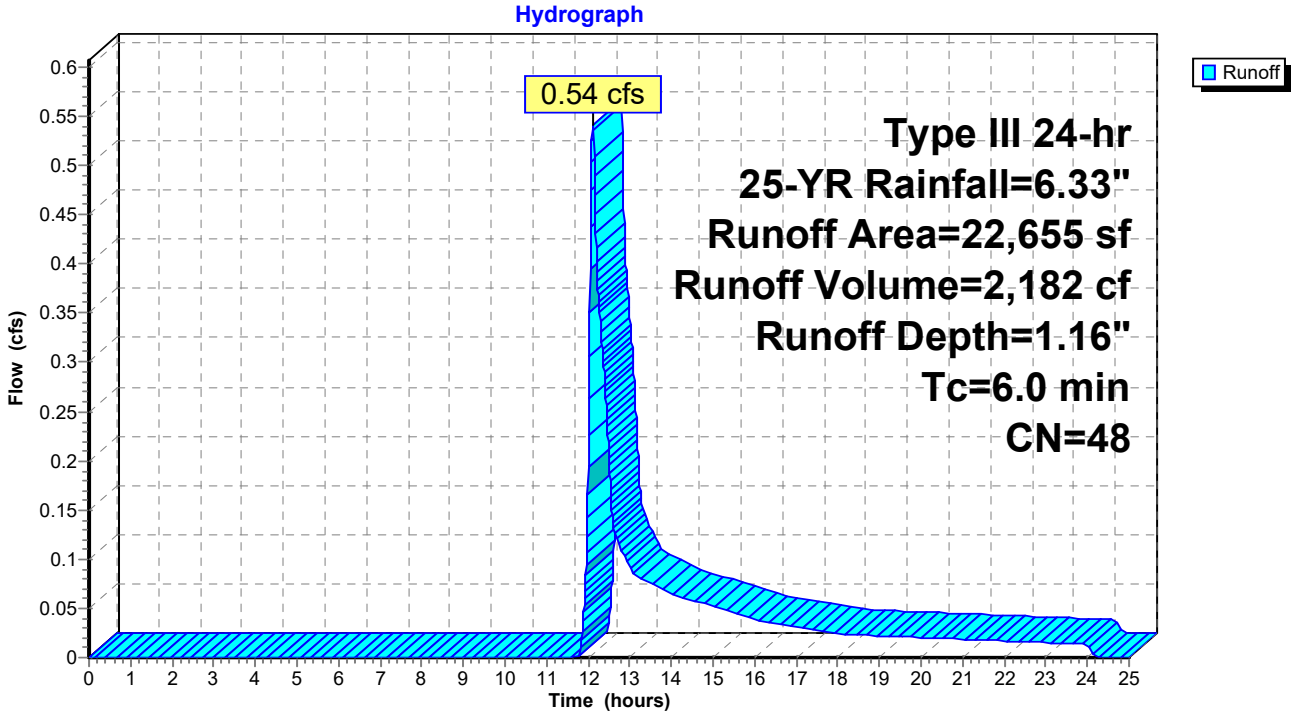
Runoff = 0.54 cfs @ 12.11 hrs, Volume= 2,182 cf, Depth= 1.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=6.33"

Area (sf)	CN	Description
3,760	98	Roofs, HSG A
17,923	39	>75% Grass cover, Good, HSG A
0	98	Paved parking, HSG A
972	30	Woods, Good, HSG A
22,655	48	Weighted Average
18,895		83.40% Pervious Area
3,760		16.60% Impervious Area

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

Subcatchment P-4: Flow to Basin 1



Summary for Subcatchment P-5: Flow to CB 5

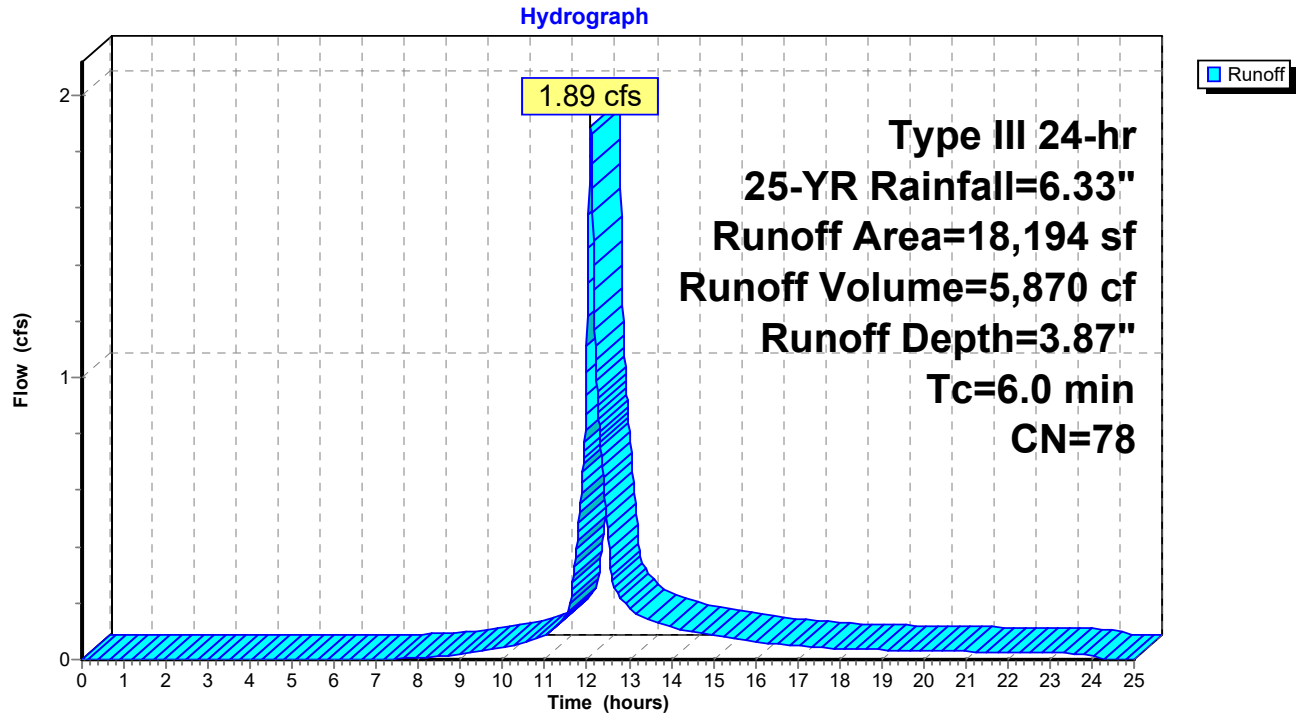
Runoff = 1.89 cfs @ 12.09 hrs, Volume= 5,870 cf, Depth= 3.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=6.33"

Area (sf)	CN	Description
11,917	98	Paved parking, HSG A
6,277	39	>75% Grass cover, Good, HSG A
18,194	78	Weighted Average
6,277		34.50% Pervious Area
11,917		65.50% Impervious Area

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

Subcatchment P-5: Flow to CB 5



Summary for Subcatchment P-6: Captured to CB 3&4

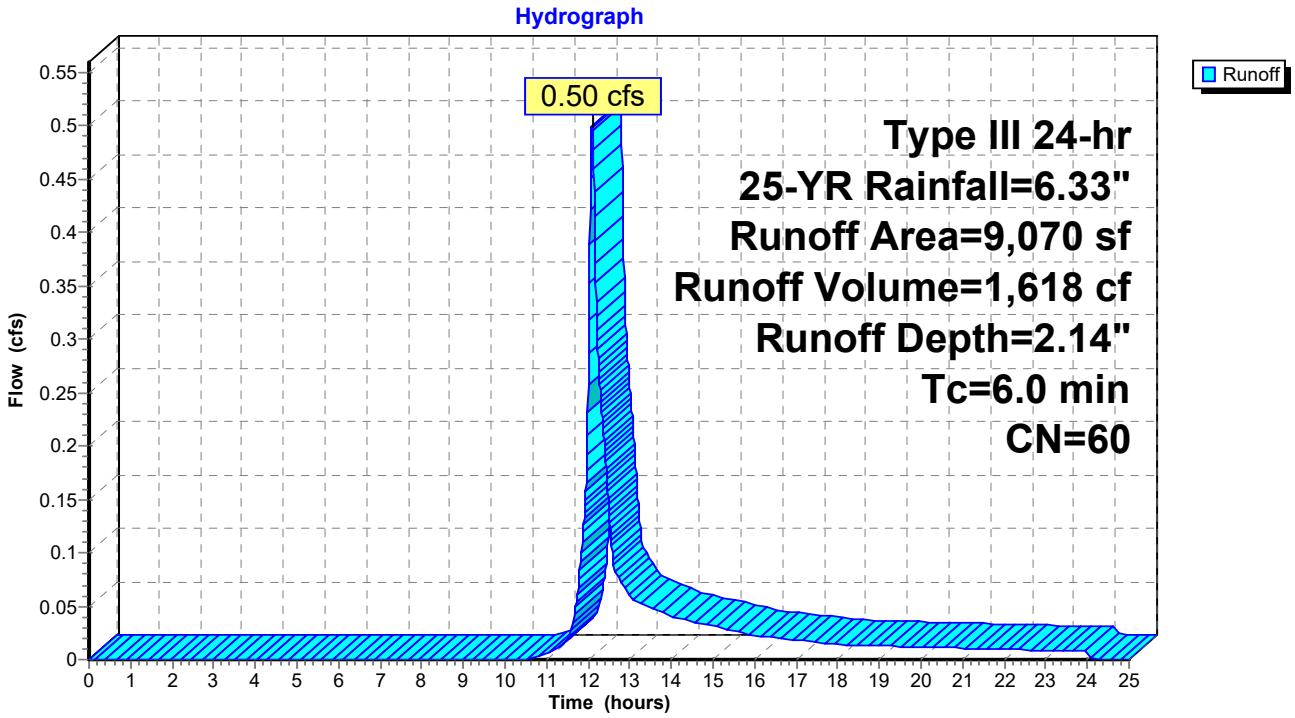
Runoff = 0.50 cfs @ 12.10 hrs, Volume= 1,618 cf, Depth= 2.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=6.33"

Area (sf)	CN	Description
3,210	98	Paved parking, HSG A
5,860	39	>75% Grass cover, Good, HSG A
9,070	60	Weighted Average
5,860		64.61% Pervious Area
3,210		35.39% Impervious Area

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

Subcatchment P-6: Captured to CB 3&4



Summary for Subcatchment P-7: Flow to Basin 2

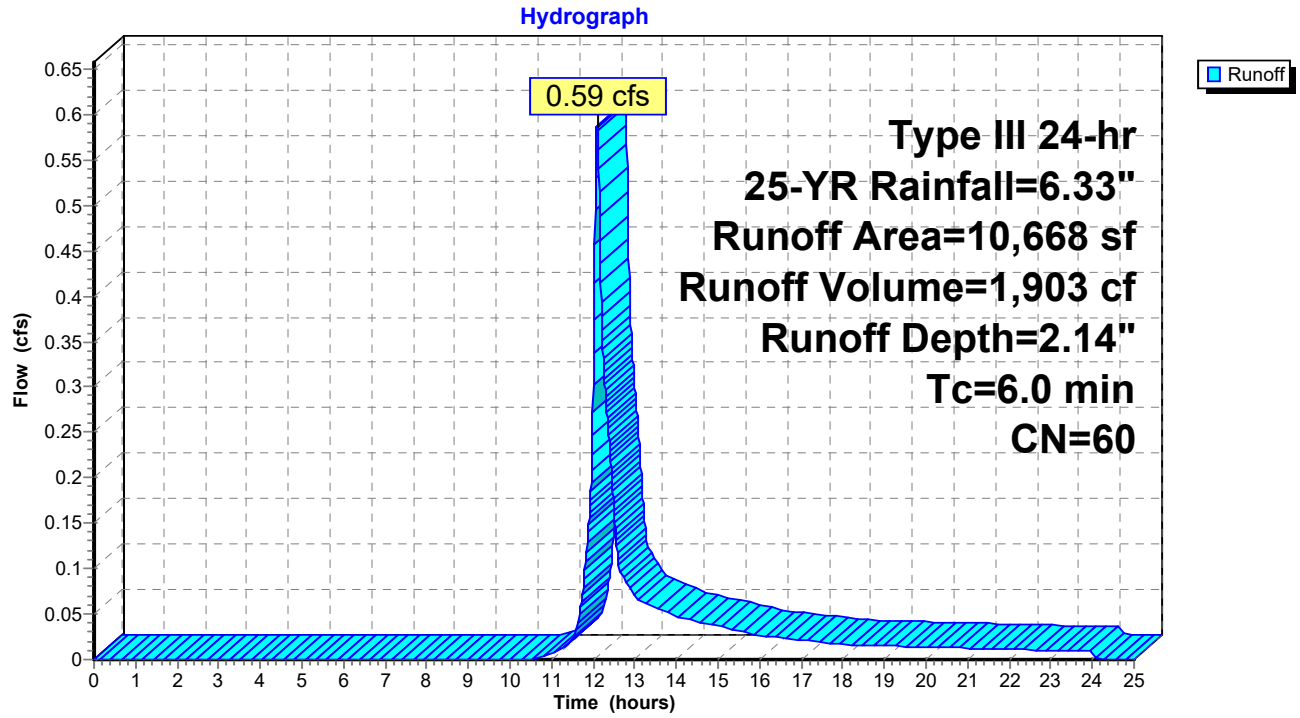
Runoff = 0.59 cfs @ 12.10 hrs, Volume= 1,903 cf, Depth= 2.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=6.33"

Area (sf)	CN	Description
3,760	98	Roofs, HSG A
6,908	39	>75% Grass cover, Good, HSG A
10,668	60	Weighted Average
6,908		64.75% Pervious Area
3,760		35.25% Impervious Area

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

Subcatchment P-7: Flow to Basin 2

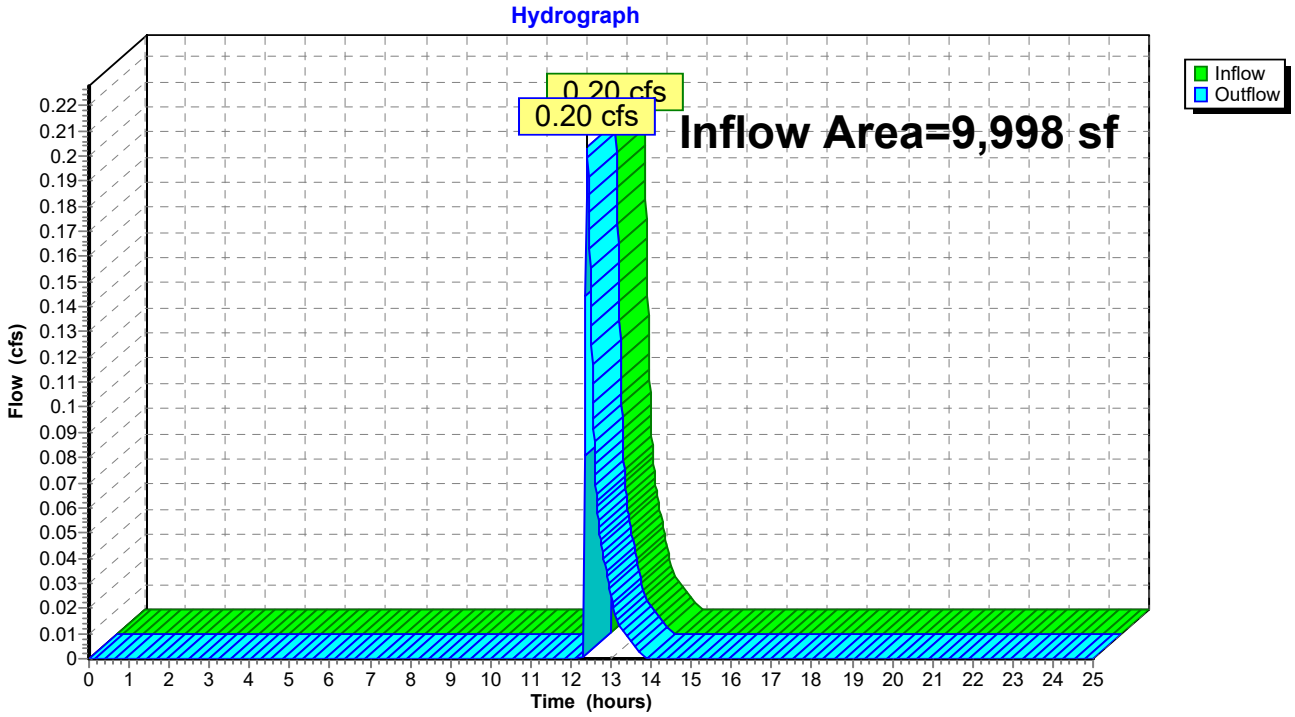


Summary for Reach 1R: Flow to Mill St

Inflow Area = 9,998 sf, 45.42% Impervious, Inflow Depth = 0.26" for 25-YR event
Inflow = 0.20 cfs @ 12.40 hrs, Volume= 218 cf
Outflow = 0.20 cfs @ 12.40 hrs, Volume= 218 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Reach 1R: Flow to Mill St

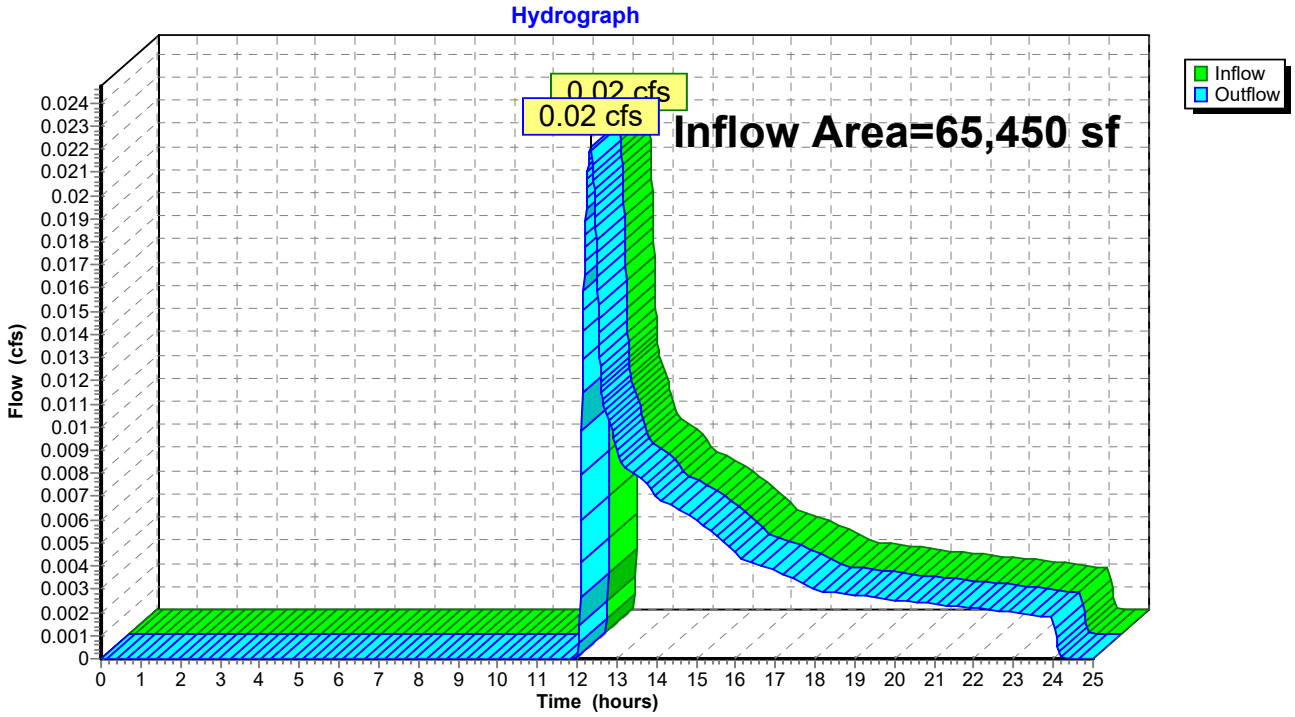


Summary for Reach 3R: Flow To Easterly Abutters

Inflow Area = 65,450 sf, 34.60% Impervious, Inflow Depth = 0.04" for 25-YR event
Inflow = 0.02 cfs @ 12.34 hrs, Volume= 197 cf
Outflow = 0.02 cfs @ 12.34 hrs, Volume= 197 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Reach 3R: Flow To Easterly Abutters



Summary for Pond 1P: UG System 1

Inflow Area = 9,998 sf, 45.42% Impervious, Inflow Depth = 2.69" for 25-YR event
Inflow = 0.71 cfs @ 12.09 hrs, Volume= 2,239 cf
Outflow = 0.26 cfs @ 12.40 hrs, Volume= 2,239 cf, Atten= 64%, Lag= 18.6 min
Discarded = 0.06 cfs @ 11.64 hrs, Volume= 2,021 cf
Primary = 0.20 cfs @ 12.40 hrs, Volume= 218 cf

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 126.60' @ 12.40 hrs Surf.Area= 293 sf Storage= 715 cf

Plug-Flow detention time= 107.3 min calculated for 2,238 cf (100% of inflow)
Center-of-Mass det. time= 107.2 min (952.1 - 844.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	122.00'	292 cf	**7.50'W x 39.00'L x 5.25'H Field A** 1,536 cf Overall - 561 cf Embedded = 975 cf x 30.0% Voids
#2A	123.00'	417 cf	**Shea Leaching Chamber 4x4x4** x 9 Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf
#3	123.34'	5 cf	**10.0" Round Pipe Storage**-Impervious L= 9.3' S= 0.0050 '/'
#4	123.39'	11 cf	**10.0" Round Pipe Storage**-Impervious L= 20.1' S= 0.0050 '/'
#5	123.50'	38 cf	**4.00'D x 3.00'H Vertical Cone/Cylinder**-Impervious
#6	126.50'	22 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		785 cf	Total Available Storage

Storage Group A created with Chamber Wizard

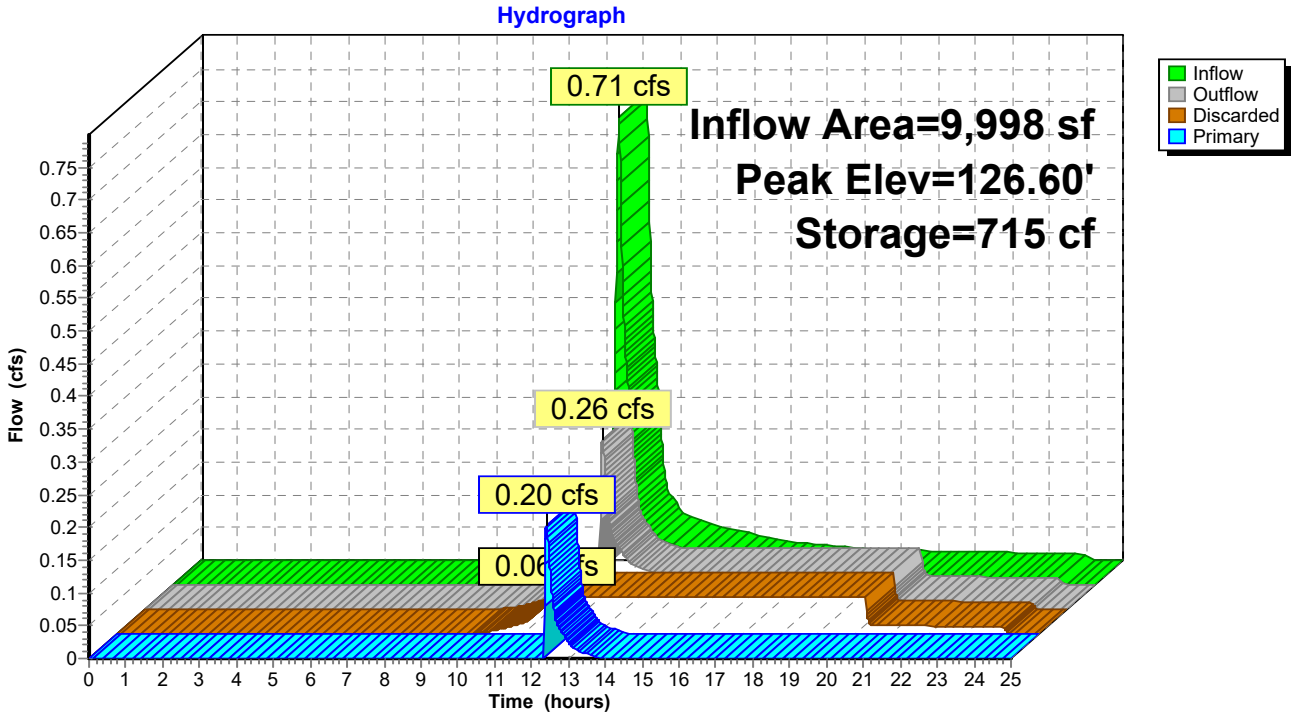
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
126.50	4	0	0
128.00	25	22	22

Device	Routing	Invert	Outlet Devices
#1	Discarded	122.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	126.50'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Discarded OutFlow Max=0.06 cfs @ 11.64 hrs HW=122.06' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.20 cfs @ 12.40 hrs HW=126.60' (Free Discharge)
↑**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.20 cfs @ 1.03 fps)

Pond 1P: UG System 1



Summary for Pond 2P: UG System 2

Inflow Area = 9,070 sf, 35.39% Impervious, Inflow Depth = 2.14" for 25-YR event
Inflow = 0.50 cfs @ 12.10 hrs, Volume= 1,618 cf
Outflow = 0.20 cfs @ 12.39 hrs, Volume= 1,618 cf, Atten= 60%, Lag= 17.8 min
Discarded = 0.07 cfs @ 11.78 hrs, Volume= 1,479 cf
Primary = 0.13 cfs @ 12.39 hrs, Volume= 139 cf

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 131.20' @ 12.39 hrs Surf.Area= 350 sf Storage= 398 cf

Plug-Flow detention time= 38.8 min calculated for 1,617 cf (100% of inflow)
Center-of-Mass det. time= 38.8 min (898.3 - 859.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	128.75'	327 cf	**17.50'W x 20.00'L x 5.25'H Field A** 1,838 cf Overall - 748 cf Embedded = 1,090 cf x 30.0% Voids
#2A	129.75'	557 cf	**Shea Leaching Chamber 4x4x4** x 12 Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf 12 Chambers in 3 Rows
		883 cf	Total Available Storage

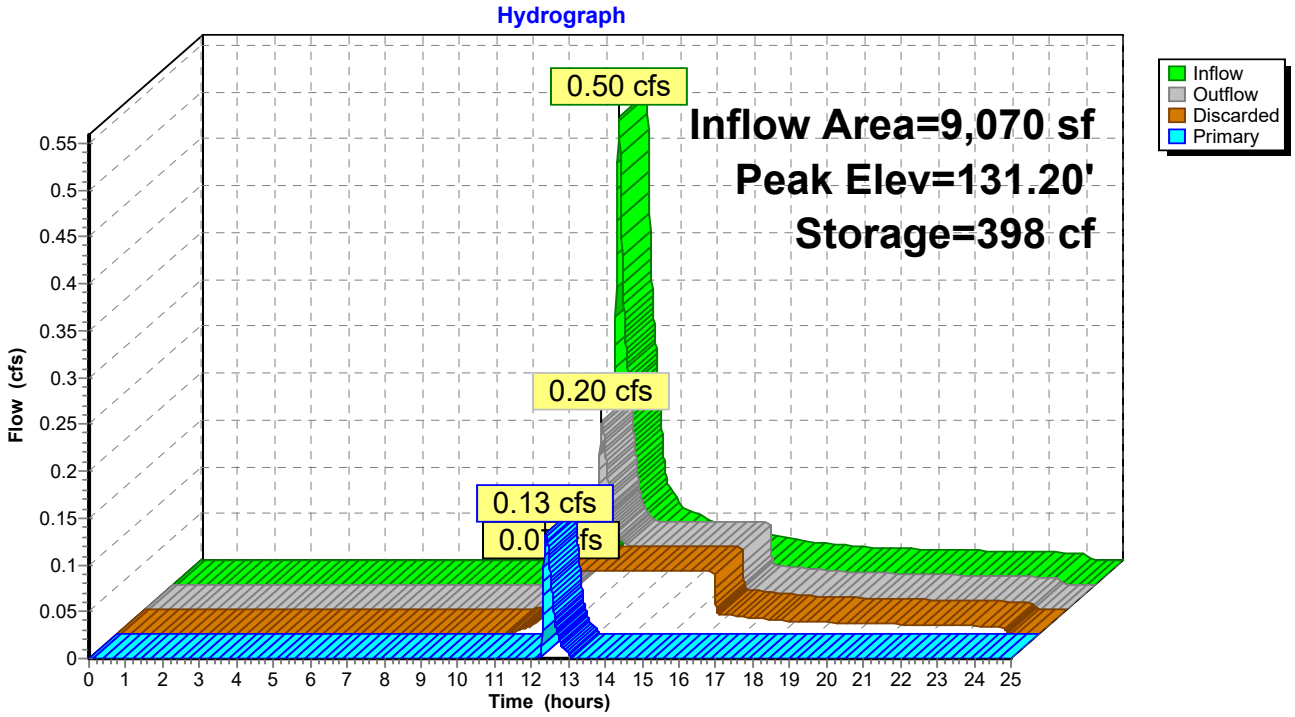
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	128.75'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	131.00'	**12.0" Round Culvert** L= 84.2' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 131.00' / 126.00' S= 0.0594 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.07 cfs @ 11.78 hrs HW=128.80' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=0.13 cfs @ 12.39 hrs HW=131.20' (Free Discharge)
↑**2=Culvert** (Inlet Controls 0.13 cfs @ 1.19 fps)

Pond 2P: UG System 2



Summary for Pond 3P: UG System 3

Inflow Area = 18,194 sf, 65.50% Impervious, Inflow Depth = 3.87" for 25-YR event
Inflow = 1.89 cfs @ 12.09 hrs, Volume= 5,870 cf
Outflow = 0.64 cfs @ 12.39 hrs, Volume= 5,870 cf, Atten= 66%, Lag= 18.1 min
Discarded = 0.21 cfs @ 11.63 hrs, Volume= 5,247 cf
Primary = 0.44 cfs @ 12.39 hrs, Volume= 623 cf

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 131.90' @ 12.39 hrs Surf.Area= 1,072 sf Storage= 1,660 cf

Plug-Flow detention time= 47.7 min calculated for 5,868 cf (100% of inflow)
Center-of-Mass det. time= 47.7 min (864.6 - 816.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	129.00'	835 cf	**15.76'W x 68.00'L x 4.50'H Field A** 4,823 cf Overall - 2,039 cf Embedded = 2,784 cf x 30.0% Voids
#2A	130.00'	1,464 cf	**Shea Leaching Chamber 4x4x3** x 48 Inside #1 Inside= 41.0"W x 30.0"H => 8.72 sf x 3.50'L = 30.5 cf Outside= 47.0"W x 36.0"H => 10.62 sf x 4.00'L = 42.5 cf 48 Chambers in 3 Rows
		2,299 cf	Total Available Storage

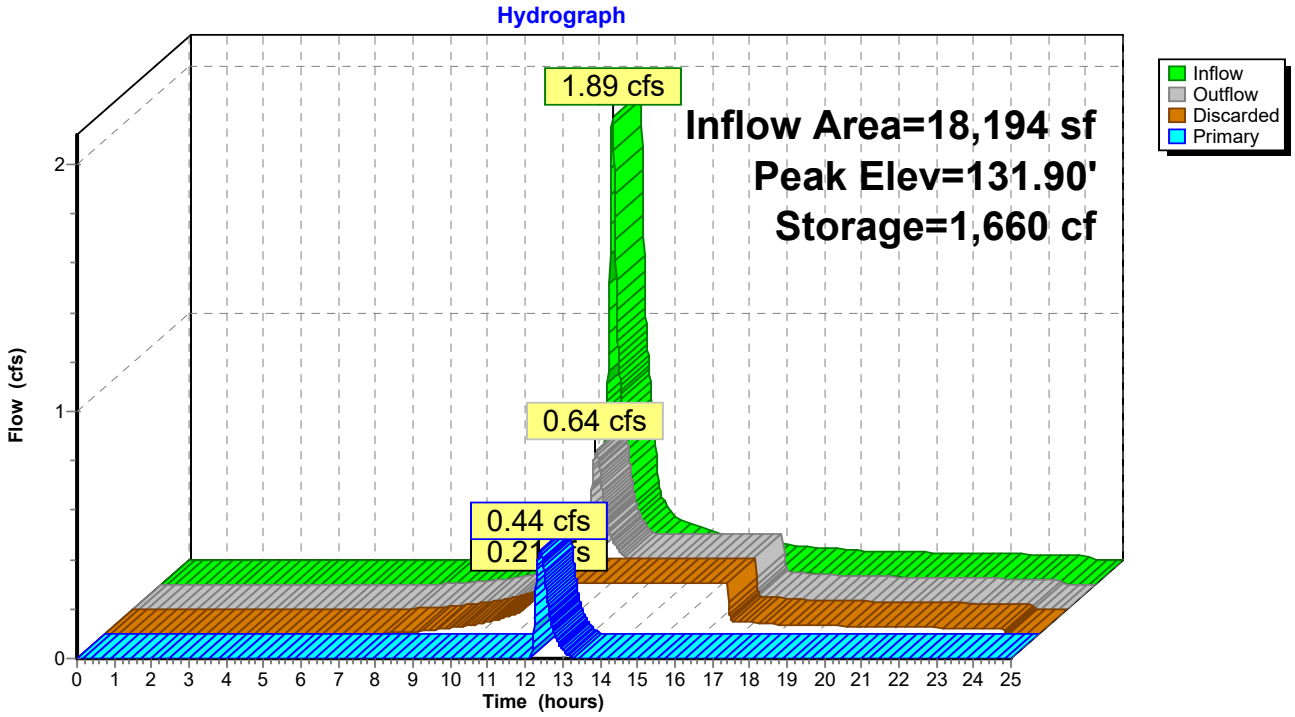
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	129.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	131.50'	**10.0" Round Culvert** L= 56.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 131.50' / 128.00' S= 0.0619 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Discarded OutFlow Max=0.21 cfs @ 11.63 hrs HW=129.05' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.21 cfs)

Primary OutFlow Max=0.43 cfs @ 12.39 hrs HW=131.90' (Free Discharge)
↑**2=Culvert** (Inlet Controls 0.43 cfs @ 1.69 fps)

Pond 3P: UG System 3



Summary for Pond 4P: Basin 1

Inflow Area = 40,849 sf, 38.38% Impervious, Inflow Depth = 0.82" for 25-YR event
Inflow = 0.73 cfs @ 12.36 hrs, Volume= 2,805 cf
Outflow = 0.27 cfs @ 12.69 hrs, Volume= 2,805 cf, Atten= 63%, Lag= 19.5 min
Discarded = 0.27 cfs @ 12.69 hrs, Volume= 2,805 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 126.60' @ 12.69 hrs Surf.Area= 1,399 sf Storage= 704 cf

Plug-Flow detention time= 18.4 min calculated for 2,804 cf (100% of inflow)
Center-of-Mass det. time= 18.4 min (882.9 - 864.5)

Volume	Invert	Avail.Storage	Storage Description
#1	126.00'	3,407 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

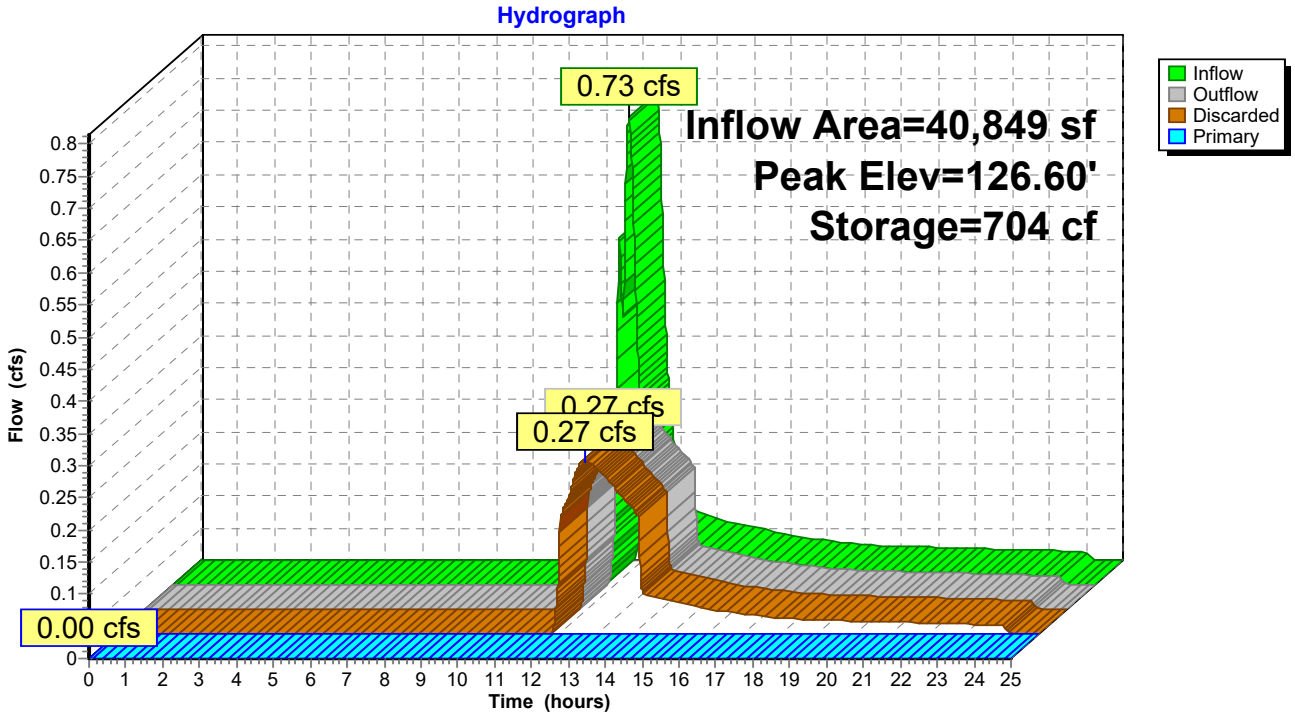
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
126.00	940	0	0
128.00	2,467	3,407	3,407

Device	Routing	Invert	Outlet Devices
#1	Discarded	126.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	127.50'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.27 cfs @ 12.69 hrs HW=126.60' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.27 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=126.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 4P: Basin 1



Summary for Pond 5P: Basin 2

Inflow Area = 19,738 sf, 35.31% Impervious, Inflow Depth = 1.24" for 25-YR event
Inflow = 0.59 cfs @ 12.10 hrs, Volume= 2,042 cf
Outflow = 0.17 cfs @ 12.59 hrs, Volume= 2,042 cf, Atten= 72%, Lag= 29.6 min
Discarded = 0.17 cfs @ 12.59 hrs, Volume= 2,042 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 124.76' @ 12.59 hrs Surf.Area= 873 sf Storage= 527 cf

Plug-Flow detention time= 22.7 min calculated for 2,042 cf (100% of inflow)
Center-of-Mass det. time= 22.7 min (874.7 - 852.0)

Volume	Invert	Avail.Storage	Storage Description
#1	124.00'	1,971 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

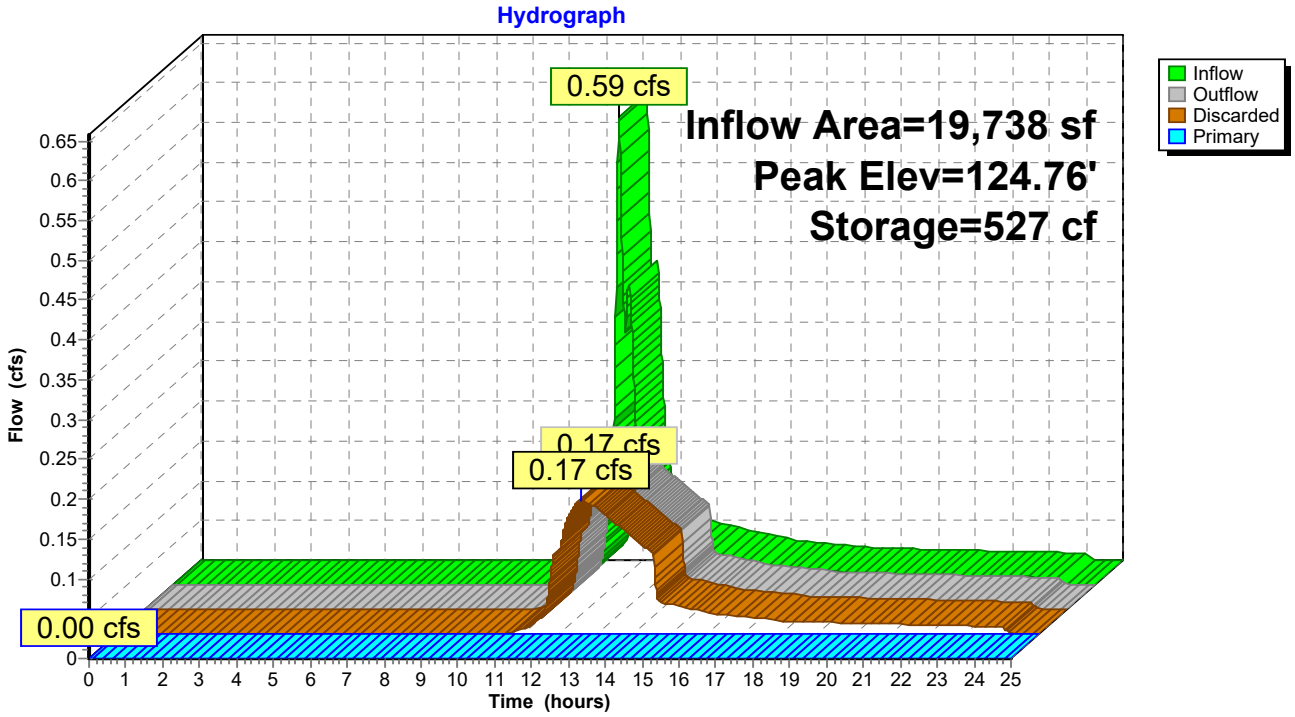
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
124.00	506	0	0
126.00	1,465	1,971	1,971

Device	Routing	Invert	Outlet Devices
#1	Discarded	124.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	125.50'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.17 cfs @ 12.59 hrs HW=124.76' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=124.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 5P: Basin 2



Summary for Subcatchment P-1: Captured to Mill St

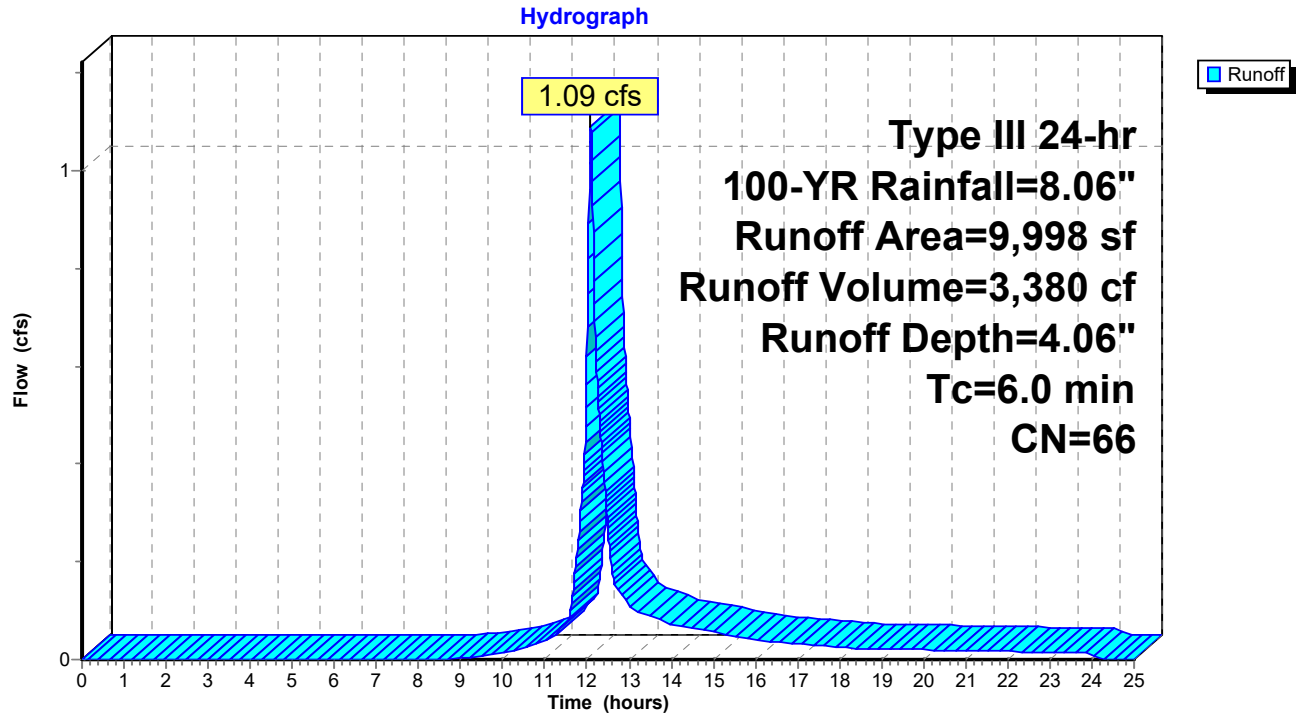
Runoff = 1.09 cfs @ 12.09 hrs, Volume= 3,380 cf, Depth= 4.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.06"

Area (sf)	CN	Description
4,541	98	Paved parking, HSG A
5,457	39	>75% Grass cover, Good, HSG A
9,998	66	Weighted Average
5,457		54.58% Pervious Area
4,541		45.42% Impervious Area

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

Subcatchment P-1: Captured to Mill St



Summary for Subcatchment P-2: Flow to Northeasterly Abutters

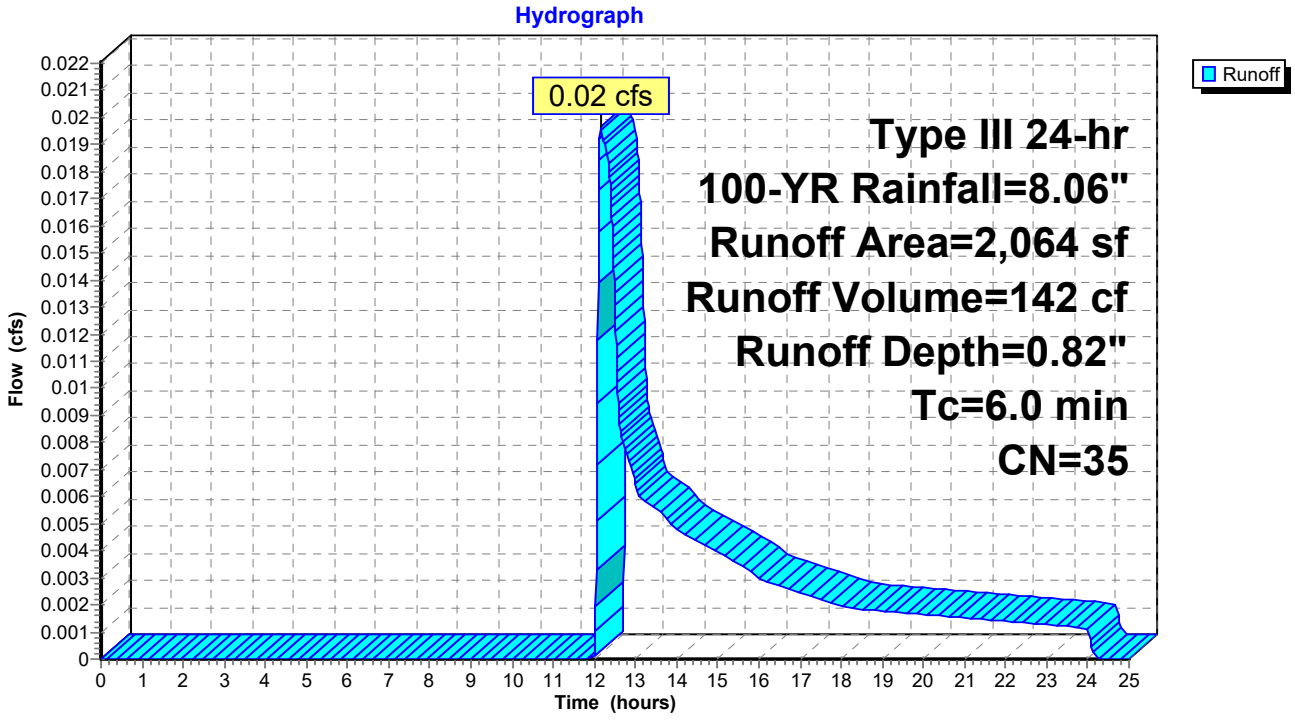
Runoff = 0.02 cfs @ 12.15 hrs, Volume= 142 cf, Depth= 0.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.06"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
1,033	39	>75% Grass cover, Good, HSG A
0	98	Roofs, HSG A
1,031	30	Woods, Good, HSG A
2,064	35	Weighted Average
2,064		100.00% Pervious Area

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

Subcatchment P-2: Flow to Northeasterly Abutters



Summary for Subcatchment P-3: Uncaptured to Easterly Abutters

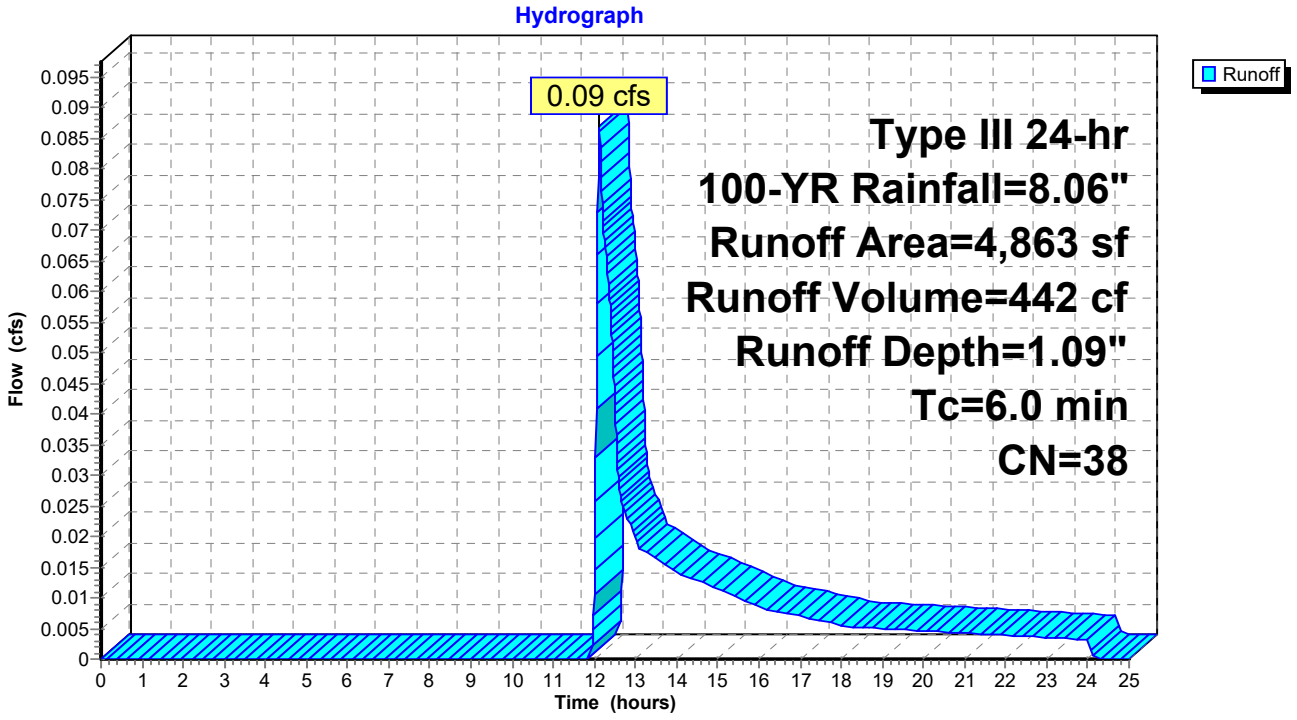
Runoff = 0.09 cfs @ 12.12 hrs, Volume= 442 cf, Depth= 1.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.06"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
4,429	39	>75% Grass cover, Good, HSG A
0	98	Roofs, HSG A
434	30	Woods, Good, HSG A
4,863	38	Weighted Average
4,863		100.00% Pervious Area

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

Subcatchment P-3: Uncaptured to Easterly Abutters



Summary for Subcatchment P-4: Flow to Basin 1

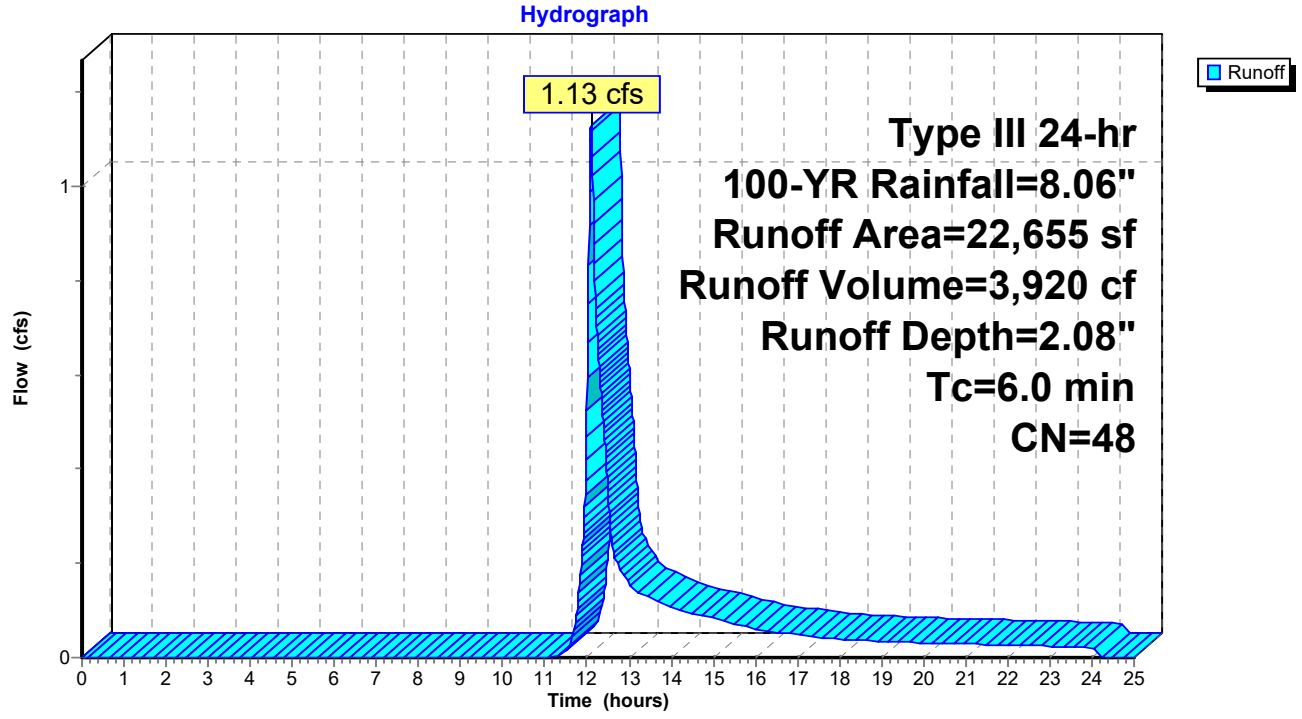
Runoff = 1.13 cfs @ 12.10 hrs, Volume= 3,920 cf, Depth= 2.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.06"

Area (sf)	CN	Description
3,760	98	Roofs, HSG A
17,923	39	>75% Grass cover, Good, HSG A
0	98	Paved parking, HSG A
972	30	Woods, Good, HSG A
22,655	48	Weighted Average
18,895		83.40% Pervious Area
3,760		16.60% Impervious Area

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

Subcatchment P-4: Flow to Basin 1



Summary for Subcatchment P-5: Flow to CB 5

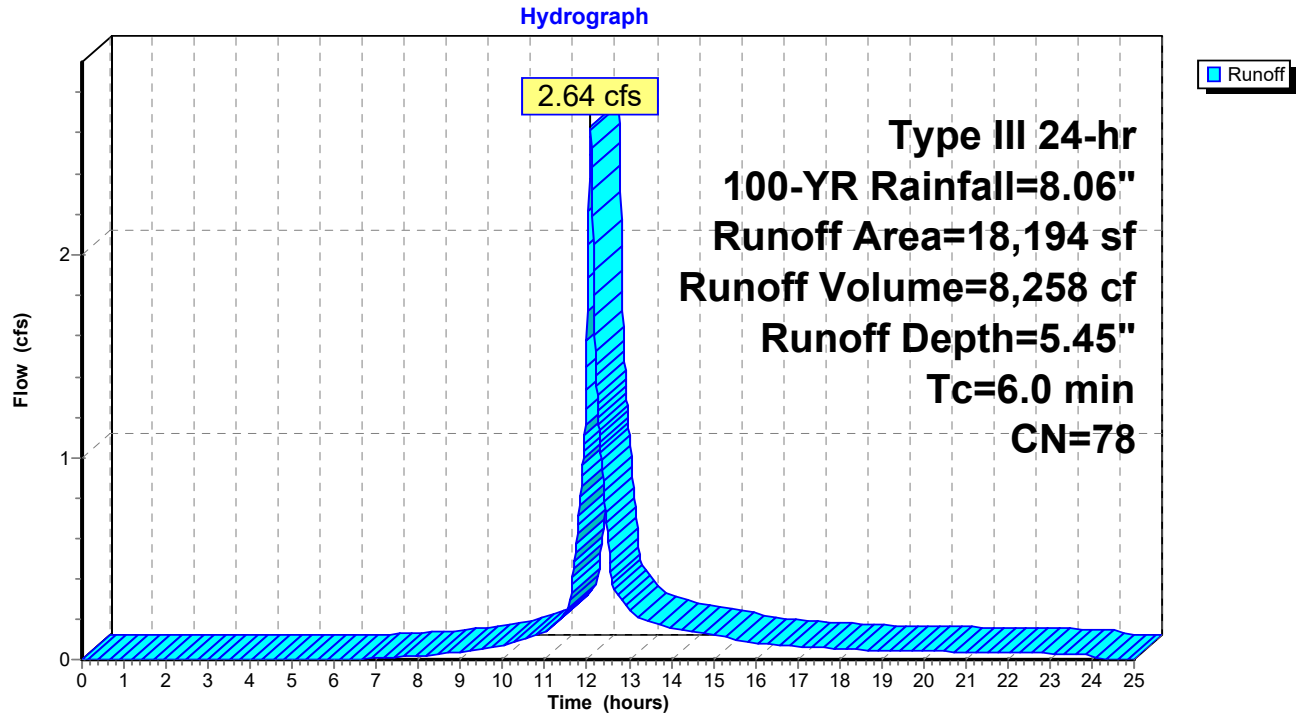
Runoff = 2.64 cfs @ 12.09 hrs, Volume= 8,258 cf, Depth= 5.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.06"

Area (sf)	CN	Description
11,917	98	Paved parking, HSG A
6,277	39	>75% Grass cover, Good, HSG A
18,194	78	Weighted Average
6,277		34.50% Pervious Area
11,917		65.50% Impervious Area

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

Subcatchment P-5: Flow to CB 5



Summary for Subcatchment P-6: Captured to CB 3&4

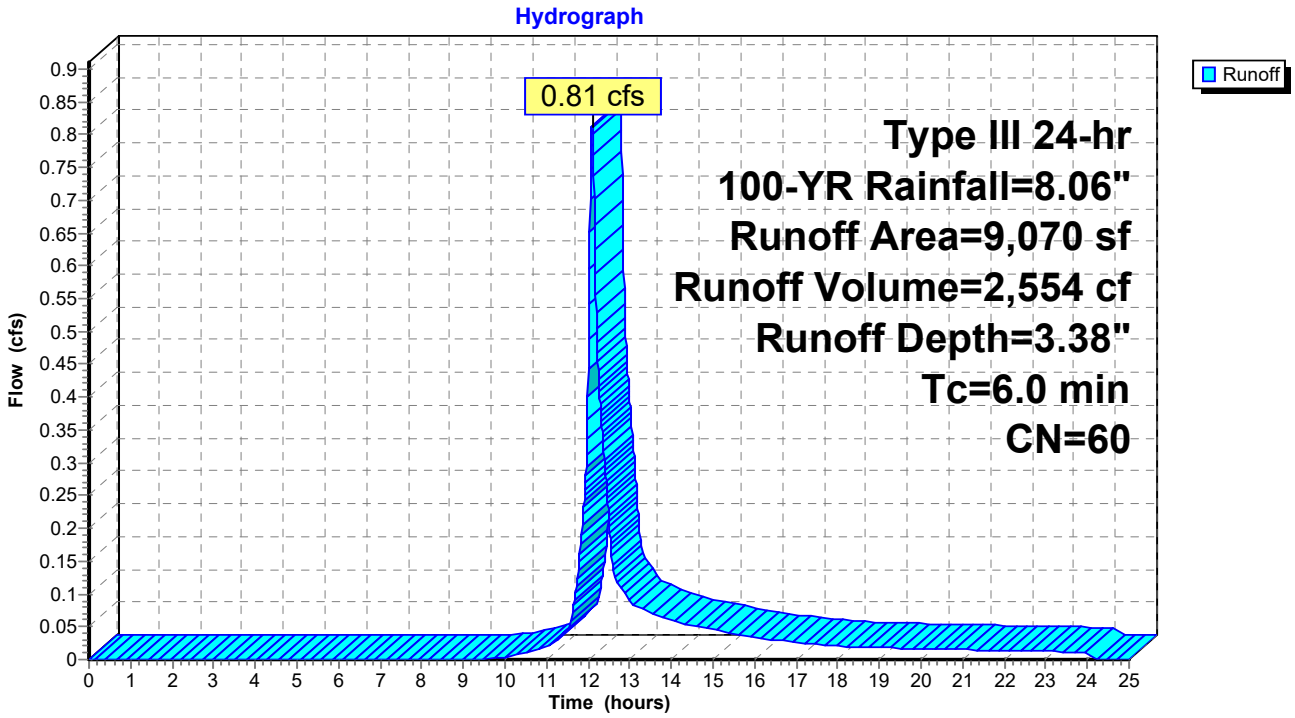
Runoff = 0.81 cfs @ 12.09 hrs, Volume= 2,554 cf, Depth= 3.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.06"

Area (sf)	CN	Description
3,210	98	Paved parking, HSG A
5,860	39	>75% Grass cover, Good, HSG A
9,070	60	Weighted Average
5,860		64.61% Pervious Area
3,210		35.39% Impervious Area

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

Subcatchment P-6: Captured to CB 3&4



Summary for Subcatchment P-7: Flow to Basin 2

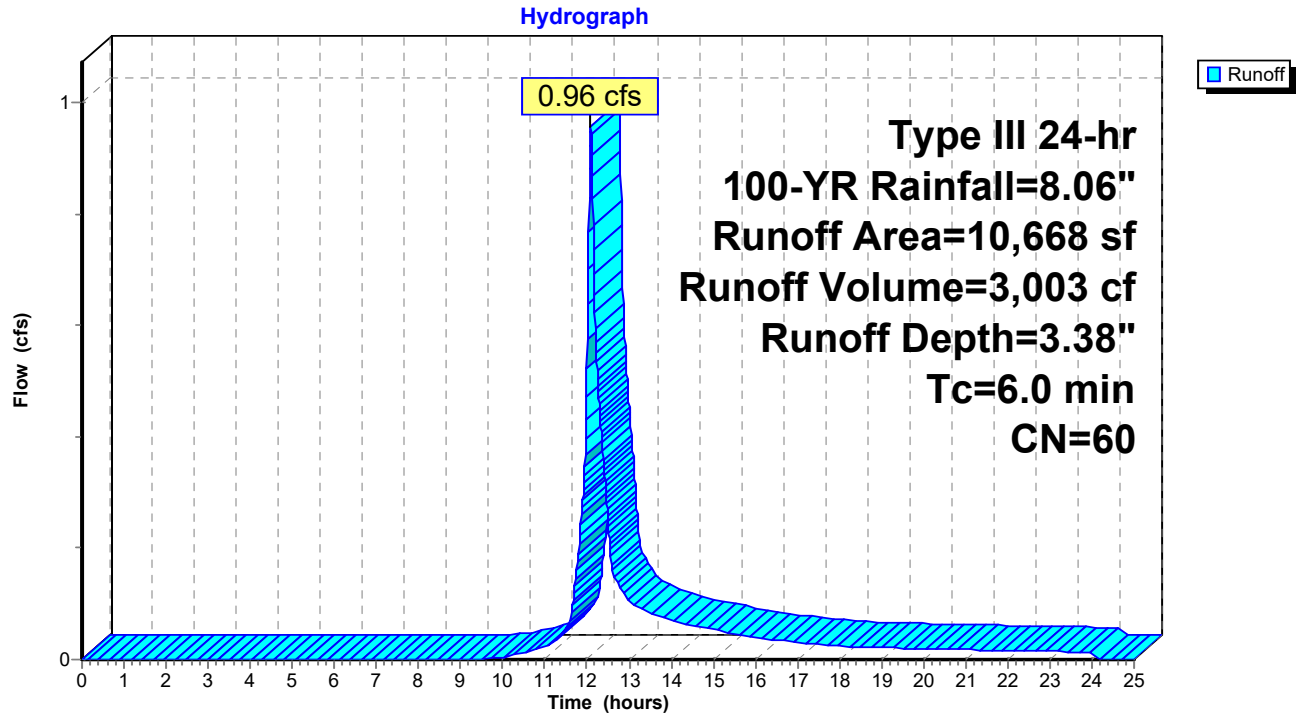
Runoff = 0.96 cfs @ 12.09 hrs, Volume= 3,003 cf, Depth= 3.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.06"

Area (sf)	CN	Description
3,760	98	Roofs, HSG A
6,908	39	>75% Grass cover, Good, HSG A
10,668	60	Weighted Average
6,908		64.75% Pervious Area
3,760		35.25% Impervious Area

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

Subcatchment P-7: Flow to Basin 2

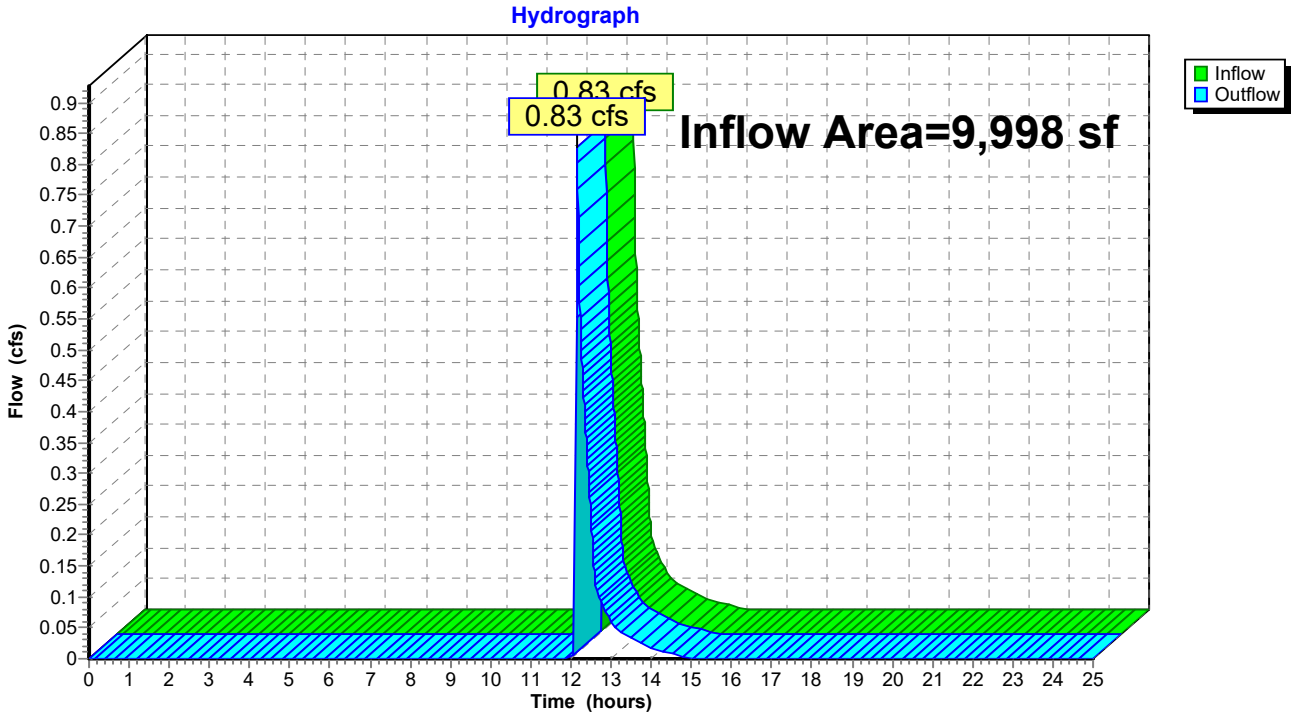


Summary for Reach 1R: Flow to Mill St

Inflow Area = 9,998 sf, 45.42% Impervious, Inflow Depth = 1.16" for 100-YR event
Inflow = 0.83 cfs @ 12.15 hrs, Volume= 969 cf
Outflow = 0.83 cfs @ 12.15 hrs, Volume= 969 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Reach 1R: Flow to Mill St

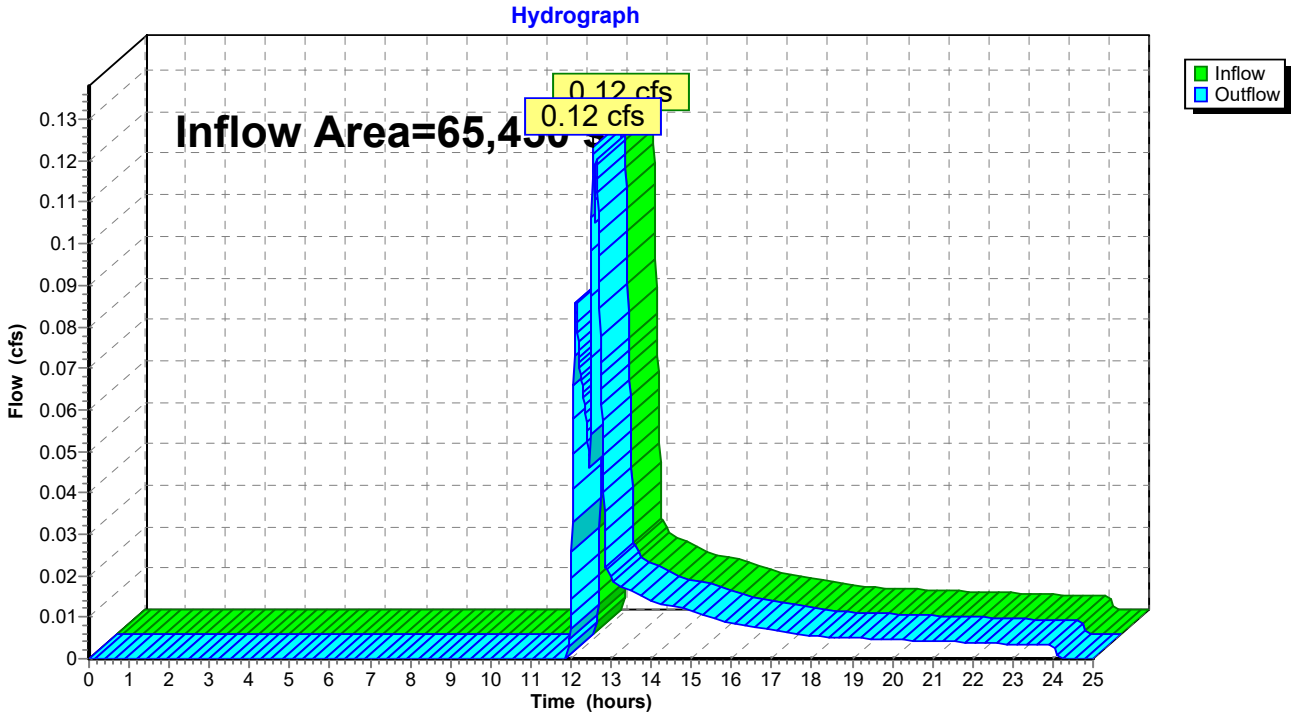


Summary for Reach 3R: Flow To Easterly Abutters

Inflow Area = 65,450 sf, 34.60% Impervious, Inflow Depth = 0.10" for 100-YR event
Inflow = 0.12 cfs @ 12.55 hrs, Volume= 523 cf
Outflow = 0.12 cfs @ 12.55 hrs, Volume= 523 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Reach 3R: Flow To Easterly Abutters



Summary for Pond 1P: UG System 1

Inflow Area = 9,998 sf, 45.42% Impervious, Inflow Depth = 4.06" for 100-YR event
Inflow = 1.09 cfs @ 12.09 hrs, Volume= 3,380 cf
Outflow = 0.88 cfs @ 12.15 hrs, Volume= 3,380 cf, Atten= 19%, Lag= 3.7 min
Discarded = 0.06 cfs @ 11.33 hrs, Volume= 2,411 cf
Primary = 0.83 cfs @ 12.15 hrs, Volume= 969 cf

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 126.75' @ 12.15 hrs Surf.Area= 293 sf Storage= 740 cf

Plug-Flow detention time= 89.2 min calculated for 3,379 cf (100% of inflow)
Center-of-Mass det. time= 89.2 min (922.1 - 832.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	122.00'	292 cf	**7.50'W x 39.00'L x 5.25'H Field A** 1,536 cf Overall - 561 cf Embedded = 975 cf x 30.0% Voids
#2A	123.00'	417 cf	**Shea Leaching Chamber 4x4x4** x 9 Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf
#3	123.34'	5 cf	**10.0" Round Pipe Storage**-Impervious L= 9.3' S= 0.0050 '/'
#4	123.39'	11 cf	**10.0" Round Pipe Storage**-Impervious L= 20.1' S= 0.0050 '/'
#5	123.50'	38 cf	**4.00'D x 3.00'H Vertical Cone/Cylinder**-Impervious
#6	126.50'	22 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) -Impervious
		785 cf	Total Available Storage

Storage Group A created with Chamber Wizard

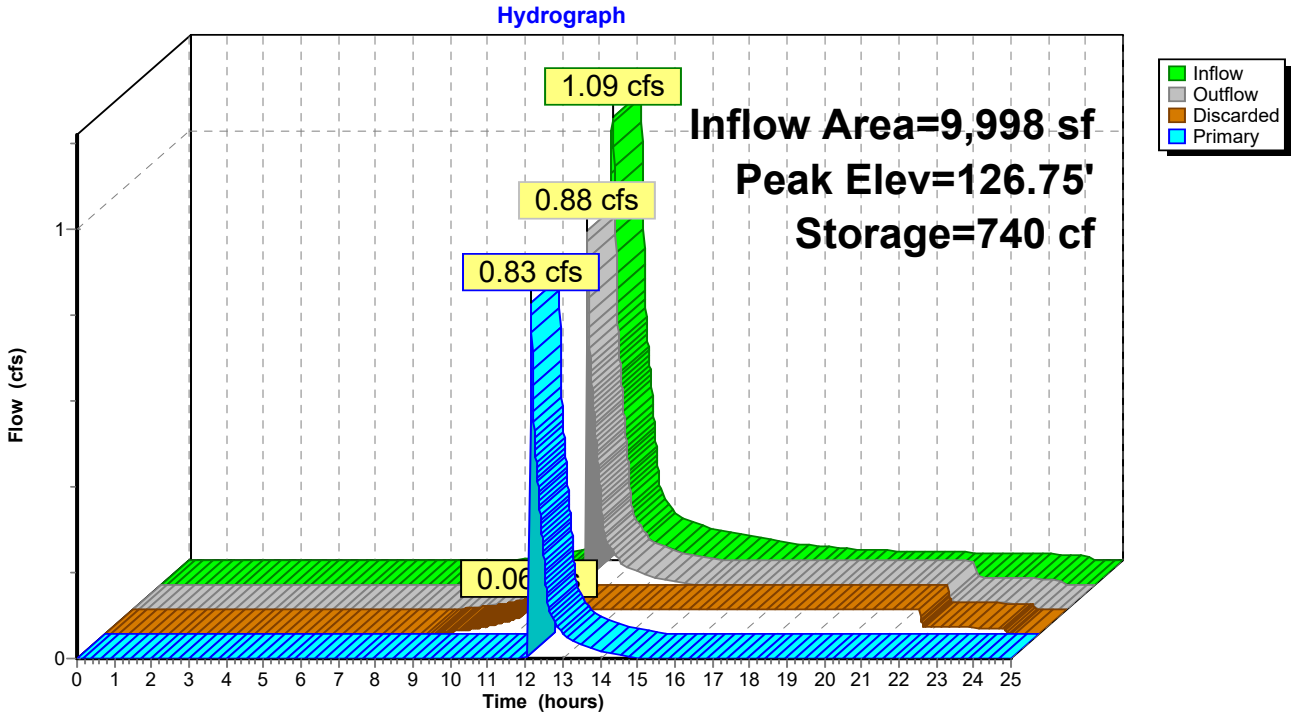
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
126.50	4	0	0
128.00	25	22	22

Device	Routing	Invert	Outlet Devices
#1	Discarded	122.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	126.50'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Discarded OutFlow Max=0.06 cfs @ 11.33 hrs HW=122.06' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.82 cfs @ 12.15 hrs HW=126.75' (Free Discharge)
↑**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.82 cfs @ 1.72 fps)

Pond 1P: UG System 1



Summary for Pond 2P: UG System 2

Inflow Area = 9,070 sf, 35.39% Impervious, Inflow Depth = 3.38" for 100-YR event
Inflow = 0.81 cfs @ 12.09 hrs, Volume= 2,554 cf
Outflow = 0.63 cfs @ 12.16 hrs, Volume= 2,554 cf, Atten= 23%, Lag= 4.0 min
Discarded = 0.07 cfs @ 11.65 hrs, Volume= 1,893 cf
Primary = 0.56 cfs @ 12.16 hrs, Volume= 660 cf

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 131.43' @ 12.16 hrs Surf.Area= 350 sf Storage= 444 cf

Plug-Flow detention time= 35.9 min calculated for 2,552 cf (100% of inflow)
Center-of-Mass det. time= 35.9 min (881.7 - 845.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	128.75'	327 cf	**17.50'W x 20.00'L x 5.25'H Field A** 1,838 cf Overall - 748 cf Embedded = 1,090 cf x 30.0% Voids
#2A	129.75'	557 cf	**Shea Leaching Chamber 4x4x4** x 12 Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf 12 Chambers in 3 Rows
		883 cf	Total Available Storage

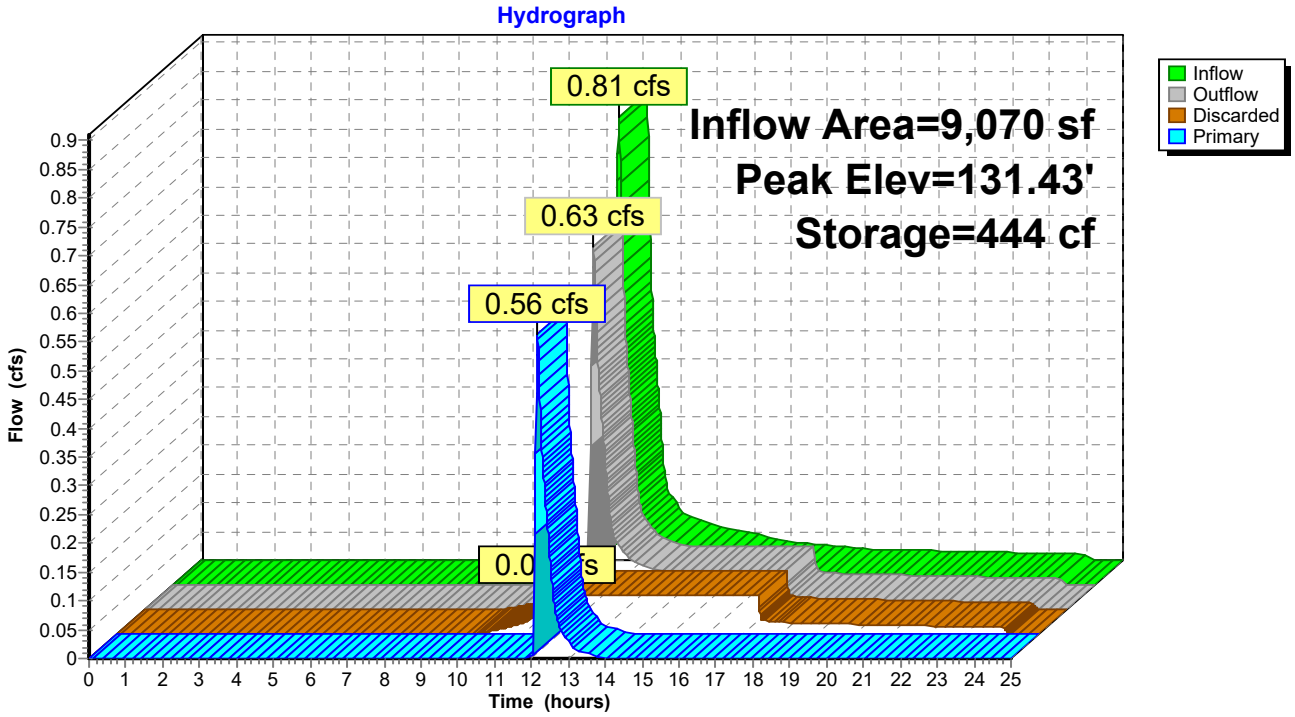
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	128.75'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	131.00'	**12.0" Round Culvert** L= 84.2' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 131.00' / 126.00' S= 0.0594 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.07 cfs @ 11.65 hrs HW=128.81' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=0.56 cfs @ 12.16 hrs HW=131.43' (Free Discharge)
↑**2=Culvert** (Inlet Controls 0.56 cfs @ 1.76 fps)

Pond 2P: UG System 2



Summary for Pond 3P: UG System 3

Inflow Area = 18,194 sf, 65.50% Impervious, Inflow Depth = 5.45" for 100-YR event
Inflow = 2.64 cfs @ 12.09 hrs, Volume= 8,258 cf
Outflow = 1.42 cfs @ 12.22 hrs, Volume= 8,258 cf, Atten= 46%, Lag= 7.8 min
Discarded = 0.21 cfs @ 11.41 hrs, Volume= 6,369 cf
Primary = 1.21 cfs @ 12.22 hrs, Volume= 1,889 cf

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 132.26' @ 12.22 hrs Surf.Area= 1,072 sf Storage= 1,909 cf

Plug-Flow detention time= 43.6 min calculated for 8,255 cf (100% of inflow)
Center-of-Mass det. time= 43.6 min (850.8 - 807.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	129.00'	835 cf	**15.76'W x 68.00'L x 4.50'H Field A** 4,823 cf Overall - 2,039 cf Embedded = 2,784 cf x 30.0% Voids
#2A	130.00'	1,464 cf	**Shea Leaching Chamber 4x4x3** x 48 Inside #1 Inside= 41.0"W x 30.0"H => 8.72 sf x 3.50'L = 30.5 cf Outside= 47.0"W x 36.0"H => 10.62 sf x 4.00'L = 42.5 cf 48 Chambers in 3 Rows
		2,299 cf	Total Available Storage

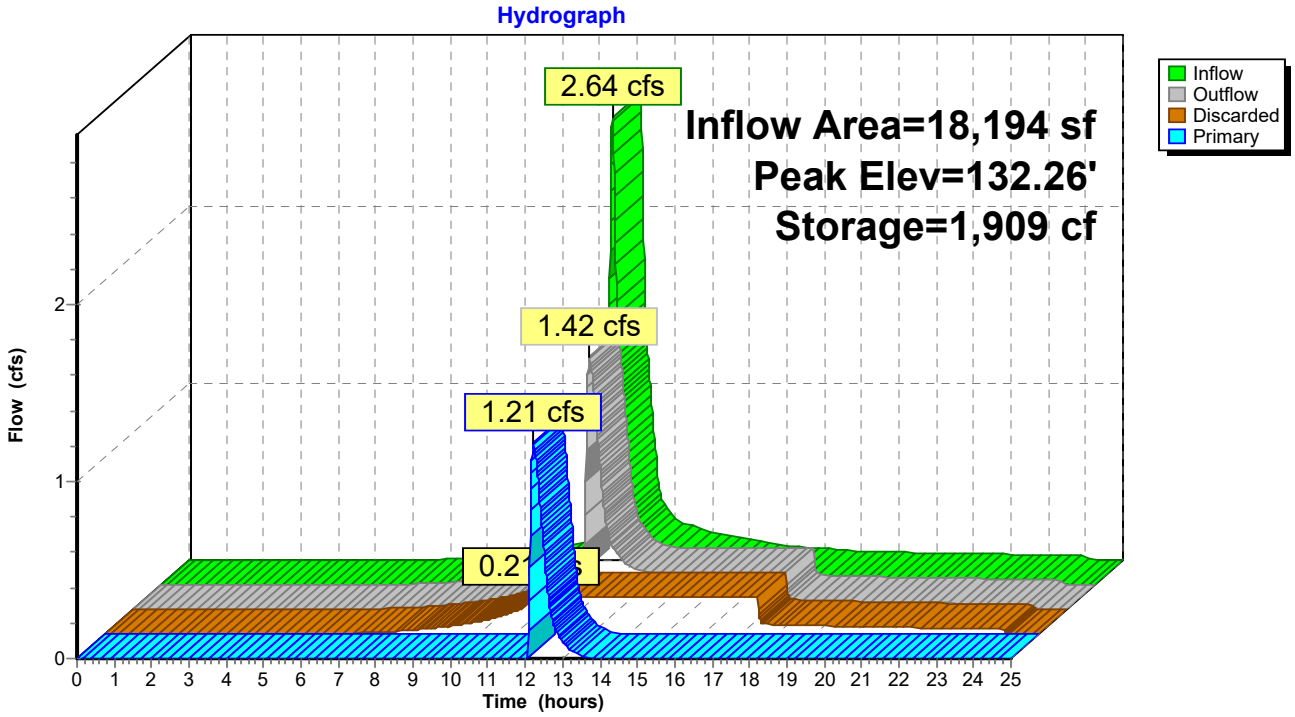
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	129.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	131.50'	**10.0" Round Culvert** L= 56.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 131.50' / 128.00' S= 0.0619 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Discarded OutFlow Max=0.21 cfs @ 11.41 hrs HW=129.05' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.21 cfs)

Primary OutFlow Max=1.22 cfs @ 12.22 hrs HW=132.26' (Free Discharge)
↑—**2=Culvert** (Inlet Controls 1.22 cfs @ 2.34 fps)

Pond 3P: UG System 3



Summary for Pond 4P: Basin 1

Inflow Area = 40,849 sf, 38.38% Impervious, Inflow Depth = 1.71" for 100-YR event
Inflow = 2.00 cfs @ 12.18 hrs, Volume= 5,809 cf
Outflow = 0.46 cfs @ 12.69 hrs, Volume= 5,809 cf, Atten= 77%, Lag= 30.5 min
Discarded = 0.40 cfs @ 12.69 hrs, Volume= 5,774 cf
Primary = 0.06 cfs @ 12.69 hrs, Volume= 35 cf

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 127.52' @ 12.69 hrs Surf.Area= 2,098 sf Storage= 2,303 cf

Plug-Flow detention time= 51.9 min calculated for 5,806 cf (100% of inflow)
Center-of-Mass det. time= 51.9 min (885.5 - 833.6)

Volume	Invert	Avail.Storage	Storage Description
#1	126.00'	3,407 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

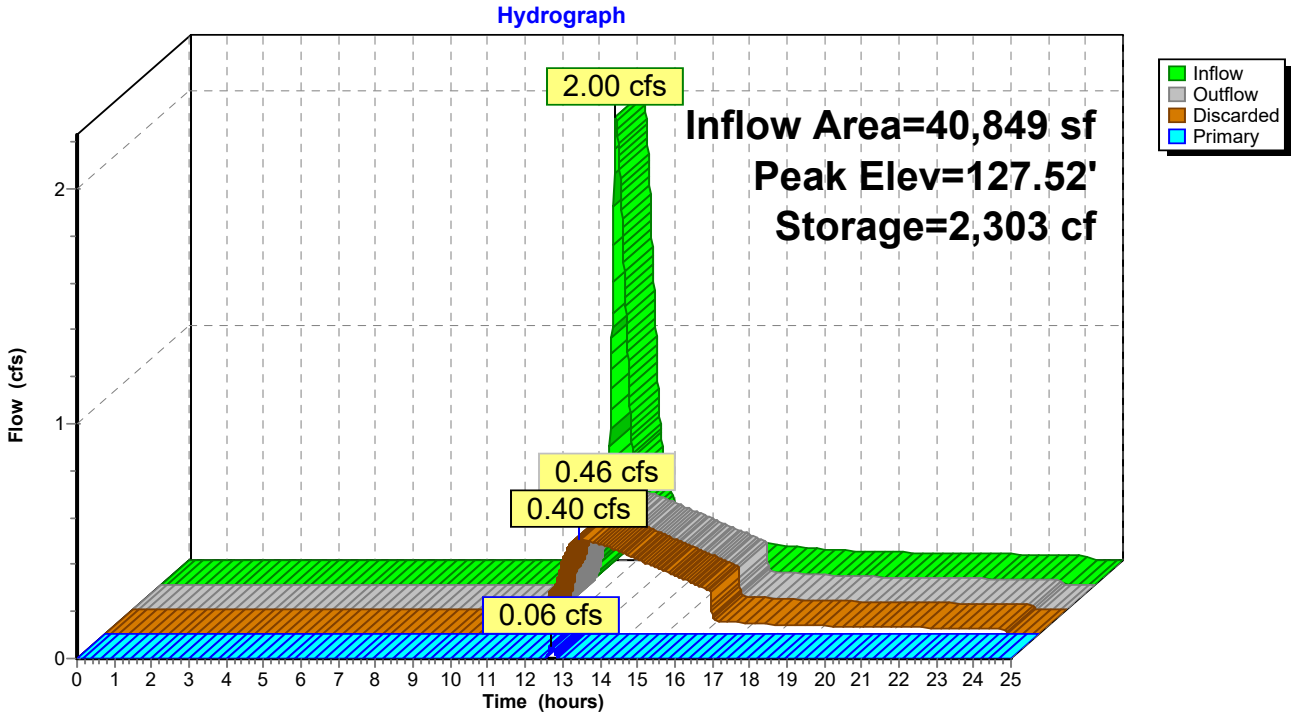
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
126.00	940	0	0
128.00	2,467	3,407	3,407

Device	Routing	Invert	Outlet Devices
#1	Discarded	126.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	127.50'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.40 cfs @ 12.69 hrs HW=127.52' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.40 cfs)

Primary OutFlow Max=0.05 cfs @ 12.69 hrs HW=127.52' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 0.05 cfs @ 0.31 fps)

Pond 4P: Basin 1



Summary for Pond 5P: Basin 2

Inflow Area = 19,738 sf, 35.31% Impervious, Inflow Depth = 2.23" for 100-YR event
Inflow = 1.35 cfs @ 12.14 hrs, Volume= 3,664 cf
Outflow = 0.33 cfs @ 12.55 hrs, Volume= 3,664 cf, Atten= 76%, Lag= 24.8 min
Discarded = 0.24 cfs @ 12.55 hrs, Volume= 3,617 cf
Primary = 0.09 cfs @ 12.55 hrs, Volume= 47 cf

Routing by Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 125.52' @ 12.55 hrs Surf.Area= 1,236 sf Storage= 1,327 cf

Plug-Flow detention time= 48.9 min calculated for 3,664 cf (100% of inflow)
Center-of-Mass det. time= 48.9 min (876.4 - 827.5)

Volume	Invert	Avail.Storage	Storage Description
#1	124.00'	1,971 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

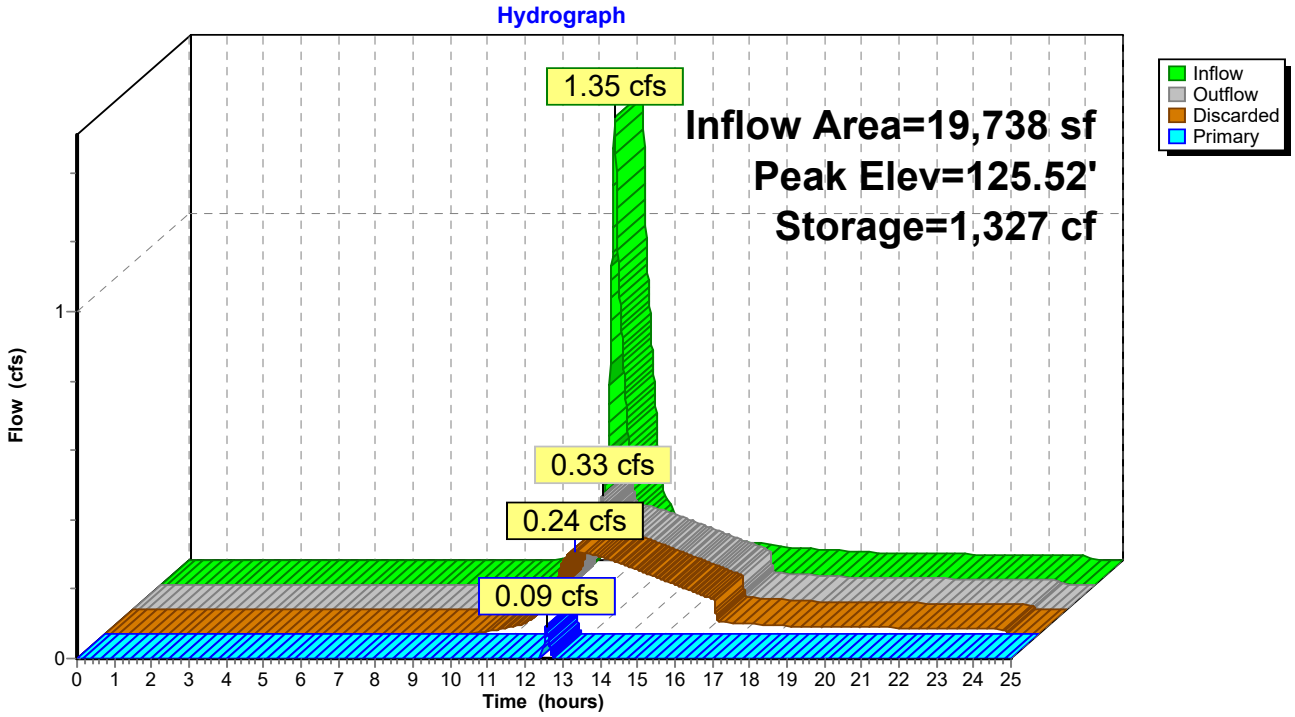
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
124.00	506	0	0
126.00	1,465	1,971	1,971

Device	Routing	Invert	Outlet Devices
#1	Discarded	124.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	125.50'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.24 cfs @ 12.55 hrs HW=125.52' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.24 cfs)

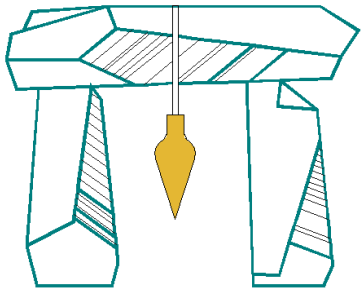
Primary OutFlow Max=0.09 cfs @ 12.55 hrs HW=125.52' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 0.09 cfs @ 0.37 fps)

Pond 5P: Basin 2



Appendix B Stormwater Operation & Maintenance Plan

DeCelle-Burke-Sala



& Associates, Inc.

Stormwater Operation & Site Maintenance Plan
for
Proposed Definitive Subdivision
at
217 Mill Street
Randolph, Massachusetts

Prepared by:
DeCelle-Burke-Sala & Associates, Inc.
1266 Furnace Brook Parkway
Suite 401
Quincy, MA 02169

Prepared for:
217 Mill St, LLC
228 Park Avenue S, PMB 35567
New York, NY 89135

Revised: April 10, 2023
February 6, 2023

Introduction

This Stormwater Operation & Maintenance Plan (SOMP) is for the definitive subdivision located at 217 Mill Street in Randolph, Massachusetts. The SOMP is outlined below to provide long term operation and maintenance procedures of the stormwater controls installed to manage the stormwater flow generated on the site. The landowners are required to implement the procedures and ensure the long term benefits of the stormwater controls approved and installed for this project. The SOMP provides simple operational and maintenance procedures for the stormwater control structures as well as perform various tasks to remove pollutants from areas that would have potential to be picked up on site and moved via stormwater offsite.

The landowners shall be responsible to implement this SOMP which requires them to inspect, maintain, and operate the stormwater management system as well as inspect the grounds for eroded areas and collected pollutants. The purpose of the SOMP is to maintain the long term benefits from the Stormwater Management features constructed that support groundwater recharge and pollution prevention.

Responsible Party -

217 Mill St, LLC
228 Park Avenue S, PMB 35567
New York, NY 89135

The responsible party listed above is responsible for inspecting, maintaining and keeping copies of maintenance records for the following plan and will be referred to as the Site Manager for the remainder of this report. The responsible party can expect a yearly budget of $1,500 to $2,000 per year to maintain this site.

All future property owners shall inherit the responsibility of implanting this SOMP. The current deed reference is found in the Norfolk County Registry of Deeds Book 14059 Page 498. This document shall be recorded at the Norfolk County Registry of Deeds with the deed reference. Upon any future transfer of ownership all future owners will be obligated to use, maintain, and continue to adhere to this Operation and Maintenance Plan in accordance with the manufacturers recommendations and all inspection records will be maintained and made available to the Town of Randolph upon request.

Illicit Discharge Statement

Per Standard No. 10 of the MassDEP Stormwater Management Standards, there shall be no illicit discharges to the stormwater management system. The Property Manager is responsible for implementing the Operation and Maintenance Plan and overseeing activities at the facility to prevent illicit discharges to the drainage system from occurring.

It is strictly prohibited to discharge any products or substances onto the ground surface into any drainage structures, such as catch basin inlets, manholes, water quality units, forebays, basin or drainage outlets that would be a detriment to the environment.

Signature Date

Non-Structural Operations

Pavement Sweeping

Pavement sweeping will be performed by hand twice during the year, in April-May and in September-October. The Site Manager shall contract with a property management company that provides pavement sweeping services. The company shall be in good standing in the Commonwealth of Massachusetts and experienced in performing these services. All sweepings shall be disposed of by the hired company off-site in a legal manner.

Snow Management

Proper snow management practices will be implemented to maximize access and egress into the property. Plowed or shoveled snow will be placed in pervious areas at the edges of driveways and the roadway where it can slowly infiltrate. Snow will be placed on to pervious areas that are not subject to excessive shade from buildings or vegetation. All accumulated sediment from snowmelt shall be removed each spring.

Structural Operations

Deep Sump Catch Basins

The catch basins are installed to capture stormwater runoff and provide pretreatment for TSS and oils. The catch basin is fitted with a proprietary water quality outlet control assembly called a SNOUT® to assist in the efficiency of capturing TSS and oils. To ensure maximum capacity and efficiency, the deep sump catch basin sump will be cleaned when half of the available capacity of the sump has been used or at a minimum of once per year. The Manager shall inspect the sump on a quarterly basis. The Site Manager shall hire a contractor in good standing in the Commonwealth of Massachusetts with experience in cleaning stormwater sumps with a vacuum truck. All sediment and water retrieved from the sumps shall be disposed of by the hired company off-site in a legal manner. The Manager shall provide a written inspection report of which an example form is attached.

SNOUT®

The SNOUT® is a locally manufactured stormwater treatment product that is a vented fiberglass water quality hood that is installed over the outlet pipe in a storm water structure with a sump that skims oils, floatables and trash off of the surface water while letting settleable solids sink to the bottom. The cleaner water exits from beneath the SNOUT, which is lower than the bottom of the pipe, but above the bottom of the structure allowing both floatable material and solids that sink to stay in the structure. The catch basin structure is fitted with the SNOUT®. The Manager shall inspect the SNOUT® quarterly, the same time the sump is inspected. The Site Manager shall hire a contractor in good standing in the Commonwealth of Massachusetts with experience in inspecting the SNOUT® and make sure it is operating as intended. If damaged, the SNOUT® shall be repaired or replaced entirely. The Manager shall provide a written inspection report of each SNOUT® which an example form is attached.

Contech CS-3 Cascade Separator Water Quality Manhole

The Cascade Separator (CS-3) water quality manholes were installed to provide additional pretreatment for the stormwater prior to infiltration. To ensure maximum capacity and efficiency, the CS-3 units should be inspected and cleaned in accordance with the manufacturer's specifications which have been included in Appendix A.

Underground Concrete Leaching Galleys

The underground concrete leaching galleys were installed to recharge stormwater runoff from the roadway, the driveways, and portions of landscaping area runoff. The roof runoff does not generate sediment, and with at grade flows captured by a deep sump catch basin with outlet hood treating the driveway and landscape runoff, the infiltration chambers shall remain effective for a long period of time. Inspection manholes are brought to grade to allow the Site Manager to observe if the chambers are ponding or accumulating sediment and to clean if necessary. To ensure maximum capacity and efficiency, the concrete chambers should be inspected and cleaned in accordance with the manufacturer's specifications.

Surface Infiltration Basin

Two surface infiltration basins have been constructed within the subdivision to allow for the attenuation of stormwater. The berm shall be stabilized and protected from erosion through the use of vegetation. The berm shall be inspected quarterly and after large storm events and maintained as necessary. If erosion is identified in the basin, the affected area will be stabilized and reseeded as required to maintain vegetative cover. This will prevent further instability occurring on the berm. The Manager shall hire a contractor that provides basin cleaning services for the entire stormwater management infrastructure. The contractor shall be a company in good standing in the Commonwealth of Massachusetts and experienced in performing the requested services. The debris and silt laden stormwater collected from the facilities shall be disposed of in a legal manner.

Site Management

The site shall be inspected on a quarterly basis for rutting, potholes, broken berms, depressions eroded areas and any other site damage caused by vehicular or human activity. Landscaped areas shall be raked as necessary to maintain their grade. Grassed areas shall be raked out and seeded as needed to maintain an even vegetated surface. A slow release natural fertilizer and a minimal amount of insecticides and herbicides shall be used for landscaping maintenance. The homeowner shall hire a contractor, if necessary, in good standing in the Commonwealth of Massachusetts with experience in site management to repair any potholes, broken berms, or other damaged exterior area. The homeowner shall hire a contractor, if necessary, in good standing in the Commonwealth of Massachusetts with experience in re-vegetating eroded areas and repairing vehicular surfaces and edges.

Record Keeping

Records of the inspections and maintenance for the Non-Structural and Structural Operations performed or organized by the homeowner for the property shall be up to date, available for review and inspection on-site and submitted to the Town of Randolph Conservation Department for review and record. Records shall be backlogged for three years before they are disposed of. An example record keeping sheet is attached.

Definitive Subdivision

217 Mill Street, Randolph, Massachusetts

Stormwater Operation & Site Maintenance Plan

INSPECTION SCHEDULE AND EVALUATION CHECKLIST

Best Management Practice	Inspection Frequency	Date Inspected	Contractor	Current Conditions and Minimum Maintenance / Repairs, if necessary	Completed Maintenance / Repair (i.e. date, contractor, tasks complete, etc...)
Pavement Sweeping	Biannually				
Deep Sump Catch Basins	Quarterly				
Snout®	Quarterly				
Contech CS-3 Cascade Separators	Per manufacturer's specs.				
Concrete Galleys	Per manufacturer's specs.				
Surface Infiltration Basins	Quarterly				
Overall Site Condition	Quarterly				

Per Standard No. 10 of the MassDEP Stormwater Management Standards, there shall be no illicit discharges to the stormwater management system. The Property Manager is responsible for implementing the Operation and Maintenance Plan and overseeing activities at the facility to prevent illicit discharges to the drainage system from occurring. It is strictly prohibited to discharge any products or substances onto the ground surface or into any drainage structures, such as catch basin inlets, manholes, water quality units, forebays, basin or drainage outlets that would be a detriment to the environment.

Property Manager: _____ **Date** _____

Appendix A

CONTECH®
ENGINEERED SOLUTIONS

Cascade Separator™ Inspection and Maintenance Guide

CASCADE
separato

Maintenance

The Cascade Separator™ system should be inspected at regular intervals and maintained when necessary to ensure optimum performance. The rate at which the system collects sediment and debris will depend upon on-site activities and site pollutant characteristics. For example, unstable soils or heavy winter sanding will cause the sediment storage sump to fill more quickly but regular sweeping of paved surfaces will slow accumulation.

Inspection

Inspection is the key to effective maintenance and is easily performed. Pollutant transport and deposition may vary from year to year and regular inspections will help ensure that the system is cleaned out at the appropriate time. At a minimum, inspections should be performed twice per year (i.e. spring and fall). However, more frequent inspections may be necessary in climates where winter sanding operations may lead to rapid accumulations, or in equipment wash-down areas. Installations should also be inspected more frequently where excessive amounts of trash are expected.

A visual inspection should ascertain that the system components are in working order and that there are no blockages or obstructions in the inlet chamber, flumes or outlet channel. The inspection should also quantify the accumulation of hydrocarbons, trash and sediment in the system. Measuring pollutant accumulation can be done with a calibrated dipstick, tape measure or other measuring instrument. If absorbent material is used for enhanced removal of hydrocarbons, the level of discoloration of the sorbent material should also be identified during inspection. It is useful and often required as part of an operating permit to keep a record of each inspection. A simple form for doing so is provided in this Inspection and Maintenance Guide.

Access to the Cascade Separator unit is typically achieved through one manhole access cover. The opening allows for inspection and cleanout of the center chamber (cylinder) and sediment storage sump, as well as inspection of the inlet chamber and slanted skirt. For large units, multiple manhole covers allow access to the chambers and sump.

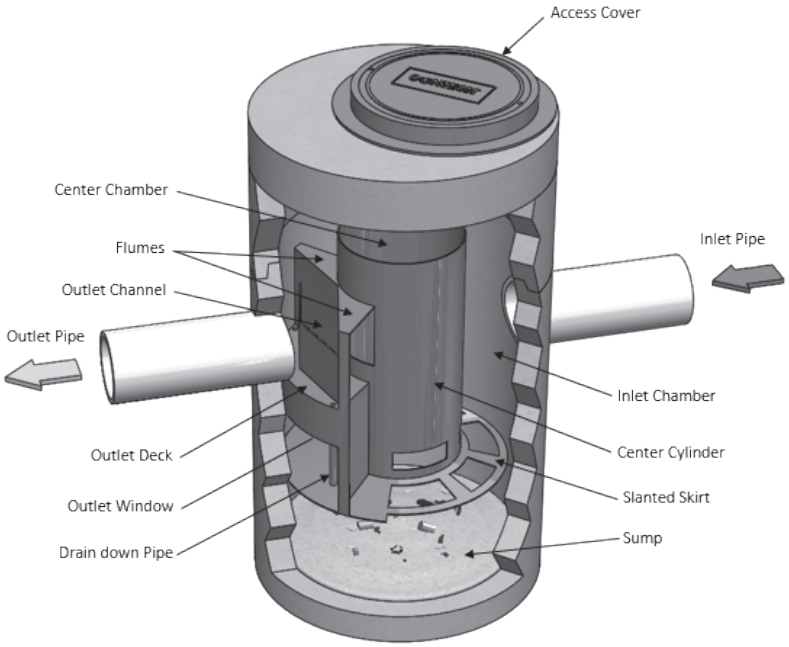
The Cascade Separator system should be cleaned before the level of sediment in the sump reaches the maximum sediment depth and/or when an appreciable level of hydrocarbons and trash has accumulated. If sorbent material is used, it must be replaced when significant discoloration has occurred. Performance may be impacted when maximum sediment storage capacity is exceeded. Contech recommends maintaining the system when sediment level reaches the 50% storage volume. The level of sediment is easily determined by measuring from finished grade down to the top of the sediment pile. To avoid underestimating the level of sediment in the chamber, the measuring device must be lowered to the top of the sediment pile carefully. Finer, silty particles at the top of the pile typically offer less resistance to the end of the rod than larger particles toward the bottom of the pile. Once this measurement is recorded, it should be compared to the as-built drawing for the unit to determine if the height of the sediment pile off the bottom of the sump floor exceeds 50% of the total height of sediment storage sump.

Cleaning

Cleaning of a Cascade Separator system should be done during dry weather conditions when no flow is entering the system. The use of a vacuum truck is generally the most effective and convenient method of removing pollutants from the system. Simply remove the manhole cover and insert the vacuum hose down through the center chamber and into the sump. The system should be completely drained down and the sump fully evacuated of sediment. The areas outside the center chamber and the slanted skirt should also be washed off if pollutant build-up exists in these areas.

In installations where the risk of petroleum spills is small, liquid contaminants may not accumulate as quickly as sediment. However, the system should be cleaned out immediately in the event of an oil or gasoline spill. Motor oil and other hydrocarbons that accumulate on a more routine basis should be removed when an appreciable layer has been captured. To remove these pollutants, it may be preferable to use absorbent pads since they are usually less expensive to dispose than the oil/water emulsion that may be created by vacuuming the oily layer. Trash and debris can be netted out to separate it from the other pollutants. Then the system should be power washed to ensure it is free of trash and debris.

Manhole covers should be securely seated following cleaning activities to prevent leakage of runoff into the system from above and to ensure proper safety precautions. Confined space entry procedures need to be followed if physical access is required. Disposal of all material removed from the Cascade Separator system must be done is accordance with local regulations. In many locations, disposal of evacuated sediments may be handled in the same manner as disposal of sediments removed from catch basins or deep sump manholes. Check your local regulations for specific requirements on disposal. If any components are damaged, replacement parts can be ordered from the manufacturer.



Cascade Separator Inspection & Maintenance Log

Cascade Model:			Location:		
Date	Water Depth to Sediment[1]	Floatable Layer Thickness[2]	Describe Maintenance Performed	Maintenance Personnel	Comments

1. The depth to sediment is determined by taking a measurement from the manhole opening to the top of the sediment pile. Once this measurement is recorded, it should be compared to the as-built drawing for the unit to determine if the height of the sediment pile off the bottom of the sump floor exceeds 50% of the total height of sediment storage sump. Note: to avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the top of the sediment pile.
2. For optimum performance, the system should be cleaned out when the floating hydrocarbon layer accumulates to an appreciable thickness. In the event of an oil spill, the system should be cleaned immediately.

A Cascade Separator unit can be easily cleaned in less than 30 minutes.

A vacuum truck excavates pollutants from the systems.

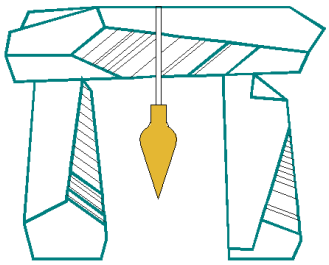
SUPPORT

- Drawings and specifications are available at www.ContechES.com.
- Site-specific design support is available from our engineers.

Contech Engineered Solutions LLC provides site solutions for the civil engineering industry. Contech's portfolio includes bridges, drainage, sanitary sewer, stormwater, and earth stabilization products. For information, visit www.ContechES.com or call 800.338.1122

Appendix C Stormwater Pollution Prevention Plan

DeCelle-Burke-Sala



& Associates, Inc.

Stormwater Pollution Prevention Plan

for

217 Mill Street

a Definitive Subdivision
in
Randolph, Massachusetts

Prepared by:
DeCelle-Burke-Sala & Associates, Inc.
1266 Furnace Brook Parkway
Suite 401
Quincy, MA 02169

Prepared for:
McDermott Builders, Inc.
7 Whitelawn Avenue
Milton, MA 02186

Revised: April 10, 2023
February 6, 2023

Table of Contents

1.0 - Plan Objectives

- To protect abutting properties, public ways and drainage infrastructure from construction related pollutant impacts generated from land disturbance and construction activities;

- Control existing, and potential erosion, sediment transport and pollutant impact events by installing and maintaining construction related Best Management Practices (BMP's) to reduce and/or prevent the discharge of stormwater pollutants into wetland resources of the Commonwealth of Massachusetts;

- To protect surface stormwater quality, ground water quality, and minimize off-site sediment transport offsite during construction;

- To prevent local and off-site flooding by controlling peak rates and volumes of stormwater runoff during construction; and

- To eliminate illicit discharges to stormwater drainage systems that causes pollution during construction.

2.0 - Introduction

This Erosion and Sedimentation Control Plan (The "Plan") has been devised for the construction of a new rehabilitation building located at 217 Mill Street in Randolph, Massachusetts. The purpose of the Plan is to protect the surrounding environment from contaminated stormwater during construction of the development. The stormwater will be treated before release and surfaces stabilized to minimize erosive events by implementing, installing and maintaining construction related Best Management Practices (BMP's) to reduce and/or prevent the discharge of stormwater pollutants into wetland resources of the Commonwealth of Massachusetts. The BMP's are described in the Stormwater Management Standards developed by the Massachusetts Department for Environmental Protection and it is our belief that short term construction related pollution prevention generated from this site can be achieved.

3.0 - Current Site Conditions

The subject property is located at 217 Mill Street in the Town of Randolph. The Town of Randolph Assessor's office currently identifies the as Assessors ID 51-H-8.01 with a

total area of approximately 77,512± square feet (SF). The property is located within the Residential Single Family High Density (RSFHD) zoning district.

The site is bounded by Mill Street to the northeast, and is abutted by single-family residential properties to the east, south, and west. The dead end of Prospect Avenue is close to the locus, however, the property does not have any frontage on Prospect Avenue. The lot contains a 675± S.F. residential single-family dwelling that was constructed around 1950 per the Town's online property record database. In addition to the dwelling, there are two sheds located on the property. Vehicular access to the site is provided off Mill Street by a single-lane asphalt driveway to the west of the dwelling. The dwelling improvements include a deck on the westerly side of the building adjacent to the driveway, a concrete patio in the backyard and a concrete walkway along the front of the house. The vegetation in the northerly portion of the lot closest to Mill Street is predominately lawn, with several hedges and trees. The majority of the lot is covered by trees and considered wooded. A vinyl and chain-link fence traverse the rear of the property near the abutters located on Hart Circle. Topography on the site varies throughout the property. Elevations along the frontage of the property on Mill Street range from approximately elevation 126 in the northeasterly corner, to elevation 132 in the northerly corner. Topography slopes up roughly 27% from the northeasterly corner at elevation 126 up to the house at elevation 136. The driveway slopes approximately 13% up from Mill Street to the peak of the driveway. The high elevation on-site is located towards the center of the property within the woods. From the high point, the topography generally slopes down to the abutters to the east down to a low elevation of approximately 122. All elevations refer to the North American Vertical Datum of 1988 (NAVD 88).

The existing building is serviced by sewer, domestic water, and gas services that connect to the respective mains in Mill Street. Overhead wires connect from the dwelling to the existing overhead wires in Mill Street to provide power and communication services to the existing dwelling. A roof gutter system on the existing dwelling captures the majority of roof runoff and downspouts direct the water to flow overland. No other stormwater controls are located on-site, as flows from the asphalt driveway are not collected and runoff to Mill Street. The site is not located within a Special Flood Hazard Zone as delineated on FIRM 25021C0217E, effective 07/17/2012. There do not appear to be any jurisdictional wetlands within 100-feet of the project locus.

4.0 - Project Description

The proposed project is a subdivision, which will include the construction of four (4) new single-family houses and a proposed roadway. Access to the subdivision will be provided off Mill Street by a 40-ft. wide private way, which ends at a cul-de-sac with a 42-ft. pavement radius. The proposed street layout will have 24-ft. of pavement with vertical granite curbing on both sides. Each proposed single-family house will be provided vehicular access to the proposed road by a curb cut and asphalt driveway.

The street will be graded to have a 2.9% grade for the first approximately 19-ft. before transition to a 100-ft. Type IV Sag Vertical Curve. The roadway will have a slope of approximately 7% for approximately 10-ft. before transitioning to a 150-ft. Type I Crest Vertical Curve. The highpoint of the roadway will be located towards the front of the cul-de-sac and will slope down toward the end of the road. A retaining wall is proposed along the easterly side of the roadway from approximately station 0+55 to approximately station 1+75. The retaining wall is approximately 5-ft. tall at its highest point.

The proposed subdivision will be improved by public utilities for the use of the four (4) proposed dwellings. A proposed 8-in. PVC gravity sewer main is proposed to be installed for the length of the roadway. The proposed sewer main will tie into the existing 8-in. PVC sewer main in Mill Street by constructing a doghouse manhole in Mill Street. A sewer manhole is proposed at the end of the proposed sewer main in the cul-de-sac of the proposed roadway. Each house will tie into the proposed sewer main by gravity with proposed 4-in. PVC sewer services. An 8-in. CLDI (cement-lined ductile iron) water main will be installed for the length of the roadway. The proposed water main will tie into the existing water main in Mill Street. Each house will be provided water service by a 1-in. “type K” copper pipe. A fire hydrant is proposed at the end of the proposed 8-in. water main and will be located within the cul-de-sac of the proposed roadway. A proposed gas main shall be installed by the local utility purveyor’s standards to provide gas service to each dwelling. Power and communication services will be provided by underground wires. A transformer will be installed within the subdivision.

Proposed stormwater controls shall comply with local, state and federal regulations. Stormwater generated by the proposed street will be collected, treated, and infiltrated to protect the down gradient abutting properties. The proposed stormwater management systems is comprised of a total of five (5) deep sump catch basins, two (2) proprietary water quality units, three (3) subsurface infiltration systems constructed of precast concrete leaching galleys and two surface infiltration basins. The majority of the stormwater runoff on site is produced by the asphalt roadway and proposed buildings.

Subsurface Infiltration System 1 consists of nine (9) 4'x4'x4' precast concrete leaching galleys and surrounding stone. System 1 collects the majority of the roadway by two deep sump catch basins located near the intersection of the proposed roadway and Mill Street. The catch basins convey the stormwater runoff to a proprietary water quality unit which pretreats the runoff prior to it being released to the subsurface infiltration system. System 1 has been designed to infiltrate the required recharge volume, decrease the peak runoff flows leaving the site and contain the entirety of the 10-year storm event. In the event of a larger storm event the stormwater runoff will by-pass the proposed catch basins and be collected by the existing drainage system in Mill Street. Subsurface System 2 is centrally located on the site and collects the stormwater runoff from the remainder of the twenty four (24) foot wide roadway. Stormwater runoff is captured by two (2) deep sump catch basins and conveyed to a proprietary water quality unit for pretreatment before it is release to Subsurface System 2. System 2 consists of twelve (12) 4'x4'x4' precast concrete leaching galleys and surrounding stone. System 2 has been designed to infiltrate the required recharge volume, decrease the peak runoff flows leaving the site and contain the entirety of the 10-year storm event. In the event of larger storm events, System 2 has been fitted with a 12 inch outlet pipe which extends to Surface Basin 2 where it is released onto a riprap outlet protection apron. Subsurface system 3 collects the entirety of the cul-de-sac through a single deep sump catch basin. The deep sump catch basin conveys the stormwater runoff to a proprietary water quality unit for pretreatment before it is released to Subsurface System 3. System 3 consists of forty eight (48) 4'x4'x4' precast concrete leaching galleys and surrounding stone. System 2 has been designed to infiltrate the required recharge volume, decrease the peak runoff flows leaving the site and contain the entirety of the 10-year storm event. In the event of larger storm events, System 2 has been fitted with a 12 inch outlet pipe which extends to Surface Basin 1 where it is released onto a riprap outlet protection apron.

Surface Basin 1 is a 2,456± S.F. surface infiltration basin which contains and infiltrates stormwater runoff from overland flow, the proposed roofs and overflow from Subsurface System 3. Basin 1 has been designed to infiltrate the entirety of the 2-, 10-, and 25-year storm events with allowing a minor amount of sheet flow released for the 100-year storm event. Surface Basin 2 is a 1,435± S.F. surface infiltration basin which detains and infiltrates stormwater runoff from overland flow, the proposed roofs and overflow from Subsurface System 2. Basin 2 has been designed to infiltrate the entirety of the 2-, 10-, and 25-year storm events with allowing a minor amount of sheet flow released for the 100-year storm event. The basins shall be grassed with an emergency riprap outlet weir as an overflow.

5.0 - Erosion & Sedimentation Control Plan

The contractor shall implement an Erosion and Sedimentation Control Plan that protects the surrounding environment from sediment laden stormwater runoff generated during construction activities and from other pollutants generated from construction activities such as litter and dust. Construction sequencing is part of managing a site as is implementing many BMP's that assist in controlling construction related pollutants.

5.1 - Major Construction Sequence for Site

The sequence is developed to contain all potential sedimentation and erosion incidents that could occur during the construction of the project. The contractor however is responsible to manage the site effectively to control offsite sediment transport which may not be included in this plan. The sequence will coordinate the work within the erosion barrier and coordinate other sedimentation control features to reduce the stress upon a silt fence as well as limit off-site sediment transport. The sequencing is as follows:

- Place safety fence around property to limit access and protect the public.
- Place erosion control barrier at limit of work where possible. The barrier shall be 12" diameter mulch wattles.
- Provide inlet protection for existing drainage structures on and off-site to minimize sediment buildup in the catch basins.
- Install crushed stone construction entrance to reduce soil tracking off-site by construction vehicles.
- Cut and cap/disconnect all existing utilities as shown on the plans.
- Raze existing buildings.
- Grub site, stockpile loam on site, and surround in erosion control barrier and cover to minimize sediment transport from stormwater runoff.
- Rough grade the site.
- Rough grade surface detention basins. Limit construction activities around the surface detention basins to minimize compaction of existing soils.
- Install proposed roadway utilities. Install silt sacks in catch basins as soon as they have been installed.
- Install concrete Infiltration Systems 1, 2 & 3.
- Final grade the proposed roadway.
- Install asphalt binder course for roadway.
- Install vertical granite curbing.
- Connect roadway drainage to the underground infiltration structures.
- Excavate for proposed foundations.

- Construct proposed foundations.
- Extend utility services to the proposed foundations.
- Begin vertical construction.
- Final grade the site.
- Install asphalt binder course for driveways.
- Install final landscaping, including hydroseed, plantings, light poles, walkways, handicap ramps and stairs.
- Place final asphalt top coat on roadway and driveways.
- Clean up site.

The contractor has several procedures to perform to maintain the site. They include but are not limited to:

- Clean pavement of sediment as needed.
- Replace erosion control barrier at limit of work as needed. Barrier to be inspected on a weekly basis.
- Empty silt sacks after each rain event. Catch basins and manholes to be cleaned once sediment occupies 1/2 the sump available. Structures to be inspected on a weekly basis.
- Any stockpiled soils to be covered to minimize fugitive dust.
- Maintain a covered dumpster on site to minimize wind blown debris from littering neighborhood and resource areas.
- Have a water truck onsite during the excavation for the project and during rough grading to minimize fugitive dust.

5.2 - Best Management Practices

The contractor shall use various types of structural and non-structural methodologies to minimize offsite polluting from construction activities. The following is a list of some BMP's that can be utilized; however, it is the contractor's responsibility to implement his strategies to minimize offsite sediment transport and fugitive dust and trash.

5.2.1 - Dumpster

The contractor shall have a dumpster on-site for the disposal of construction debris. The contractor shall cover the dumpster as needed to prevent wind blown debris from becoming litter in the environment.

5.2.2 - Silt Collection and Filter Bags

The contractor shall install filter sacks in all catch basins which may collect construction site stormwater runoff. The filter sacks will be inspected periodically for effectiveness and serviceability.

5.2.3 - Mechanical or Hand Sweeper

The contractor shall sweep the site by mechanical means or by hand to reduce the sediment build-up on-site. This will reduce the surrounding area becoming impacted from construction related offsite sediment pollution.

5.2.4 - Crushed Stone Construction Apron

A crushed stone apron shall be installed at the entrance to the site to assist in removing caked soil on construction vehicle tires. The apron shall be twenty five by twenty five foot wide. The contractor shall inspect the apron on a daily basis and supplement new stone as needed.

5.2.5 - Erosion Control Barrier

An erosion control barrier shall be installed at the downgradient Limit of Work and used around the site as needed. A barrier shall also be used around soil stockpiles and localized excavations on site. The barrier needs to be effective in controlling sediment transport and not becoming strained as the project moves forward. The contractor shall inspect the barrier weekly or after a large storm event to identify any stressed areas and replace the barrier as needed. The barrier can be one or many of several types. Staked haybales, a geotextile fabric or a geotextile erosion control sock are typical types of barriers. The contractor shall inspect the barriers on a daily basis and repair the barriers as needed.

5.2.6 - Dust Control

The use of a water truck or other method to spray water over the site during the dry season to minimize blown dust shall be implemented. The water shall not be excessively spread so erosive forces occur. The contractor shall sweep the pavement once installed and cover stockpiled soils as needed to minimize dust.

5.2.7 - Disturbed Surface Maintenance

The contractor shall stabilize the ground surface as needed to prevent erosion. Stabilization of surfaces includes the placement of pavement, rip rap, wood bark mulch and the establishment of vegetated surfaces. Upon the completion of construction of a particular phase, all surfaces should be stabilized even though it is apparent that future construction efforts will cause their disturbance. Vegetated cover should be established during the proper growing season and should be

enhanced by soil adjustment for proper pH, nutrients and moisture content. Surfaces that are disturbed by erosion processes or vandalism should be stabilized as soon as possible. Areas where construction activities have permanently or temporarily ceased should be stabilized within 14 days from the date of last construction activity, except when construction activity will resume within 21 days (e.g., the total time period that construction activity is temporarily ceased is less than 21 days). Hydro-mulching of grass surfaces is recommended, especially if seeding of the surfaces is required outside the normal growing season. Mulching may be used for temporary stabilization. Haybale dikes or silt fences should be set where required to trap products of erosion and should be maintained on a continuing basis during the construction process. Wheel ruts should be filled in and graded to prevent concentration of stormwater runoff. Vehicle tracks leading downhill should be blocked during periods of intense precipitation by hay bales, dikes or silt fences which should be constructed to entrap the sediment.

5.2.8 - Temporary Stormwater Controls

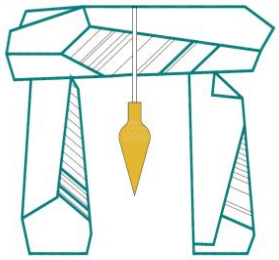
The contractor shall rough grade the site as to not concentrate the stormwater runoff and cause erosive forces. The contractor shall use a level spreader or other temporary stormwater control device to treat construction site runoff for suspended solids. The catch basins and manholes can be installed to assist in capturing the construction site runoff once installed but the tanks will need to be cleaned out of all sediment before connecting the tanks to the recharge system and final paving. The use of silt sacks on the catch basin will help minimize the cleaning of the sumps. The contractor shall sweep the pavement once installed as needed to minimize suspended solids in the stormwater.

Appendix D Supporting Information

Standard 3 & 4–Groundwater Recharge & Water Quality Volume Calculations

Required Recharge/Water Quality Volume Calculations

DECELLE-BURKE-SALA



& Associates, Inc.

Project: Clifton Court Development
217 Mill Street
Randolph, MA

Client: 217 Mill St, LLC

Date: 4/11/2023

Given:

Total Impervious Area (A): 27,188 s.f.

Target Depth Factor (F): 0.6 inches over impervious area

Required Water Quality Volume (R_{wqv}): 1 inches over impervious area

Solve:

Required Recharge/Water Quality Volume
= A x F or R_{wqv} (whichever is greater)

2,265.7 c.f

Proposed Recharge Volume (V): (*based on HydroCAD volumes)

			A per system		R_{wqv} per system		
Subsurface System 1	=	700 c.f.	4,541	s.f.	376.9	c.f.	V>Rwqv
Subsurface System 2	=	358 c.f.	3,210	s.f.	266.4	c.f.	V>Rwqv
Subsurface System 3	=	1,383 c.f.	11,917	s.f.	989.1	c.f.	V>Rwqv
Surface Basin 1	=	2,269 c.f.	3,760	s.f.	312.0	c.f.	V>Rwqv
Surface Basin 2	=	1,298 c.f.	3,760	s.f.	312.0	c.f.	V>Rwqv

Total = 6,008 c.f. Proposed Volume > Required Volume

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Standard 3 – Groundwater Mounding Calculations

Groundwater Mounding Inputs for Subsurface System 3

DECELLE-BURKE-SALA

& Associates, Inc.

Project: Clifton Court Development
217 Mill Street
Randolph, MA

Client: 217 Mill St, LLC

Date: 4/10/2023

Specific Yield Values (Sy)

Water Laid Deposits: (Lacustrine Deposits)	0.2
Wind Blown Deposits: (Eolian Deposits) *(conservative)*	0.2
Ice Laid Deposits: (Compact/Ablation Till)	0.15 *(Typical Sy value for New England)*

**per "Summary of Hydrologic and Physical Properties of Rock and Soil Materials, as Analyzed by the Hydrologic Laboratory of the U.S. Geoligical Survey 1948-60, D.A. Morris and A.I. Johnson*

Rawls Rate = 8.27 in/hr

Horizontal Hydraulic Conductivity (Kh)

$$Kh = \text{Rawls Rate (in/hr)} \times \frac{1 \text{ ft.}}{12 \text{ in.}} \times \frac{24 \text{ hr}}{1 \text{ day}} \times 10$$

Kh = 8.27 x 20 ft-hr/in-day

= 165.4 ft/day

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Recharge Rate Calculation (R)= 16.54 ft/day

Length of Field=	68	ft	1/2 Length=	34
Width of Field=	15.75	ft	1/2 Width=	7.875

Duration of Infiltration, (t)

t= Basin Depth (ft) / Recharge Rate (ft/day)

t= 24.15 hours

*If designing a system with an outlet then the duration of infiltration (t) shall be taken from the HydroCAD model and should equal the time when the discarded volume equals 0. Make sure to set the time span for 0-72 hours.

** If the initial mound is above the bottom of the inifltration basin then increase the duration of infiltration to a maximum of 3 days to see if it decreases the mound height. This is allows for more horizontal flow away from the basin before the mound hight peaks and is a more conservative approach according to Glen Carleton (creator of simulation).

Initial Saturated Thickness (hi)=Depth from ESHGW to Bedrock

= 30' based on well information in the surrounding area

(yellow)	Input Data
(green)	Solutions to be input into Hantush Excel Spreadsheet

This spreadsheet will calculate the height of a groundwater mound beneath a stormwater infiltration basin. More information can be found in the U.S. Geological Survey Scientific Investigations Report 2010-5102 "Simulation of groundwater mounding beneath hypothetical stormwater infiltration basins".

The user must specify infiltration rate (R), specific yield (Sy), horizontal hydraulic conductivity (Kh), basin dimensions (x, y), duration of infiltration period (t), and the initial thickness of the saturated zone (hi(0), height of the water table if the bottom of the aquifer is the datum). For a square basin the half width equals the half length (x = y). For a rectangular basin, if the user wants the water-table changes perpendicular to the long side, specify x as the short dimension and y as the long dimension. Conversely, if the user wants the values perpendicular to the short side, specify y as the short dimension, x as the long dimension. All distances are from the center of the basin. Users can change the distances from the center of the basin at which water-table aquifer thickness are calculated.
Cells highlighted in yellow are values that can be changed by the user. Cells highlighted in red are output values based on user-specified inputs. The user MUST click the blue "Re-Calculate Now" button each time ANY of the user-specified inputs are changed otherwise necessary iterations to converge on the correct solution will not be done and values shown will be incorrect. Use consistent units for all input values (for example, feet and days)

use consistent units (e.g. feet & days **or** inches & hours)

Conversion Table

	inch/hour	**feet/day**
	0.67	1.33
	2.00	4.00
hours		**days**
	36	1.50

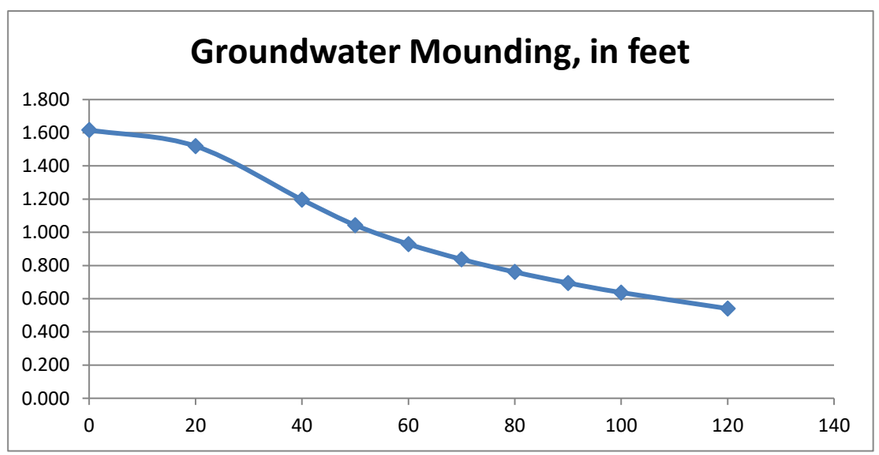
In the report accompanying this spreadsheet (USGS SIR 2010-5102), vertical soil permeability (ft/d) is assumed to be one-tenth horizontal hydraulic conductivity (ft/d).

Input Values		
16.5400	***R***	**Recharge (infiltration) rate (feet/day)**
0.150	**Sy**	**Specific yield, Sy (dimensionless, between 0 and 1)**
165.40	**K**	**Horizontal hydraulic conductivity, Kh (feet/day)***
34.000	**x**	**1/2 length of basin (x direction, in feet)**
7.875	**y**	**1/2 width of basin (y direction, in feet)**
1.006	**t**	**duration of infiltration period (days)**
30.000	**hi(0)**	**initial thickness of saturated zone (feet)**

31.617	**h(max)**	**maximum thickness of saturated zone (beneath center of basin at end of infiltration period)**
1.617	**Δh(max)**	**maximum groundwater mounding (beneath center of basin at end of infiltration period)**

Ground-water Mounding, in feet	**Distance from center of basin in x direction, in feet**
1.617	**0**
1.519	**20**
1.197	**40**
1.043	**50**
0.929	**60**
0.837	**70**
0.761	**80**
0.695	**90**
0.637	**100**
0.541	**120**

Re-Calculate Now

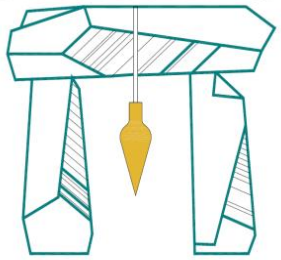


Disclaimer

Standard 3 – Drawdown Time Calculations

Calculation Sheet

DECELLE-BURKE-SALA



& Associates, Inc.

Project: Clifton Court Development
217 Mill Street
Randolph, MA

Client: 217 Mill St, LLC
228 Park Ave S, PMB 35567, New York, NY

Date: 4/10/23

100-Yr Storm Event Drawdown Time Calculation
Subsurface System 1

Find: T= Infiltration System Volume / (K)(Bottom Area)

Given:

Bottom Area = Length x Width

= 39.00 x 7.50 = 292.5 s.f.

System Volume= 700.00 c.f. (*volume of system below outlet from HydroCAD)

K= 8.27 in/hr K (Hydraulic Conductivity-use Rawls Rate)

Solve:

$$Time_{drawdown} = \frac{700 \text{ c.f.}}{(8.27 \text{ in/hr}/12 \text{ in/ft}) \times 292.5 \text{ s.f.}}$$

$Time_{drawdown}$ = 3.5 hrs < 72 hrs **CHECKS OK**

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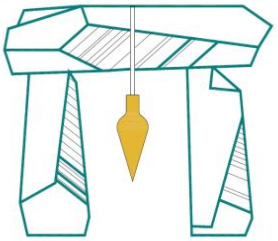
617-405-5100 (o) 617-405-5101 (f)

Calculation Sheet

DECELLE-BURKE-SALA



& Associates, Inc.

Project: Clifton Court Development
217 Mill Street
Randolph, MA

Client: 217 Mill St, LLC
228 Park Ave S, PMB 35567, New York, NY

Date: 4/10/23

100-Yr Storm Event Drawdown Time Calculation
Subsurface System 3

Find: T= Infiltration System Volume / (K)(Bottom Area)

Given:

Bottom Area = Length x Width

= 68.00 x 15.75 = 1071 s.f.

System Volume= 1383.00 c.f. (*volume of system below outlet from HydroCAD)

K= 8.27 in/hr K (Hydraulic Conductivity-use Rawls Rate)

Solve:

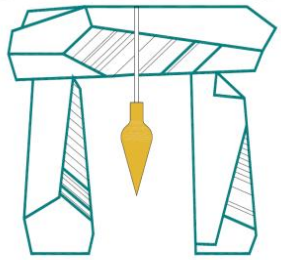
$$Time_{drawdown} = \frac{1383 \text{ c.f.}}{(8.27 \text{ in/hr}/12 \text{ in/ft}) \times 1071 \text{ s.f.}}$$

$Time_{drawdown}$ = 1.9 hrs < 72 hrs **CHECKS OK**

DeCelle-Burke-Sala and Associates, Inc.
1266 Furnace Brook Parkway #401 Quincy, MA 02169
617-405-5100 (o) 617-405-5101 (f)

Calculation Sheet

DECELLE-BURKE-SALA



& Associates, Inc.

Project: Clifton Court Development
217 Mill Street
Randolph, MA

Client: 217 Mill St, LLC
228 Park Ave S, PMB 35567, New York, NY

Date: 4/10/23

100-Yr Storm Event Drawdown Time Calculation
Subsurface System 2

Find: T= Infiltration System Volume / (K)(Bottom Area)

Given:

Bottom Area = Length x Width

= 20.00 x 17.50 = 350 s.f.

System Volume= 358.00 c.f. (*volume of system below outlet from HydroCAD)

K= 8.27 in/hr K (Hydraulic Conductivity-use Rawls Rate)

Solve:

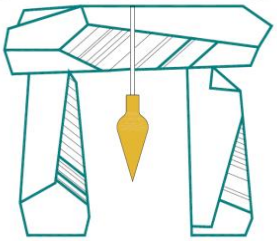
$$Time_{drawdown} = \frac{358 \text{ c.f.}}{(8.27 \text{ in/hr}/12 \text{ in/ft}) \times 350 \text{s.f.}}$$

$Time_{drawdown}$ = 1.5 hrs < 72 hrs **CHECKS OK**

DeCelle-Burke-Sala and Associates, Inc.
1266 Furnace Brook Parkway #401 Quincy, MA 02169
617-405-5100 (o) 617-405-5101 (f)

Calculation Sheet

DECELLE-BURKE-SALA



& Associates, Inc.

Project: Clifton Court Development
217 Mill Street
Randolph, MA

Client: 217 Mill St, LLC
228 Park Ave S, PMB 35567, New York, NY

Date: 4/10/23

100-Yr Storm Event Drawdown Time Calculation
Surface Basin 1

Find: T= Infiltration System Volume / (K)(Bottom Area)

Given:

Bottom Area = From HydroCAD

= 2085.00

System Volume= 2269.00 c.f. (*volume of system below outlet from HydroCAD)

K= 8.27 in/hr K (Hydraulic Conductivity-use Rawls Rate)

Solve:

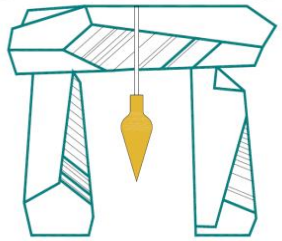
$Time_{drawdown}$ = 2269 c.f. / (8.27 in/hr/12 in/ft) x 2085s.f.

$Time_{drawdown}$ = 1.6 hrs < 72 hrs **CHECKS OK**

DeCelle-Burke-Sala and Associates, Inc.
1266 Furnace Brook Parkway #401 Quincy, MA 02169
617-405-5100 (o) 617-405-5101 (f)

Calculation Sheet

DECELLE-BURKE-SALA



& Associates, Inc.

Project: Clifton Court Development
217 Mill Street
Randolph, MA

Client: 217 Mill St, LLC
228 Park Ave S, PMB 35567, New York, NY

Date: 4/10/23

100-Yr Storm Event Drawdown Time Calculation
Surface Basin 2

Find: T= Infiltration System Volume / (K)(Bottom Area)

Given:

Bottom Area = From HydroCAD

= 1225.00

System Volume= 1298.00 c.f. (*volume of system below outlet from HydroCAD)

K= 8.27 in/hr K (Hydraulic Conductivity-use Rawls Rate)

Solve:

$Time_{drawdown}$ = 1298 c.f. / (8.27 in/hr/12 in/ft) x 1225s.f.

$Time_{drawdown}$ = 1.5 hrs < 72 hrs **CHECKS OK**

DeCelle-Burke-Sala and Associates, Inc.
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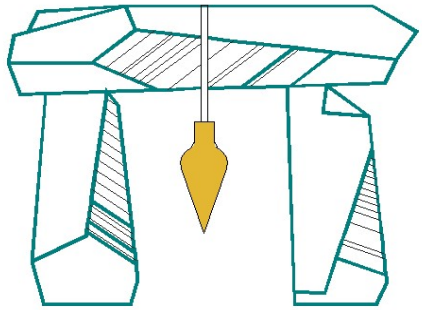
617-405-5100 (o) 617-405-5101 (f)

Standard 4 – TSS Removal Calculations

DeCelle-Burke



& Associates, Inc.

Project: **Proposed Definitive Subdivision**
Location: **217 Mill Street, Randolph, MA**
Date: **1/24/2023**

Pretreatment Tss Removal Calculation

BMP	TSS Removal	Start Load	Amount Removed	Remaining Load
Contech CS3	50%	100%	50%	50%
Infiltration Systems	80%	50%	40%	10%
Remaining Load		10%	0%	10%

DeCelle-Burke-Sala Associates, Inc.
1266 Furnace Brook Parkway, Quincy, MA 02169
PH:(617)-405-5100 FX:(617)-405-5101

Standard 4 - Equivalent Flow Rate Calculations

Calculation Sheet

DECELLE-BURKE-SALA & Associates, Inc.

Project: Clifton Court Development
217 Mill Street
Randolph, MA

Client: 217 Mill Street, LLC
228 Park Avenue S, New York, NY

Date: 4/10/2023

Required WQV to a Discharge Rate Calculation

Proposed CS-3 (1) — Maximum Treatment Flow Rate (MTFR)= 1.02 cfs

Time of Concentration (Tc)=	6.0 mins.= 0.1 hrs				
Unit Peak Discharge (qu)=	774	csm/in			
Water Quality Volume (WQV)=	1	in.			
Impervious Surface Drainage Area (A)=	4,541	sf	=	0.00016	mi²
$Q_{0.5}$=(qu)(A)(WQV)	=	0.13	cfs		

CHECKS OK

Proposed CS-3 (2) — Maximum Treatment Flow Rate (MTFR)= 1.02 cfs

Time of Concentration (Tc)=	6.0 mins.= 0.1 hrs				
Unit Peak Discharge (qu)=	774	csm/in			
Water Quality Volume (WQV)=	1	in.			
Impervious Surface Drainage Area (A)=	3,210	sf	=	0.00012	mi²
$Q_{0.5}$=(qu)(A)(WQV)	=	0.09	cfs		

CHECKS OK

DeCelle-Burke-Sala and Associates, Inc.
1266 Furnace Brook Parkway #401 Quincy, MA 02169
617-405-5100 (o) 617-405-5101 (f)

Calculation Sheet

DECELLE-BURKE-SALA & Associates, Inc.

Project: Definitive Subdivision Plan
217 Mill Street
Randolph, MA

Client: 217 Mill Street, LLC
228 Park Avenue S, New York, NY

Date: 2/6/2023

Required WQV to a Discharge Rate Calculation

Proposed CS-3 (3) Maximum Treatment Flow Rate (MTFR)= 1.02 cfs

Time of Concentration (Tc)=	6.0 mins.= 0.1 hrs						
Unit Peak Discharge (qu)=	774	csm/in					
Water Quality Volume (WQV)=	1	in.					
Impervious Surface Drainage Area (A)=	11,917	sf	=	0.00043	mi²		
$Q_{0.5}$=(qu)(A)(WQV)	=	0.33	cfs				

CHECKS OK

DeCelle-Burke-Sala and Associates, Inc.
1266 Furnace Brook Parkway #401 Quincy, MA 02169
617-405-5100 (o) 617-405-5101 (f)

Standard 4 - Proprietary BMP Data

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Nonpoint Pollution Control
Division of Water Quality
401-02B
Post Office Box 420
Trenton, New Jersey 08625-0420
609-633-7021 Fax: 609-777-0432
http://www.state.nj.us/dep/dwq/bnpc_home.htm

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

CATHERINE R. MCCABE
Commissioner

May 18, 2020

Derek M. Berg
Director – Stormwater Regulatory Management - East
Contech Engineered Solutions LLC
71 US Route 1, Suite F
Scarborough, ME 04074

Re: MTD Lab Certification
Cascade Separator™
On-line Installation

TSS Removal Rate 50%

Dear Mr. Berg:

This revised certification letter supersedes the Department's prior certification dated October 1, 2019. This revision was completed to reflect Contech's enhanced fabrication capability to manufacture a smaller-size unit of its the Cascade Separator™ Manufactured Treatment Device (MTD), while still meeting the scaling methodology as agreed upon by the manufacturers' working group on September 19, 2016. Based on this modification, Table A-1 of the New Jersey Corporation for Advanced Technology (NJCAT) Verification report located at http://www.njcat.org/uploads/newDocs/NJCATTechnologyVerificationFinal.pdf has been revised to specify this smaller unit and associated maximum treatment flow rate. Table 1 below has been revised to reflect this same updated model size and flow rate.

The Stormwater Management rules under N.J.A.C. 7:8-5.5(b) and 5.7(c) allow the use of manufactured treatment devices (MTDs) for compliance with the design and performance standards at N.J.A.C. 7:8-5 if the pollutant removal rates have been verified by the New Jersey Corporation for Advanced Technology (NJCAT) and have been certified by the New Jersey Department of Environmental Protection (NJDEP). Contech Engineered Solutions, LLC (Contech) has requested an MTD Laboratory Certification for the Cascade Separator™ stormwater treatment system.

The project falls under the "Procedure for Obtaining Verification of a Stormwater Manufactured Treatment Device from New Jersey Corporation for Advance Technology" dated January 25,

2013. The applicable protocol is the "New Jersey Laboratory Testing Protocol to Assess Total Suspended Solids Removal by a Hydrodynamic Sedimentation Manufactured Treatment Device" dated January 25, 2013.

NJCAT verification documents submitted to the NJDEP indicate that the requirements of the aforementioned protocol have been met or exceeded. The NJCAT letter also included a recommended certification TSS removal rate and the required maintenance plan. The NJCAT Verification Report with the Verification Appendix (dated September 2019) for this device is published online at http://www.njcat.org/verification-process/technology-verification-database.html.

The NJDEP certifies the use of the Cascade Separator™ stormwater treatment system at a TSS removal rate of 50% when designed, operated, and maintained in accordance with the information provided in the Verification Appendix and the following conditions:

1. The maximum treatment flow rate (MTFR) for the manufactured treatment device (MTD) is calculated using the New Jersey Water Quality Design Storm (1.25 inches in 2 hrs) in N.J.A.C. 7:8-5.5.

2. The Cascade Separator™ shall be installed using the same configuration reviewed by NJCAT and shall be sized in accordance with the criteria specified in item 6 below.

3. This Cascade Separator™ cannot be used in series with another MTD or a media filter (such as a sand filter) to achieve an enhanced removal rate for total suspended solids (TSS) removal under N.J.A.C. 7:8-5.5.

4. Additional design criteria for MTDs can be found in Chapter 9.6 of the New Jersey Stormwater Best Management Practices (NJ Stormwater BMP) Manual, which can be found online at www.njstormwater.org.

5. The maintenance plan for a site using this device shall incorporate, at a minimum, the maintenance requirements for the Cascade Separator™. A copy of the maintenance plan is attached to this certification. However, it is recommended to review the maintenance website at https://www.conteches.com/Portals/0/Documents/Maintenance%20Guides/Cascade-Maintenance%20Guide.pdf?ver=2018-11-05-093254-300. for any changes to the maintenance requirements.

6. Sizing Requirement:

   The example below demonstrates the sizing procedure for the Cascade Separator™:

   Example: A 0.25-acre impervious site is to be treated to 50% TSS removal using a Cascade Separator™. The impervious site runoff (Q) based on the New Jersey Water Quality Design Storm was determined to be 0.79 cfs.

   Maximum Treatment Flow Rate (MTFR) Evaluation:

   The site runoff (Q) was based on the following:

time of concentration = 10 minutes
i = 3.2 in/hr (page 5-8, Fig. 5-3 of the NJ Stormwater BMP Manual)
c = 0.99 (runoff coefficient for impervious)
Q = ciA = 0.99 x 3.2 x 0.25 = 0.79 cfs

Given the site runoff is 0.79 cfs and based on Table A-1 below, the Cascade Separator™ Model CS-3 with an MTFR of 1.02 cfs would be the smallest model approved that could be used for this site to remove 50% of the TSS from the impervious area without exceeding the MTFR.

The sizing table corresponding to the available system models is noted below. Additional specifications regarding each model can be found in the Verification Appendix under Table A-1.

Table A-1 Cascade Separator™ Models and Associated MTFRs

Model	Manhole Diameter (ft)	MTFR (cfs)	50% Maximum Sediment Storage Area Volume (ft^3)
CS-3	3	1.02	5.3
CS-4	4	1.80	9.4
CS-5	5	2.81	14.7
CS-6	6	4.05	21.2
CS-8	8	7.20	37.7
CS-10	10	11.3	58.9
CS-12	12	16.2	84.8

A detailed maintenance plan is mandatory for any project with a stormwater BMP subject to the Stormwater Management rules under N.J.A.C. 7:8. The plan must include all of the items identified in the Maintenance requirements section of the Stormwater Management rules under N.J.A.C. 7:8-5.8. Such items include, but are not limited to, the list of inspection and maintenance equipment and tools, specific corrective and preventative maintenance tasks, indication of problems in the system, and training of maintenance personnel. Additional information can be found in Chapter 8: Maintenance and Retrofit of Stormwater Management Measures.

If you have any questions regarding the above information, please contact Brian Salvo of my office at (609) 633-7021.

Sincerely,

Gabriel Mahon

Gabriel Mahon, Chief
Bureau of Nonpoint Pollution Control

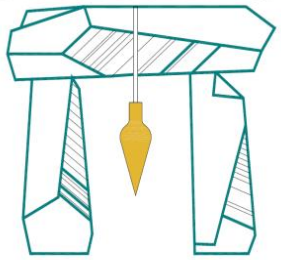
Attachment: Maintenance Plan

cc: Chron File
Richard Magee, NJCAT
Jim Murphy, NJDEP-BNPC
Vince Mazzei, NJDEP-DLUR
Brian Salvo, NJDEP-BNPC

Soil Information

Soil Log

DECELLE-BURKE-SALA



& Associates, Inc.

Location: Clifton Court Development
217 Mill Street
Randolph, MA

S.E.: Kameron Campbell, S.E. 14227

Date: 2/22/2023

Test Pit 1 : 8:30 am

Depth	Horizon	Texture	Color	Structure	Consistence
0-12	Ap	SL	10YR3/2	Granular	Very Friable
12-24	Bw	SL	10YR5/6	Massive	Friable
24-41	C1	Sand	2.5Y5/3	Single Grained	Loose
41-75	C2	Sand	2.5Y5/3	Single Grained	Loose
75-114+	C3	Sand	2.5Y5/3	Single Grained	Loose

Redox @ 72"

Standing Water @ 114"

C1 - gravelly coarse sand

C2 - medium sand, very little to no gravel

C3 - gravelly, coarse sand with cobbles present

Test Pit 2 : 9:08 am

Depth	Horizon	Texture	Color	Structure	Consistence
0-12	Ap	SL	10YR3/2	Granular	Very Friable
12-30	Bw	SL	10YR5/6	Massive	Friable
30-84+	C	Sand	2.5Y5/4	Single Grained	Loose

C - gravelly coarse sand with large cobbles present

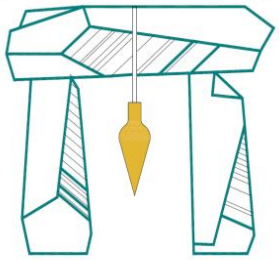
*hit a large boulder that the mini excavator could not get past

No Groundwater Observed

DeCelle-Burke-Sala and Associates, Inc.
1266 Furnace Brook Parkway #401 Quincy, MA 02169
617-405-5100 (o) 617-405-5101 (f)

Soil Log

DECELLE-BURKE-SALA



& Associates, Inc.

Location: Clifton Court Development
217 Mill Street
Randolph, MA

S.E.: Kameron Campbell, S.E. 14227

Date: 2/22/2023

Test Pit 3 : 9:50 am

Depth	Horizon	Texture	Color	Structure	Consistence
0-9	Ap	SL	10YR3/2	Granular	Very Friable
9-24	Bw	SL	10YR5/6	Massive	Friable
24-84	C	Sand	2.5Y5/4	Single Grained	Loose

C3 - gravelly, coarse sand with cobbles present

Cobbles tight in place, small mahine had difficulty moving them due to size

No Groundwater Observed

Test Pit 4 : 10:09 am

Depth	Horizon	Texture	Color	Structure	Consistence
0-10	Ap	SL	10YR3/2	Granular	Very Friable
10-24	Bw	SL	10YR5/6	Massive	Friable
24-120^{+}	C	Sand	2.5Y5/4	Single Grained	Loose

C - gravelly coarse sand with cobbles present

No Groundwater Observed

Supporting Maps

Assessors Map

USGS Map

Soils Map

FEMA Map

View Details

Google Maps Link

Town of Randolph

Property Record Card

Property

Address	217 MILL ST
ID	51-H-8.01

Ownership

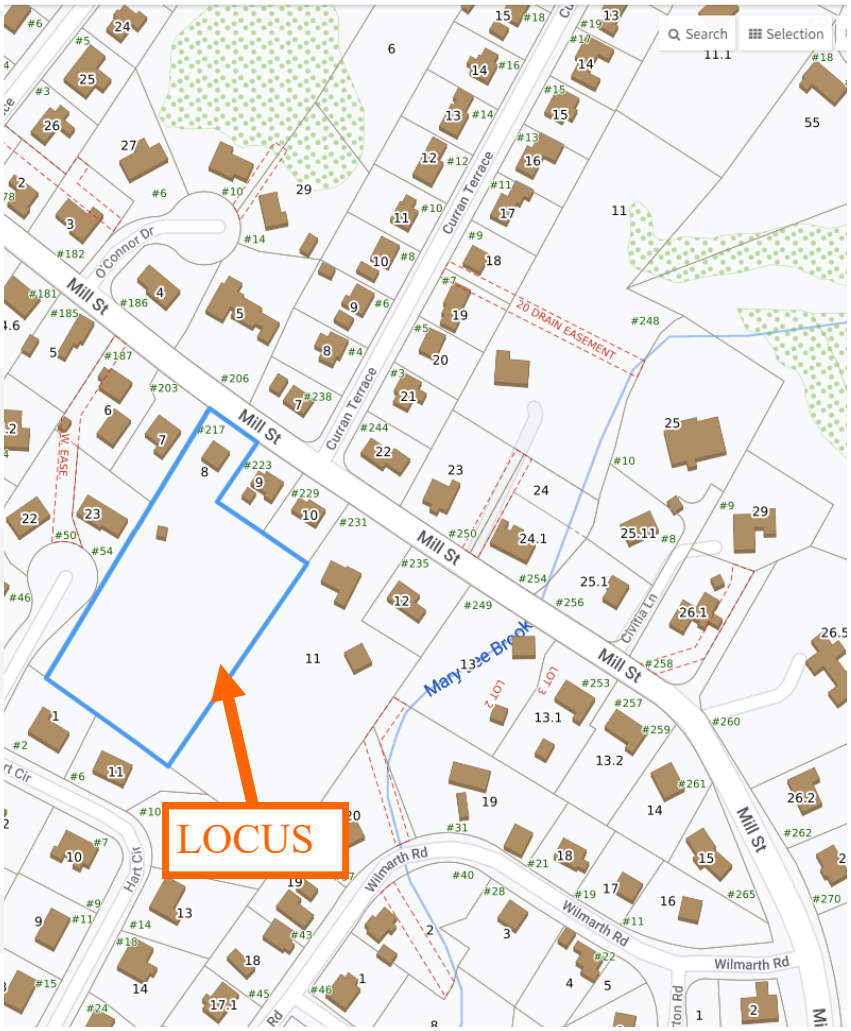
Name	ARSENAULT FAMILY TRUST

Valuation

Total	$440,700
Land	$251,600
Last Sale	$100 on 2000-03-21
Book/Page	14059/498

Land

Area	1.78



DATE:	TITLE:	SCALE:
April 10, 2023	***Assessors Map***	***NOT TO SCALE***

PREPARED FOR:

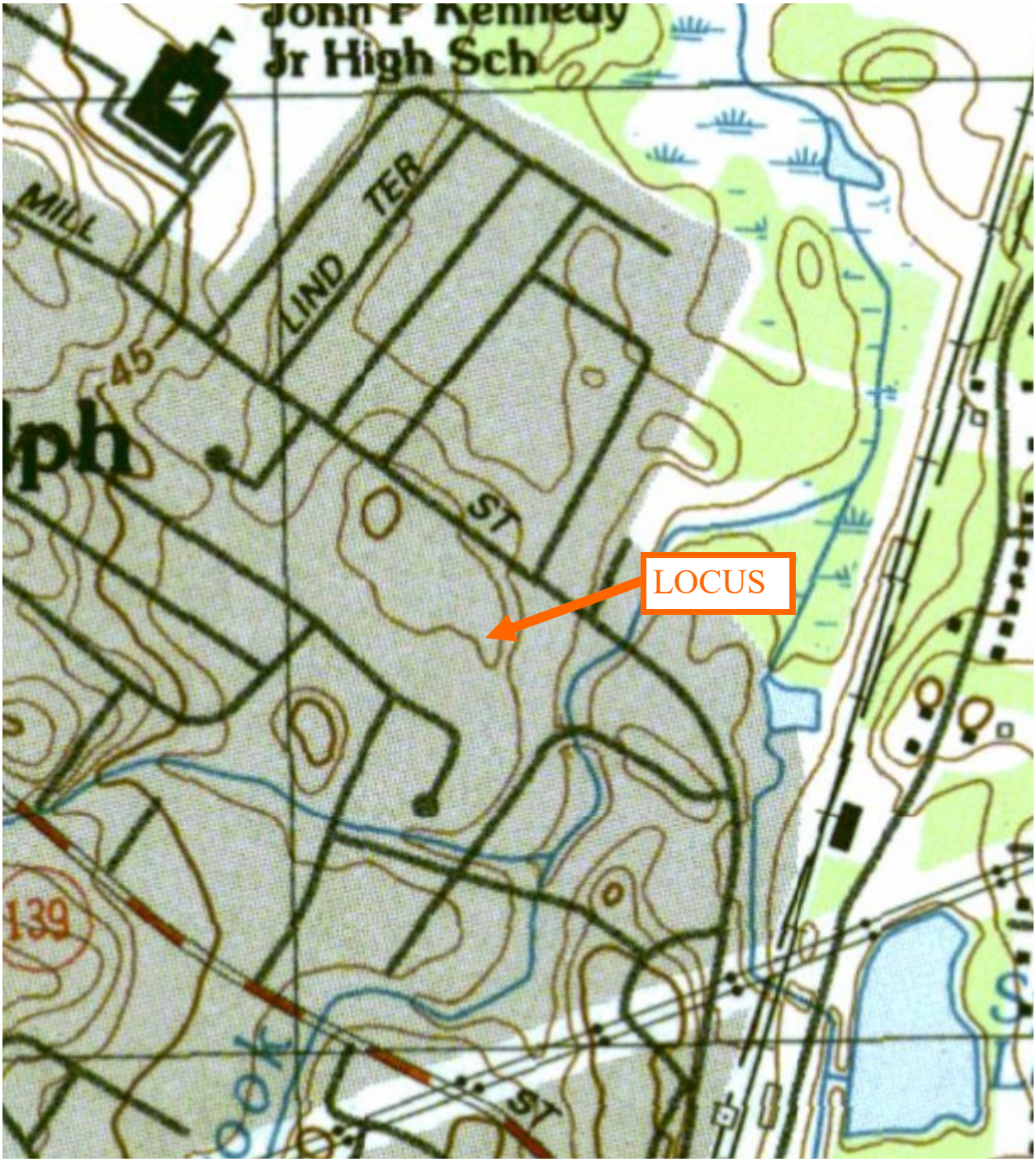
217 Mill St, LLC
228 Park Avenue S, PMB 35567
New York, NY 89135

DeCelle-Burke-Sala & Associates, Inc.

1266 Furnace Brook Parkway, Suite 401 Quincy, MA 02169
(617) 405-5100 (O) (617) 405-5101 (F)

PROJECT TITLE:

Proposed Definitive Subdivision
217 Mill Street
Randolph, Mass.



DATE:	TITLE:	SCALE:
April 10, 2023	***USGS Map***	*NOT TO SCALE*

PREPARED FOR:

217 Mill St, LLC
228 Park Avenue S, PMB 35567
New York, NY 89135

DeCelle-Burke-Sala
& Associates, Inc.
1266 Furnace Brook Parkway, Suite 401 Quincy, MA 02169
(617) 405-5100 (O) (617) 405-5101 (F)

PROJECT TITLE:

Proposed Definitive Subdivision
217 Mill Street
Randolph, Mass.

Hinckley loamy sand, 3 to 8 percent slopes (245B)

▲ Map Unit Composition

85% - ***Hinckley***
Geomorphic Position: *kame terraces*

8% - ***Windsor***
Geomorphic Position: *kame terraces*

5% - ***Sudbury***
Geomorphic Position: *kame terraces*

2% - ***Agawam***
Geomorphic Position: *kame terraces*

▲ Map Unit Data

Map Unit Key: *791714* *[Graphical Summary]*

National Map Unit Symbol: *2svm8*

Map Unit Type: *Consociation* ?

Farmland Class: *Farmland of statewide importance*

Available Water Storage (0-100cm): *6.61 cm*

Flood Frequency (Dominant Condition): *None*

Flood Frequency (Maximum): *None*

Ponding Frequency: *0*

Drainage Class (Dominant Condition): *Excessively drained* ?

Drainage Class (Wettest Component): *Excessively drained* ?

Proportion of Hydric Soils: *0%* ?

Min. Water Table Depth (Annual): *n/a*

Min. Water Table Depth (April-June): *n/a*

Min. Bedrock Depth: *n/a*

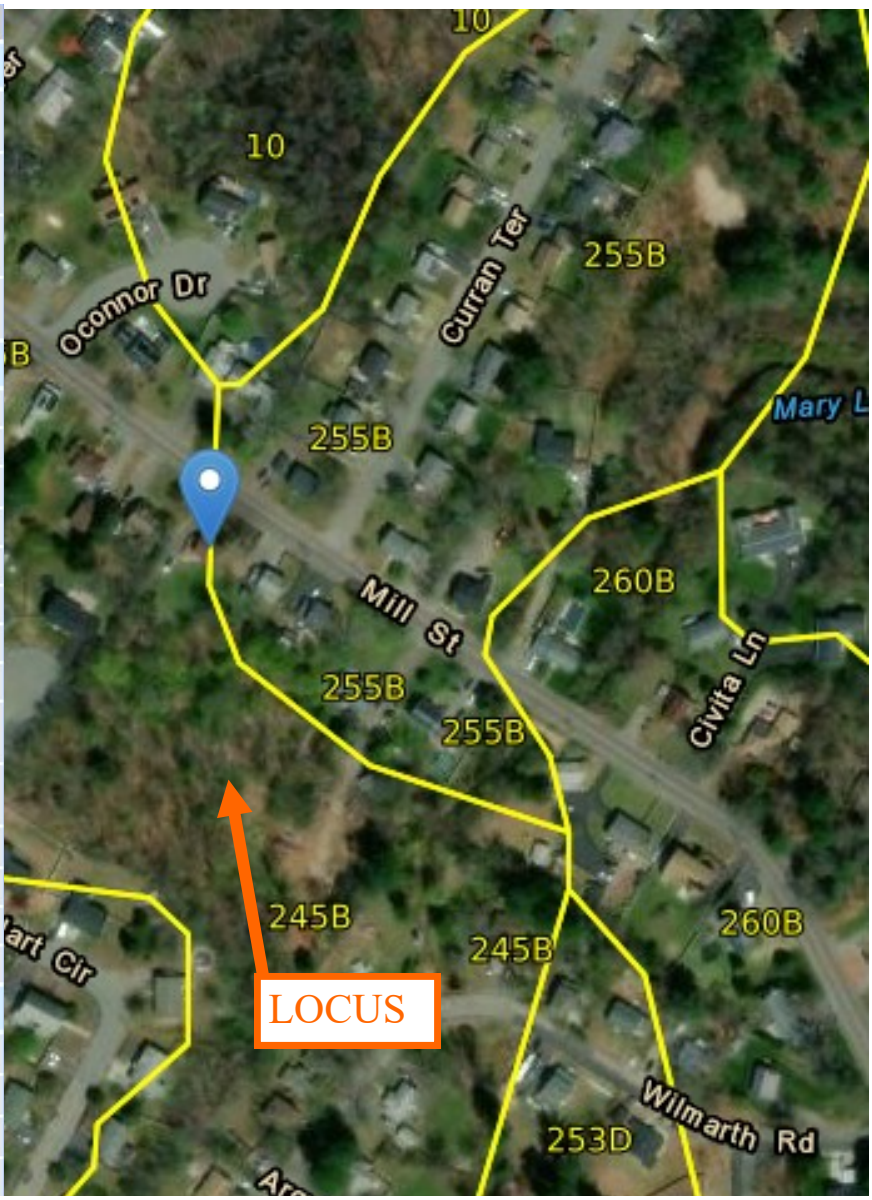
▲ Survey Metadata

Soil Survey Area: *MA616* ?

Scale: *1:25,000* ?

Published: *1985* ?

Last Export: *Sep 9 2022* ?



DATE:	TITLE:	SCALE:
April 10, 2023	***Soils Map***	***NOT TO SCALE***

PREPARED FOR:

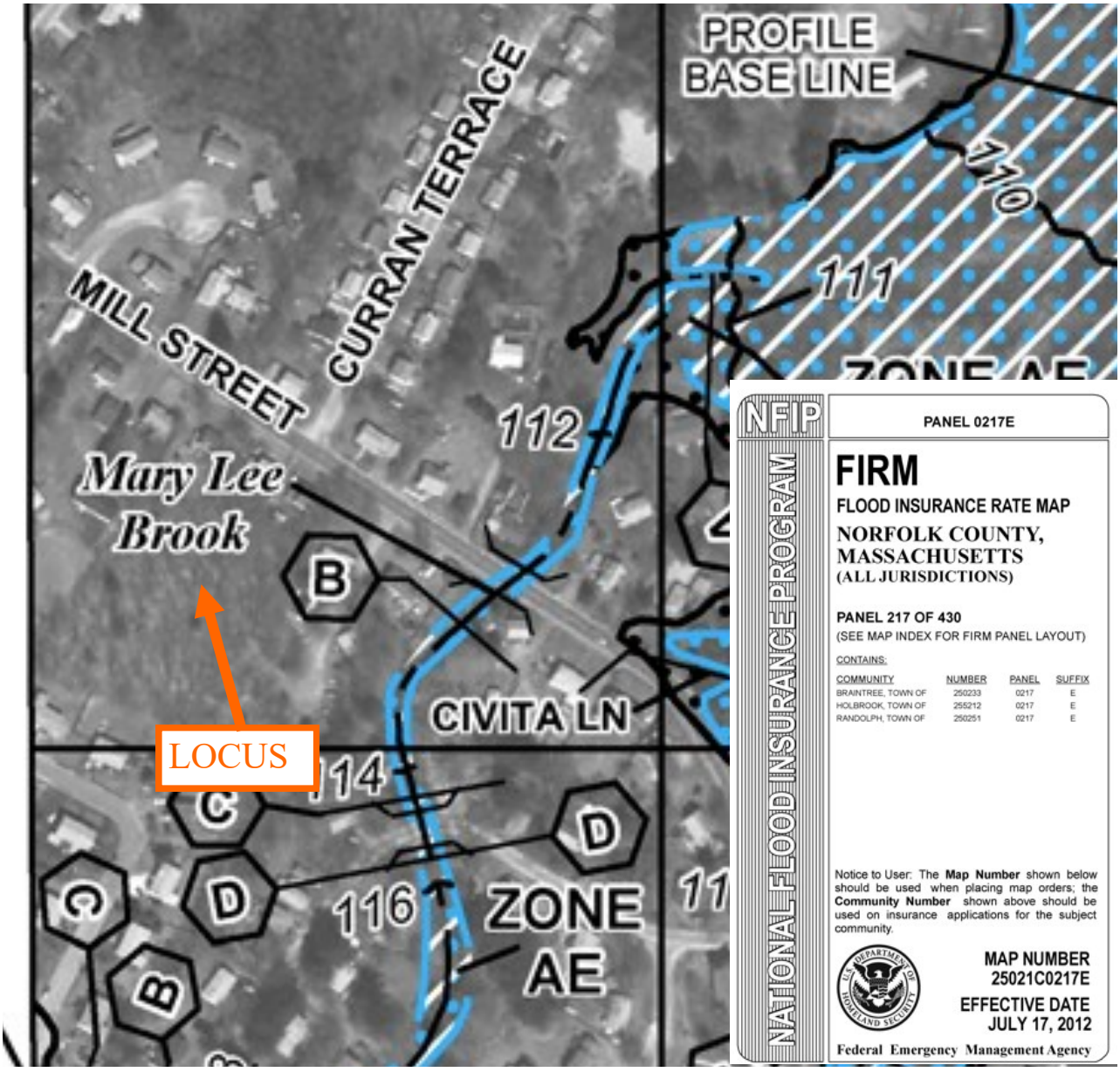
217 Mill St, LLC
228 Park Avenue S, PMB 35567
New York, NY 89135

DeCelle-Burke-Sala
& Associates, Inc.

PROJECT TITLE:

Proposed Definitive Subdivision
217 Mill Street
Randolph, Mass.

1266 Furnace Brook Parkway, Suite 401 Quincy, MA 02169
(617) 405-5100 (O) (617) 405-5101 (F)



DATE:	TITLE:	SCALE:
April 10, 2023	***FEMA Flood Map***	NTS

PREPARED FOR:

217 Mill St, LLC
228 Park Avenue S, PMB 35567
New York, NY 89135

DeCelle-Burke-Sala & Associates, Inc.

1266 Furnace Brook Parkway, Suite 401 Quincy, MA 02169
(617) 405-5100 (O) (617) 405-5101 (F)

PROJECT TITLE:

Proposed Definitive Subdivision
217 Mill Street
Randolph, Mass.

Appendix E Watershed Delineation Plans

LEGEND:

EXISTING:

- LOCUS PROPERTY LINE
- TREE LINE
- SEWER MANHOLE (SMH)
- DRAIN MANHOLE (DMH)
- CATCH BASIN (CB)
- STONEWALL
- GAS VALVE
- WATER VALVE
- WATER SERVICE
- HYDRANT
- UTILITY POLE
- N/F – NOW OR FORMERLY
- D – DRAIN PIPE
- W – WATER MAIN
- G – GAS SERVICE
- UGE – UNDERGROUND POWER
- OHW – OVERHEAD WIRES
- S – SEWER MAIN
- LSA – LANDSCAPED AREA
- 25 – ELEVATION CONTOUR
- x25.7 – SPOT GRADE
- CHAIN LINK FENCE
- STOCKADE FENCE
- TEST PIT
- HAND HOLES FOR UTILITIES
- LIGHT POLE
- DECIDUOUS TREE
- CONIFEROUS TREE

DESCRIPTION	X-1	X-2	X-3	TOTAL
PAVEMENT	3,190 S.F.	0 S.F.	0 S.F.	3,190 S.F.
ROOF	919 S.F.	0 S.F.	0 S.F.	919 S.F.
LAWN	5,640 S.F.	1,467 S.F.	1,983 S.F.	9,090 S.F.
WOODS	2,579 S.F.	9,958 S.F.	51,776 S.F.	64,313 S.F.
TOTAL	12,328 S.F.	11,425 S.F.	53,759 S.F.	77,512 S.F.
Tc	10.2 MIN.	9.8 MIN.	9.8 MIN.	

DeCelle-Burke-Sala & Associates, Inc.
1266 Furnace Brook Parkway #401
Quincy, MA 02169
617-405-5100 (o) 617-405-5101 (f)
www.decelle-burke-sala.com

COMMONWEALTH OF MASSACHUSETTS
JAMES W. BURKE
No. 40191
REGISTERED PROFESSIONAL ENGINEER

JAMES W. BURKE, P.E. DATE

GENERAL NOTES:

1. LOCUS:

ASSESSORS ID: 51-H-8.01
RECORD OWNER: ARSENAULT FAMILY TRUST
DEED REFERENCE: BOOK 14059 PAGE 498
PLAN REFERENCE: PLAN No. 204 of 1997

2. THIS PLAN IS THE RESULT OF AN ON THE GROUND SURVEY PERFORMED BY THIS OFFICE DURING JUNE 2022. ELEVATIONS SHOWN REFER TO NAVD-88.

3. EXISTING UTILITIES WHERE SHOWN IN THE DRAWINGS ARE FROM SURFACE OBSERVATION AND RECORD INFORMATION AND SHOULD BE CONSIDERED APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY LOCATING AND COORDINATING THE PROPOSED CONSTRUCTION ACTIVITY WITH DIG-SAFE AND THE APPLICABLE UTILITY COMPANIES AND MAINTAINING THE EXISTING UTILITY SYSTEM IN SERVICE.

DIG-SAFE SHALL BE NOTIFIED PER THE STATE OF MASSACHUSETTS STATUTE CHAPTER 82, SECTION 409 AT TEL. 1-888-344-7233. THE ENGINEER DOES NOT GUARANTEE THEIR ACCURACY OR THAT ALL UTILITIES AND SUBSURFACE STRUCTURES ARE SHOWN. LOCATIONS AND ELEVATIONS OF UNDERGROUND UTILITIES WERE TAKEN FROM RECORD PLANS. THE CONTRACTOR SHALL VERIFY SIZE, LOCATION, AND INVERTS OF UTILITIES AND STRUCTURES AS REQUIRED PRIOR TO THE START OF CONSTRUCTION.

4. LOCUS IS LOCATED WITHIN A ZONE X, AS DELINEATED ON FIRM 25021C0217E, EFFECTIVE 07/17/2012.

5. PARCEL IS ZONED RSFHD.

PROJECT TITLE & LOCATION:

CLIFTON COURT DEVELOPMENT
DEFINITIVE SUBDIVISION
217 MILL STREET
RANDOLPH, MA

PLAN TITLE:

EXISTING WATERSHED DELINEATION PLAN

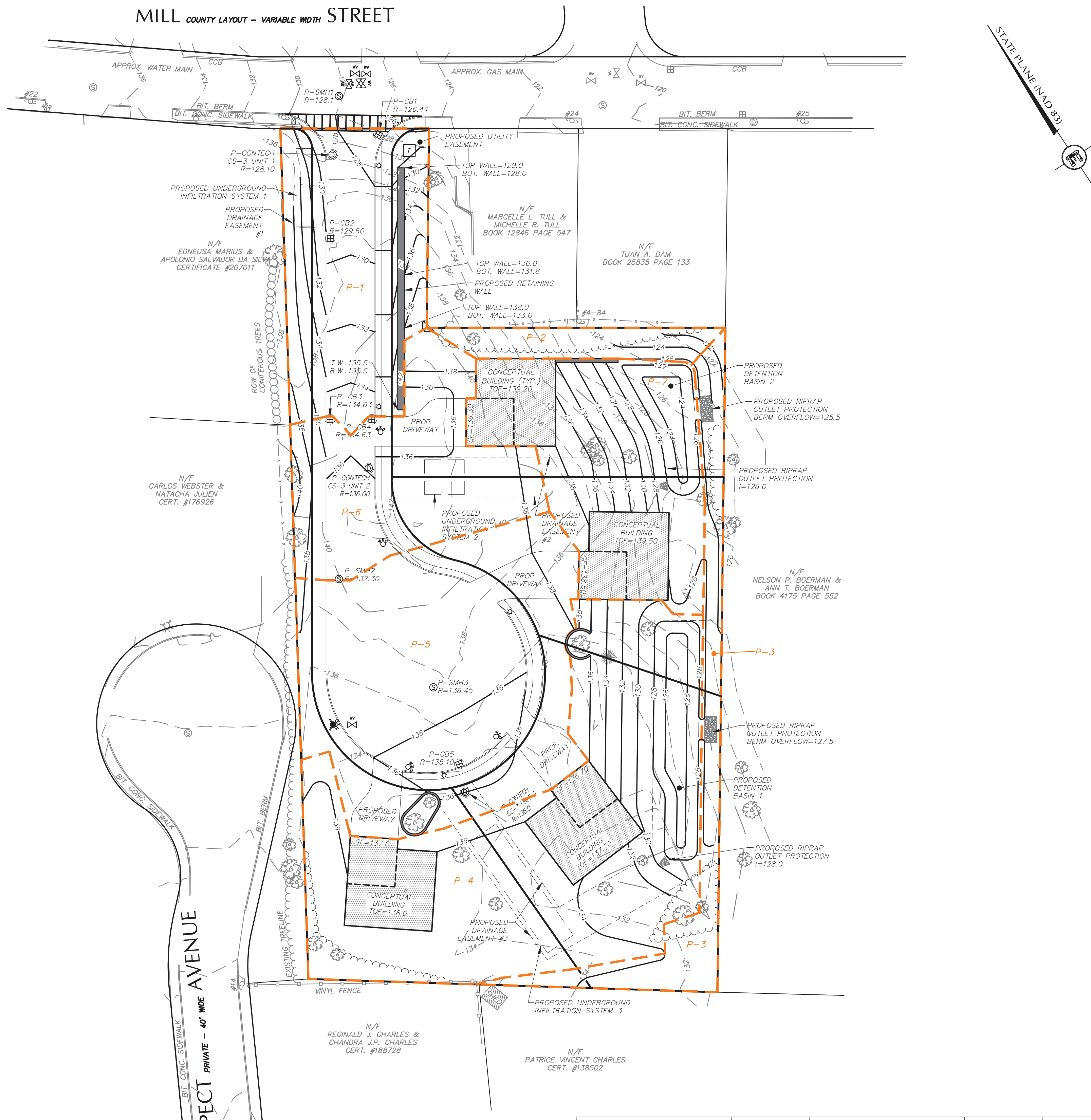
PREPARED FOR:

217 MILL ST, LLC
228 PARK AVENUE S, PMB 35567
NEW YORK, NY 89135

DATE: FEBRUARY 6, 2023
REVISED: APRIL 10, 2023
REVISED:
REVISED:
REVISED:

JOB NUMBER: 2022.030 | SHEET 1 OF 2

30 15 0 30 60
SCALE: 1" = 30'



LEGEND:

EXISTING:		EXISTING:
	LOCUS PROPERTY LINE	
	TREE LINE	
	SEWER MANHOLE (SMH)	
	DRAIN MANHOLE (DMH)	
	CATCH BASIN (CB)	
	STONEWALL	
GV	GAS VALVE	GV
WV	WATER VALVE	WV
	WATER SERVICE	
	HYDRANT	
	UTILITY POLE	
N/F	NOW OR FORMERLY	
—D—	DRAIN PIPE	—D—
—W—	WATER MAIN	—W—
—G—	GAS SERVICE	—G—
—UGE—	UNDERGROUND POWER	—UGE—
—OHW—	OVERHEAD WIRES	—OHW—
—S—	SEWER MAIN	—S—
LSA	LANDSCAPED AREA	LSA
—25—	ELEVATION CONTOUR	—25—
x25.7	SPOT GRADE	x25.7
	CHAIN LINK FENCE	
	STOCKADE FENCE	
	HAND HOLES FOR UTILITIES	
	LIGHT POLE	
CCB	CAPE COD BERM	CCB
VGC	VERTICAL GRANITE CURB	VGC
SGC	SLOPED GRANITE CURB	SGC
FF	FIRST FLOOR	FF
BF	BASEMENT FLOOR	BF
TOF	TOP OF FOUNDATION	TOF
GF	GARAGE FLOOR	GF
	DECIDUOUS TREE	
	CONIFEROUS TREE	

DESCRIPTION	P-1	P-2	P-3	P-4	P-5	P-6	P-7	TOTAL
PAVEMENT	4,541 S.F.	0 S.F.	0 S.F.	0 S.F.	11,917 S.F.	3,210 S.F.	0 S.F.	19,668 S.F.
ROOF	0 S.F.	0 S.F.	0 S.F.	3,760 S.F.	0 S.F.	0 S.F.	3,760 S.F.	7,520 S.F.
LAWN	5,457 S.F.	1,033 S.F.	4,429 S.F.	17,923 S.F.	6,277 S.F.	5,860 S.F.	6,908 S.F.	47,887 S.F.
WOODS	0 S.F.	1,031 S.F.	434 S.F.	972 S.F.	0 S.F.	0 S.F.	0 S.F.	2,437 S.F.
TOTAL	9,998 S.F.	2,064 S.F.	4,863 S.F.	22,655 S.F.	18,194 S.F.	9,070 S.F.	10,668 S.F.	77,512 S.F.
Tc	6 MIN.	6 MIN.	6 MIN.	6 MIN.	6 MIN.	6 MIN.	6 MIN.	

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617-405-5100 (o) 617-405-5101 (f)
www.decelle-burke-sala.com

COMMONWEALTH OF MASSACHUSETTS JAMES W. BURKE REGISTERED PROFESSIONAL ENGINEER

JAMES W. BURKE, P.E. DATE

GENERAL NOTES:

1. LOCUS:

ASSESSORS ID: 51-H-8.01
RECORD OWNER: ARSENAULT FAMILY TRUST
DEED REFERENCE: BOOK 14059 PAGE 498
PLAN REFERENCE: PLAN No. 204 of 1997

2. THIS PLAN IS THE RESULT OF AN ON THE GROUND SURVEY PERFORMED BY THIS OFFICE DURING JUNE 2022. ELEVATIONS SHOWN REFER TO NAVD-88.

3. EXISTING UTILITIES WHERE SHOWN IN THE DRAWINGS ARE FROM SURFACE OBSERVATION AND RECORD INFORMATION AND SHOULD BE CONSIDERED APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY LOCATING AND COORDINATING THE PROPOSED CONSTRUCTION ACTIVITY WITH DIG-SAFE AND THE APPLICABLE UTILITY COMPANIES AND MAINTAINING THE EXISTING UTILITY SYSTEM IN SERVICE.

DIG-SAFE SHALL BE NOTIFIED PER THE STATE OF MASSACHUSETTS STATUTE CHAPTER 82, SECTION 409 AT TEL. 1-888-344-7233. THE ENGINEER DOES NOT GUARANTEE THEIR ACCURACY OR THAT ALL UTILITIES AND SUBSURFACE STRUCTURES ARE SHOWN. LOCATIONS AND ELEVATIONS OF UNDERGROUND UTILITIES WERE TAKEN FROM RECORD PLANS. THE CONTRACTOR SHALL VERIFY SIZE, LOCATION, AND INVERTS OF UTILITIES AND STRUCTURES AS REQUIRED PRIOR TO THE START OF CONSTRUCTION.

4. LOCUS IS LOCATED WITHIN A ZONE X, AS DELINEATED ON FIRM 25021C0217E, EFFECTIVE 07/17/2012.

5. PARCEL IS ZONED RSFHD.

PROJECT TITLE & LOCATION:

CLIFTON COURT DEVELOPMENT
DEFINITIVE SUBDIVISION
217 MILL STREET
RANDOLPH, MA

PLAN TITLE:

PROPOSED WATERSHED
DELINEATION PLAN

PREPARED FOR:

217 MILL ST, LLC
228 PARK AVENUE S, PMB 35567
NEW YORK, NY 89135

DATE: FEBRUARY 6, 2023
REVISED: APRIL 10, 2023
REVISED:
REVISED:
REVISED:

JOB NUMBER: 2022.030 | SHEET 2 OF 2

30 15 0 30 60
SCALE: 1"=30'

PLANNING DEPARTMENT

FORM D
REQUEST FOR WAIVERS IN A DEFINITIVE SUBDIVISION PLAN

Subdivision Name	Clifton Court Development				
Assessor Parcel ID	51-H-8.01	**Norfolk County Registry of Deeds**	*Book/Page or Certificate #* Book 14059 Page 498		
Parcel Location	217 Mill Street	**Existing Way**	☑ **Public Way** ☐ **Private Way**	**Zoning**	RSFHD
Parcel Size (sq. ft.)	77,512+/-	**Total proposed lots**	4		
Definitive plan date	02 / 06 / 2023	**Revision Date** **Revision Date**	04 / 10 / 2023 ___/___/___		
Proposed Way #1 to be used as frontage		☐ **Public Way** ☑ **Private Way**	**Est Length**	350+/- Feet	
Proposed Way #2 to be used as frontage		☐ **Public Way** ☐ **Private Way**	**Est Length**		

Applicant	217 Mill St, LLC		
Contact person	Francis Sun		
Address	228 Park Avenue s, PMB35567, New York, NY 89135		
Address2			
Phone	617-949-0451	**Email**	francis.sun@owncoral.com

☑ *Check if Applicant is equitable owner (purchaser on a purchase and sales agreement)*

I hereby request that the Planning Board waive the requirements of the Sections of the Randolph S Rules and Regulations referenced below and as the aforementioned Applicant, affirm that without the Planning Board granting said waiver(s), it would pose an unnecessary hardship upon me and, due to specific circumstances relative to the subdivision, or conditions of the land in such subdivision, the granting of this waiver(s) would not be contrary to the spirit and intent of the Town of Randolph Subdivision Rules and Regulations. *(Attach additional sheets if necessary)*

Regulation	**Reason for Waiver**	
Section and/or subsection requested to be waived	Proposed alternative	Explanation of why the regulation cannot be accomplished.
VIII.B3	129+/- feet	The locus property is located closer than 200' from Curran Terrace and there is no way to meet the 200' minimum between intersections requirement.
VIII.D19	Drainage facilities are located on easements	Given the lot areas, it is not feasible to avoid putting drainage facilities on the building lots.
V.D.1	1" = 30' horizontal scale 1"=3' vertical scale	The required 1"=40' horizontal scale would be too small to relay all of the proposed information in a readable manner. A 1"=30' scale allows for a more legible plan and fits the 24"x36" sheet in a nicer manner. A 1"=3' vertical scale was used to maintain the 1:10 vertical exaggeration on the profiles. 1:10 vertical exaggeration is a common practice.

I acknowledge, as the Applicant, that this waiver is requested in accordance with the provisions set forth in the Subdivision Control Law of the Commonwealth of Massachusetts and the Rules and Regulations Governing the Subdivision of Land by the Planning Board of the Town of Randolph.

Applicant	He "Francis" Sun	04/13/2023
	Printed Name	Date

CLIFTON COURT DEVELOPMENT
DEFINITIVE SUBDIVISION
217 MILL STREET
RANDOLPH, MASSACHUSETTS

FEBRUARY 6, 2023

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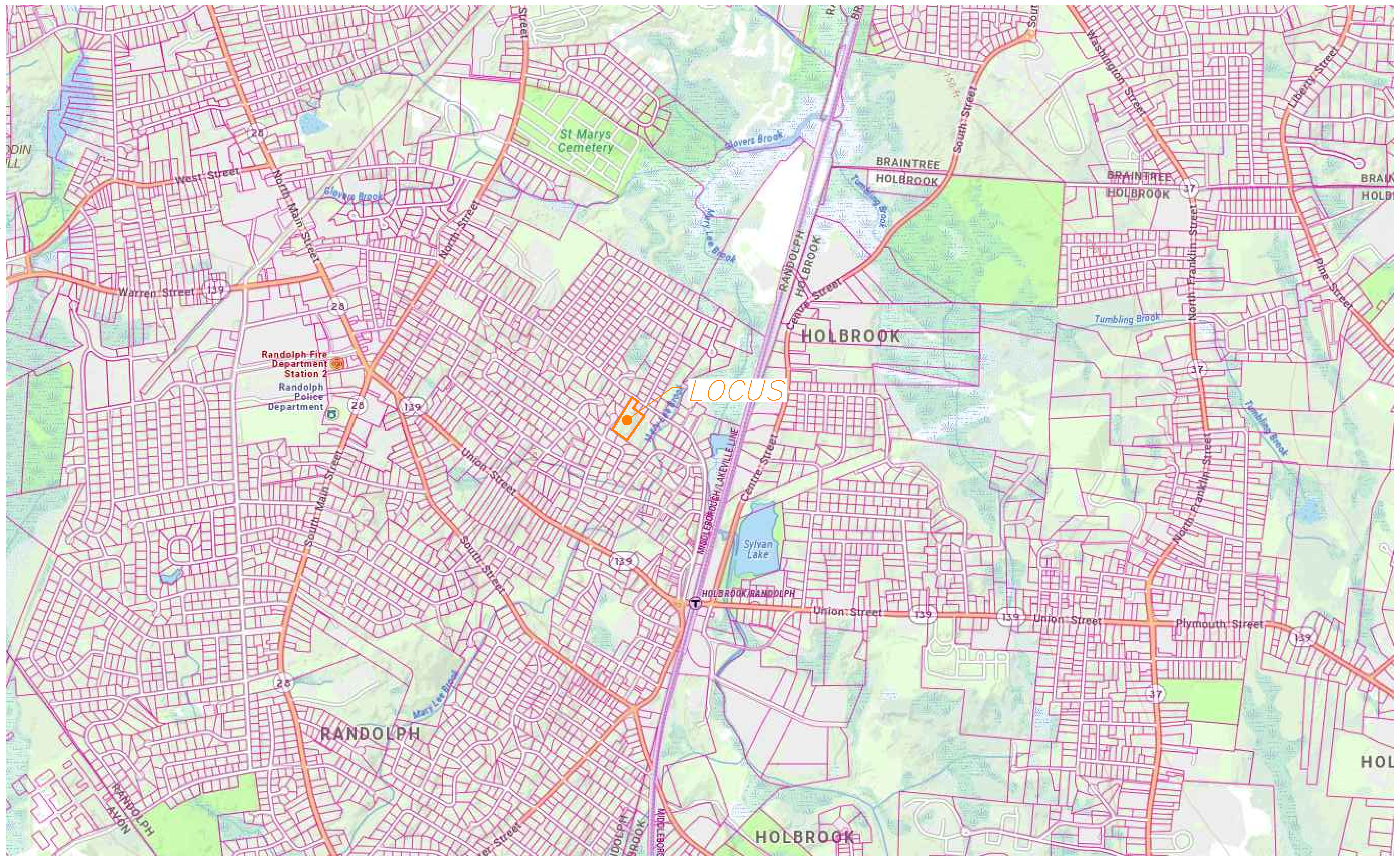


LOCUS MAP
IMAGE FROM MASSGIS 2022
1" = 800'

APPLICANT
217 MILL ST, LLC
228 PARK AVENUE S, PMB35567
NEW YORK, NY 89135

OWNER
ARSENAULT FAMILY TRUST
217 MILL STREET
RANDOLPH, MA 02368

ARCHITECT
DONAHUE ARCHITECTS, INC.
21 McGRATH HIGHWAY
QUINCY, MA 02169

CIVIL/SURVEY
DECELLE-BURKE-SALA & ASSOCIATES
1266 FURNACE BROOK PKWY., SUITE 401
QUINCY, MA 02169

SHEETS
1 COVER SHEET
2 EXISTING CONDITIONS
3 CONSTRUCTION MANAGEMENT
4 SUBDIVISION PLAN - SHEET 1
5 SUBDIVISION PLAN - SHEET 2
6 PROPOSED SITE LAYOUT
7 PROPOSED SITE GRADING
8 PROPOSED SITE UTILITIES
9 PROPOSED ROAD PROFILE
10 CONSTRUCTION DETAILS
11 CONSTRUCTION DETAILS

ZONING SCHEDULE
(TOWN OF RANDOLPH ZONING CODE DATED AUGUST 9, 2021)

LOT ZONING CLASSIFICATION : RSHDD a/k/a RSFHD

ZONING REQUIREMENT	REQUIRED
MIN. LOT AREA	– 12,000 S.F.
MIN. LOT FRONTAGE	– 100 FEET
MIN. LOT WIDTH	– 75 FEET
MIN. LOT DEPTH	– 100 FEET
MIN. FRONT SETBACK	– 25 FEET
MIN. SIDE SETBACK	– 15 FEET
MIN. REAR SETBACK	– 15 FEET
MAX. BUILDING HEIGHT	– 2.5 STORIES/40 FEET

LIST OF WAIVERS
(TOWN OF RANDOLPH SUBDIVISION REGULATIONS EFFECTIVE JANUARY 28, 2020)

SUBDIVISION REQUIREMENT	REQUIRED	PROPOSED	SUBDIVISION REGULATION SECTION
MIN. INTERSECTION OFFSET	200 FEET	129± FEET	SECTION VIII.B3
DRAINAGE STRUCTURES ON SEPARATE LOTS			SECTION VIII.D19
DRAINAGE STRUCTURES ON SEPARATE LOTS	1" = 40' SCALE (HORIZONTAL) 1" = 4' SCALE (VERTICAL)	1" = 30' SCALE (HORIZONTAL) 1" = 3' SCALE (VERTICAL)	SECTION V.D.1

COMMONWEALTH OF MASSACHUSETTS JAMES W. BURKE PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS CLAUDIO SALA No. 38391 PROFESSIONAL LAND SURVEYOR

Project No. 2022.030

REVISIONS

NO.	DATE	COMMENT
1.	04-10-2023	PEER REVIEW & PLANNING BOARD COMMENT REVISIONS

SOIL TEST PIT DATA:

TEST PIT 1
GRD. EL. 132.8
GW. EL. 126.8

0"	Ap, Sandy Loam 10YR3/2, Granular, Very Friable
12"	Bw, Sandy Loam 10YR5/6, Massive, Friable
24"	C_x SAND 2.5Y5/3, Single Grained, Loose Coarse gravelly sand with cobbles
41"	C_{2x} SAND 2.5Y5/3, Single Grained, Loose medium sand, little to no gravel
	Redox. @ 72" 7.5YR5/8
75"	C_{3x} SAND 2.5Y5/3, Single Grained, Loose Coarse gravelly sand with cobbles
114"+	Standing water

TEST PIT 2
GRD. EL. 128.3
GW. EL. NGWO

0"	Ap, Sandy Loam 10YR3/2, Granular, Very Friable
12"	Bw, Sandy Loam 10YR5/6, Massive, Friable
30"	C, SAND 2.5Y5/4, Single Grained, Loose Coarse gravelly sand with cobbles,
84"+	

TEST PIT 3
GRD. EL. 127.0
GW. EL. NGWO

0"	Ap, Sandy Loam 10YR3/2, Granular, Very Friable
9"	Bw, Sandy Loam 10YR5/6, Massive, Friable
24"	C, SAND 2.5Y5/4, Single Grained, Loose Coarse gravelly sand with cobbles,
84"+	

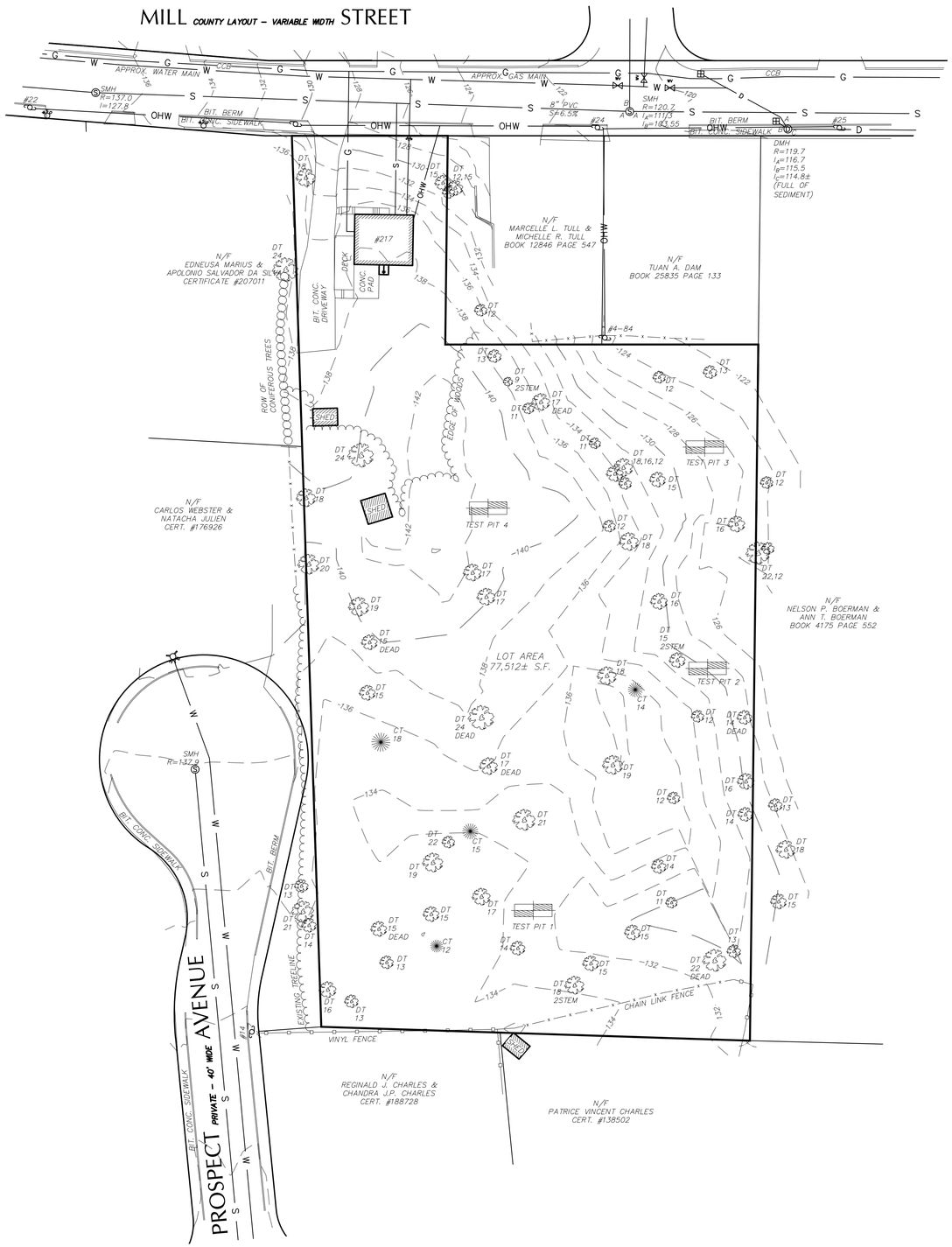
TEST PIT 4
GRD. EL. 141.5
GW. EL. NGWO

0"	Ap, Sandy Loam 10YR3/2, Granular, Very Friable
10"	Bw, Sandy Loam 10YR5/6, Massive, Friable
24"	C, SAND 2.5Y5/4, Single Grained, Loose Coarse gravelly sand with cobbles,
120"+	

DATE:
02/22/2023
TEST BY:
Kameron Campbell, SE #14227

INDICATES ESTIMATED SEASONAL HIGH GROUND WATER

INDICATES OBSERVED GROUND WATER



LEGEND:

EXISTING:

- LOCUS PROPERTY LINE
- TREE LINE
- SEWER MANHOLE (SMH)
- DRAIN MANHOLE (DMH)
- CATCH BASIN (CB)
- STONEWALL
- GAS VALVE
- WATER VALVE
- WATER SERVICE
- HYDRANT
- UTILITY POLE
- N/F – NOW OR FORMERLY
- D – DRAIN PIPE
- W – WATER MAIN
- G – GAS SERVICE
- UGE – UNDERGROUND POWER
- OHW – OVERHEAD WIRES
- S – SEWER MAIN
- LSA – LANDSCAPED AREA
- 25 – ELEVATION CONTOUR
- x25.7 – SPOT GRADE
- CHAIN LINK FENCE
- STOCKADE FENCE
- TEST PIT
- HAND HOLES FOR UTILITIES
- LIGHT POLE
- DECIDUOUS TREE
- CONIFEROUS TREE

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COMMONWEALTH OF MASSACHUSETTS
CLAUDIO SALA No. 38391
PROFESSIONAL LAND SURVEYOR

CLAUDIO SALA, PLS — DATE

GENERAL NOTES:

1. LOCUS:

ASSESSORS ID: 51-H-8.01
RECORD OWNER: ARSENAULT FAMILY TRUST
DEED REFERENCE: BOOK 14059 PAGE 498
PLAN REFERENCE: PLAN No. 204 of 1997

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4. LOCUS IS LOCATED WITHIN A ZONE X, AS DELINEATED ON FIRM 25021C0217E, EFFECTIVE 07/17/2012.

5. PARCEL IS ZONED RSFHD.

PROJECT TITLE & LOCATION:

CLIFTON COURT DEVELOPMENT
DEFINITIVE SUBDIVISION
217 MILL STREET
RANDOLPH, MA

PLAN TITLE:

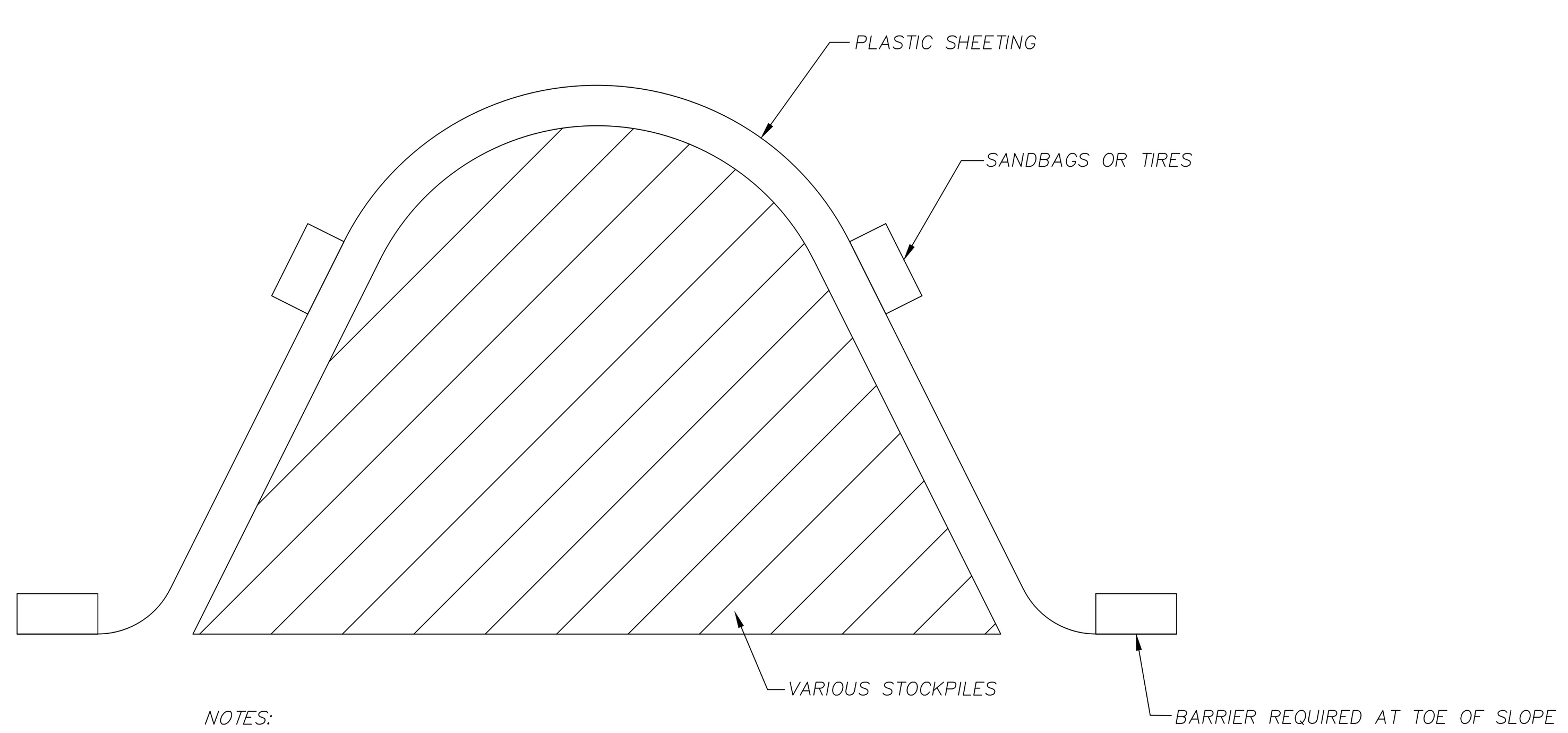
EXISTING CONDITIONS

PREPARED FOR:

217 MILL ST, LLC
228 PARK AVENUE S, PMB 35567
NEW YORK, NY 89135

DATE: FEBRUARY 6, 2023
REVISED: APRIL 10, 2023
REVISED:
REVISED:
REVISED:
JOB NUMBER: 2022.030 | SHEET 2 OF 11

30 15 0 30 60
SCALE: 1" = 30'

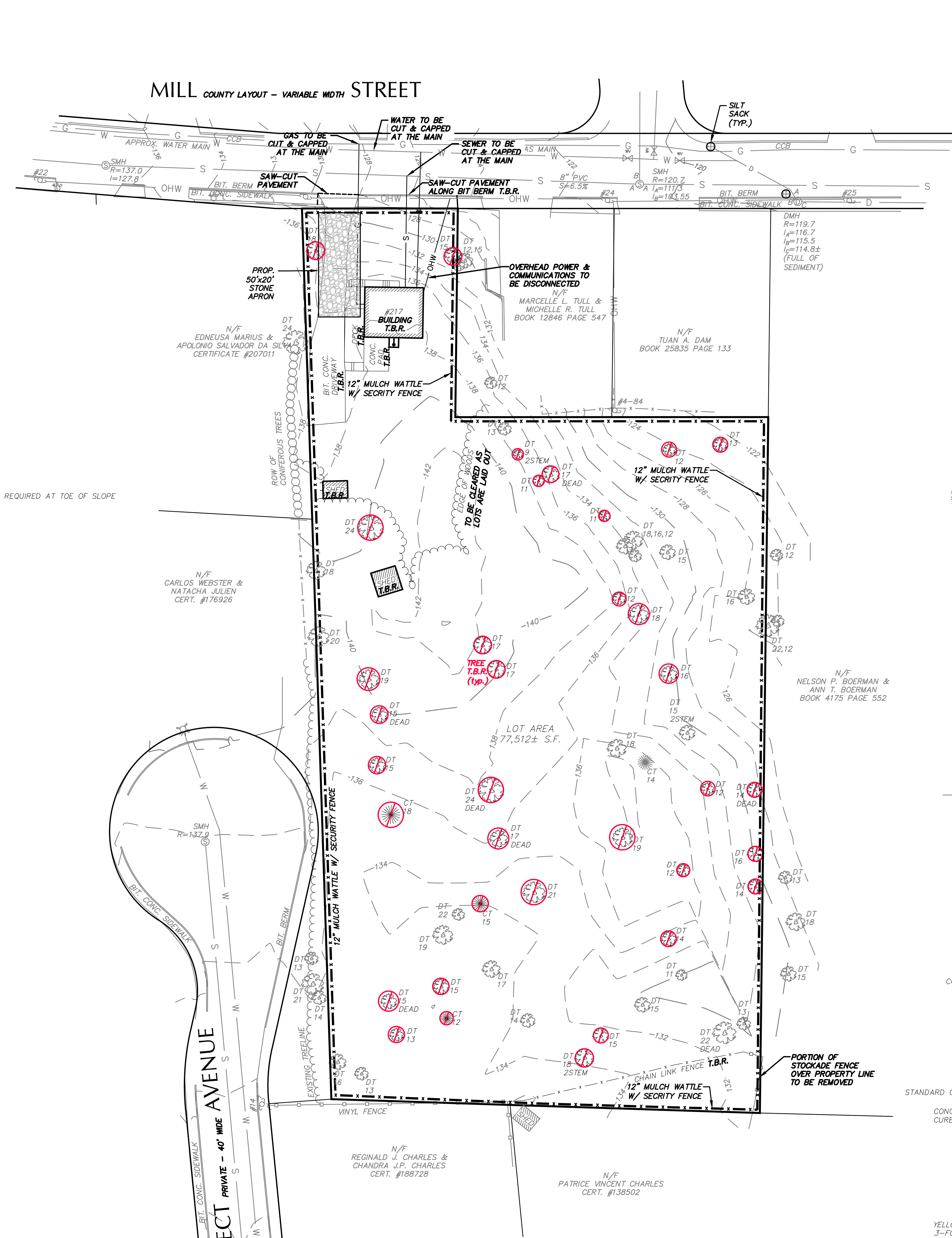


NOTES:

1. MINIMUM 12" OVERLAP OF ALL SEAMS REQUIRED.
2. BARRIER REQUIRED AT TOE OF SLOPE
3. COVERING MAINTAINED TIGHTLY IN PLACE USING SANDBAGS OR TIRES ON ROPE WITH A MAXIMUM 10' SPACING IN ALL DIRECTIONS

PLASTIC SHEETING OVER STOCKPILED MATERIALS

NOT TO SCALE



LEGEND:

EXISTING:		PROPOSED:
	LOCUS PROPERTY LINE	
	TREE LINE	
	SEWER MANHOLE (SMH)	
	DRAIN MANHOLE (DMH)	
	CATCH BASIN (CB)	
	STONEWALL	
	GAS VALVE	
	WATER VALVE	
	WATER SERVICE	
	HYDRANT	
	UTILITY POLE	
N/F	NOW OR FORMERLY	
D	DRAIN PIPE	D
W	WATER MAIN	W
G	GAS SERVICE	G
UGE	UNDERGROUND POWER	UGE
OHW	OVERHEAD WIRES	OHW
S	SEWER MAIN	S
LSA	LANDSCAPED AREA	LSA
25	ELEVATION CONTOUR	25
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CCB	CAPE COD BERM	CCB
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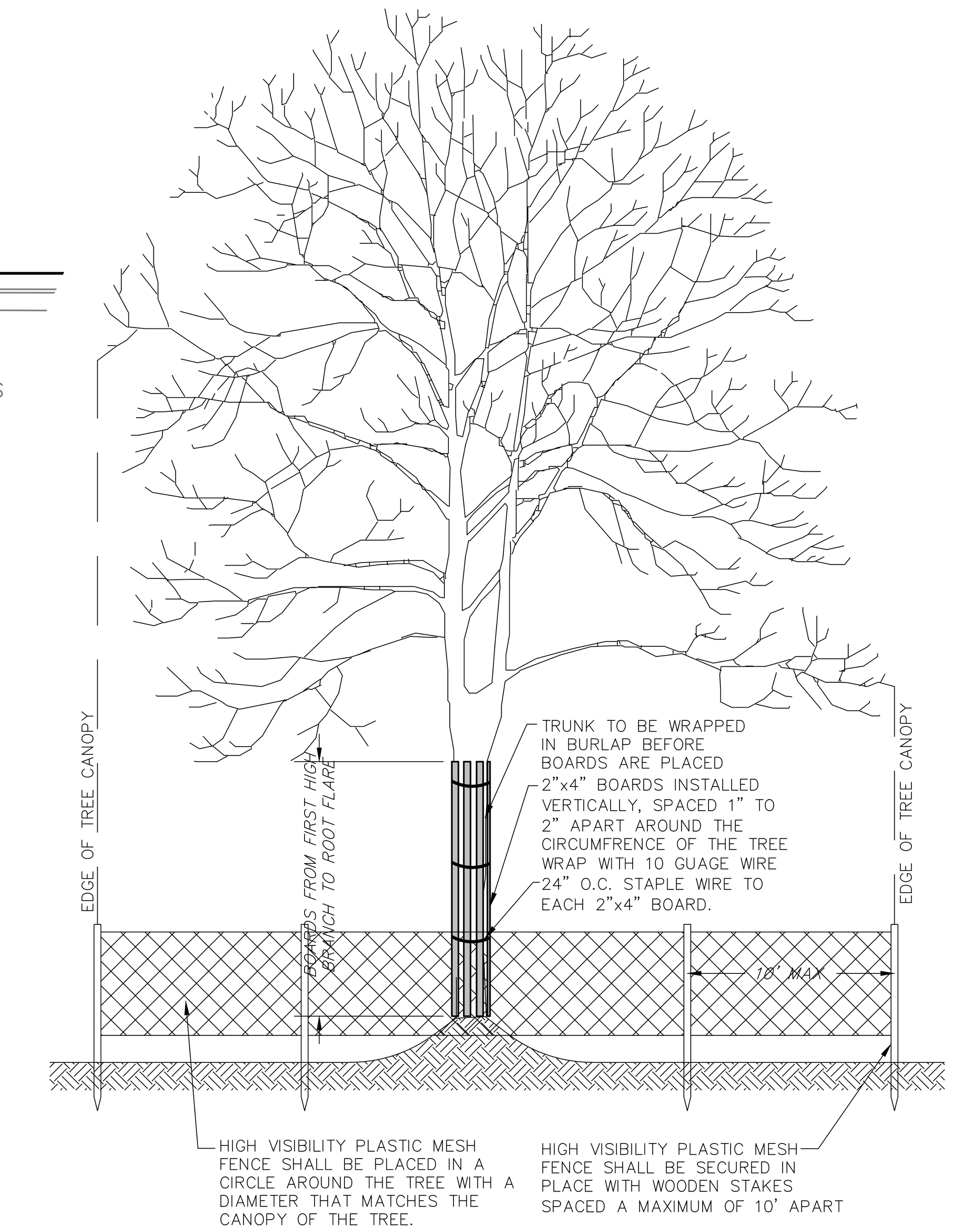
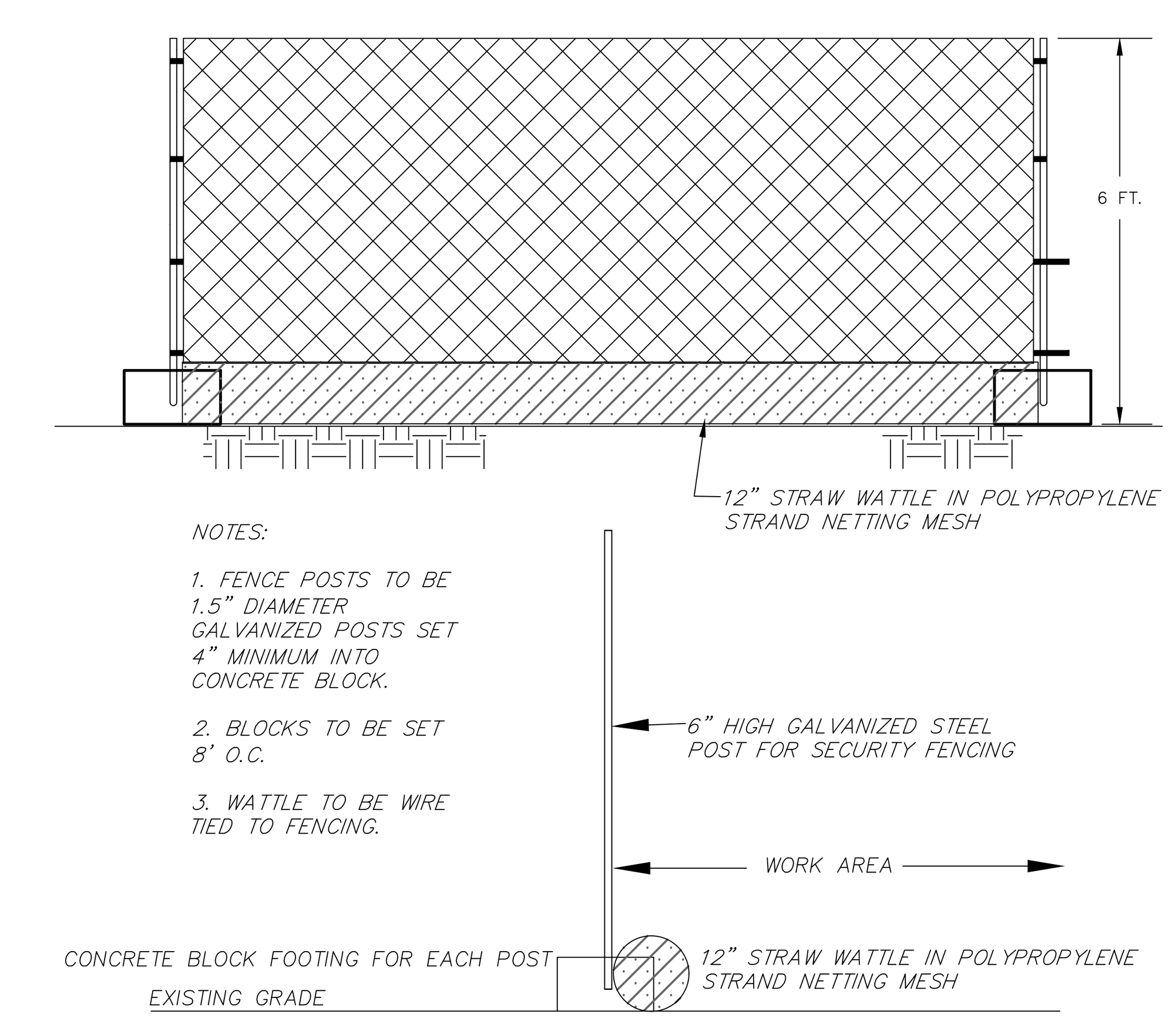
	CONIFEROUS TREE	



TREE PROTECTION DETAIL

NOT TO SCALE

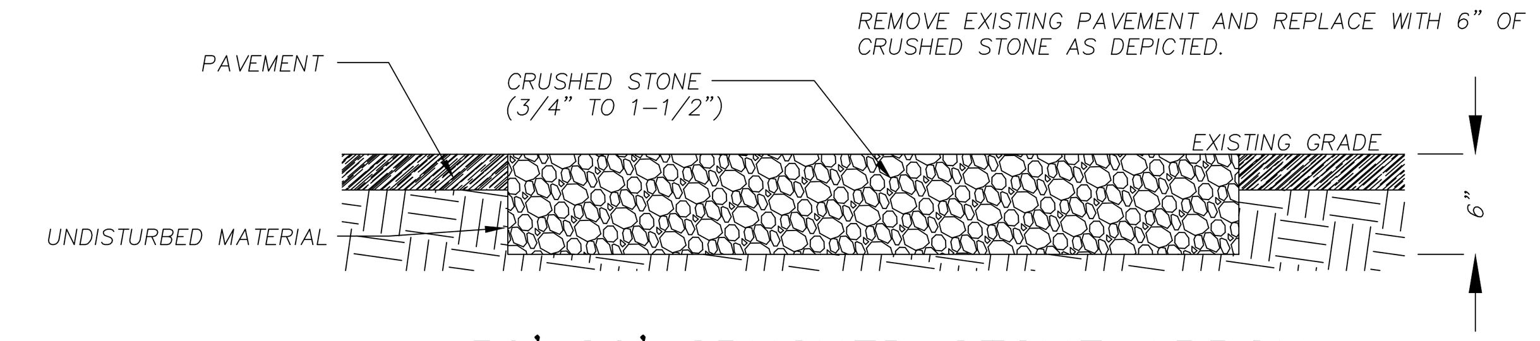


NOTES:

1. FENCE POSTS TO BE 1.5" DIAMETER GALVANIZED POSTS SET 4" MINIMUM INTO CONCRETE BLOCK.
2. BLOCKS TO BE SET 8' O.C.
3. WATTLE TO BE WIRE TIED TO FENCING.

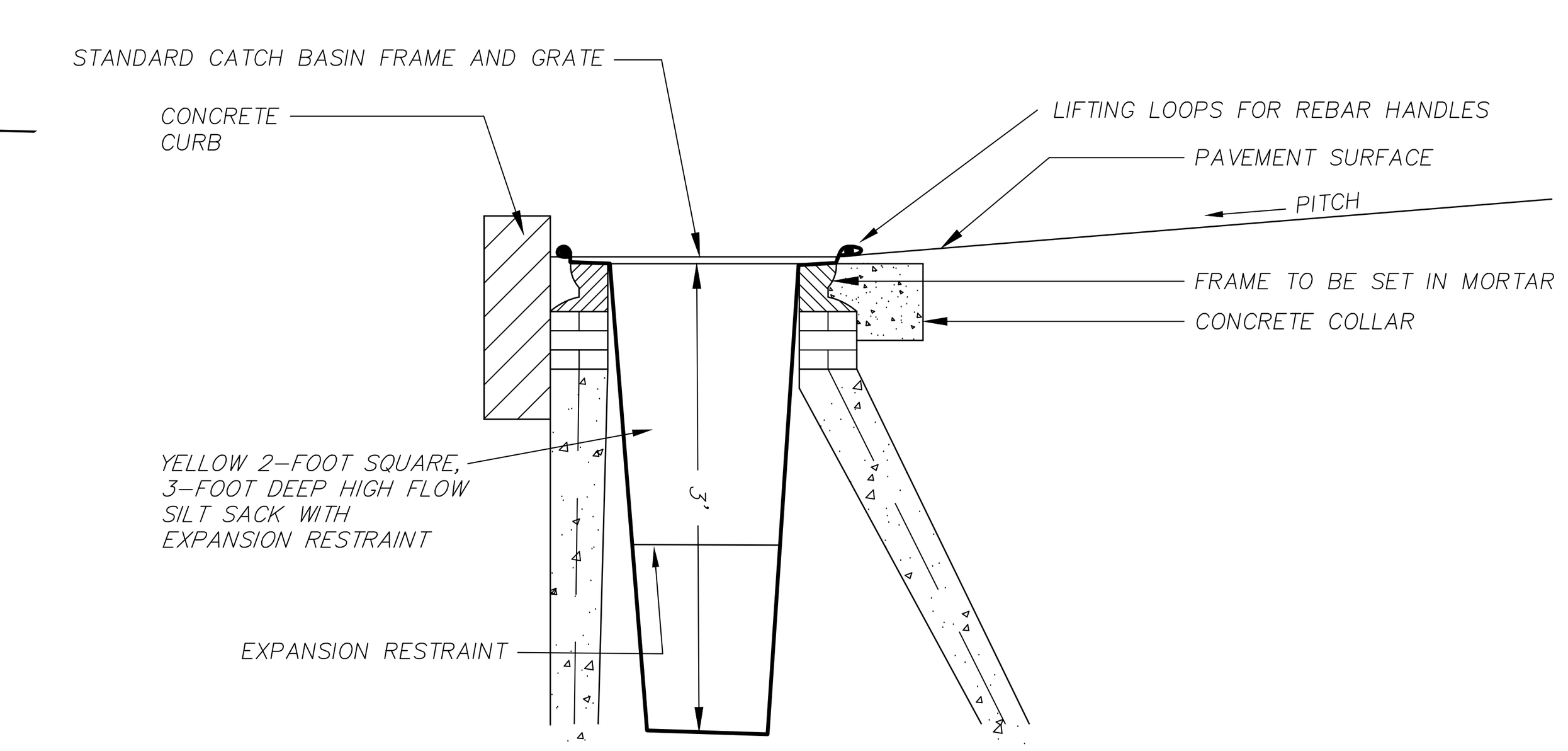
SECURITY FENCING W/ EROSION CONTROL

NOT TO SCALE



50'x20' CRUSHED STONE APRON

NOT TO SCALE



PINCH SILT SACK BETWEEN FRAME & GRATE. INSPECT SILT SACK AFTER EACH STORM EVENT PERFORM MAINTENANCE WHEN SILT AND DEBRIS IS 12" DEEP

CATCH BASIN SILT SACK

NOT TO SCALE

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JAMES W. BURKE, P.E. DATE

GENERAL NOTES:

1. LOCUS:

ASSESSORS ID: 51-H-8.01
RECORD OWNER: ARSENAULT FAMILY TRUST
DEED REFERENCE: BOOK 14059 PAGE 498
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5. PARCEL IS ZONED RSFH.

PROJECT TITLE & LOCATION:

CLIFTON COURT DEVELOPMENT
DEFINITIVE SUBDIVISION
217 MILL STREET
RANDOLPH, MA

PLAN TITLE:

CONSTRUCTION MANAGEMENT

PREPARED FOR:

217 MILL ST, LLC
228 PARK AVENUE S, PMB 35567
NEW YORK, NY 89135

DATE: FEBRUARY 6, 2023
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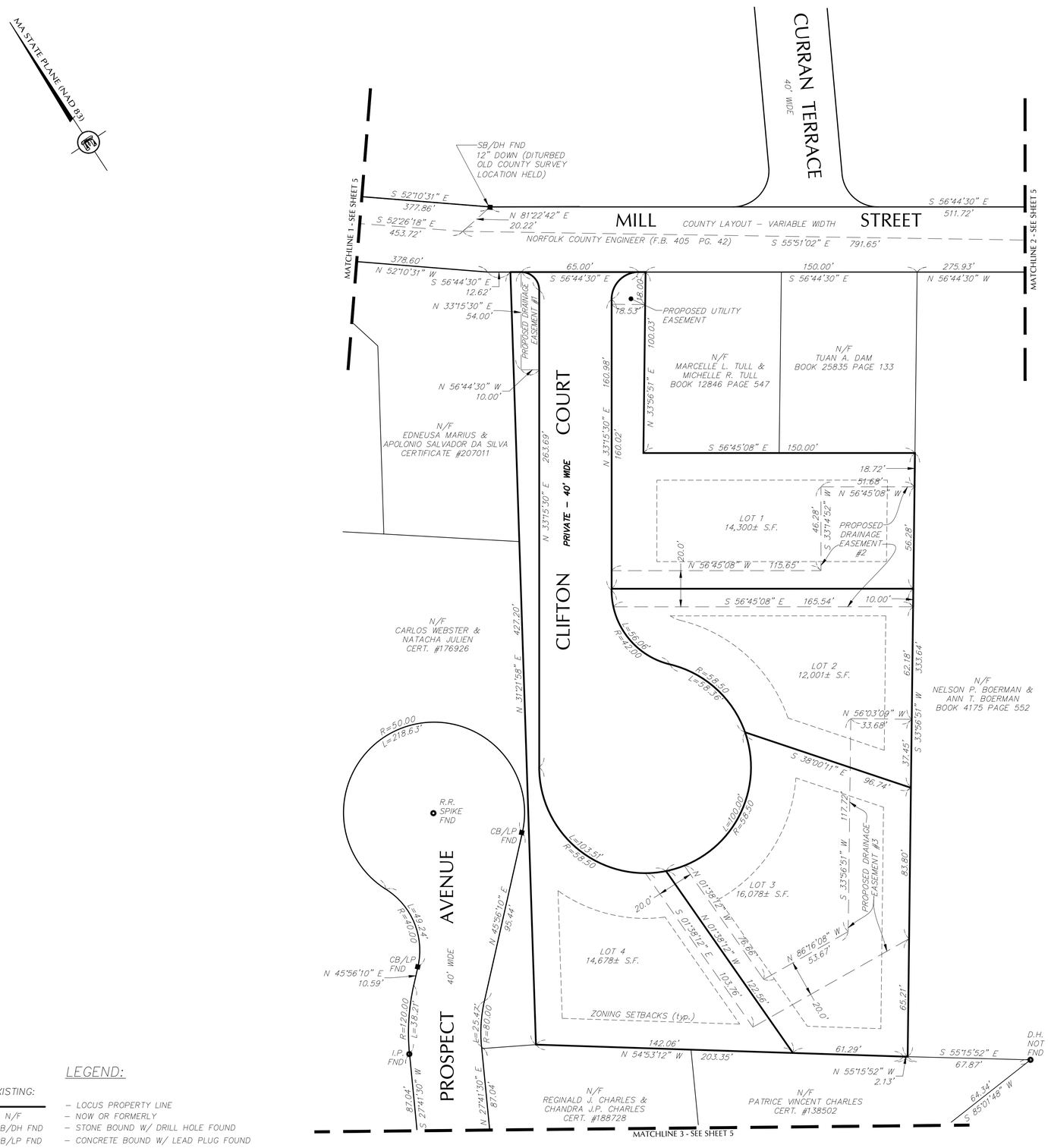
JOB NUMBER: 2022.030 SHEET 3 OF 11

SCALE: 1"=30'



LEGEND:

EXISTING:

	– LOCUS PROPERTY LINE
N/F	– NOW OR FORMERLY
■ SB/DH FND	– STONE BOUND W/ DRILL HOLE FOUND
■ CB/LP FND	– CONCRETE BOUND W/ LEAD PLUG FOUND
■ CB/DH FND	– CONCRETE BOUND W/ DRILL HOLE FOUND
◉ DH/FND	– DRILL HOLE FOUND
○ PIPE/FND	– PIPE FOUND

FOR REGISTRY USE ONLY

I CERTIFY THAT THIS PLAN CONFORMS WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS IN THE COMMONWEALTH OF MASSACHUSETTS

CLAUDIO SALA, PLS DATE

APPROVED BY

PLANNING BOARD
TOWN OF RANDOLPH

Date:

PLANNING BOARD ENDORSEMENT UNDER THE SUBDIVISION CONTROL LAW SHOULD NOT BE CONSIDERED AS EITHER AN ENDORSEMENT OR APPROVAL OF ZONING REQUIREMENTS.

ZONING SCHEDULE

(TOWN OF RANDOLPH ZONING CODE DATED AUGUST 9, 2021)

LOT ZONING CLASSIFICATION : RSHDD a/k/a RSFHD

ZONING REQUIREMENT	REQUIRED
MIN. LOT AREA	– 12,000 S.F.
MIN. LOT FRONTAGE	– 100 FEET
MIN. LOT WIDTH	– 75 FEET
MIN. LOT DEPTH	– 100 FEET
MIN. FRONT SETBACK	– 25 FEET
MIN. SIDE SETBACK	– 15 FEET
MIN. REAR SETBACK	– 15 FEET
MAX. BUILDING HEIGHT	– 2.5 STORIES/40 FEET

OWNED BY:

ARSENAULT FAMILY TRUST
217 MILL STREET, RANDOLPH, MA 02368
DEED REFERENCE: BOOK 14059 PAGE 498

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COMMONWEALTH OF MASSACHUSETTS
CLAUDIO SALA
No. 38391
PROFESSIONAL LAND SURVEYOR

CLAUDIO SALA, PLS DATE

GENERAL NOTES:

1. LOCUS:

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PLAN REFERENCES:

NORFOLK COUNTY REGISTRY OF DEEDS

PL. BK. 96 PLAN No. 4658
PL. BK. 319 PLAN No. 207 of 1985
PL. BK. 383 PLAN No. 682 of 1989
PL. BK. 406 PLAN No. 638 OF 1992
PL. BK. 446 PLAN No. 204 of 1997
PL. BK. 449 PLAN No. 515 of 1997
PL. BK. 491 PLAN No. 693 of 2001
PLAN No. 770 of 1957
PLAN No. 267 of 1972
PLAN No. 529 of 1976

LAND COURT

LC PLAN 24454
LC PLAN 29830
LC PLAN 30039
LC PLAN 35883

NORFOLK COUNTY ENGINEERING DEPARTMENT

FIELD BOOK 15 PAGES 18-25
FIELD BOOK 405 PAGES 13-24
FIELD BOOK 405 PAGES 35-55
PLAN BOOK 8 PAGE 529

PROJECT TITLE & LOCATION:

CLIFTON COURT DEVELOPMENT
DEFINITIVE SUBDIVISION
217 MILL STREET
RANDOLPH, MA

PLAN TITLE:

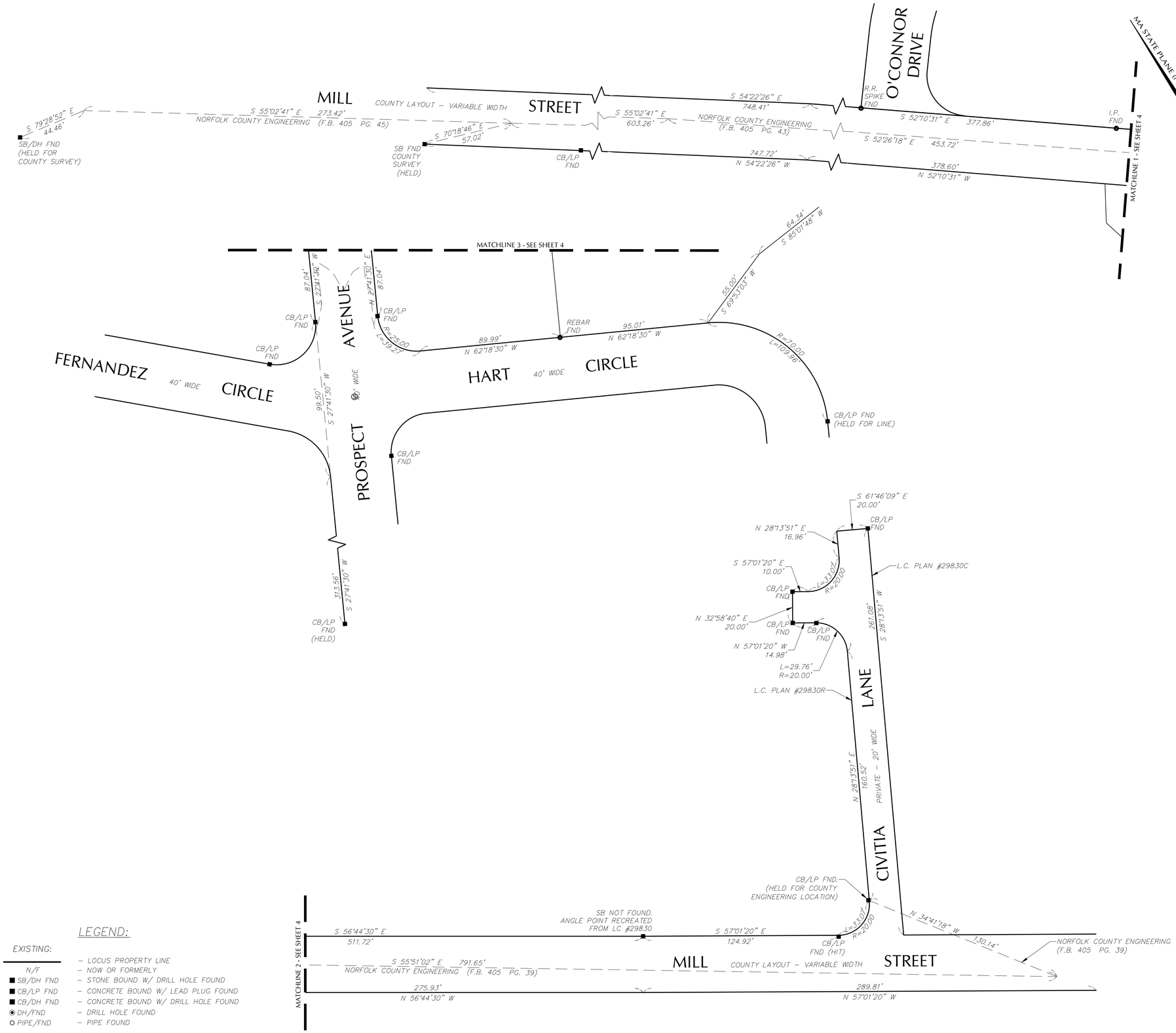
DEFINITIVE SUBDIVISION PLAN
SHEET 1

PREPARED FOR:

217 MILL ST, LLC
228 PARK AVENUE S, PMB 35567
NEW YORK, NY 89135

DATE: FEBRUARY 6, 2023	
REVISED: APRIL 10, 2023	
REVISED:	
REVISED:	
REVISED:	
JOB NUMBER: 2022.030	SHEET 4 OF 11

30 15 0 30 60
SCALE: 1" = 30'



LEGEND:

EXISTING:

N/F	– NOW OR FORMERLY
■ SB/DH FND	– STONE BOUND W/ DRILL HOLE FOUND
■ CB/LP FND	– CONCRETE BOUND W/ LEAD PLUG FOUND
■ CB/DH FND	– CONCRETE BOUND W/ DRILL HOLE FOUND
◉ DH/FND	– DRILL HOLE FOUND
○ PIPE/FND	– PIPE FOUND

FOR REGISTRY USE ONLY

I CERTIFY THAT THIS PLAN CONFORMS WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS IN THE COMMONWEALTH OF MASSACHUSETTS

CLAUDIO SALA, PLS DATE

APPROVED BY

PLANNING BOARD
TOWN OF RANDOLPH

Date:

PLANNING BOARD ENDORSEMENT UNDER THE SUBDIVISION CONTROL LAW SHOULD NOT BE CONSIDERED AS EITHER AN ENDORSEMENT OR APPROVAL OF ZONING REQUIREMENTS.

OWNED BY:

ARSENAULT FAMILY TRUST
217 MILL STREET, RANDOLPH, MA 02368
DEED REFERENCE: BOOK 14059 PAGE 498

DeCelle-Burke-Sala & Associates, Inc.
1266 Furnace Brook Parkway #401
Quincy, MA 02169
617-405-5100 (o) 617-405-5101 (f)
www.decelle-burke-sala.com

COMMONWEALTH OF MASSACHUSETTS
CLAUDIO SALA
No. 38391
PROFESSIONAL LAND SURVEYOR

CLAUDIO SALA, PLS DATE

GENERAL NOTES:

1. LOCUS:

ASSESSORS ID: 51-H-8.01
RECORD OWNER: ARSENAULT FAMILY TRUST
DEED REFERENCE: BOOK 14059 PAGE 498
PLAN REFERENCE: PLAN No. 204 of 1997

2. THIS PLAN IS THE RESULT OF AN ON THE GROUND SURVEY PERFORMED BY THIS OFFICE DURING JUNE 2022. ELEVATIONS SHOWN REFER TO NAVD-88.

3. LOCUS IS LOCATED WITHIN A ZONE X, AS DELINEATED ON FIRM 25021C0217E, EFFECTIVE 07/17/2012.

PLAN REFERENCES:

NORFOLK COUNTY REGISTRY OF DEEDS

PL. BK. 96 PLAN No. 4658
PL. BK. 319 PLAN No. 207 of 1985
PL. BK. 383 PLAN No. 682 of 1989
PL. BK. 406 PLAN No. 638 OF 1992
PL. BK. 446 PLAN No. 204 of 1997
PL. BK. 449 PLAN No. 515 of 1997
PL. BK. 491 PLAN No. 693 of 2001
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NORFOLK COUNTY ENGINEERING DEPARTMENT

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PLAN BOOK 8 PAGE 529

PROJECT TITLE & LOCATION:

CLIFTON COURT DEVELOPMENT
DEFINITIVE SUBDIVISION
217 MILL STREET
RANDOLPH, MA

PLAN TITLE:

DEFINITIVE SUBDIVISION PLAN
SHEET 2

PREPARED FOR:

217 MILL ST, LLC
228 PARK AVENUE S, PMB 35567
NEW YORK, NY 89135

DATE: FEBRUARY 6, 2023	
REVISED: APRIL 10, 2023	
REVISED:	
REVISED:	
REVISED:	
JOB NUMBER: 2022.030	SHEET 5 OF 11

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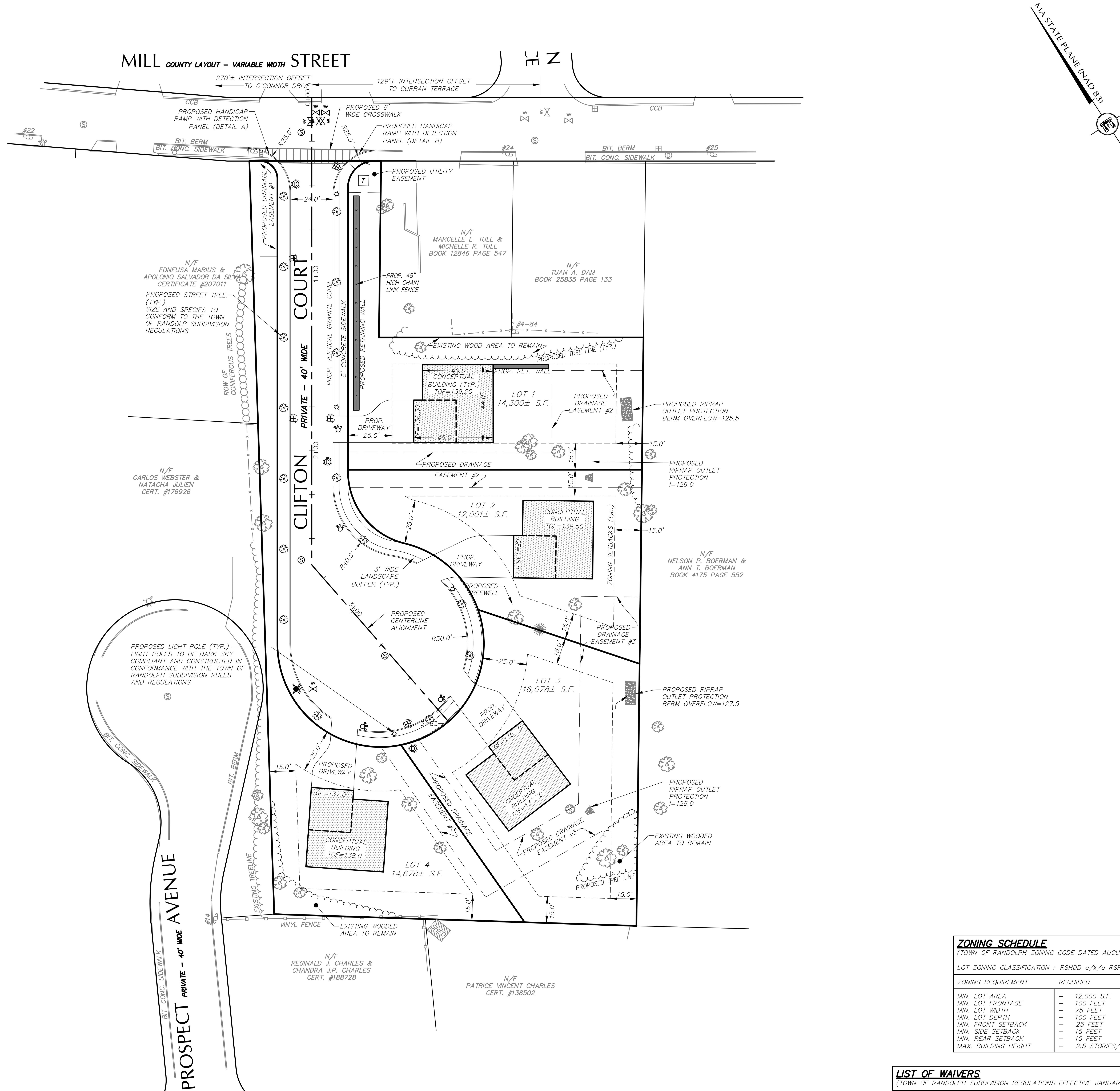

LEGEND:

EXISTING:		PROPOSED:
	LOCUS PROPERTY LINE	
	TREE LINE	
Ⓢ	SEWER MANHOLE (SMH)	Ⓢ
Ⓓ	DRAIN MANHOLE (DMH)	Ⓓ
	CATCH BASIN (CB)	
	STONEWALL	
GV	GAS VALVE	GV
WV	WATER VALVE	WV
	WATER SERVICE	
	HYDRANT	
	UTILITY POLE	
N/F	NOW OR FORMERLY	
D	DRAIN PIPE	D
W	WATER MAIN	W
G	GAS SERVICE	G
UGE	UNDERGROUND POWER	UGE
OHW	OVERHEAD WIRES	OHW
S	SEWER MAIN	S
LSA	LANDSCAPED AREA	LSA
25	ELEVATION CONTOUR	25
x25.7	SPOT GRADE	x25.7
x	CHAIN LINK FENCE	x
	STOCKADE FENCE	
	HAND HOLES FOR UTILITIES	
	LIGHT POLE	
CCB	CAPE COD BERM	CCB
VGC	VERTICAL GRANITE CURB	VGC
SGC	SLOPED GRANITE CURB	SGC
FF	FIRST FLOOR	FF
BF	BASEMENT FLOOR	BF
TOF	TOP OF FOUNDATION	TOF
GF	GARAGE FLOOR	GF
	DECIDUOUS TREE	
	CONIFEROUS TREE	

ZONING SCHEDULE

(TOWN OF RANDOLPH ZONING CODE DATED AUGUST 9, 2021)

LOT ZONING CLASSIFICATION : RSHDD a/k/a RSFHD

ZONING REQUIREMENT	REQUIRED
MIN. LOT AREA	– 12,000 S.F.
MIN. LOT FRONTAGE	– 100 FEET
MIN. LOT WIDTH	– 75 FEET
MIN. LOT DEPTH	– 100 FEET
MIN. FRONT SETBACK	– 25 FEET
MIN. SIDE SETBACK	– 15 FEET
MIN. REAR SETBACK	– 15 FEET
MAX. BUILDING HEIGHT	– 2.5 STORIES/40 FEET

LIST OF WAIVERS

(TOWN OF RANDOLPH SUBDIVISION REGULATIONS EFFECTIVE JANUARY 28, 2020)

SUBDIVISION REQUIREMENT	REQUIRED	PROPOSED
MIN. INTERSECTION OFFSET DRAINAGE STRUCTURES ON SEPARATE LOTS	200 FEET	129± FEET

DeCelle-Burke-Sala
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Quincy, MA 02169
617-405-5100 (o) 617-405-5101 (f)
www.decelle-burke-sala.com

JAMES W. BURKE, P.E. DATE

GENERAL NOTES:

1. LOCUS:

ASSESSORS ID: 51–H–8.01
RECORD OWNER: ARSENAULT FAMILY TRUST
DEED REFERENCE: BOOK 14059 PAGE 498
PLAN REFERENCE: PLAN No. 204 of 1997

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DIG–SAFE SHALL BE NOTIFIED PER THE STATE OF MASSACHUSETTS STATUTE CHAPTER 82, SECTION 409 AT TEL. 1–888–344–7233. THE ENGINEER DOES NOT GUARANTEE THEIR ACCURACY OR THAT ALL UTILITIES AND SUBSURFACE STRUCTURES ARE SHOWN. LOCATIONS AND ELEVATIONS OF UNDERGROUND UTILITIES WERE TAKEN FROM RECORD PLANS. THE CONTRACTOR SHALL VERIFY SIZE, LOCATION, AND INVERTS OF UTILITIES AND STRUCTURES AS REQUIRED PRIOR TO THE START OF CONSTRUCTION.

4. LOCUS IS LOCATED WITHIN A ZONE X, AS DELINEATED ON FIRM 25021C0217E, EFFECTIVE 07/17/2012.

5. PARCEL IS ZONED RSFHD.

PROJECT TITLE & LOCATION:

CLIFTON COURT DEVELOPMENT DEFINITIVE SUBDIVISION 217 MILL STREET RANDOLPH, MA

PLAN TITLE:

PROPOSED SITE LAYOUT

PREPARED FOR:

217 MILL ST, LLC
228 PARK AVENUE S, PMB 35567
NEW YORK, NY 89135

DATE: FEBRUARY 6, 2023
REVISED: APRIL 10, 2023
REVISED:
REVISED:
REVISED:

JOB NUMBER: 2022.030 SHEET 6 OF 11

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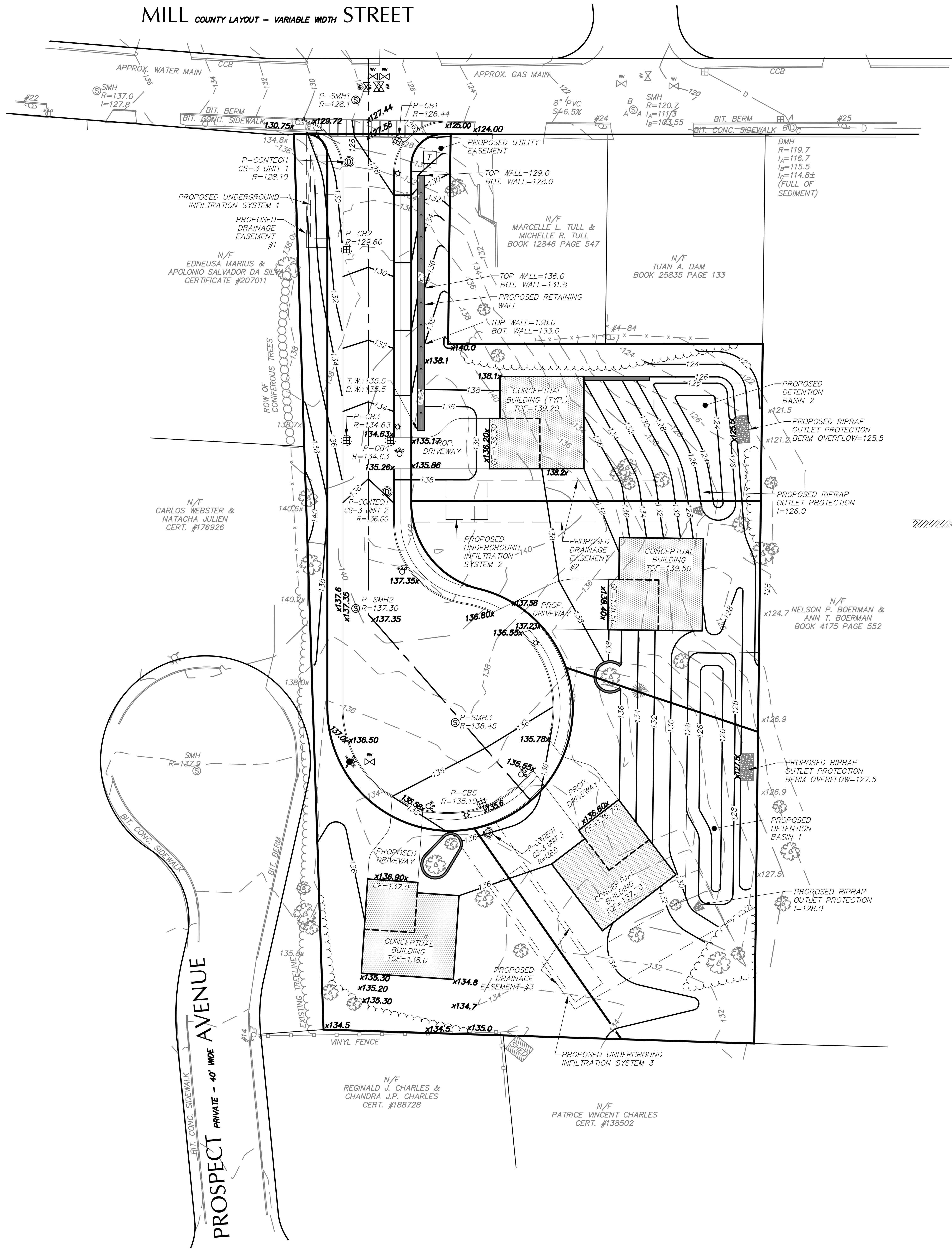
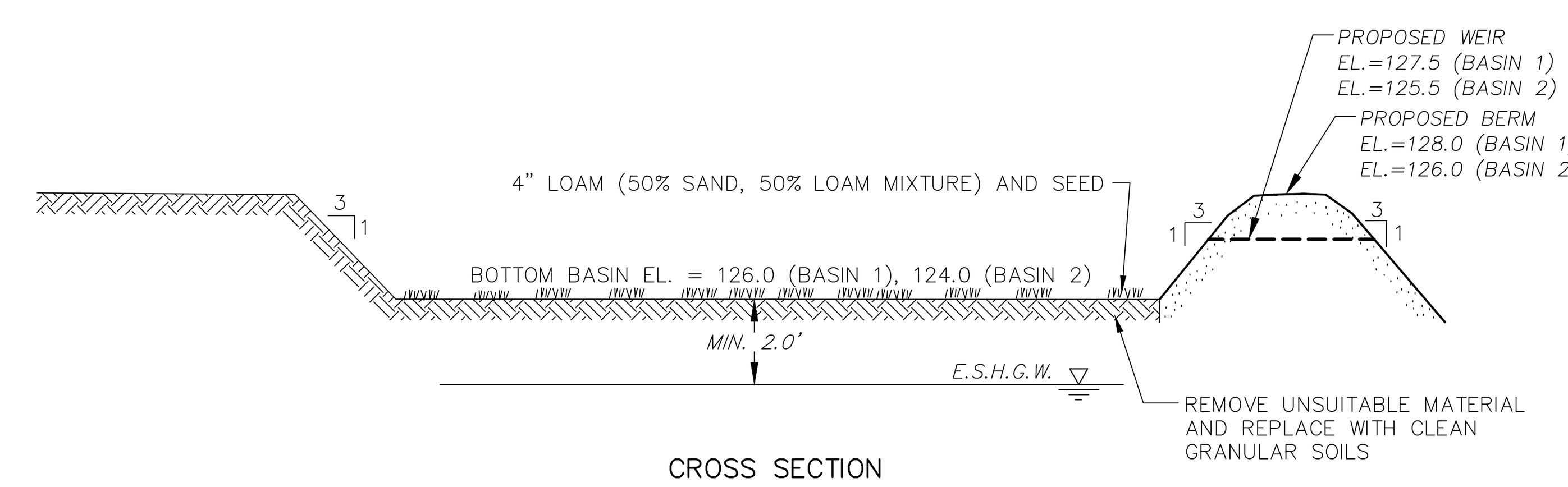
SCALE: 1" = 30'



LEGEND:

EXISTING:		PROPOSED:
	– LOCUS PROPERTY LINE	
	– TREE LINE	
	– SEWER MANHOLE (SMH)	
	– DRAIN MANHOLE (DMH)	
	– CATCH BASIN (CB)	
	– STONEWALL	
GV	– GAS VALVE	GV
WV	– WATER VALVE	WV
	– WATER SERVICE	
	– HYDRANT	
	– UTILITY POLE	
N/F	– NOW OR FORMERLY	
D	– DRAIN PIPE	D
W	– WATER MAIN	W
G	– GAS SERVICE	G
UGE	– UNDERGROUND POWER	UGE
OHW	– OVERHEAD WIRES	OHW
S	– SEWER MAIN	S
LSA	– LANDSCAPED AREA	LSA
25	– ELEVATION CONTOUR	25
x25.7	– SPOT GRADE	x25.7
x	– CHAIN LINK FENCE	x
	– STOCKADE FENCE	
	– HAND HOLES FOR UTILITIES	
	– LIGHT POLE	
CCB	– CAPE COD BERM	CCB
VGC	– VERTICAL GRANITE CURB	VGC
SGC	– SLOPED GRANITE CURB	SGC
FF	– FIRST FLOOR	FF
BF	– BASEMENT FLOOR	BF
TOF	– TOP OF FOUNDATION	TOF
GF	– GARAGE FLOOR	GF
	– DECIDUOUS TREE	
	– CONIFEROUS TREE	



CROSS SECTION

NOTES:

1. DETENTION BASIN IS DESIGNED TO INFILTRATE
2. 12" OF 1 1/2" DOUBLE WASHED STONE IS TO BE USED IN THE INFILTRATION AREA OF DETENTION BASIN.
3. LIGHT EARTH MOVING EQUIPMENT IS TO BE USED DURING CONSTRUCTION TO REDUCE COMPACTION OF BASIN BOTTOM.
4. BASIN FLOOR IS TO BE DEEPLY TILLED AFTER FINAL GRADING.
5. PROPER EROSION SEDIMENT CONTROLS SHOULD BE UTILIZED DURING CONSTRUCTION TO PREVENT SEDIMENT AND/OR DEBRIS FROM ENTERING THE BASIN.

INFILTRATION / DETENTION BASIN

NOT TO SCALE

DeCelle-Burke-Sala
& Associates, Inc.
1266 Furnace Brook Parkway #401
Quincy, MA 02169
617-405-5100 (o) 617-405-5101 (f)
www.decelle-burke-sala.com

JAMES W. BURKE, P.E. DATE

GENERAL NOTES:

1. LOCUS:

ASSESSORS ID: 51-H-8.01
RECORD OWNER: ARSENAULT FAMILY TRUST
DEED REFERENCE: BOOK 14059 PAGE 498
PLAN REFERENCE: PLAN No. 204 of 1997

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5. PARCEL IS ZONED RSFHD.

PROJECT TITLE & LOCATION:

CLIFTON COURT DEVELOPMENT
DEFINITIVE SUBDIVISION
217 MILL STREET
RANDOLPH, MA

PLAN TITLE:

PROPOSED SITE GRADING

PREPARED FOR:

217 MILL ST, LLC
228 PARK AVENUE S, PMB 35567
NEW YORK, NY 89135

DATE: FEBRUARY 6, 2023
REVISED: APRIL 10, 2023
REVISED:
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JOB NUMBER: 2022.030 SHEET 7 OF 11

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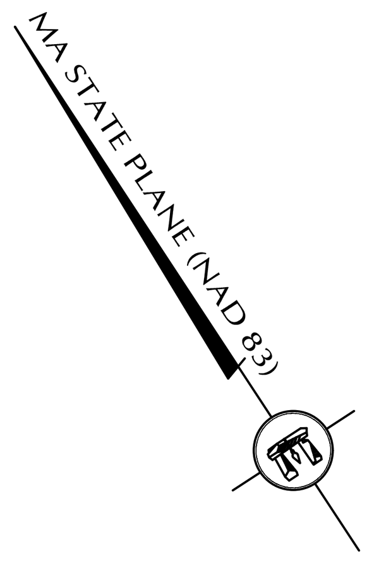
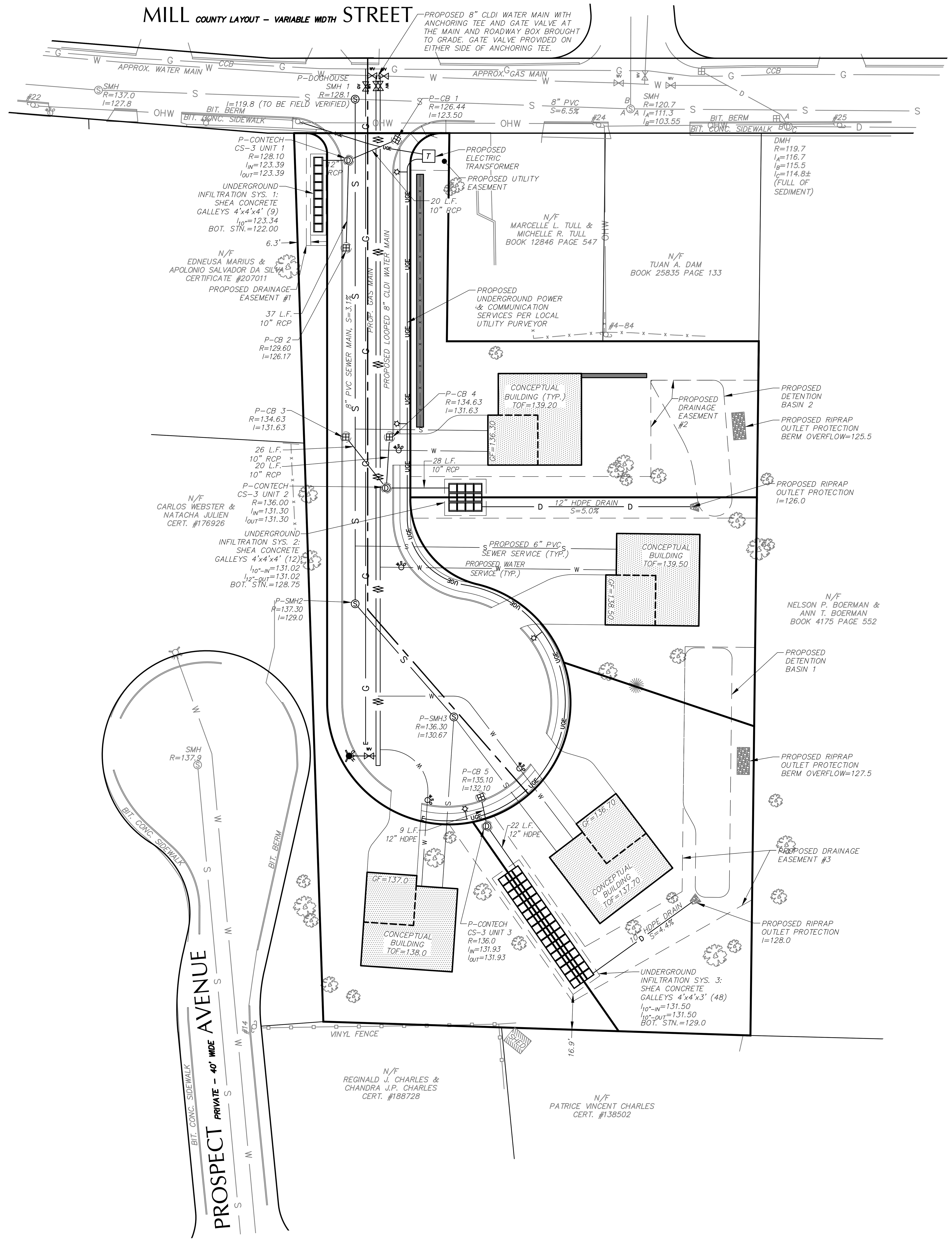
SCALE: 1" = 30'





LEGEND:

EXISTING:		PROPOSED:
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	– CATCH BASIN (CB)	
	– STONEWALL	
GV	– GAS VALVE	GV
WV	– WATER VALVE	WV
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N/F	– NOW OR FORMERLY	
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W	– WATER MAIN	W
G	– GAS SERVICE	G
UGE	– UNDERGROUND POWER	UGE
OHW	– OVERHEAD WIRES	OHW
S	– SEWER MAIN	S
LSA	– LANDSCAPED AREA	LSA
25	– ELEVATION CONTOUR	25
x25.7	– SPOT GRADE	**x25.7**
	– CHAIN LINK FENCE	
	– STOCKADE FENCE	
	– HAND HOLES FOR UTILITIES	
	– LIGHT POLE	
CCB	– CAPE COD BERM	CCB
VGC	– VERTICAL GRANITE CURB	VGC
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COMMONWEALTH OF MASSACHUSETTS JAMES W. BURKE REGISTERED PROFESSIONAL ENGINEER

JAMES W. BURKE, P.E. DATE

GENERAL NOTES:

1. LOCUS:

ASSESSORS ID: 51–H–8.01
RECORD OWNER: ARSENAULT FAMILY TRUST
DEED REFERENCE: BOOK 14059 PAGE 498
PLAN REFERENCE: PLAN No. 204 of 1997

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5. PARCEL IS ZONED RSFHD.

PROJECT TITLE & LOCATION:

CLIFTON COURT DEVELOPMENT
DEFINITIVE SUBDIVISION
217 MILL STREET
RANDOLPH, MA

PLAN TITLE:

PROPOSED SITE UTILITIES

PREPARED FOR:

217 MILL ST, LLC
228 PARK AVENUE S, PMB 35567
NEW YORK, NY 89135

DATE: FEBRUARY 6, 2023
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JOB NUMBER: 2022.030 SHEET 8 OF 11

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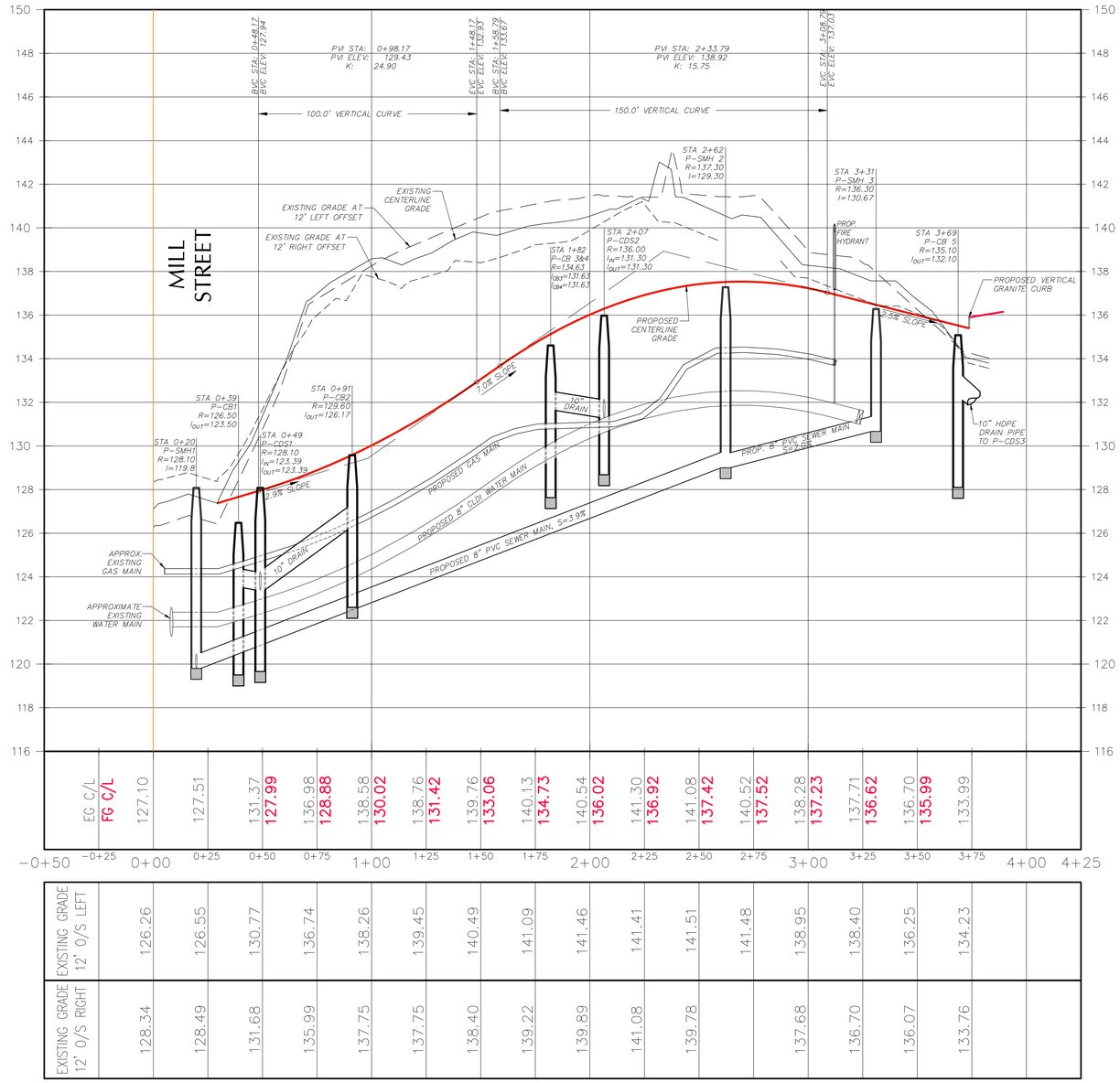
SCALE: 1" = 30'



	0+00	0+25	0+50	0+75	1+00	1+25	1+50	1+75	2+00	2+25	2+50	2+75	3+00	3+25	3+50	3+75
EG C/L	127.10	127.51	131.37	136.98	138.58	138.76	139.76	140.13	140.54	141.30	141.08	140.52	138.28	137.71	136.70	133.99
FG C/L			127.99	128.88	130.02	131.42	133.06	134.73	136.02	136.92	137.42	137.52	137.23	136.62	135.99	

−0+50 −0+25 0+00 0+25 0+50 0+75 1+00 1+25 1+50 1+75 2+00 2+25 2+50 2+75 3+00 3+25 3+50 3+75 4+00 4+25

EXISTING GRADE 12' O/S LEFT	126.26	126.55	130.77	136.74	138.26	139.45	140.49	141.09	141.46	141.41	141.51	141.48	138.95	138.40	136.25	134.23
EXISTING GRADE 12' O/S RIGHT	128.34	128.49	131.68	135.99	137.75	137.75	138.40	139.22	139.89	141.08	139.78		137.68	136.70	136.07	133.76

PROPOSED ROAD PROFILE

VERTICAL SCALE: 1" = 3'
HORIZONTAL SCALE: 1" = 30'

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PROJECT TITLE & LOCATION:

CLIFTON COURT DEVELOPMENT
DEFINITIVE SUBDIVISION
217 MILL STREET
RANDOLPH, MA

PLAN TITLE:

PROPOSED ROAD PROFILE

PREPARED FOR:

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228 PARK AVENUE S, PMB 35567
NEW YORK, NY 89135

DATE: FEBRUARY 6, 2023
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JOB NUMBER: 2022.030
SHEET 9 OF 11

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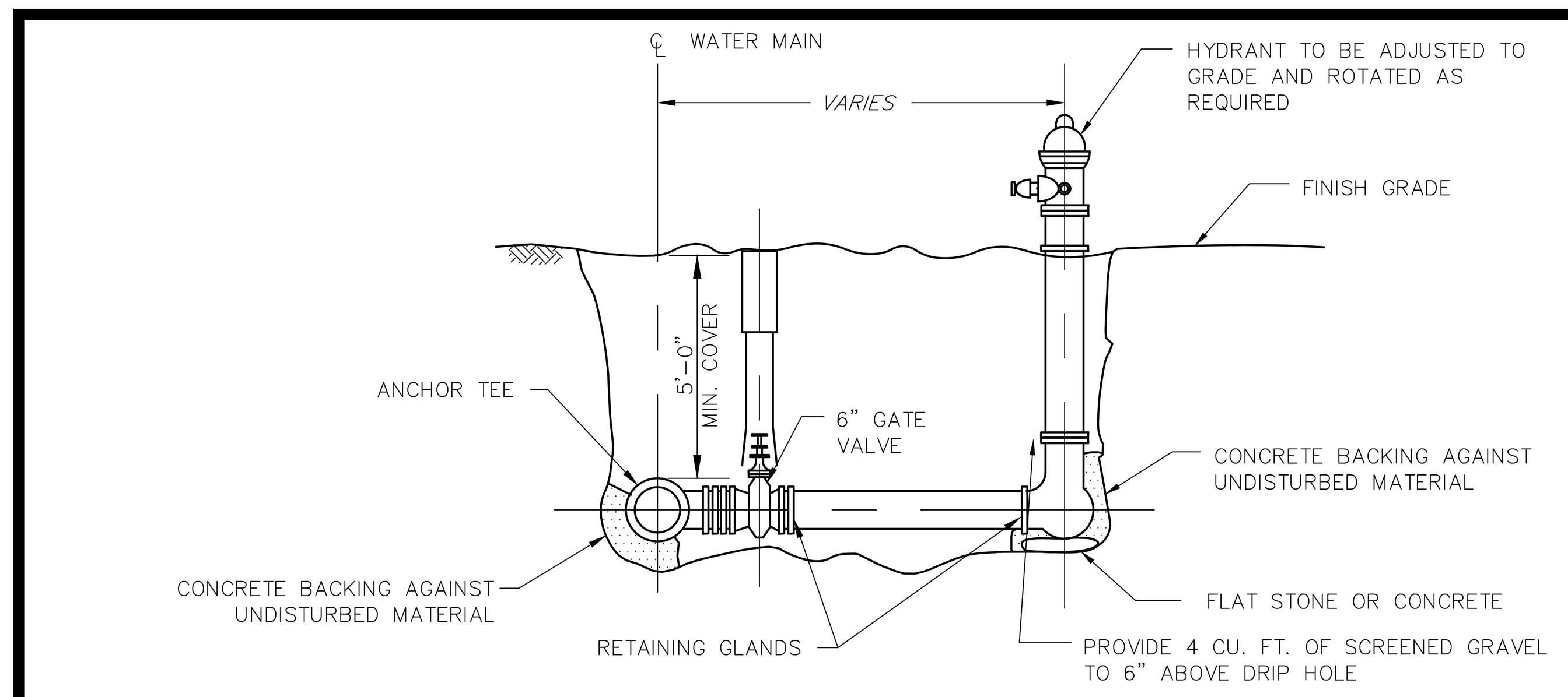
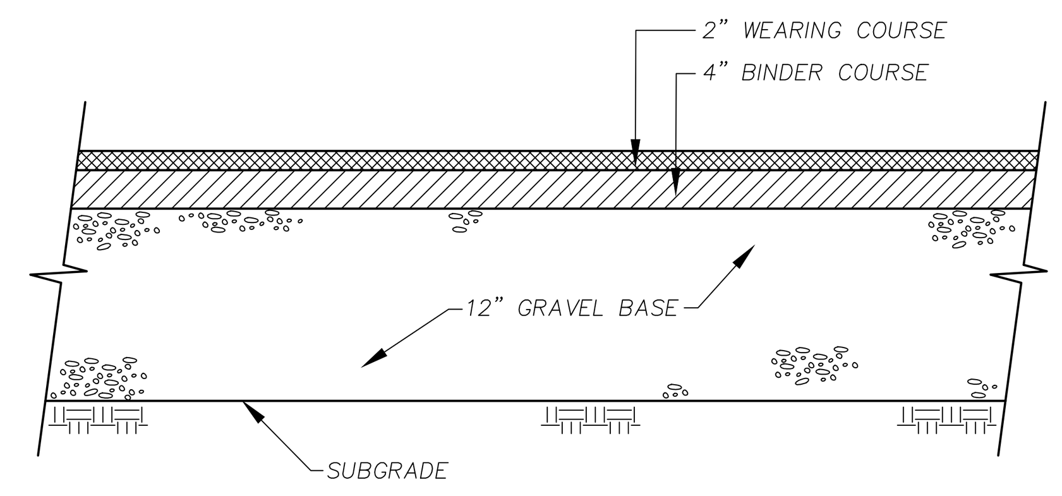
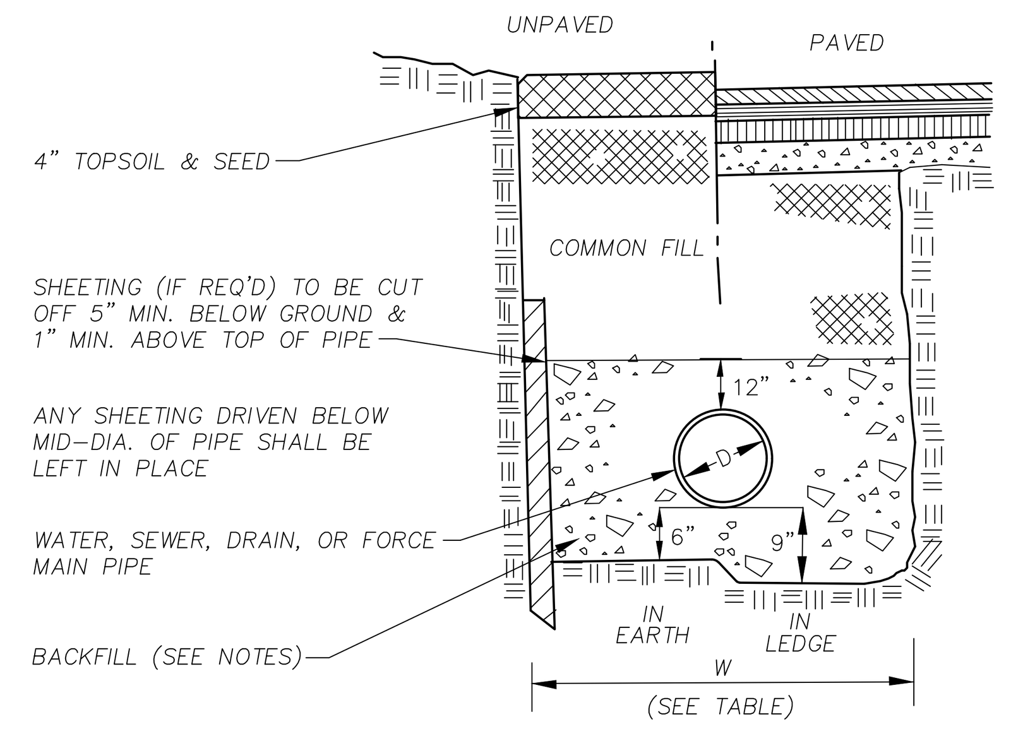


TYPICAL HYDRANT AND VALVE DETAIL
NOT TO SCALE



PAVEMENT SECTION
NOT TO SCALE



NOTES:

1. COMMON FILL MATERIAL TO CONSIST OF GRANULAR MATERIAL CONTAINING NO STONES LARGER THAN 6" IN GREATEST DIMENSION.
2. BACKFILL WITH CLEAN SAND TO 12" OVER PIPE FOR WATERMAINS.
3. BACKFILL WITH SELECT MATERIAL CONTAINING NO STONES LARGER THAN 3" IN GREATEST DIMENSION TO 12" OVER PIPE FOR SEWER AND DRAIN PIPES.
4. PROVIDE SCREENED GRAVEL BEDDING TO MID PIPE DIAMETER FOR SANITARY SEWERS AND WHERE GROUNDWATER IS ENCOUNTERED AS DIRECTED BY THE ENGINEER.
5. REMOVE UNSUITABLE MATERIAL BELOW GRADE IF ENCOUNTERED, TO SUITABLE DEPTHS AS DIRECTED BY ENGINEER AND REPLACE WITH CLEAN GRANULAR FILL.

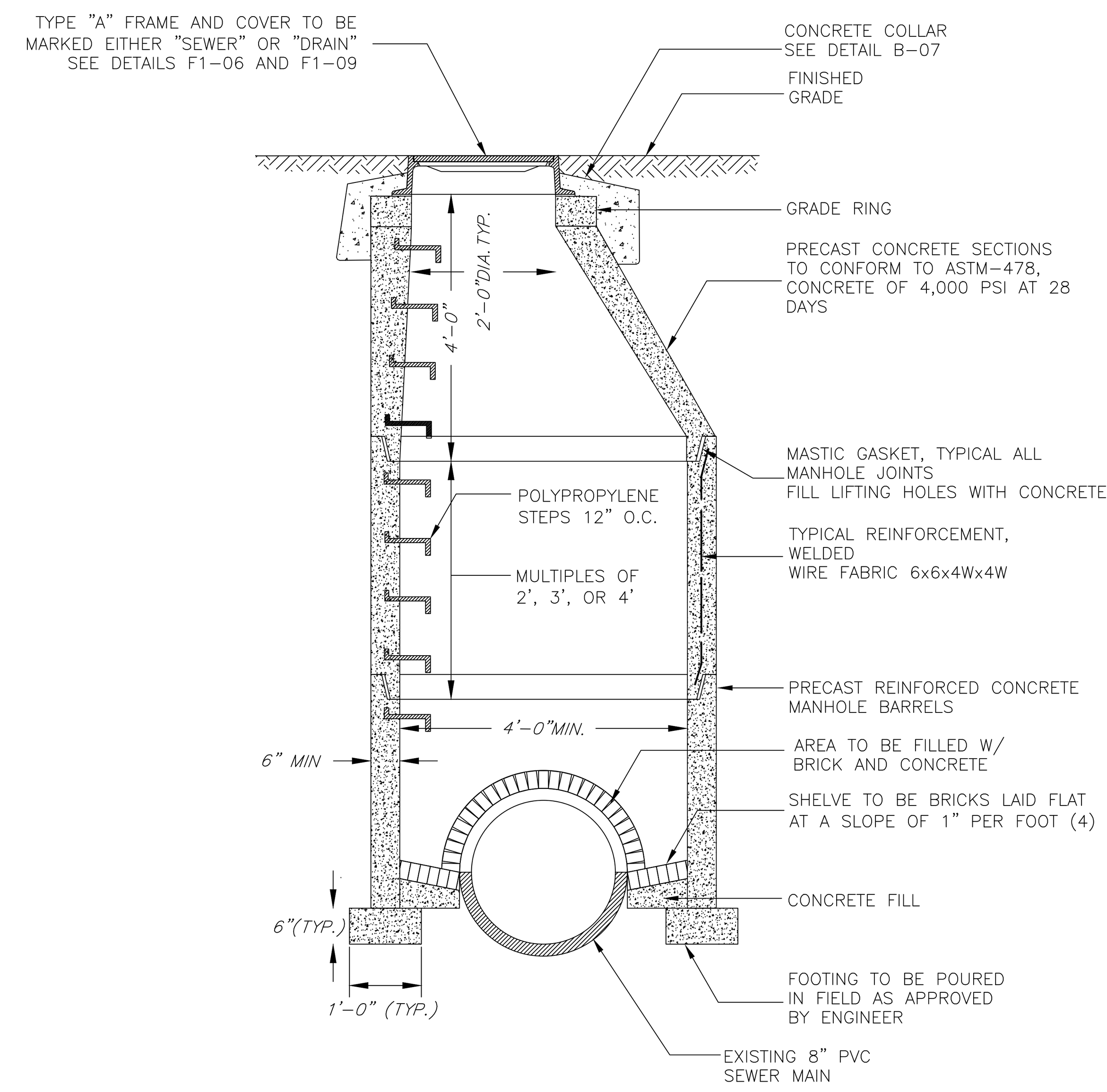
TRENCH WIDTH

D DIAMETER OF PIPE	W UNSHEETED	W SHEETED
1" TO 12"	3'	4'
14" TO 24"	4'	5'
30" TO 36"	5'	6'

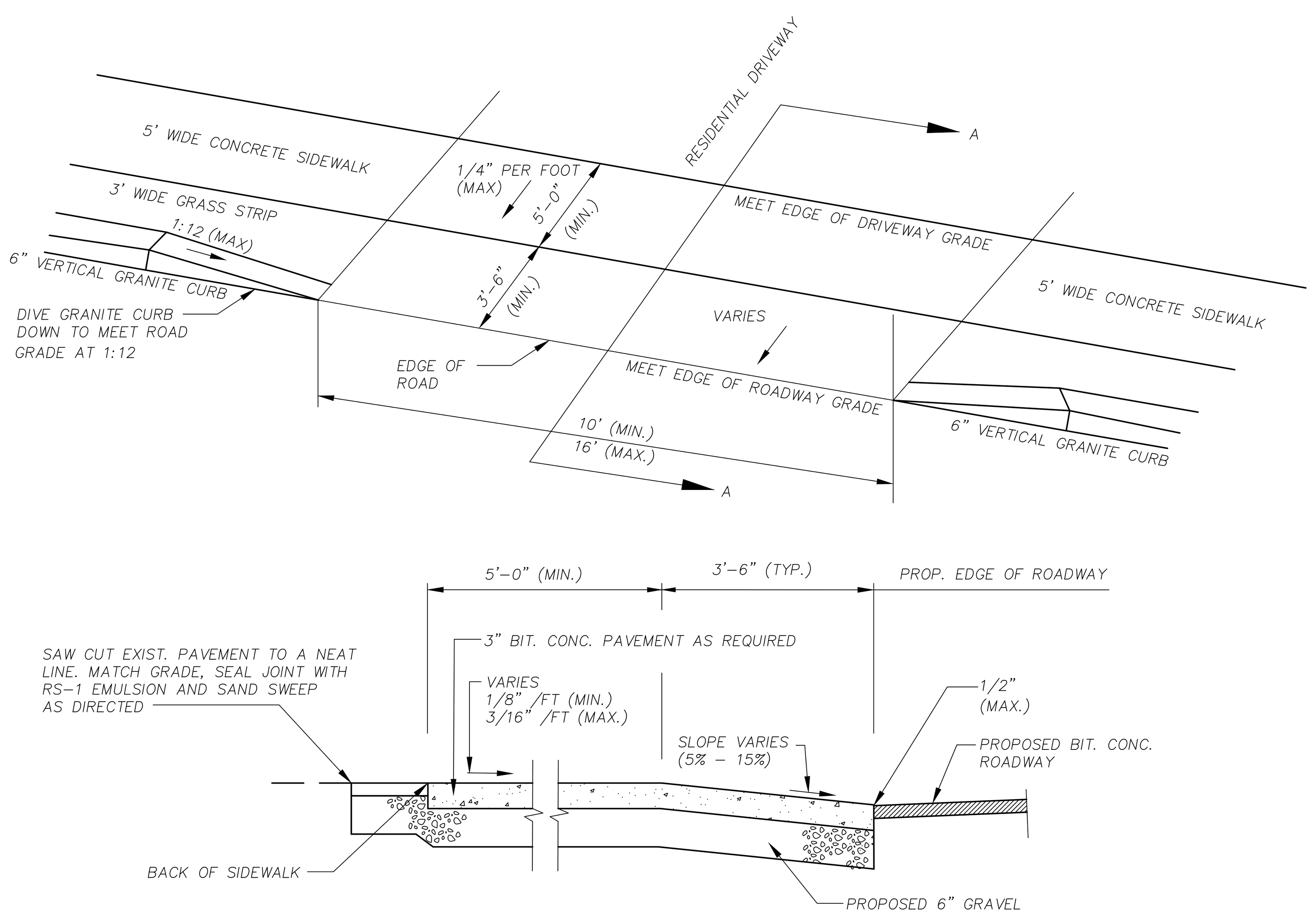
NOTES:

1. ALL TRENCH CONSTRUCTION TO CONFORM TO APPLICABLE FEDERAL, STATE AND LOCAL REQULATIONS.
2. COMPACT FILL AND TAMP PIPE TO 93% MAX. DENSITY UNLESS OTHERWISE SPECIFIED.

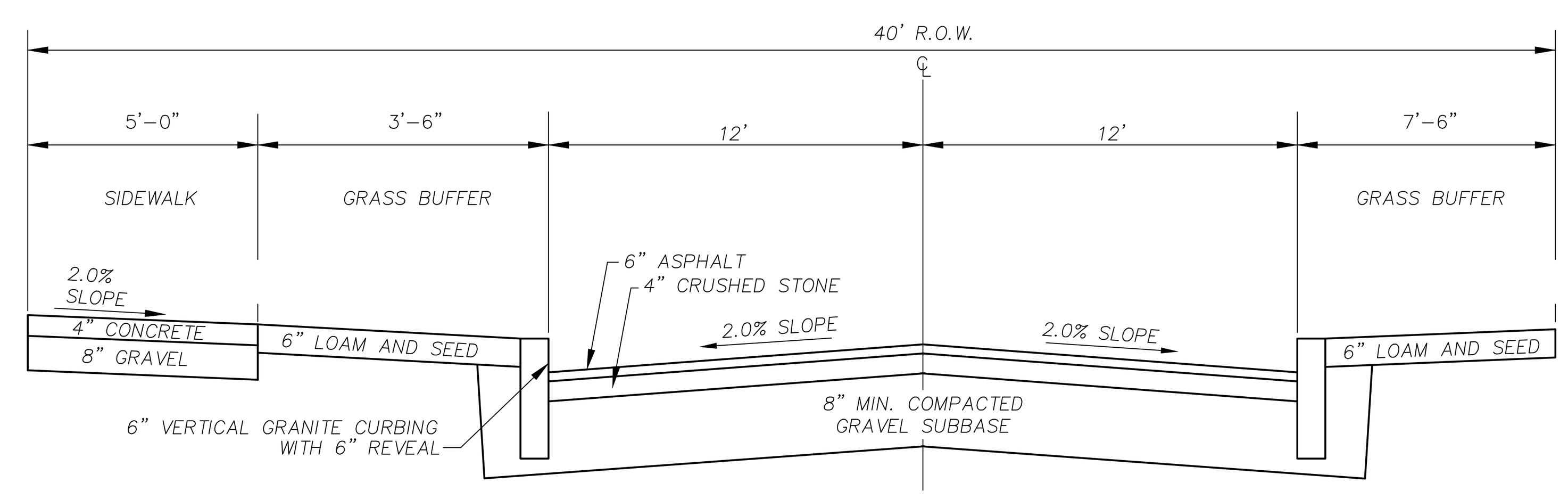
TYPICAL TRENCH SECTIONS
NOT TO SCALE



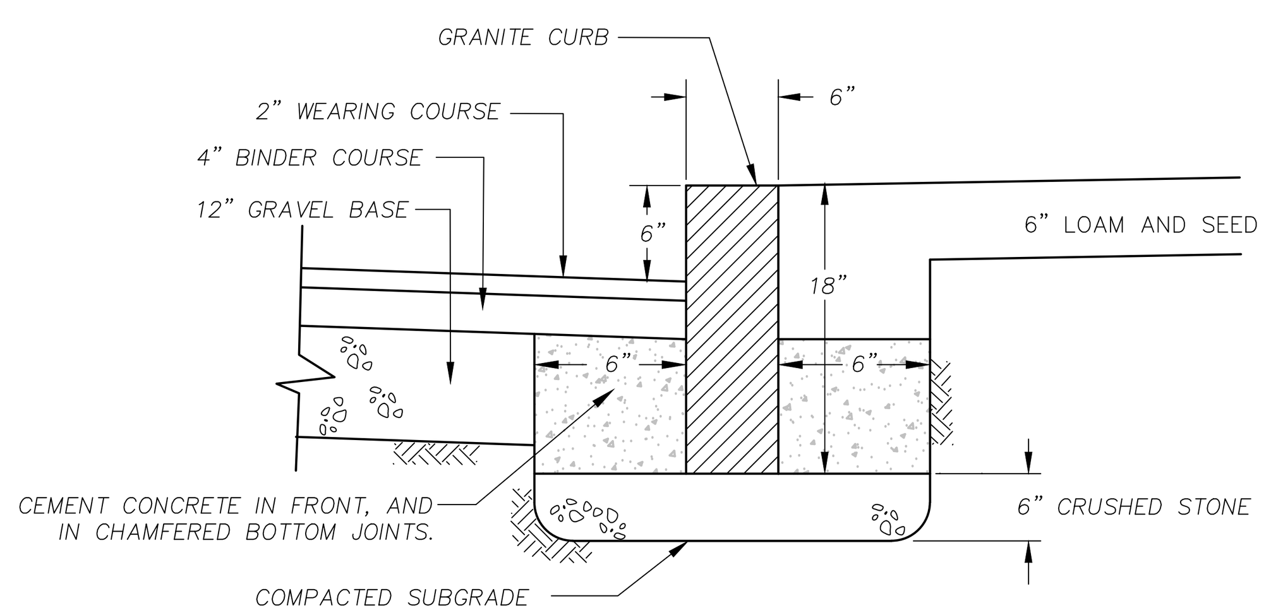
TYPICAL DOGHOUSE SEWER MANHOLE
NOT TO SCALE



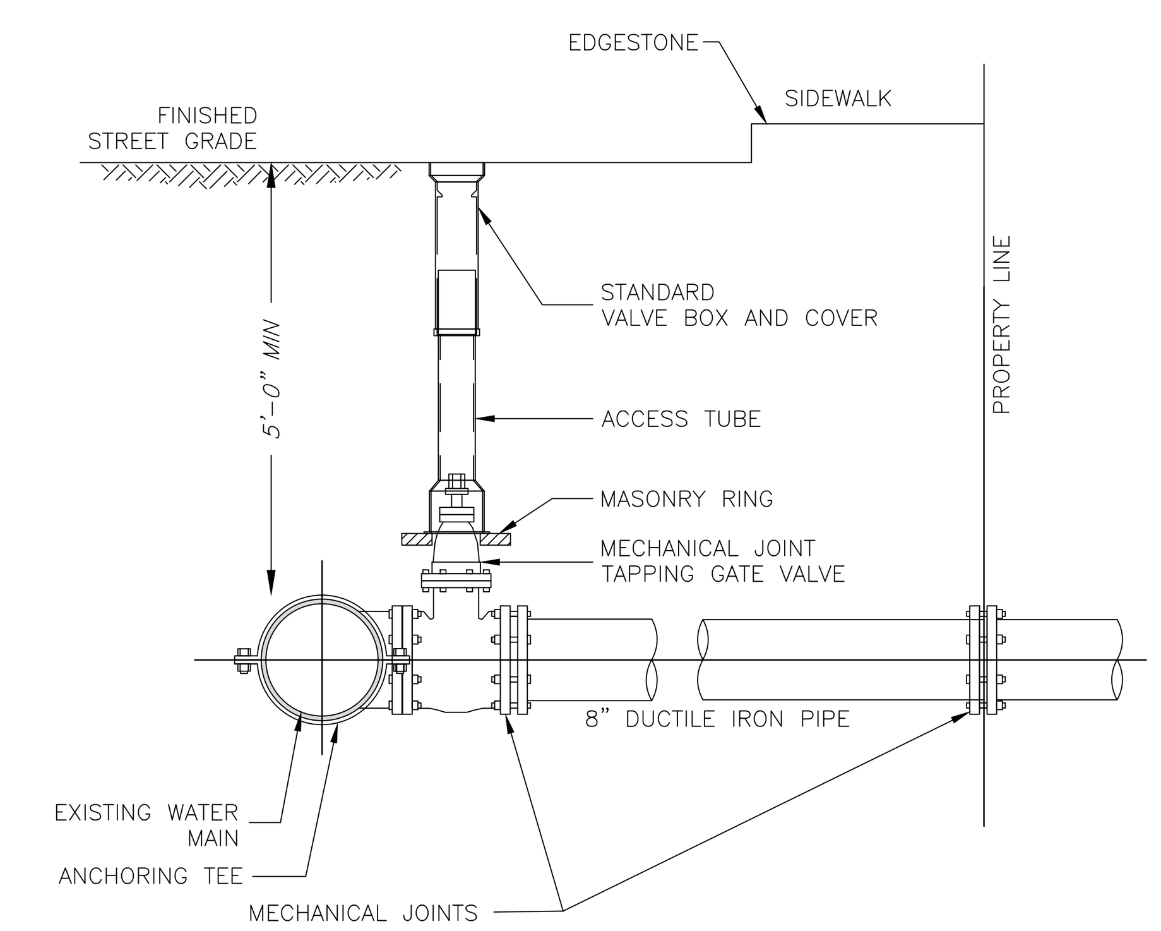
DRIVEWAY DETAIL W/ CURB OPENING
NOT TO SCALE



TYPICAL ROAD CROSS-SECTION
NOT TO SCALE

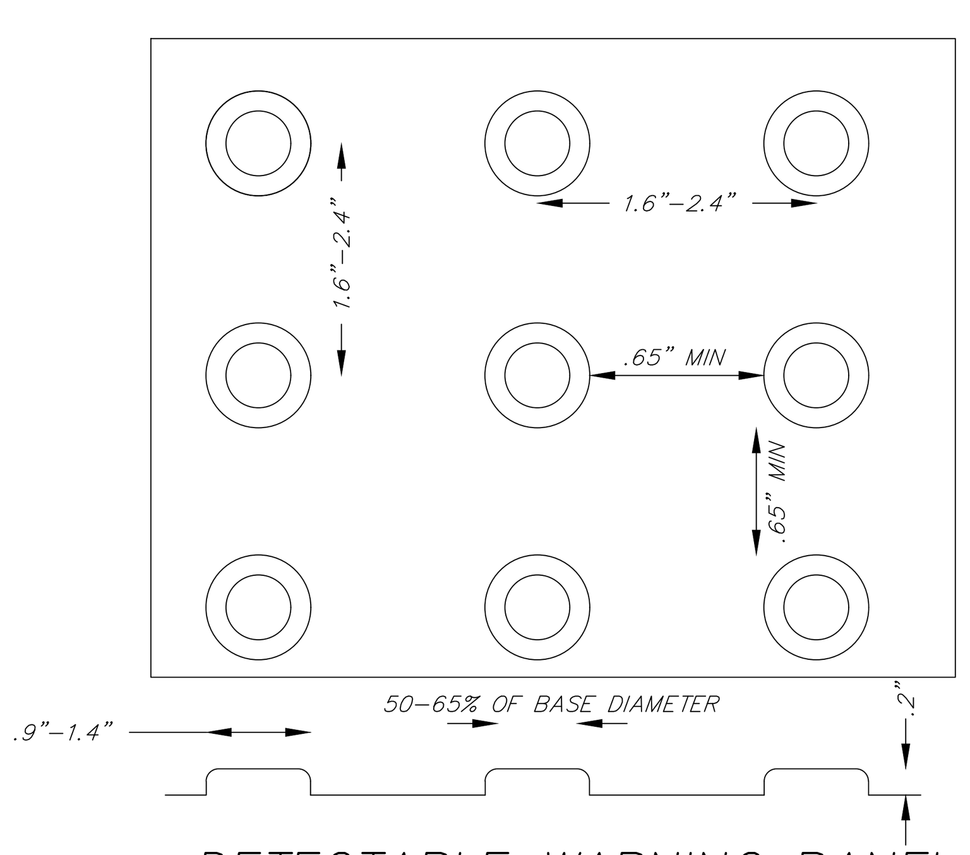


GRANITE CURB
NOT TO SCALE

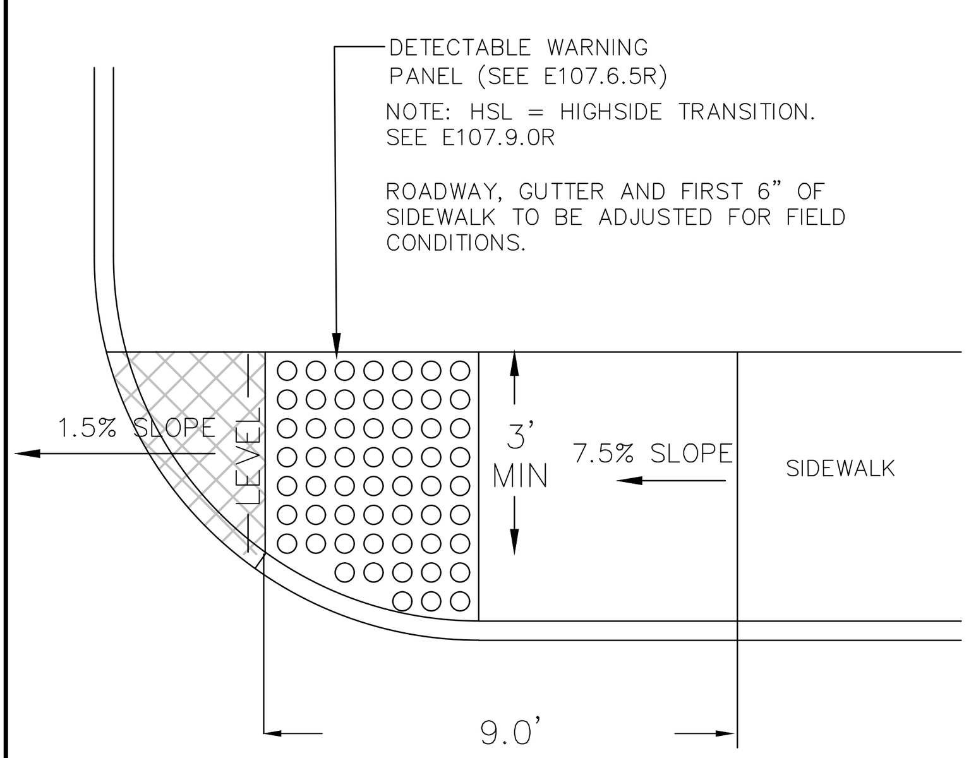


NOTES:
- CONCRETE THRUST BLOCK TO BE USED ONLY WHERE IT WILL BEAR ON UNDISTURBED EARTH.
- USE RESTRAINED JOINT FITTINGS OR TIE RODS WHERE CONCRETE THRUST BLOCK IS UNACCEPTABLE.
- SIZE OF BLOCK OR MEGALUG TO BE DESIGNED FOR SPECIFIC CONDITIONS.

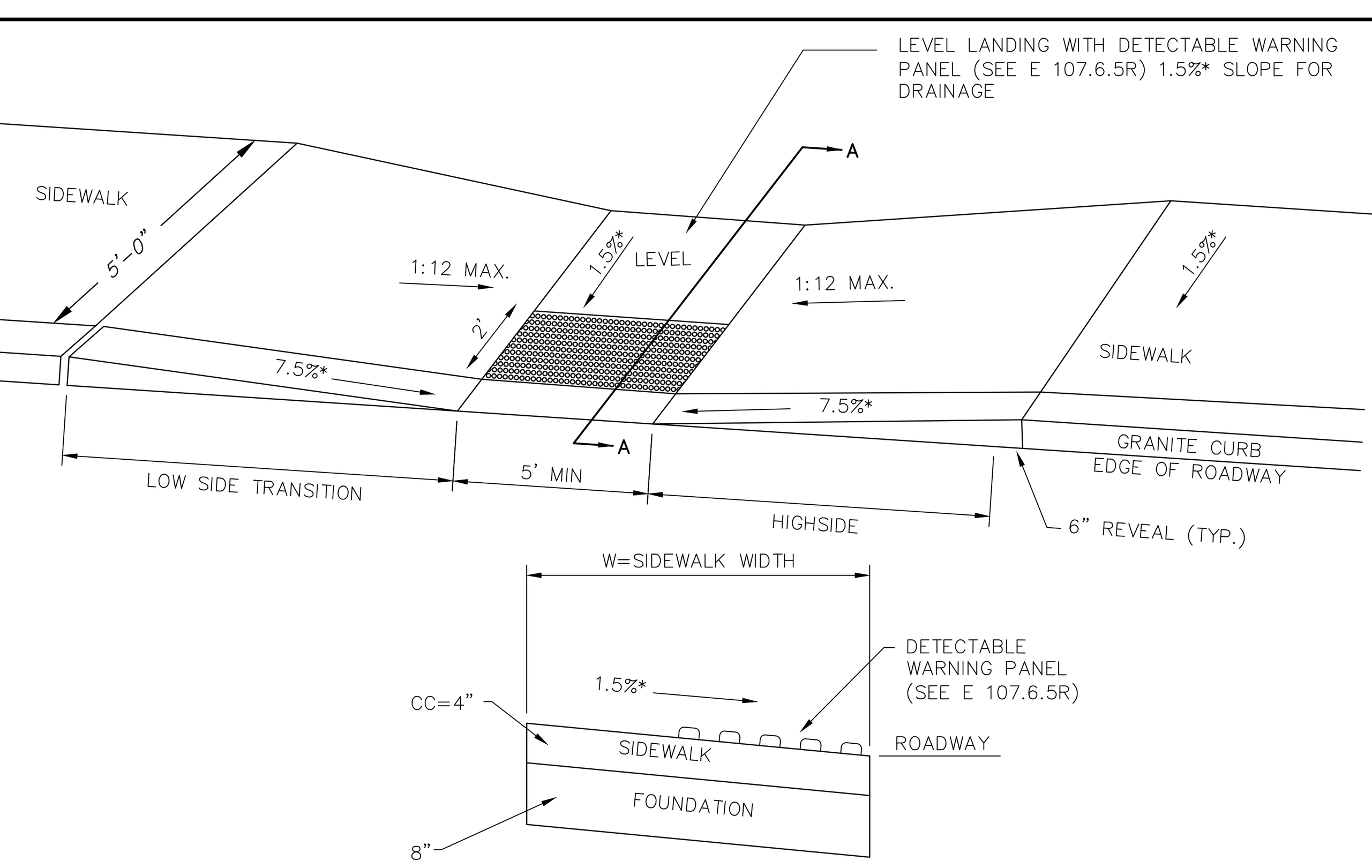
8" WATER MAIN CONNECTION
NOT TO SCALE



DETECTABLE WARNING PANEL
SEE MassDOT (E107.6.5R)
NOT TO SCALE

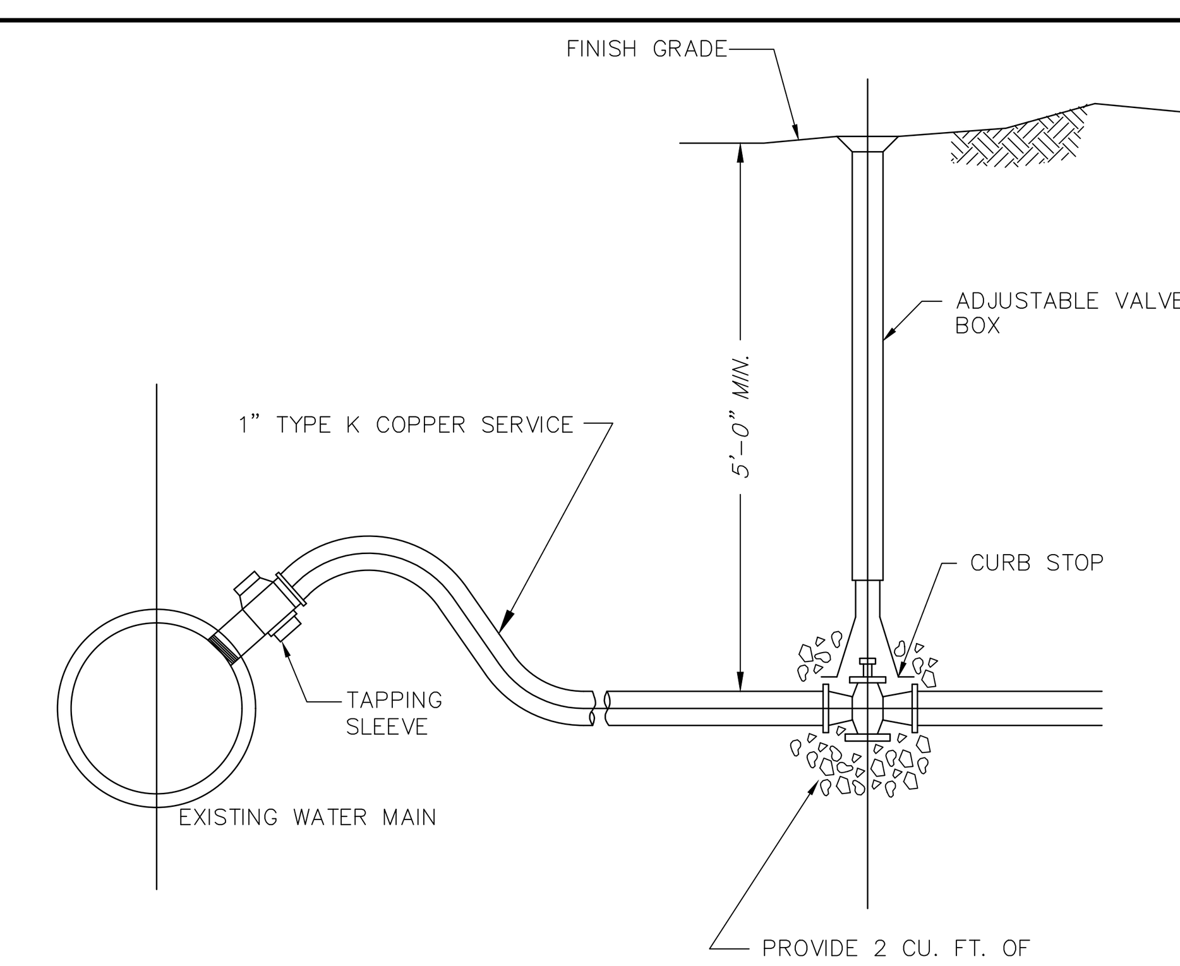


HANDICAP RAMP A DETAIL
NOT TO SCALE



NOTE:
ROADWAY, GUTTER, AND FIRST 6" OF SIDEWALK TO BE ADJUSTED FOR FIELD CONDITIONS.

HANDICAP RAMP B DETAIL
NOT TO SCALE



WATER SERVICE CONNECTION DETAIL
NOT TO SCALE

DeCelle-Burke-Sala
& Associates, Inc.
1266 Furnace Brook Parkway #401
Quincy, MA 02169
617-405-5100 (o) 617-405-5101 (f)
www.decelle-burke-sala.com

JAMES W. BURKE, P.E. DATE

GENERAL NOTES:

1. LOCUS:

ASSESSORS ID: 51-H-8.01
RECORD OWNER: ARSENAULT FAMILY TRUST
DEED REFERENCE: BOOK 14059 PAGE 498
PLAN REFERENCE: PLAN No. 204 of 1997

2. THIS PLAN IS THE RESULT OF AN ON THE GROUND SURVEY PERFORMED BY THIS OFFICE DURING JUNE 2022. ELEVATIONS SHOWN REFER TO NAVD-88.

3. EXISTING UTILITIES WHERE SHOWN IN THE DRAWINGS ARE FROM SURFACE OBSERVATION AND RECORD INFORMATION AND SHOULD BE CONSIDERED APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY LOCATING AND COORDINATING THE PROPOSED CONSTRUCTION ACTIVITY WITH DIG-SAFE AND THE APPLICABLE UTILITY COMPANIES AND MAINTAINING THE EXISTING UTILITY SYSTEM IN SERVICE.

DIG-SAFE SHALL BE NOTIFIED PER THE STATE OF MASSACHUSETTS STATUTE CHAPTER 82, SECTION 40 AT TEL. 1-888-344-7233. THE ENGINEER DOES NOT GUARANTEE THEIR ACCURACY OR THAT ALL UTILITIES AND SUBSURFACE STRUCTURES ARE SHOWN. LOCATIONS AND ELEVATIONS OF UNDERGROUND UTILITIES WERE TAKEN FROM RECORD PLANS. THE CONTRACTOR SHALL VERIFY SIZE, LOCATION, AND INVERTS OF UTILITIES AND STRUCTURES AS REQUIRED PRIOR TO THE START OF CONSTRUCTION.

4. LOCUS IS LOCATED WITHIN A ZONE X, AS DELINEATED ON FIRM 25021C0217E, EFFECTIVE 07/17/2012.

5. PARCEL IS ZONED RSFHD.

PROJECT TITLE & LOCATION:

CLIFTON COURT DEVELOPMENT
DEFINITIVE SUBDIVISION
217 MILL STREET
RANDOLPH, MA

PLAN TITLE:

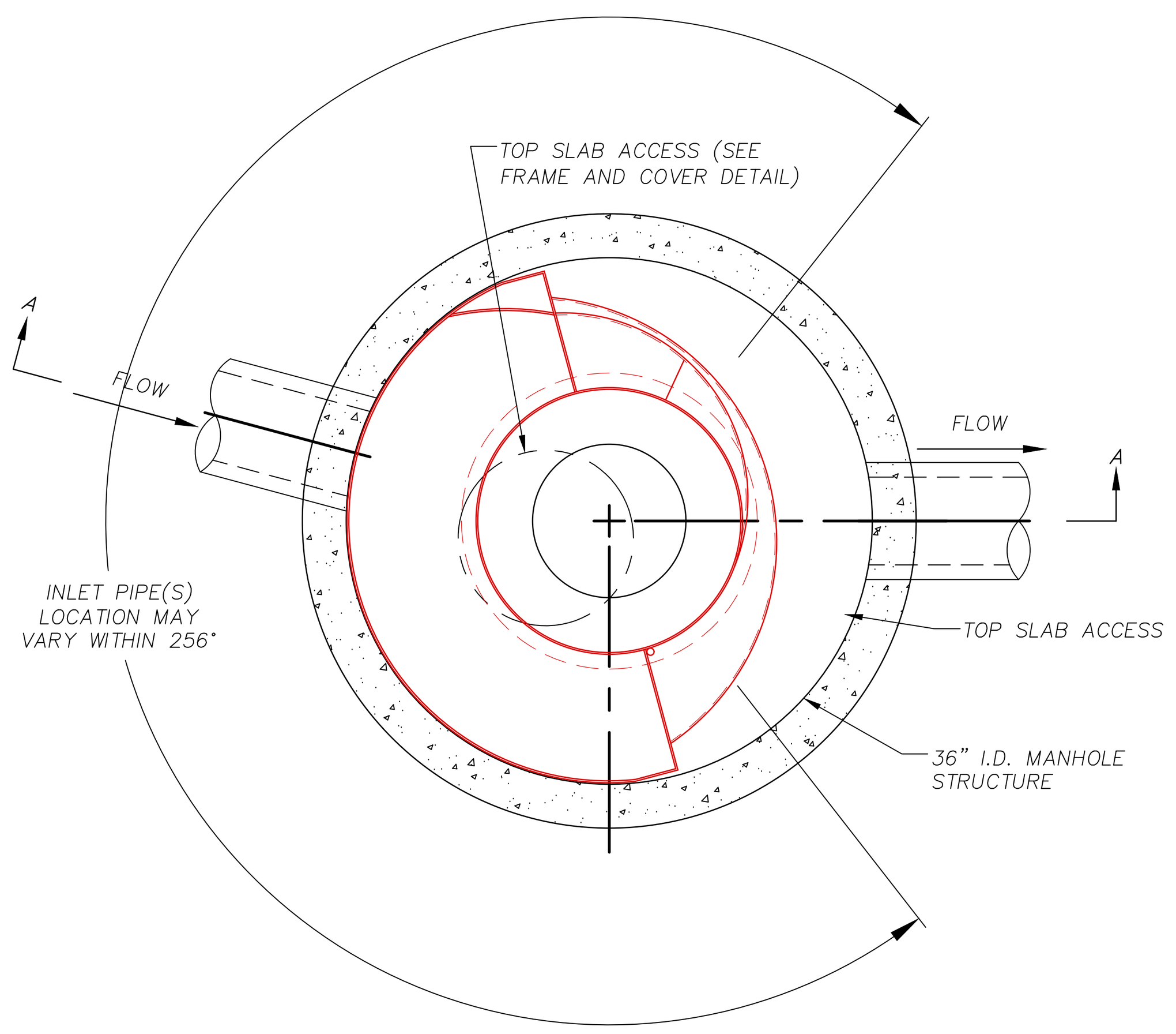
CONSTRUCTION DETAILS

PREPARED FOR:

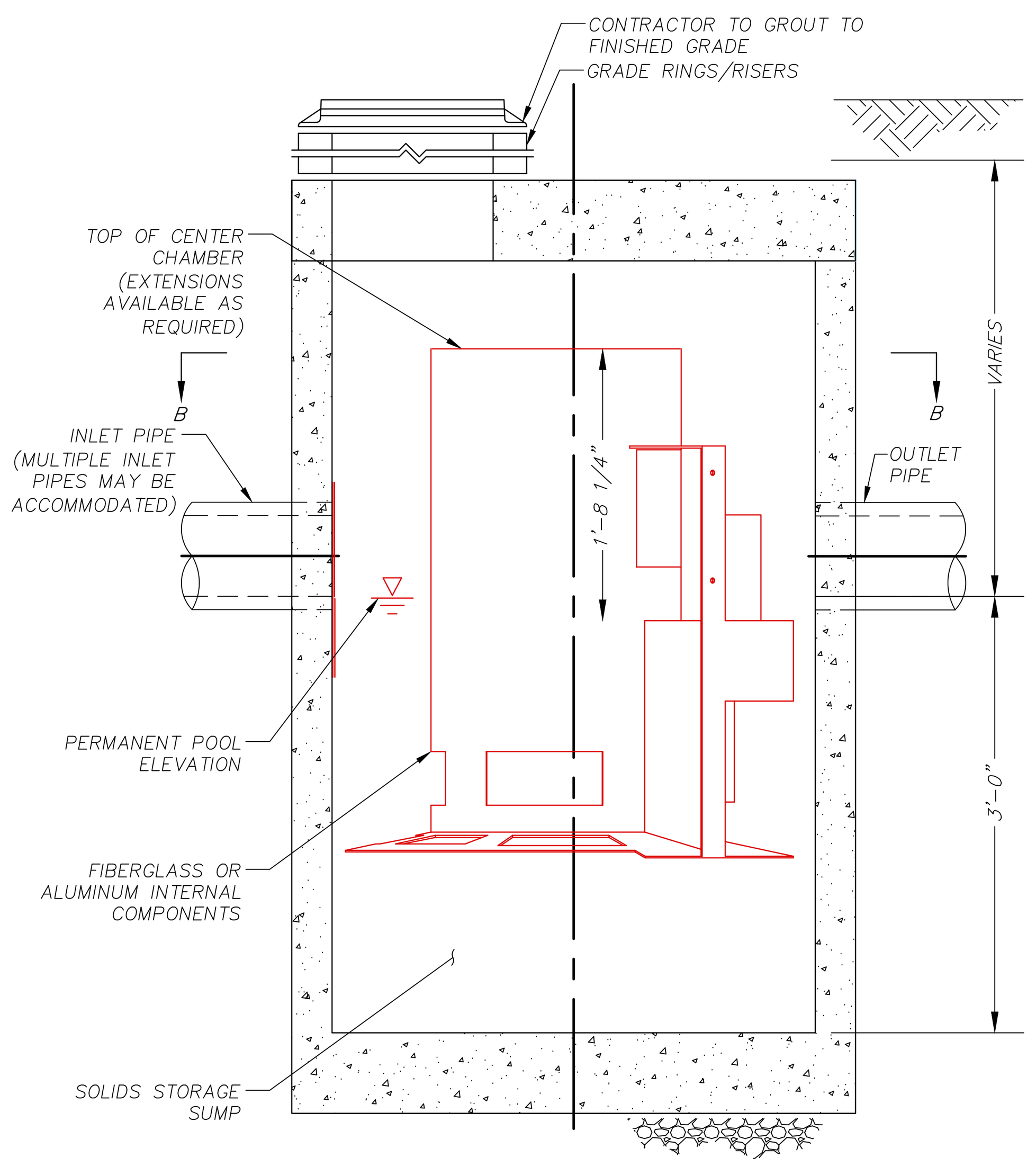
217 MILL ST, LLC
228 PARK AVENUE S, PMB 35567
NEW YORK, NY 89135

DATE: FEBRUARY 6, 2023
REVISED: APRIL 10, 2023
REVISED:
REVISED:
REVISED:

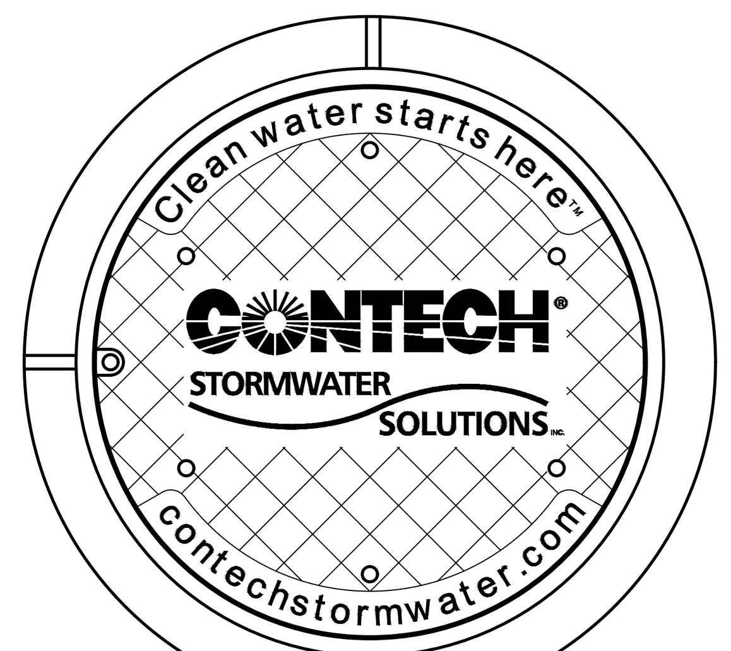
JOB NUMBER: 2022.030 SHEET 10 OF 11



PLAN VIEW B–B
NOT TO SCALE



ELEVATION A–A
NOT TO SCALE



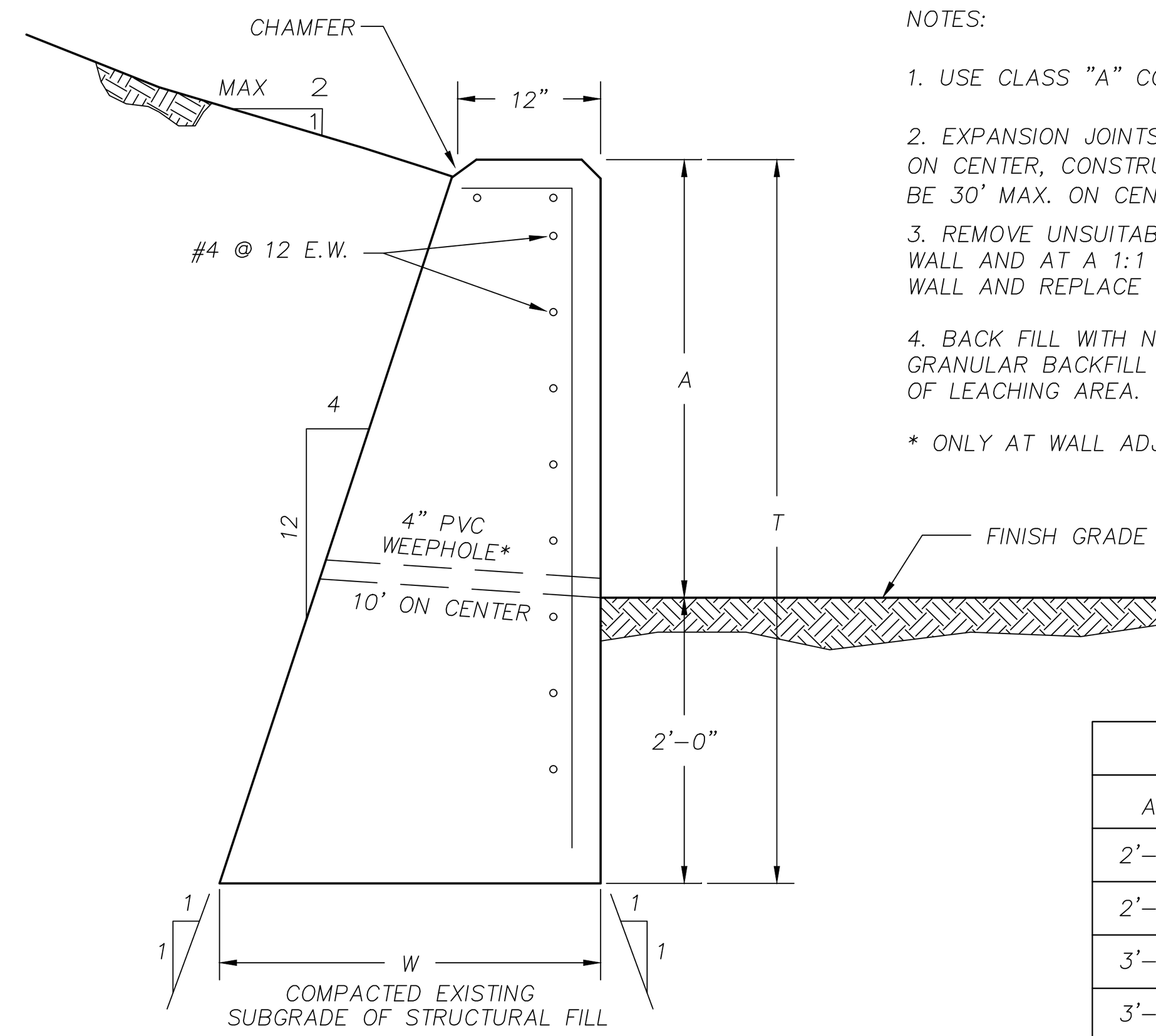
GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CASCADE SEPARATOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. CASCADE SEPARATOR STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0'-2', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CASCADE SEPARATOR MANHOLE STRUCTURE.
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CDS®

THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 5,788,848; 6,641,720; 6,511,595; 6,581,783; RELATED FOREIGN PATENTS, OR OTHER PATENTS PENDING.

CONTECH CS–3 CASCADE SEPARATOR
NOT TO SCALE



NOTES:

1. USE CLASS "A" CONCRETE

2. EXPANSION JOINTS TO BE 90' MAX. ON CENTER, CONSTRUCTION JOINTS TO BE 30' MAX. ON CENTER.

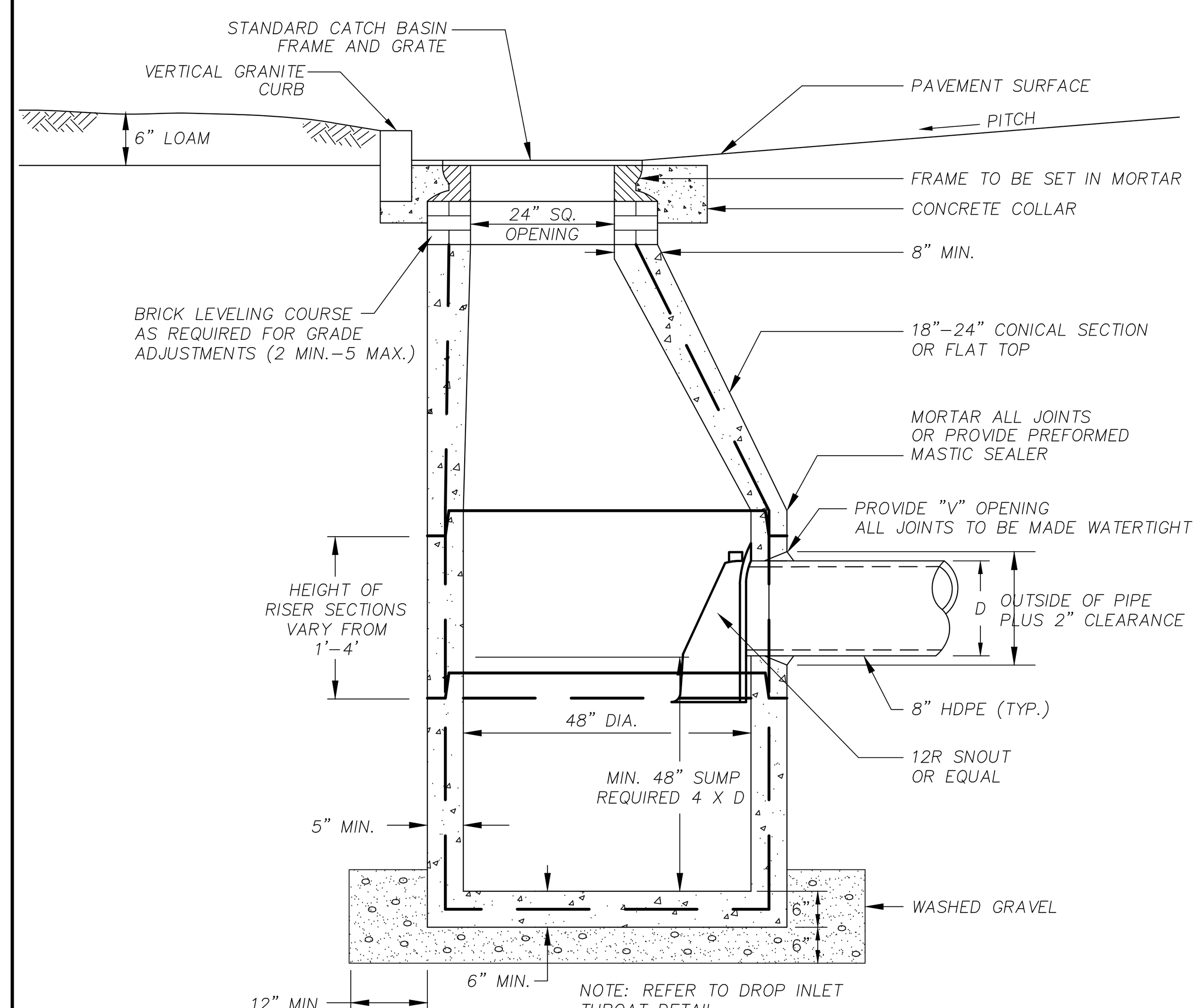
3. REMOVE UNSUITABLE MATERIAL BENEATH WALL AND AT A 1:1 SLOPE. AWAY FROM WALL AND REPLACE WITH STRUCTURAL FILL.

4. BACK FILL WITH NON COHESIVE SOIL. USE GRANULAR BACKFILL FOR RETAINING WALL EAST OF LEACHING AREA.

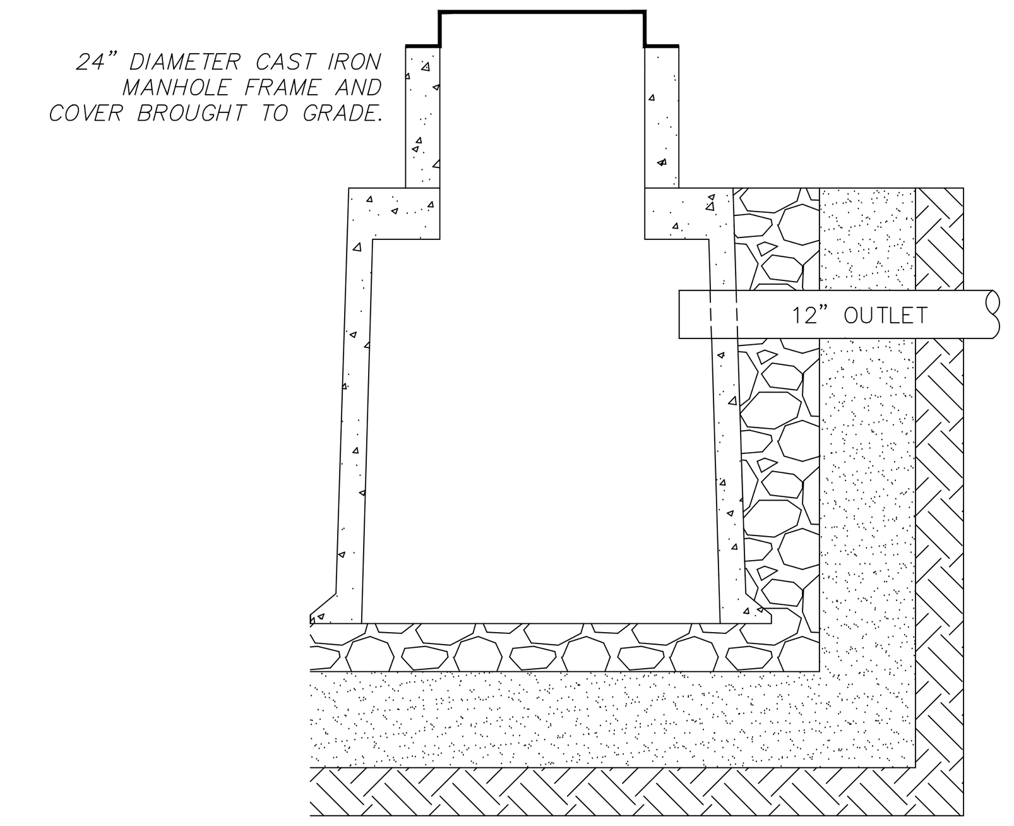
* ONLY AT WALL ADJACENT TO EXISTING POND

HEIGHTS	WIDTH	
A	T	W
2'–0"	4'–0"	2'–4"
2'–6"	4'–6"	2'–6"
3'–0"	5'–0"	2'–8"
3'–6"	5'–6"	2'–10"
4'–0"	6'–0"	3'–0"
4'–6"	6'–6"	3'–2"
5'–0"	7'–0"	3'–4"

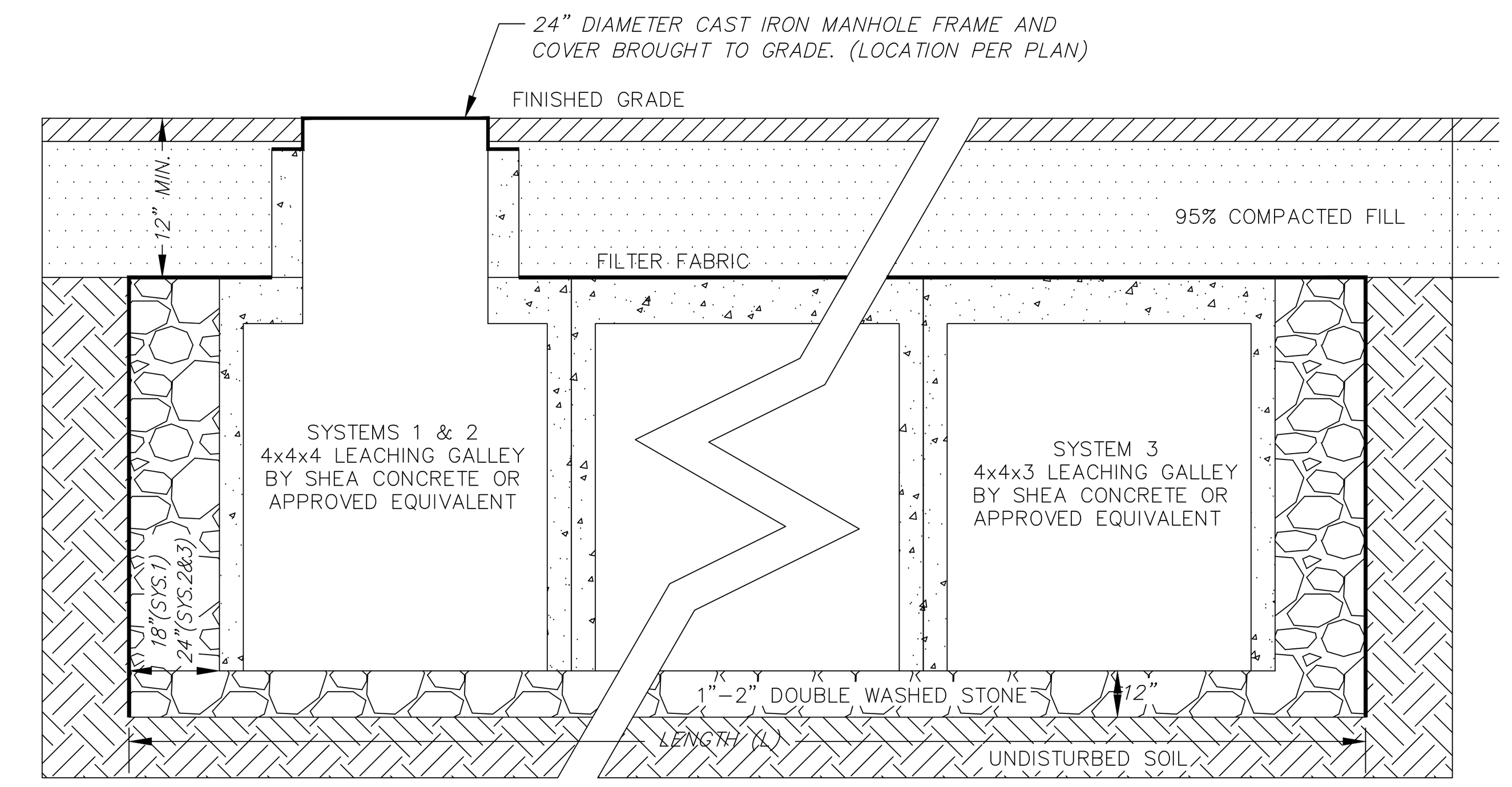
RETAINING WALL
NOT TO SCALE



PRECAST CONCRETE CATCH BASIN
NOT TO SCALE



UNDERGROUND INFILTRATION SYSTEMS 2 & 3 OUTLET DETAIL
NOT TO SCALE



UNDERGROUND INFILTRATION SYSTEMS 1, 2 & 3 PROFILE
NOT TO SCALE

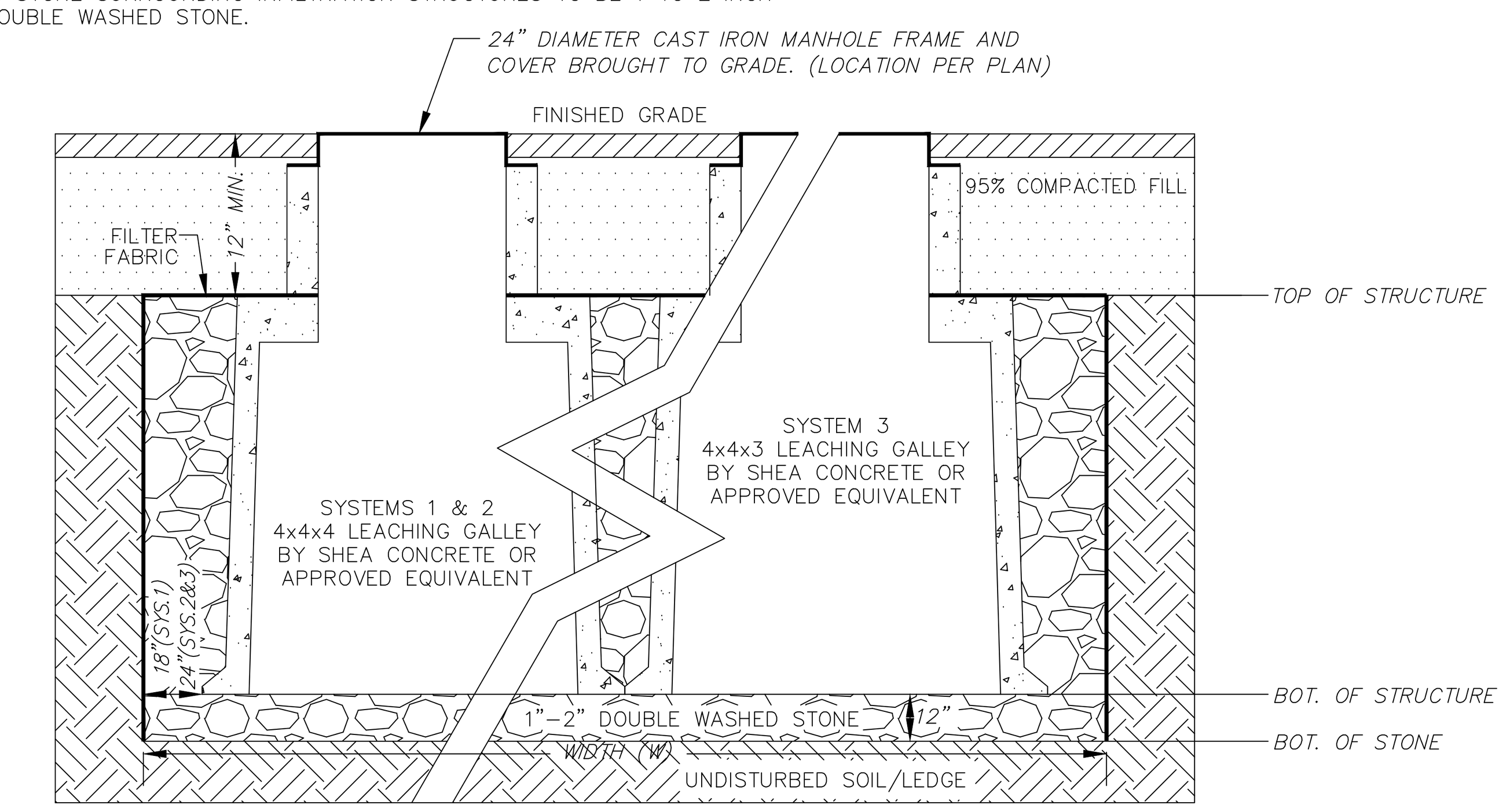
INFILTRATION NOTES:

1. ALL LEDGE AND DELETERIOUS MATERIAL TO BE REMOVED WITHIN A MINIMUM OF 36 INCHES OF THE LIMIT OF STONE FOR THE INFILTRATION SYSTEMS. 36" MINIMUM BETWEEN LEDGE AND DELETERIOUS MATERIAL SHALL BE BACKFILLED WITH CLEAN SAND.

2. STRUCTURES TO BE INSTALLED PER MANUFACTURER SPECIFICATIONS.

3. CONTRACTOR SHALL CONTACT THE DESIGN ENGINEER FOR AN INSPECTION OF THE EXCAVATION FOR THE INFILTRATION SYSTEMS PRIOR TO INSTALLATION.

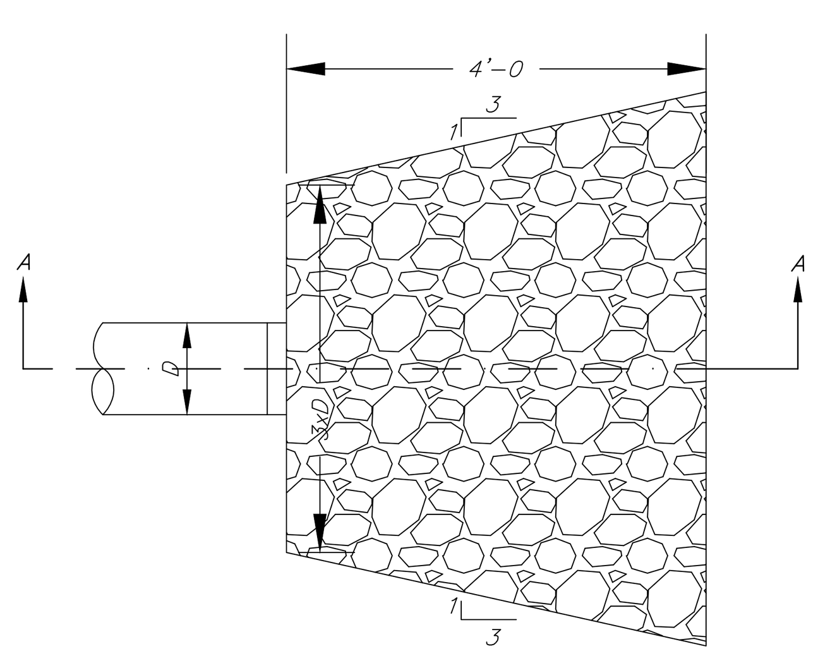
4. STONE SURROUNDING INFILTRATION STRUCTURES TO BE 1 TO 2 INCH DOUBLE WASHED STONE.



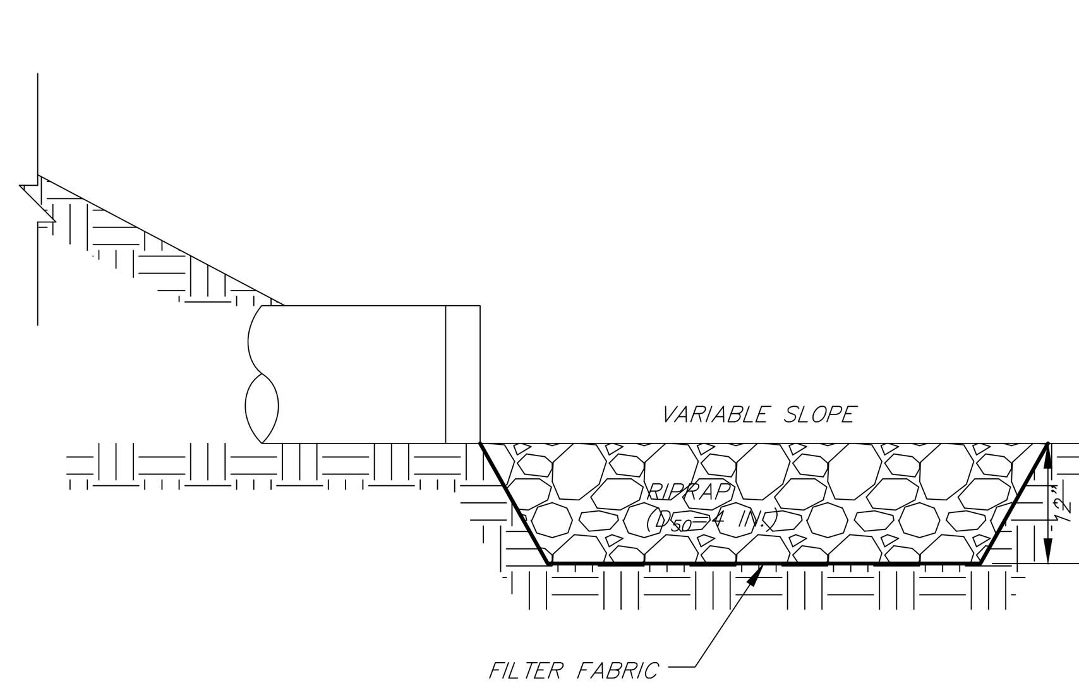
UNDERGROUND INFILTRATION SYSTEMS 1, 2 & 3 SECTION
NOT TO SCALE

	SYSTEM 1	SYSTEM 2	SYSTEM 3
# OF GALLIES	9	12	48
WIDTH OF FIELD (W) (FT.)	7.50'	17.50'	15.76'
LENGTH OF FIELD (L) (FT.)	39.00'	20.00'	68.00'
TOP OF STRUCTURE (ELEVATION)	127.25	134.00	133.50
10" INVERT IN (ELEVATION)	123.34	131.02	131.50
INVERT OUT (ELEVATION)	X	12" HDPE 131.02	10" HDPE 131.50
BOTTOM OF STRUCTURE (ELEVATION)	123.00	129.75	130.00
BOTTOM OF STONE (ELEVATION)	122.00	128.75	129.00

UNDERGROUND INFILTRATION SYSTEMS 1, 2 & 3 DIMENSION SCHEDULE

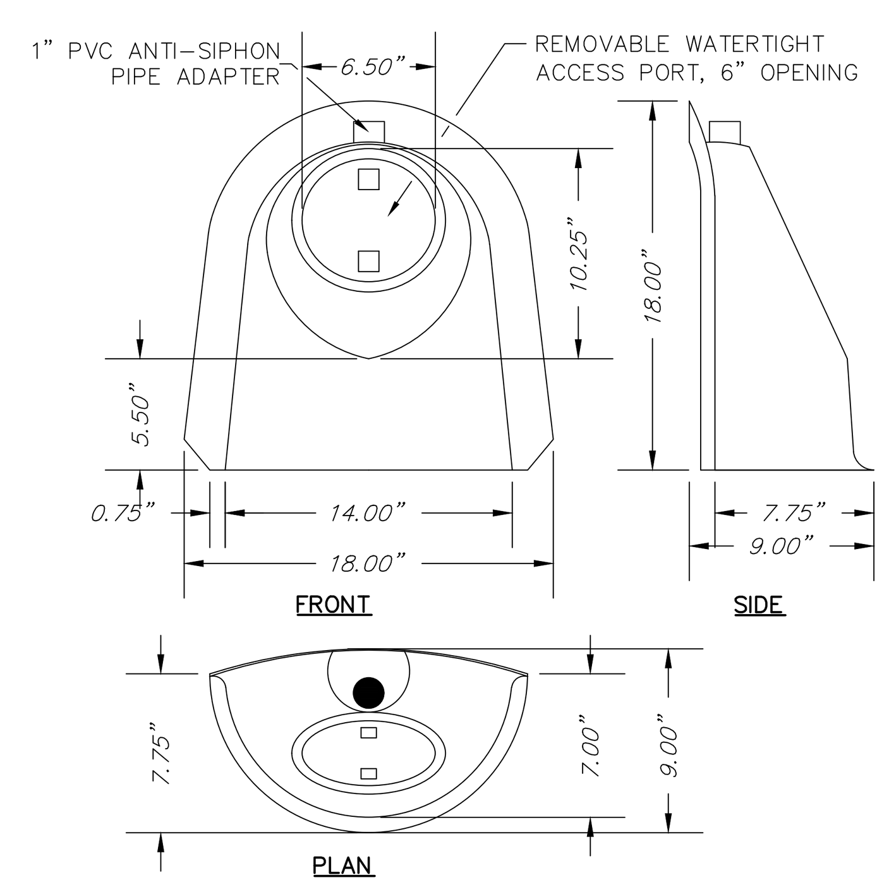


PLAN VIEW



SECTION A–A

RIP–RAP AT OUTLET
NOT TO SCALE



12R SNOUT OUTLET HOOD
NOT TO SCALE

DeCelle-Burke-Sala

& Associates, Inc.
1266 Furnace Brook Parkway #401
Quincy, MA 02169
617-405-5100 (o) 617-405-5101 (f)
www.decelle-burke-sala.com

JAMES W. BURKE, P.E. DATE

GENERAL NOTES:

1. LOCUS:

ASSESSORS ID: 51–H–8.01
RECORD OWNER: ARSENAULT FAMILY TRUST
DEED REFERENCE: BOOK 14059 PAGE 498
PLAN REFERENCE: PLAN No. 204 of 1997

2. THIS PLAN IS THE RESULT OF AN ON THE GROUND SURVEY PERFORMED BY THIS OFFICE DURING JUNE 2022. ELEVATIONS SHOWN REFER TO NAVD–88.

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4. LOCUS IS LOCATED WITHIN A ZONE X, AS DELINEATED ON FIRM 25021C0217E, EFFECTIVE 07/17/2012.

5. PARCEL IS ZONED RSFHD.

PROJECT TITLE & LOCATION:

CLIFTON COURT DEVELOPMENT
DEFINITIVE SUBDIVISION
217 MILL STREET
RANDOLPH, MA

PLAN TITLE:

CONSTRUCTION DETAILS

PREPARED FOR:

217 MILL ST, LLC
228 PARK AVENUE S, PMB 35567
NEW YORK, NY 89135

DATE: FEBRUARY 6, 2023
REVISED: APRIL 10, 2023
REVISED:
REVISED:
REVISED:

JOB NUMBER: 2022.030 SHEET 11 OF 11

6.5-foot storefront window


ZIP System
ZIP System
TAPE

9 feet 3 panel storefront

Matching residential window style

GREENBAUM, NAGEL, FISHER & PALIOTTI, LLP

ATTORNEYS AT LAW

200 HIGH STREET, 5TH FLOOR
BOSTON, MASSACHUSETTS 02110
(617) 423-4300
FACSIMILE (617) 482-5067

STEPHEN A. GREENBAUM
sagreenbaum@greenbaumnagel.com

May 1, 2023

By E-Mail: mtyler@randolph-ma.gov
And First-Class Mail

Town of Randolph
Planning Department
41 South Main Street
Randolph, MA 02368
Attention: Michelle R. Tyler
Director of Planning

Re: Randolph Development, LLC and S & H Hotel Randolph LLC
60 and 64 Mazzeo Drive, Randolph, MA 02368

Dear Ms. Tyler:

As you know this office and the undersigned represent Grow Associates, Inc ("Grow" or my "Client") who are the owners of 68 Mazzeo Drive, Randolph, MA 02368. Grow owns the right of way and easement along Circuit Drive from 68 Mazzeo Drive to Mazzeo Drive (the "Private Way").

I am following up with you regarding S & H Hotel Randolph LLC Randolph which is the owner of 60 and 64 Mazzeo Drive, Randolph, MA 02368; a Holiday Inn Express & Suites and Mexicali Restaurant are operated at those sites. There is an improper curb cut from 60 and 64 Mazzeo Drive onto Circuit Drive. In 2018, when S & H Hotel Randolph LLC filed its Application for Site Plan Tier 2 Review, the Project Narrative from J.K. Holmgren Engineering erroneously represented and stated, "The lot will share driveway access to Circuit Drive and Mazzeo Drive."

My Client is requesting the Planning Board review the permit and plans for 60 and 64 Mazzeo Drive based upon the material misrepresentations made with the application and the basis of the Board's Decision. We will be seeking that the curb cut be closed. I understand this matter was not on the April 25, 2023 Meeting Agenda as the owner of 60 and 64 Mazzeo had been out of the country and was not aware of the meeting. Will this matter be on the Agenda for the next meeting on May 9, 2023 at 6:00 p.m.? Please advise and send me the Zoom link for the meeting when appropriate.

Please let me know if you have any questions or need any additional information. Thank you, in advance, for your attention to this matter.

Sincerely,

Stephen A. Greenbaum

Cc: Client
Christine Griffin, Esquire
By e-mail: cgriffin@randolph-ma.gov

TOWN OF RANDOLPH PLANNING DEPARTMENT

APPLICATION FOR SPECIAL PERMIT OR SITE PLAN & DESIGN REVIEW

Project Type	○ **Tier 1 Review (administrative)** ○ **Tier 2 Review** ○ **Tier 3 Site Plan/Design Review**	○ **In-Law** ○ **Two-Family** ○ **Special Permit**	
Assessor Parcel ID *map-block-parcel*		**Norfolk County Registry of Deeds**	*Book& Page or Land Court Cert #*
Parcel Address			
Current Use			
Zoning District		**Size of Parcel**	
Project Description			
Other permits or approvals may be required	**Are there wetlands on the parcel or within 300 feet of the construction? YES NO**		
	Is land disturbance > 5,000 square feet? YES NO		
	Does the proposed use increase pollutant loads? YES NO		
	Is structure > 100 years old? YES NO		

Applicant Name						
Contact person						
Applicant Status	○ **Owner** ○ **Tenant** ○ **Licensee** ○ **Buyer** ○ **Other**_____					
Address						
	CITY		**STATE**		**ZIP**	
Phone		**Email**				

If property owner is not the Applicant, authorization from the owner is required

Surveyor						
Contact person						
Address						
	CITY		**STATE**		**ZIP**	
Phone		**Email**				

Engineer						
Contact person						
Address						
	CITY		**STATE**		**ZIP**	
Phone		**Email**				

Property Owner						
Address						
	CITY		**STATE**		**ZIP**	
Phone		**Email**				

For any application for a **Special Permit**, the applicant shall submit additional documentation to support:

- That the proposed use is in harmony with the general purpose and intent of the Town's ordinances;
- That the proposed use is in an appropriate location and is not detrimental to the neighborhood and does not significantly alter the character of the zoning district;
- Adequate and appropriate facilities will be provided for the proper operation of the proposed use;
- That the proposed use would not be detrimental or offensive to the adjoining zoning districts and neighboring properties due to the effects of lighting, odors, smoke, noise, sewage, refuse materials or other visual nuisances;
- That the proposed use would not cause undue traffic congestion in the immediate area.

I hereby certify, under the pains and penalties of perjury, that the information contained in this application is true, accurate and complete to the best of my knowledge and belief. I agree to abide by the Randolph Zoning Ordinances and complete construction of the project in accordance with said rules and any conditions of the Planning Board.

Applicant Signature

Date

Construction

Stormwater Pollution Prevention Guide

Maintain your BMPs!

Polluted stormwater runoff is a major cause of water pollution. Be sure to follow best practices and local bylaws to reduce your impact on streams and ponds.

Be a Responsible Contractor

Review the Best Management Practice tips inside this brochure and be sure to ask your local Conservation Commission or engineering department for advice on local rules and technical assistance.

Get Your Permit

All construction sites in MA that disturb an acre or more of earth must apply for a "Construction General Permit" from the US EPA.

Local rules vary from community to community, but many communities in our area require a town stormwater permit when you disturb as little as 2,500 square feet of earth.

Get information about the EPA Construction General Permit and application process at **YourCleanWater.org**

Don't Get Sued!

Cities and towns actively monitor for violations and can take enforcement action, shutdown projects, and levy fines.

In many cases, third party lawyers and environmental groups can also sue contractors who don't comply with construction stormwater permits. When they do, contractors pay the other side's legal costs, plus penalties, plus the cost to correct problems.

Stormwater Runoff from Construction Can Be a Big Problem

There are many construction activities that contribute to soil erosion and water pollution.

Rain that falls on construction sites with disturbed soils can wash off into wetlands, streams, or onto paved surfaces that drain to waterways.

Protect Your Business, Your Clients and Your Reputation

In order to prevent serious environmental issues and the consequences that follow, it's essential to install and maintain construction site stormwater Best Management Practices (BMPs) properly.

The installation of properly situated stormwater BMPs means that you will avoid fines and work stoppages, protect the waterways your community depends on—and earn a well-deserved reputation.

For more information, visit

YourCleanWater.org

neponset stormwater partnership

Content provided by the Neponset River Wate Association (NepRWA) on behalf of the Neponset Stormwater Partnership. Learn more about NepRWA at neponset.org

Stormwater and Construction Industry BMPs

Protect Natural Features

- Minimize clearing.
- Minimize the amount of exposed soil.
- Identify and protect areas where existing vegetation, such as trees, will not be disturbed by construction activity.
- Protect streams, stream buffers, wild woodlands, wetlands, or other sensitive areas from any disturbance or construction activity by fencing or otherwise clearly marking these areas.

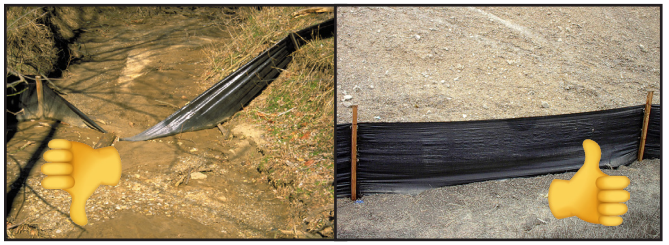
Construction Entrances

- Remove mud and dirt from the tires of construction vehicles before they enter a paved roadway.
- Properly size entrance BMPs for all anticipated vehicles.
- Make sure that the construction entrance does not become buried in soil.

Construction Phasing

- Sequence construction activities so that the soil is not exposed for long periods of time.
- Schedule or limit grading to small areas.
- Install key sediment control practices before site grading begins.
- Schedule site stabilization, such as landscaping, to be completed immediately after the land has been graded to its final contour.

Silt Fencing



- Install silt fence properly! Make sure the bottom 6” of fabric is buried in the ground, not just tucked under the hay bale.
- Inspect and maintain silt fences after each rainstorm.
- Securely attach the material to the stakes.
- Don’t place silt fences in the middle of a waterway or use them as a check dam.
- Make sure stormwater is not flowing around the silt fence.

Site Stabilization

- Vegetate, mulch, hydroseed, install erosion control blankets, or otherwise stabilize all exposed areas as soon as land alterations have been completed.

Slopes

- Rough grade or terrace slopes.
- Break up long slopes with sediment barriers, or under drain, or divert stormwater away from slopes.

Dirt Stockpiles

- Cover or hydroseed all dirt stockpiles immediately.

Vegetative Buffers

- Protect or install vegetative buffers along waterbodies to slow and filter stormwater runoff.
- Maintain buffers by mowing or replanting periodically to ensure their effectiveness.

Storm Drain Inlet Protection

- Use rock or other appropriate material to cover the storm drain inlet to filter out trash and debris.
- Make sure the rock size is appropriate (usually 1-2” i er).
- If you use inlet filters or silt sacks, maintain them ly.