



**Meeting of the Mashpee Planning Board
Wednesday, April 6, 2022
Waquoit Meeting Room
Mashpee Town Hall
16 Great Neck Road North
Mashpee, MA 02649
7:00 PM**

Broadcast Live on Local Channel 18

Streamed Live on the Town of Mashpee Website: <https://www.mashpeema.gov/channel-18>

Call Meeting to Order

- Pledge of Allegiance

Approval of Minutes

- Review of Meeting Minutes from March 16, 2022

Public Discussion

Public Hearings

7:10 PM :

Applicant: Michael and Lisa Cannata, owners of Wildfire Pizzeria
Location: 2B Center Street (Map 36, Parcel 47)
Request: The applicant requests a modification of an approved special permit at 2B Center Street, Mashpee, MA 02649 owned by William Lovely. The subject lot is located in the C-2 Commercial Zoning, Mashpee Center Overlay District, and the Groundwater Protection District. The request is to modify the special permit to increase the number of allowed seats to 35, from 12, with some outdoor seating. This application is made pursuant to Mashpee Zoning Bylaw Sections 174-25 (E) (2), 174-25 (I) (10) and 174-24 (C) (9).

7:20 PM:

Applicant: Marcello Mallegni, Forestdale Road, LLC
Location: 523 Main Street (Map 26, Block 6)
Request: The applicant requests consideration for approval of a 9 lot definitive subdivision plan of land consisting of approximately 18.05 acres located on Main Street (Route 130) between Nicoletta's Way and Echo Road

7:30 PM:

To review and make recommendations regarding the following zoning articles proposed for action at the May 2, 2022 Town Meeting:

- **Warrant Article 29:** To amend §174-3 Terms Defined (proposed solar overlay)
- **Warrant Article 30:** To amend §174-4, Enumeration of Districts (proposed solar overlay).
- **Warrant Article: 31:** To amend §174-5, Establishment of Zoning Map by adding §174-5 (H) (proposed solar overlay)



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- **Warrant Article 32:** To amend §174-25 (H)(12) of the Mashpee Zoning By Law. (proposed solar overlay)
- **Warrant Article 33:** To amend §174-31 Land Space Requirements Table by adding new special footnote to exempt solar canopies in parking areas from lot coverage
- **Warrant Article 34:** To add new section 174-45.7: Solar Energy Systems to the Mashpee Zoning Bylaws (proposed solar overlay)
- **Warrant Article 35:** To add new subsection F: Open Space Requirement to the proposed performance standards of the proposed Section 174-45.7: Solar Energy Systems Overlay District (proposed solar overlay).

New Business

- LCP Update from Weston & Sampson
- Review plan entitled, "Oldham Circle, Road Taking Plan prepared by Cape and Islands Engineering and make recommendation to Town Meeting relative to acceptance of Oldham Circle layout as a public way.

Chairman's Report

Town Planner Report

- LCP Existing Conditions Chapters and stakeholder meetings
- Update on Popponessett Overlay District
- Floodplain Bylaw amendments
- Cottage Court Zoning

Board Member Committee Reports

- Cape Cod Commission, Community Preservation Committee, Design Review, Plan Review, Environmental Oversight Committee, Historic District Commission, Military Civilian Advisory Council.

Correspondence

- Town of Falmouth Notices
- Town of Sandwich Notices
- Town of Barnstable Notices
- Chapter 91 Waterways Notification – 53 Godfrey Road
- Chapter 91 Waterways Notification – 140 Popponessett Island Road
- Chapter 91 Waterways Notification – 38 Quail Hollow Road
- February 2022 Discharge Monitoring Report for South Cape Village – N=3.6
- January 2022 Discharge Monitoring Report for South Cape Village – N=2.1

Additional Topics (not reasonably anticipated by Chair)

Adjournment



Town of Mashpee

Planning Board

16 Great Neck Road North
Mashpee, Massachusetts 02649

APPLICATION FOR SPECIAL PERMIT MODIFICATION

Date received by Town Clerk: 2-14-22 Town Clerk Signature / Seal: [Signature]

The undersigned hereby applies for a Modification of the Special Permit approved by the Mashpee Planning Board on APR 20 2005 for a project entitled

MAIN ST VILLAGE. SM REALTY TRUST

The original Special Permit and any Modifications have been recorded in the Barnstable County Registry of Deeds at the following Book(s) and Page(s):

Name of Applicant MICHAEL & LISA CANNATA Phone 714-353-7129

Address 132 GREAT HILL RD SANDWICH MA 02563

Owner, if different BILL & AMANDA LOVELY Phone 919-525-5316

Address 45 FROG POND CLOSE MASHPEE MA

Attach copies of (a) most recent recorded deed and (b) tax bill or Assessors' certification.

Deed of property recorded in Barnstable County Registry Book _____ Page _____
or Land Court Certificate of Title No. _____

Location and description of property: COMMERCIAL BUILDING 2B CENTER ST
MASHPEE MA

Mashpee Assessors Map(s) and Block(s): _____

Zoning District(s) in which property is located: HISTORIC C2-COMMERCIAL
MASHPEE CENTER OVERLAY AND GROUNDWATER PROTECTION

How long have you owned the property? _____

Section(s) of the Zoning Bylaw which require(s) the permit you seek: VI SECTION 174-24.C

Present use of property: DANCE STUDIO

Description of proposed modification (attach plans and documents as required by the Zoning By-law and Special Permit Regulations):

BUILDING WAS ORIGINALLY DESIGNED AND PERMITTED FOR USE AS A RESTAURANT WITH
12-15 SEAT CAPACITY. PROPOSE TO RETURN TO ORINAL PERMITE USE FOR A FAMILY OWNED
PIZZERIA ADDING ADDITIONAL SEATING FOR MAX INDOOR OF 30 SEATS

Signature of Owner or Authorized Representative [Signature]

Attach written authorization signed by owner.



Town of Mashpee

16 Great Neck Road North
Mashpee, Massachusetts 02649

Mashpee Planning Board Public Hearing Notice

Pursuant to Massachusetts General Laws, Chapter 40A Section 9, the Mashpee Planning Board will hold a public hearing on Wednesday, April 6, 2022 at 7:10 PM in the Waquoit Meeting Room at the Mashpee Town Hall, 16 Great Neck Road North, to consider an application made by Michael and Lisa Cannata, owners of Wildfire Pizzeria, requesting a modification of an approved special permit at 2B Center Street, Mashpee, MA 02649 owned by William Lovely. The subject lot is located in the C-2 Commercial Zoning, Mashpee Center Overlay District, and Groundwater Protection District. Food Establishments up to 12 seats are already an allowed use on the site pursuant to the existing special on record. The request is to modify the special permit to increase the number of seats to 35 with some outdoor seating. This application is made pursuant to Mashpee Zoning Bylaw Sections 174-25 (E)(2), 174-25(I)(10), 174-24(C)(9).

Submitted by:

John Fulone, Chair
Mashpee Planning Board

Publication dates: Friday, March 11, 2022
 Friday, March 18, 2022

MASHPEE TOWN CLERK

MAR 09 2022

RECEIVED BY: SM

Wildfire Brick Oven Pizza

February 7, 2022

Michael and Lisa Cannata
Wildfire Brick Oven Pizza

We are the owners of Wildfire Brick Oven Pizza and have been in business for six years at 414 Nathan Mashpee until we were recently abruptly told that our lease would not be renewed. We were given 6 weeks notice by Garrets Family Market to move out. That operation was limited to 12 seats which is a very small capacity and was primarily take out operation.

A current option before us is to move to #2 Center Street.

Our needs for this building are as follows:

A modification of the special permit at the Center Street unit 2B location to return it to one of its original intended use options as an "eatery" from its current use as a dance studio. Also needed is expansion of seating capacity to include outside seating and issuance of a beer and wine license.

The original special permit use delineated in findings/conditions 13 of the April 2005 decision states approval for building use as "eating place serving food and beverage to be consumed within the building."

The subsequent condition 14 also states that "occupancy by a restaurant having more than 12 seats shall require modification of the Special Permit by the Planning Board." As such we respectfully request that the seating limit be increased to 30 and include outside seating. We feel that the impact on traffic or public surroundings from such an increase would be minimal and its necessary for us to grow the business in this location.

Our food deliveries are not on any large scale. Once a week from Sysco on Tuesdays mornings (times may vary), twice a week from Original Pizza on Tuesdays and Fridays and lastly Guaranteed Fresh Tuesday - Saturday (times vary). We are not open on Sundays or Mondays.

Peak hours for customers are typically between 11:30AM and 1:00PM and again 4:00PM - 7:30 PM. We have no plans to stay open later than 9:30 PM during summer hours and winter hours we are normally closed by 8:00PM.

We also respectfully request a waiver for the number of filing requirements and fees in the Planning Board' s Special Permit regulations regulations section IV: Form and Content of Applications subsections 3-21. Further we also request a waiver of the \$5,000 peer review fee and that we submit only the minimum filing fee and advertising fee of \$530.00

Sincerely yours,

Michael And Lisa Cannata

Wildfire Brick Oven Pizza

February 21, 2022

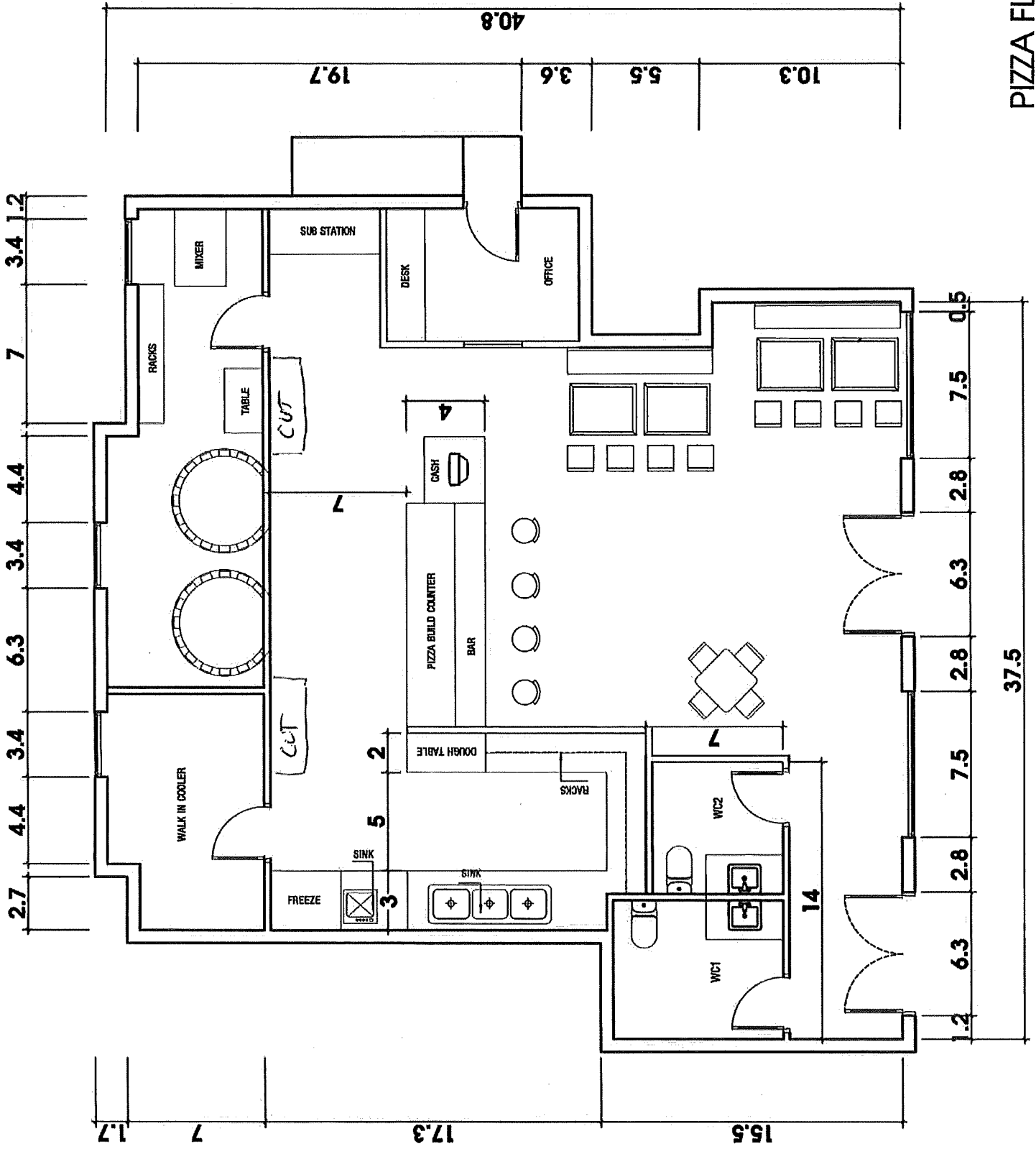
Michael and Lisa Cannata
Wildfire Brick Oven Pizza

After a careful review with the health department we have found that the septic design located at the Center street building is sustainable for up to 37 seats for restaurant use. We humbly request that 5 more seats be added to our initial request of 30 for a total of 35 seats.

Respectfully

A handwritten signature in black ink, appearing to read "Michael and Lisa Cannata". The signature is written in a cursive, flowing style.

Michael and Lisa Cannata



PIZZA FLOOR PLAN

For the small outdoor seating area during the warmer months we are proposing to use a screening hedge that will look something like this.





Town of Mashpee

16 Great Neck Road North
Mashpee, Massachusetts 02649

Special Permit Decision

**SM Realty Trust
Main Street Village**

I. Proposal.

This decision concerns the application of SM Realty Trust, P.O. Box 753, Osterville, MA 02655 (the "Applicant") for approval of a commercial center consisting of two buildings totaling 9968 sq. ft. on 1.92 acres located at 334 Main St (corner of Route 130 and new "Center Street" under construction. The property is identified on the Mashpee Assessors Maps as Map 36, Block 47, however, the lot is actually a portion of that parcel which was created as a remainder as part of a residential subdivision for which a Comprehensive Permit was approved by the Mashpee Board of Appeals under MGL Chapter 40B. The Application Indicated the owner of the property as Southside Realty Trust, at the same address as SM Realty Trust and specified that the application was made pursuant to Sections 174-24(C)(1) et seq., 174-25(D)(1) (Business, financial, professional or governmental offices, but no retail business, no manufacturing and no processing), 174-25(D)(2) (Offices and clinics for medical, psychiatric or other health services for the examination or treatment of persons as out-patients, including laboratories that are part of such offices or clinics), 174-25(E)(1) (Store for retail sale of merchandise, provided that all display, storage and sales of materials are conducted within a building and there is no manufacturing or assembly on the premises), 174-25(E)(2) (Eating places serving food and beverages to be consumed within the building), 174-25(E)(4) (Service business serving local needs, such as barbershops, beauty shops, shoe repair, self-service laundry or dry cleaning or pickup agency), 174-25(E)(12) (Retail establishments which will not generate greater than 300 peak daily trips per acre of total site area, per day, (When considered in combination with all other uses on the property) bases on trip generation rates published by the Institute of Transportation Engineers or other evidence determined to be conclusive by the Planning Board) and 174-25(I)(10) (Outdoor dining shall be allowed in commercial districts as an accessory use to an allowed eating place serving food and beverage, provided that visual screening shall be required in any area abutting a residential zone. Such screening shall consist of a solid fence, wall or mature hedge or other screen type planting of such height as to screen any diners from view from the said residential zone).

II. Jurisdiction.

The application was made and this decision is issued by the Mashpee Planning Board pursuant to Article VI, Section 174-24.C. of the Mashpee Zoning Bylaws as they existed on April 20, 2005, the date on which the special permit application was approved by the Mashpee Planning Board. Where reference is made herein to the Mashpee Zoning Bylaw, it shall refer to the provisions thereof as they existed on said date. The project is located in the C-2 Commercial zoning district and within the Mashpee Center Overlay District and a Groundwater Protection District. The land shown on our approved plan to follow as

SUBJECT TO PRIOR
REGISTRATION OF A
COURT ORDER DATED

OCT 21 2005

October 13, 2005

Plan 36192C Lots 10 thru 23
(EXAMINED AS DESCRIPTION ONLY)
George T. Capellanis, Engineer

PROPERTY ADDRESS: MAIN ST., MASHPEE, MA
Owner: John McShane Trustee of
Southside Realty Trust
07/17/5/56

III. Chronology.

The application for this Project was filed with the Town Clerk on January 10, 2005. A hearing was opened before the Mashpee Planning Board at the Mashpee Town Hall, 16 Great Neck Road, North, Mashpee, Massachusetts on March 2, 2005 at 7:20 p.m. Notice was duly given to abutters in accordance with Massachusetts General Law Chapter 40A. Notice was given by publication in the Mashpee Enterprise, a newspaper of general circulation in the town of Mashpee on February 11 and 18, 2005. The hearing was continued on April 6 and April 20, 2005.

IV. Decision and Findings.

On April 20, 2005, the Planning Board closed the public hearing and voted to make the following findings and grant a special permit authorizing the project, with the conditions enumerated below. The members of the Planning Board were recorded as follows: Beverly Kane, Dennis H. Balzarini, Steven Dolan, Lee Gurney and John Halachis were recorded as voting in favor of the decision. No members were recorded as voting against.

1. The Property is located in the C-2 Commercial zoning district and within the Mashpee Center Overlay District. The proposed uses are allowed in those districts.
2. The property is also located in a Groundwater Protection District. Under the regulations applicable to that district, land uses which result in the rendering impervious of more than fifteen percent (15%) or two thousand five hundred (2,500) square feet of any lot, whichever is greater, are not permitted, except as provided under Section 174-82. This project proposes to render 65% of the property, or 54,525 sq. ft., impervious.

Subsection (4) of Section 174-82 provides that the Planning Board may authorize, as part of its special permit decision, the rendering impervious of greater than fifteen percent (15%) or two thousand five hundred (2,500) square feet of any lot, whichever is greater, provided that a system of stormwater management and artificial recharge of precipitation is developed which is designed to: prevent untreated discharges to wetlands and surface waters, preserve hydrologic conditions that closely resemble pre-development conditions, reduce or prevent flooding by managing the peak discharges and volumes of runoff, minimize erosion and sedimentation, not result in significant degradation of groundwater, reduce suspended solids and other pollutants to improve water quality and provide increased protection of sensitive natural resources. In addition, for lots occupied or proposed to be occupied by other than single or two-family residential uses, a stormwater management plan shall be developed which provides for the artificial recharge of precipitation to groundwater through site design that incorporates natural drainage patterns and vegetation and through the use of constructed (stormwater) wetlands, wet (retention) ponds, water quality swales, sand filters, organic filters or similar site-appropriate best management practices capable of removing nitrogen and other contaminants from stormwater and meeting the Stormwater Management Standards and technical guidance contained in the Massachusetts Department of Environmental Protection's Stormwater Management Handbook, Volumes 1 and 2, dated March 1997, for the type of use proposed and the soil types present on the site. Such runoff shall not be discharged directly to rivers, streams, other surface water bodies, wetlands or vernal pools.

Dry wells shall be prohibited. Except when used for roof runoff from non-galvanized roofs, all such wetlands, ponds, swales or other infiltration facilities shall be preceded by oil, grease and sediment traps or other best management practices to facilitate control of hazardous materials spills and removal of contamination and to avoid sedimentation of treatment and leaching facilities. All such artificial recharge systems shall be maintained in full working order by the owner(s) under the provisions of an operations and maintenance plan approved by the permitting authority to ensure that systems function as designed. Infiltration systems greater than three (3) feet deep shall be located at least one hundred (100) feet from drinking water wells. Any infiltration basins or trenches shall be constructed with a three (3) foot minimum separation between the bottom of the structure and maximum groundwater elevation.

The applicant provided a "Stormwater Management and Drainage Narrative for Main Street Village Commercial Lot Development Plan", revised date March 23, 2005, by Horsley Witten Group, which identified the stormwater management and mitigation measures to be undertaken as part of the project, including measures that appear to conform with the requirements for approval of increased impervious surfaces under Section 174-82.

3. The project satisfies the requirements of Massachusetts General Law Chapter 40A, in that it complies with the general purposes and intent of the Mashpee Zoning By-Law.
4. The proposed development complies with the lot area and dimensional requirements set forth in the Zoning By-Law.
5. The project does not lie within a Floodplain Zone, the Mashpee and Quashnet River Protective Districts, an Area of Critical Environmental Concern or the Otis A.N.G.B. Accident Prevention Zone.
6. A Water Quality Report was provided, as required by Article VI, Section 174-27 of the Zoning Bylaw. The report, prepared by the Horsley Witten Group on March 23, 2005, met the standards of the Mashpee Zoning By-law for the preparation of a Water Quality Report. No monitoring wells were required. The Water Quality Report indicated that the Nitrex wastewater treatment system proposed for the project is capable of producing effluent that "is generally less than 5 mg/L total nitrogen".
7. Based on the amount of wastewater flow projected to be generated by this project, the proposed systems of wastewater treatment identified in the document entitled "Wastewater Treatment System Narrative for Main Street Village (Route 130 Property) Proposed Commercial Site Plan" dated March 23, 2005 by Horsley Witten Group, and the stormwater management and mitigation measures identified in the document entitled "Stormwater Management and Drainage Narrative for Main Street Village Commercial Lot Development Plan", revised date March 23, 2005, by Horsley Witten Group, the Board has made the findings required by Article VI, Section 174-27.C. that the Project will not have a significant adverse effect on public health or safety, aquatic vegetative resources, any fisheries or shellfish beds or other wildlife due to hazardous or toxic materials, roadway drainage or sedimentation or excessive nutrient levels. The Board has also imposed a number of conditions regarding stormwater management operations and maintenance to ensure that these findings will continue to be met in the future.

8. The Project plans were reviewed by the Board's Consulting Engineer Charles L. Rowley, whose reports to the Board were by letters dated March 2 and April 6, 2005. Mr. Rowley's letters included extensive comments and recommendations regarding the site layout, grading plans drainage calculations, drainage details and the adequacy of the storm drainage facilities in general, relation of the project to the adjacent public sidewalk along Main Street and paving and base materials. Numerous plan modifications were required in response to Mr. Rowley's comments, which also included recommended conditions on approval of the project.
9. The project plans were reviewed by Deputy Fire Chief Sheldon Hamblin, who submitted a memo to the Board dated April 6, 2005. The proposed fire lane located west of building 2 was found to be acceptable. The entrance circle (part of Center Street approved by the Board of Appeals), was found not to meet the necessary criteria for turning radius of the Department's tower truck if entering from Main Street. The memo indicated that Rich Claytor of Horsley Witten Group had said he would provide an additional 8 foot gravel driving surface that was acceptable to the Deputy Chief.
10. The project was presented to the Design Review Committee on March 3 and 17, 2005. Based on concerns expressed at the March 3 meeting, the applicant reduced the height of the buildings, revised the rooflines of building 2 and made other site changes. The revised plans were approved by the Committee on March 17.
11. The project was presented to Site Plan Committee on February 25, 2005. The Deputy Fire Chief expressed concerns about undermining of the proposed grass block paving of the fire lane located west of building 2 during pumper operations. This issue appears to have been addressed to his satisfaction. He was satisfied that both buildings will have fire sprinklers and automatic fire alarms installed in accordance with state building code. The Health Agent was concerned that three-inch trees proposed as landscaping were in the vicinity of septic components. These have been moved. The possibility of restaurant type flows were discussed. If restaurant use is proposed then grease traps are required in the ground outside the building. A deck was also referenced to be a place of outside seating. If the outside seating is utilized in conjunction with a restaurant then the seating must be approved by the Board of Health. The seating will also eat up square footage of retail and office, so additional leaching capacity was discussed. There appeared to be some available design flow left per the nitrogen loading calculations but leaching trenches must be added for more septic capacity. All uses with food implications require prior Board of Health approval. DEP is still reviewing the condo docs prior to BOH sign-off on any permits. The grade of Center Street is still significantly higher than the adjacent public sidewalk. The DPW Director insists that this grade be flush with the sidewalk. The Applicant had not provided information on site lighting within the submitted plans. Applicant has now provided this information on a plan sheet. Applicant proposed to have recessed lighting on the covered porch and from each building. This type of lighting is used so it will be shining down. On the building facing Route 130 there is second means of egress to the Route 130 side which will have a small wall fixture. Also to have lighting fixtures on parking lot islands (4 post lamps). Discussion was also had regarding the location of proposed signage and its relation to the proposed clock tower.
12. The applicant presented a traffic study done by Conley Associates, dated March 22, 2005.

The Town Planner submitted a critique of the report dated April 1, 2005, identifying missing data and inappropriate assumptions. The extensive traffic data developed for the SouthCape Village, Mashpee Commons, Mashpee Place and other projects was not used, resulting in lower traffic projections at the South Sandwich Road and Great Neck Road intersections with Main Street than would have otherwise been indicated. No revision of the report was submitted, but Conley Associates submitted a response to the Town Planner's comments by letter dated April 5, 2005. The un-adjusted report indicates that the intersections of the site drive and of Juniper Drive with Main Street will operate at Level of Service (LOS) F (i.e. failure) during the weekday afternoon peak hour (4:15 to 5:15 PM) and at LOS D during the Saturday midday peak hour (11:45 AM to 12:45 PM). The report claims that the Great Neck Road (signalized) and South Sandwich Road Intersections with Main Street will operate at LOS C. No analysis was done of peak summer month conditions, when both intersections appear to operate at LOS F during both morning and evening peak hours. Accident data from 2001 to 2003 indicate 19 accidents at the Great Neck Road intersection and 9 at the South Sandwich Road intersection. Conley Associates measured the stopping sight distance from the site driveway (actually Center Street) as greater than 500 feet to the east and 356 feet to the west, whereas the AASHTO standard at 40 MPH is 305 feet.

13. In conformance with the provisions of Article VI, Section 174-24.C.(2) of the Zoning Bylaw, the Planning Board finds that the proposal will not adversely affect public health or safety, will not cause excessive demand on community facilities, will not significantly decrease surface or ground water quality or air quality, will not have significant adverse impact on wildlife habitat, estuarine systems, traffic flow, traffic safety, waterways, fisheries, public lands or neighboring properties, will not cause excessive levels of noise, vibration, electrical disturbance, radioactivity or glare, will not destroy or disrupt any species listed as rare, endangered or threatened by the Massachusetts Natural Heritage program or any known historic or archaeological site, will not produce amounts of trash, refuse or debris in excess of the town's landfill and waste disposal capacities, will properly dispose of stumps, construction debris, hazardous materials and other wastes, will provide adequate off street parking, will not cause excessive erosion or cause increase runoff into neighboring properties or into any natural river, stream, pond or water body and will not otherwise be detrimental to the town or the area.

V. Conditions.

1. Construction of this Project shall be done only in conformance with the following plans which have been approved by the board and signed by the Board Chairman:

"Commercial Lot Site Plan, Main Street Village" by Horsley Witten Group, consisting of a Cover Sheet, Sheet C-1 "Natural Resource and Pre-Construction Plan", Sheet C-2 "Existing Conditions Plan", Sheet C-3 "Proposed Site Plan", Sheets C-4 to C-10 (being Detail Sheets 1-7), Sheet C-11 "Erosion and Sediment Control Plan" and Sheet C-12 Bioretention Facility Planting Plan", with all sheets stamped by Richard A. Claytor, Civil Engineer, dated **April 15, 2005.**

Drawing AS-1 "Commercial Buildings 1 & 2 Architectural Site Plan" by Steven C. Hayes, Architect, revised date **April 15, 2005.**

Drawing L-1 "Commercial Buildings 1 & 2 Landscape Plan" by Phillip L. Cheney, revised date **April 15, 2005.**

Architectural Plans by Steven C. Hayes Architect, consisting of Sheets A-1 through A-7 revised date **April 15, 2005.**

Architectural Plan for Commercial Building #2, Proposed Alternate #1, Main Street Village, Mashpee, MA, prepared by Steven C. Hayes Architect, dated **April 14, 2005.**

Site Plan Detail showing Proposed Relocated Lighted Sign Flagpole and Clock Tower, Main Street Village, Mashpee, MA, prepared by Steven C. Hayes Architect, revised date **April 15, 2005.**

Proposed Sign Elevation, Main Street Village, Mashpee, MA, prepared by Steven C. Hayes Architect, dated **April 13, 2005.**

Clock Tower Elevation, Main Street Village, Mashpee, MA, prepared by Steven C. Hayes Architect, revised date **April 15, 2005.**

2. Site Identification signage shall require review by the Design Review Committee and approval by the Board prior to installation.
3. Initial tenant signage shall require review and approval by the Design Review Committee, with a notice of any such approval forwarded to the Planning Board.
4. Detailed engineering designs of re-grading, drainage and other revisions to the intersection of Center Street and Main Street required to bring Center Street flush with the adjacent public sidewalk shall be submitted to the Board, to the Zoning Board of Appeals and to the Mashpee Director of Public Works for review and shall require approval by each prior to construction of said intersection and issuance of any building permit for the proposed Buildings 1 and 2.
5. As a contribution toward mitigation of the increases in traffic, traffic delays and potential traffic accidents associated with the project, the applicant shall post a \$25,000 bond with the Town of Mashpee to be held in an escrow account by the Town Treasurer, while the Applicant, using specifications provided and approved by the Mashpee Department of Public Works (DPW) Director, delivers traffic engineering designs and construction drawings for relocation of the South Sandwich Road / Main Street Intersection eastward to create a right angle intersection. After acceptance and approval of said designs and construction drawings by the DPW, the bond, plus any accrued interest, shall be returned to the Applicant.
6. A safety fence shall be constructed and maintained at the top of the retaining wall located on the north side of Building #1. The design of said fence shall require approval by the Design Review Committee prior to installation and prior to the issuance of a building permit for Building #1.

7. Written certification to the Planning Board and Building Inspector by an experienced structural engineer regarding the adequacy of the design and construction of the retaining wall located on the north side of Building #1 shall be required prior to issuance of an occupancy permit for Building #1.
8. The proposed "loading dock" identified to provide access to the dumpster shall be appropriately marked with signs and pavement striping to discourage blockage by parked vehicles.
9. All project landscaping as shown on the approved plans shall be properly installed, as certified by the Town Planner or his designee after an inspection of the site, prior to issuance of any occupancy permit for Buildings 1 or 2.
10. Vegetation used in the constructed bioretention facilities shall conform with the vegetation list and installation specifications shown on Sheet C-12 of the above-referenced plans by Horsley Witten Group.
11. The applicant shall install temporary landscape materials or other means of preventing erosion on any areas disturbed for more than four months but not yet developed with structures. A plan for said landscape materials or other means shall be presented to the Board for approval prior to installation, and installation shall be completed within sixty days of said approval.
12. No signs and related structures or landscaping may be constructed in conjunction with this project on or over public property until said construction has been approved by the Mashpee Board of Selectmen and all of the provisions of Article X, Section 174-57 of the Zoning Bylaw regarding bonds and liability insurance for such signs, as well as any other applicable requirements of the Board of Selectmen or Department of Public Works, have been met.
13. The Board approves the list of proposed uses submitted by the applicant, including those listed in the Mashpee Zoning By-law under subsections 174-25(D)(1) (Business, financial, professional or governmental offices), 174-25(D)(2) (Offices and clinics for medical, psychiatric or other health services for the examination or treatment or persons as out-patients, including laboratories that are part of such offices or clinics), 174-25(E)(1) (Store for retail sale of merchandise, provided that all display, storage and sales of materials are conducted within a building and there is no manufacturing or assembly on the premises), 174-25(E)(2) (Eating places serving food and beverages to be consumed within the building), 174-25(E)(4) (Service business serving local needs, such as barbershops, beauty shops, shoe repair, self-service laundry or dry cleaning or pickup agency), 174-25(E)(12) (Retail establishments which will not generate greater than 300 peak daily trips per acre of total site area, per day and 174-25(I)(10) (Outdoor dining as an accessory use to an allowed eating place serving food and beverage, provided that visual screening shall be required in any area abutting a residential zone. Such screening shall consist of a solid fence, wall or mature hedge or other screen type planting of such height as to screen any diners from view from the said residential zone).

Given the project site being located in the Mashpee Center Overlay District, the following uses listed in the Mashpee Zoning By-law under Section 174-25 are explicitly prohibited: 174-25(D)(5) (Radio or television transmission facility, but not studios), 174-25(E)(7) (Veterinary establishment, kennel or similar establishment; provided that in a business zone, animals are kept indoors), 174-25(E)(8) (Store for retail sale of merchandise such as, but not limited to, lumberyards and building supply yards, wherein merchandise is stored in the open, provided that all merchandise so stored is screened from ground level view from any abutting street or abutting property line where such materials are stored, 174-25(F)(1) (Gasoline service stations), 174-25(F)(2) (Sale or rental of automobiles, boats and other motor vehicles and accessory storage), 174-25(F)(6) (Drive-in banks) and 174-25(F)(7) (Drive-in eating places and other consumer establishments where the motorist does not have to leave his car or where food is normally consumed outside the building). In addition per Section 174-24(I)(3), the following is prohibited: Any drive-in or drive-through window or similar facility associated with a restaurant or any other business establishment.

14. Based on the site uses represented in the Conley Associates traffic study, the Buildings may be occupied by up to 2800 sq. ft. of convenience Market, with the remainder in general / specialty retail use. No space within the proposed development may be occupied by any of the other permitted uses until the proposed use has been reviewed under the Plan Review process described in Article VI, Section 174-24 B of the Zoning Bylaw in conformance with the requirements of Section 174-45.1.6. Occupancy by any other use other than those listed in condition 13 above, or occupancy by a restaurant having more than 12 seats, shall require modification of this Special Permit by the Planning Board.
15. Any restaurant use on the property shall require approval by the Board of Health.
16. The Applicant shall submit to the Board three copies of as-built plans of all underground utilities, including drainage structures, within 60 days of the issuance of the last occupancy permit for the project.
17. The proposed wastewater treatment facility shall be designed and operated to produce total nitrogen in effluent of not greater than 5 mg/l. The Water Quality Report submitted for the project by Horsley Witten Group indicates that the Nitrex system proposed for the project is capable of treating effluent to that level. Copies of any water quality testing results submitted to the Mass. Department of Environmental Protection or the Mashpee Board of Health shall be provided to the Planning Board.
18. The Applicant agrees to reasonably cooperate with the Mashpee Sewer Commission in planning and development of a municipal sewer system, including the feasibility and terms, based on mutual benefit, of including the project's wastewater treatment facilities and collection system as part of such municipal system.
19. All roof drains for buildings are to be connected to the parking area drainage system and are not to be directed to dry wells.
20. The applicant shall establish a stormwater operations and maintenance plan as specified in Attachment A to this decision.

21. The applicant, his heirs and assigns, including any condominium or other association to which the applicant transfers ownership of roadways or other common facilities within the project site, shall be responsible for all costs associated with the operation, maintenance, upgrade and other management activities related both to the wastewater collection, treatment and disposal facilities and the stormwater collection, treatment and disposal facilities, including maintenance of vegetation in the proposed bioretention facilities and all other activities called for under the stormwater operations and maintenance plan contained in Attachment A. Any deeds, declaration of covenants, conditions and restrictions, association bylaws, rules and regulations transmitted to buyers of property or units within the project site shall contain a notice of said responsibility and of the fact that failure to properly conduct said activities shall be considered a violation of this special permit enforceable by all means available to the Town.
22. The applicant shall install bike racks adjacent to Building 2, with the specific design and location of said racks to be reviewed and approved by the Town Planner prior to issuance of any occupancy permit for the project.
23. Curbing and berms around planting islands shall be of sufficient height above any areas covered with mulch or wood chips to contain them during heavy rains.
24. A permanent irrigation system shall be installed in all landscaped areas and landscaping shall be properly maintained. If maintenance is determined to be inadequate by the Planning Board, the applicant shall cooperate with the Board to amend the maintenance program.
25. Construction activities shall not customarily take place in connection with this project (i) between the hours of 6 p.m. and 7 a.m. on weekdays, (ii) before 7 a.m. and after 6 p.m. on Saturdays, or (iii) on Sundays or holidays. There shall be no substantial deliveries of materials or unloading of heavy construction equipment on Saturdays, Sundays or holidays.
26. The applicant and all contractors, subcontractors and employees engaged by the applicant shall properly dispose of stumps, construction debris, hazardous materials and other waste and shall provide a report to the Planning Board and Board of Health, at six-month intervals beginning with the issuance of the first building permit and ending upon completion of the project, describing the amount of, and means of disposal of, such materials resulting from the construction of the project, including the approximate date and specific location at which such materials were disposed.
27. No de-icing chemicals other than a mixture of sand and calcium chloride or sand alone shall be used on any roadways, driveways or other impervious surfaces of the project.
28. All fertilizers and pesticides used within the development shall be of a type approved by the Town of Mashpee Board of Health and applied by licensed applicators. Use of fertilizers and pesticides shall be minimized and the use of natural pest control methods should be encouraged. The applicant shall provide the local Board of Health with a complete list of any such fertilizers or pesticides used on the property and their method of storage on the site.
29. No underground storage tanks shall be installed on-site for any purpose, except as may be required as part of the wastewater treatment facilities.
30. Except in the case of foreclosure by a lender, or a transfer to a related entity controlled by

the Applicant, the holder of this special permit shall not transfer said permit without 90 days prior notice to the Planning Board. The Planning Board may notify the holder of any violations of the Special Permit and no transfer shall take place while any violations exist without the approval of four members of the Board.

31. Notwithstanding the provisions of condition 30 above, the owner / applicant and their heirs and assigns shall have the right to pledge and assign, as part of the mortgage collateral, its rights under this special permit to any institutional construction lender which has given written notice to the Planning Board of such assignment. Upon receipt of the written notice, said lending institution shall become a "recognized mortgagee." All such notices shall be sent to Mashpee Planning Board, Mashpee Town Hall, 16 Great Neck Road North, Mashpee, MA 02649, by certified mail, return receipt requested. In the event of a default by the applicant under the terms and conditions of this special permit, the Planning Board shall give written notice of such default by certified mail to the applicant and each recognized mortgagee. Upon receipt of the Planning Board notice, any recognized mortgagee so notified shall have one hundred twenty (120) days from the date of receipt of such notice, to remedy any such default. The applicant's rights under this special permit may not be terminated prior to the expiration of any such 120 day cure period. Failure of the Planning Board to give such notice will only extend the cure period for the recognized mortgagee, pursuant to the provisions provided for above, and shall not constitute a waiver of any default. The Planning Board hereby approves the transfer of applicant's rights under this special permit to any recognized mortgagee that results from the default under a construction mortgage from the applicant to any recognized mortgagee. The Planning Board will not unreasonably withhold or delay its consent to a transfer of the rights under this special permit from any recognized mortgagee that has so acquired rights under this special permit, to a proposed transferee reasonably acceptable to the Planning Board. The proposed transferee must be able to demonstrate to the Planning Board a reasonable ability to complete the project in accordance with the terms of this special permit.
32. The applicant shall require that all construction personnel working on the project shall be familiar with, and comply with, the provisions of Massachusetts General Law Chapter 38, Section 6(b) regarding the discovery of human remains.
33. All conditions of this special permit shall be binding not only upon the applicant but also on all successors-in-interest and assigns of the applicant.
34. No occupancy or building permits shall be issued while there exists any substantial violation of the conditions of this special permit unless the Board, by a favorable vote of 4 members at a regular meeting, should allow such issuance.
35. Within 60 days of the approval of this decision, the applicant shall provide to the Board a copy of this decision as recorded with the Barnstable County Registry of Deeds, including an indication as to the book and page at which it was recorded.

VI. Expiration, Extension or Modification.

Pursuant to Massachusetts General Law, Chapter 40A, Section 9 and Article IX, Subsection 174-47.C.(5) of the Mashpee Zoning Bylaw, this special permit shall lapse within 2 years, which shall not include such time required to pursue or wait the determination of any appeal from the grant hereof, if a substantial use hereof is not sooner commenced except for good cause. Initiation of construction of at least one of the proposed buildings shall constitute "substantial use" for these purposes.

The applicant shall require a specific determination of good cause by a favorable vote of four members of the Planning Board if claiming an extension of the 2-year period, except to wait the determination of any appeal from the grant hereof.

Any modifications of this special permit decision and accompanying plans shall require approval by the Board pursuant to the provisions of Section 174-24.C.(9) of the Zoning Bylaw.

VII. Signature and Filing.

This special permit decision has been approved by the Mashpee Planning Board on this 20th day of April, 2005.

A true copy
Attest

Lee Gurney
Member, Mashpee Planning Board

COMMONWEALTH OF MASSACHUSETTS

Barnstable, ss.

April 22, 2005
date

On this 22 day of April 2005 before me, the undersigned notary public personally appeared Lee Gurney, a member of the Mashpee Planning Board, proved to me through satisfactory evidence of identification, which were license, to be the person whose name is signed on the preceding or attached document, and acknowledged that he signed it voluntarily for its stated purpose.

Katherine A. [Signature]
Notary Public
My Commission expires: October 1, 2007
date of expiration



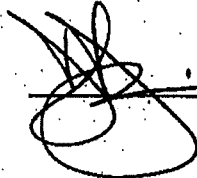
A copy of the decision has been duly filed on April 22, 2005 with the Town Clerk of Mashpee.

Deborah F. Dami
Town Clerk

Notice of this decision was mailed on April 22, 2005 to the applicant, to the parties in interest designated in M.G.L. Chapter 40A, Section 11 and to all persons at the hearing who requested such notice. Any appeal shall be made pursuant to Section 17 of the Chapter 40A of the Massachusetts General Laws within twenty (20) days after the date of said filing.

I, Deborah F. Dami, Town Clerk of the Town of Mashpee, hereby certify that a copy of this decision was filed with the office of the Town Clerk on May 17, 2005 and that no appeal of that decision was filed within twenty (20) days thereafter.

May 17, 2005
Date


Town Clerk

Upon expiration of the statutory appeal period with no appeal having been filed, this special permit decision has been signed by the Mashpee Planning Board on May 18, 2005 and may be recorded.

Dwight A. Fara

Dennis H. Bagard

Joe Gueney

John W. ...



ATTACHMENT A
STORMWATER OPERATION & MAINTENANCE PLAN
Main Street Village
MASHPEE, MA

IMPLEMENTATION OF THIS MANAGEMENT PLAN IS REQUIRED UNDER CONDITION #19 OF A SPECIAL PERMIT ISSUED ON APRIL 20, 2005 TO S.M. REALTY TRUST BY THE MASHPEE PLANNING BOARD FOR CONSTRUCTION OF A 9968 SQ. FT. RETAIL CENTER AND ASSOCIATED PARKING ON 1.92 ACRES LOCATED AT 334 Main St (CORNER OF ROUTE 130 AND NEW "CENTER STREET") IN MASHPEE, MASSACHUSETTS. ANY VIOLATION OF THE TERMS OF THIS MANAGEMENT PLAN MAY BE CONSIDERED A VIOLATION OF THE TERMS AND CONDITIONS OF THAT SPECIAL PERMIT AND MAY LEAD TO ENFORCEMENT ACTION BY THE MASHPEE BUILDING INSPECTOR, ACTING AS THE TOWN'S ZONING ENFORCEMENT OFFICER, OR TO RESCISSION OF THE SPECIAL PERMIT BY THE MASHPEE PLANNING BOARD. THIS PLAN SHALL BE RECORDED WITH SAID SPECIAL PERMIT.

The applicant, his heirs and assigns, including any condominium or other association to which the applicant transfers ownership of roadways or other common facilities within the project site, shall be responsible for all costs associated with the operation, maintenance, upgrade and other management activities related both to the stormwater collection, treatment and disposal facilities, including maintenance of vegetation in the proposed bioretention facilities and all other activities called for under this plan. Any deeds, declaration of covenants, conditions and restrictions, association bylaws, rules and regulations transmitted to buyers of property or units within the project site shall contain a notice of said responsibility.

The referenced project includes the following elements designed to reduce the levels of nitrogen entering groundwater on the site as a result of deposition by rainfall and by activities on the site:

- 1) All roof drains are to be connected to the parking area drainage system and are not to be directed to dry wells. To the maximum extent feasible, other minor sources of runoff, such as sidewalks and bike paths which are not connected to the parking area drainage system, shall have drainage directed to grassed areas having a minimum depth of 6 inches of topsoil, consisting of sandy loam with 10-20% organic matter and no more than 20% clay.
- 2) Drainage from the paved parking area shall be directed into bioretention infiltration basins (identified on the plans as "BIO 1, BIO 2 and BIO 3") to provide treatment of the first inch of runoff and comply with the peak flow attenuation provisions of the Massachusetts Department of Environmental Protection Stormwater Management Policy.

CONSTRUCTION PERIOD

During construction, the stormwater maintenance system and roadways shall be inspected by the project's construction manager on a monthly basis, as well as prior to predicted storm events and immediately after storm events of one inch of rain or greater, to prevent deficiencies in the effectiveness of the systems due to sediment build-up, damage or deterioration. Upon each inspection, a written report of the findings shall be filed with the Planning Board.

Said construction period stormwater maintenance systems shall include erosion control barriers, construction entrance berms, slope stabilization controls, infiltration systems, baled hay silt barriers around inlets and rip-rap slope protection installed and maintained as shown on the approved site plans and as described on pages 5 and 6 of the "Stormwater Management and Drainage Narrative for Main Street Village Commercial Lot Development Plan", revised date March 23, 2005, by Horsley Witten Group, which was submitted as part of the project application materials.

The erosion control barriers and construction entrance berms shall be installed prior to the commencement of construction and the Planning Board Consulting Engineer shall be notified upon completion so he may inspect said barriers prior to construction. The erosion control barriers, as well as slope stabilization controls and baled hay silt barriers around drainage system inlets shall be replaced and/or repaired as necessary to prevent erosion or siltation.

The applicant shall install temporary landscape materials or other means of preventing erosion on any areas disturbed for more than four months but not yet developed with structures. A plan for said landscape materials or other means shall be presented to the Planning Board for approval prior to installation, and installation shall be completed within sixty days of said approval.

During the construction period, streets and parking areas shall be swept after all significant earth moving activities, or after significant rainstorm events of three inches of rain or greater, to remove pollutants and sediments that have accumulated.

The entire stormwater management system, including pipes, inlets, pretreatment system, infiltration systems and bioretention systems shall require inspection and approval by the Planning Board Consulting Engineer upon completion of construction and prior to the issuance of any occupancy permits for the project.

LONG-TERM MANAGEMENT OF STORMWATER FACILITIES

The stormwater control system shall be regularly inspected to ensure proper performance and to prevent deficiencies in the effectiveness of the systems due to sediment build-up, damage, or deterioration. The following operation and maintenance provisions shall be followed:

Inlets: All inlets will be inspected annually to monitor for proper operation, collection of litter or trash, and structural deterioration. The basins will be cleaned as necessary, and repaired when required.

Rip-rap Slope Protection: Rip rap at the outfall into the infiltration basin forebay, between the forebay and the main infiltration area and at outfalls to the bioretention facilities located throughout the commercial area will be inspected annually and repaired as necessary.

Sediment Forebay: The sediment forebay to the infiltration basin off Center Street within the residential portion of the project shall be inspected annually to ensure proper functioning. Sediment build-up on the floor of the forebay shall be removed and properly disposed of approximately once every five to seven years, or more often as necessary to limit sediment buildup to less than 50 percent of the design volume.

Infiltration Basin: The basin will be inspected annually to ensure that design infiltration rates are being met. If sediment or organic debris build-up has limited the infiltration capabilities to

below the design rate of (15"/hr), the top 6" shall be removed and the surface roto-tilled to a depth of 12". The basin bottom shall be restored according to original design specifications.

Bioretention Systems: The bioretention systems will be inspected every four months (4 times total) for the first year of operation and annually after the first year, and after major storm events. The planting soil bed shall be monitored for proper pH, erosion, and aeration. Mulch shall be replaced every two years to the original design depth and ill-established, dead or severely diseased plants shall be removed and replaced annually. Sediment build-up at the curb cuts to the bioretention areas shall be removed as needed, and the riprap shall be repaired or replaced when necessary.

Recharge Basins: The recharge basins shall be inspected at a minimum of once per year to ensure that design infiltration rates are being met. The basin shall be cleaned if sediment or organic debris build-up has limited the infiltration capabilities of the structure so that half the available capacity has been used, or at a minimum of once every 2 years. Any buildup shall be removed with either a clamshell type excavator or vacuum truck and the bottom surface of the basin shall be excavated down to the original design material. Cleaning shall take place during early spring or more frequently if applicable. Any oil or grease found at the time of the inspection shall be cleaned with oil absorption pads and disposed of in an approved location. Should inspections indicate high levels of volatile organics or similar contaminants, absorbent pillows shall be placed in the sump to reduce the amount of such contaminants reaching groundwater.

Routine Maintenance: Other routine maintenance will include removal of trash and litter from paved and perimeter areas and annual street sweeping after the spring thaw to avoid excessive accumulation of sediment in the drainage system. The pipes draining the project will be inspected annually for proper flow.

OTHER MANAGEMENT PRACTICES

SNOW MANAGEMENT

Proper snow management practices shall be implemented to minimize runoff and pollutant loading impacts. Alternative de-icing compounds such as CaCl₂ shall be used and plowed snow shall be placed near pervious areas where it can slowly infiltrate. This will allow snowmelt to run off onto roadways and enter the stormwater management facilities and be subject to the majority of the stormwater treatment system.

REPORTING

A written report to the Mashpee Planning Board shall be submitted annually in February regarding the previous year's inspection and maintenance of these facilities. The report shall specifically identify any revegetation or repair work needed or done, the condition of the vegetation in the infiltration basin and bioretention systems, the depth of sediment in the recharge basins and whether it was removed, the dates of the inspections, the dates of cleaning of sediment and debris and of parking lot sweeping and the person(s) doing the inspections, maintenance and report. Reports shall include the attached Stormwater Facilities Activation and Inventory Forms, or their equivalent, for the Overflow Recharge Basin and the Bioretention Facilities.

Stormwater Facilities Activation and Inventory Form

A. <u>Project Description</u> Commercial		Project Title: Main St. Village Commercial	
B. <u>Facility Type</u> Type: Bioretention Facility Size/Spacing: Outlet Structure: Yes Type: Sediment Forebay or Trap: Yes Type:			
C. <u>Maintenance Requirements</u>			
Activity	Yes/No	Frequency	Completed (Y/N)
General Inspection	X	Annually and (4x for 1 st year)	
Sediment Removal	X	When sediment buildup is > 3"	
Structure Maintenance	X	Repair any soil gulying and re-vegetate as necessary	
Mowing/Debris Removal	X	1x/yr (or when needed)	
Landscape Maintenance*	X	Replenish mulch layer 1x every 2 years to original design depth	
Landscape Maintenance	X	Confirmation of plant materials by landscape professional Replace dead or dying vegetation as necessary	
Landscape Maintenance	X	Prune for sight visibility as necessary. Separation of herbaceous vegetation root stock will occur when over-crowding access (1x/3yrs)	
Infiltration Capacity Maintenance	X	If standing water is observed 48-hrs after a storm event, then the bottom 6" shall be roto-tilled to break up hard packed soil and then re-vegetated	
* Mulch layer will be removed and dispose of properly, or roto-tilled into the soil surface.			

Stormwater Facilities Activation and Inventory Form

A. Project Description

Commercial

Project Title: Main St. Village Commercial

B. Facility Type

Type: Overflow Recharge Basin

Size/Spacing:

Outlet Structure: No

Type:

Sediment Forebay or Trap: no

Type:

3) Maintenance Requirements

Activity	Yes/No	Frequency	Completed (Y/N)
General Inspection	X	Annually	
Sediment Removal	X	1x/2yr (or when needed)	
Structure Maintenance*	X	As necessary to repair/replace damaged components	
Oil & Grease Removal	X	Remove with oil absorbent pads if found at time of sediment removal	
Debris Removal	X	Debris removal as necessary	

BARNSTABLE REGISTRY OF DEEDS

QUITCLAIM DEED

We, William Lovely and Amanda Lovely, as Tenants by the Entirety, of 45 Frog Pond Close, Mashpee, Barnstable County, Massachusetts,

for consideration paid, and in full consideration of One (\$1.00) Dollar,

grants to Ryandrach, LLC, a duly organized Massachusetts Limited Liability Company with a principal business address of 45 Frog Pond Close, Mashpee, Barnstable County, Massachusetts,

with Quitclaim Covenants,

the land situated in Mashpee, Barnstable County and Commonwealth of Massachusetts described as follows:

Being Unit 2B, Phase V (5A), THE MAIN STREET VILLAGE CONDOMINIUM, a Condominium situated in Mashpee, Barnstable County, Massachusetts, established by Master Deed dated November 4, 2005, recorded as Land Court Documents 1,020,567, as amended, together with the applicable percent interest in the common areas and facilities for each of the above described units, as shown and set forth in said Master Deed pursuant to Sections 12 and 3 thereof, and the inclusion of additional phases in the Condominium and together with the right to use limited common areas reserved to said unit, if any, as set forth in said Master Deed and shown on Condominium Site Plan recorded with Certificate C357.

Said Condominium Unit is conveyed subject to and with the benefit of (a) the Master Deed and Declaration of Trust of the Main Street Village Condominium, which Declaration of Trust is recorded as Document No.: 1,020,568, and (b) all other rights, restrictions and easement of record.

The unit conveyed is laid out as shown on a plan filed with the original Unit Deed, which plan is a copy of a portion of the plan filed with said Master Deed and to which is affixed a verified statement in the form provided in G.L. c. 183A, § 9. It is subject to and with the benefit of the obligations, restrictions, rights and liabilities contained in G.L. c. 183A, as

Unit 2B, Main Street Village Condominium
2 Center Street, Mashpee, MA
i.c.p.l. 36192 - C

may be amended from time to time the Master Deed and the By-Laws filed therewith.

The Condominium and its units are intended for residential or commercial purposes and other uses permitted by the applicable Zoning Ordinances and permits issued by the Town of Mashpee and as set forth in the Master Deed.

The Unit is conveyed subject to :

- (a) easements in favor of all other Units and in favor of the common areas and facilities for the continuance of all encroachments of such other Units or common areas and facilities on the Unit existing as a result of construction of the Buildings, or which may come into existence hereafter as a result of the reconstruction, repair, shifting, settlement or any other movement of any portion of the improvements compromising the Condominium.
- (b) the provisions of the Master Deed, the Declaration of the Trust, the By-Laws set forth in the Declaration of Trust and any rules and regulations promulgated thereunder, as the same may be amended from time to time by the recording of an instrument effectuating the same, which provisions, together with any amendments thereto, shall constitute covenants running with the Land and shall bind any person having at any time any interest or estate in the Unit, its family, servants, invitees or visitors, as though such provisions were recited and stipulated in their entirety herein;
- (c) the rights and the Grantor hereunder as Declarant (as defined in the Master Deed) to amend the Master Deed in accordance with the provisions thereof, including without limitation, the right to amend the Master Deed to include additional phases in the Condominium pursuant to Section 3, and any other rights and easements in favor of, and reserved by, the Declarant under the provisions of said Section 3 and as otherwise provided in the Master Deed;
- (d) easements, covenants, agreements and restrictions of record, as the same may now be in force and applicable;

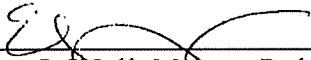
COMMONWEALTH OF MASSACHUSETTS

Barnstable, ss.

On this 28th day of February, 2011, before me, the undersigned notary public, personally appeared William Lovely and Amanda Lovely proved to me through satisfactory evidence of identification, which were Massachusetts Driver's Licenses, to be the persons whose names are signed on the preceding or attached document, and acknowledged to me they signed it voluntarily for its stated purpose.



Elizabeth A. McNichols
NOTARY PUBLIC
Commonwealth of Massachusetts
My Commission Expires Jan. 20, 2017



Brian J. Watt, Notary Public
My Commission Expires: ~~5/16/14~~
1/2017

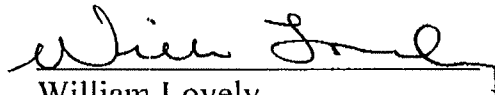
BARNSTABLE REGISTRY OF DEEDS

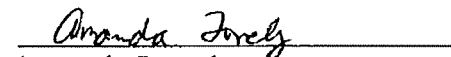
- (e) such taxes for the current fiscal year as are not now due and payable;
- (f) the Comprehensive Permit issued by the Mashpee Board of Appeals on May 5, 2004 and recorded as Land Court Document 986,675 and as modified by a Modification Decision dated October 8, 2004 and recorded with said Land Court as Document No.: 986,676; and as further modified by a Modification Decision dated October 26, 2005 and recorded with said Land Court as Document No.: 1,020,569.

The Grantee, by accepting this Unit Deed, and by executing this Unit Deed in the space provided below hereby consents, for the Grantee, the Grantee's heirs, administrators, executors, successors and assigns and all other persons claiming by, through or under Grantee, or any other party whatsoever, to (a) Declarant's right to amend the Master Deed as set forth in, and subject to the provisions of, Section 13 hereof, including, without limitation, the right to amend the Master Deed to include additional phases in the Condominium, and (b) the granting or exercise of any right or easement in favor of, and reserved by, Declarant as described in the Master Deed, and hereby expressly agrees to the alteration of the Unit's percentage interest in the commons areas and facilities of the Condominium upon the creation of additional phases to the Condominium and as otherwise provided in the Master Deed,

For title see Certificate of Title No.: C357-2B.

Executed as a sealed instrument this 20th day of February ____, 2011.


William Lovely


Amanda Lovely

DEFINITIVE SUBDIVISION PLAN

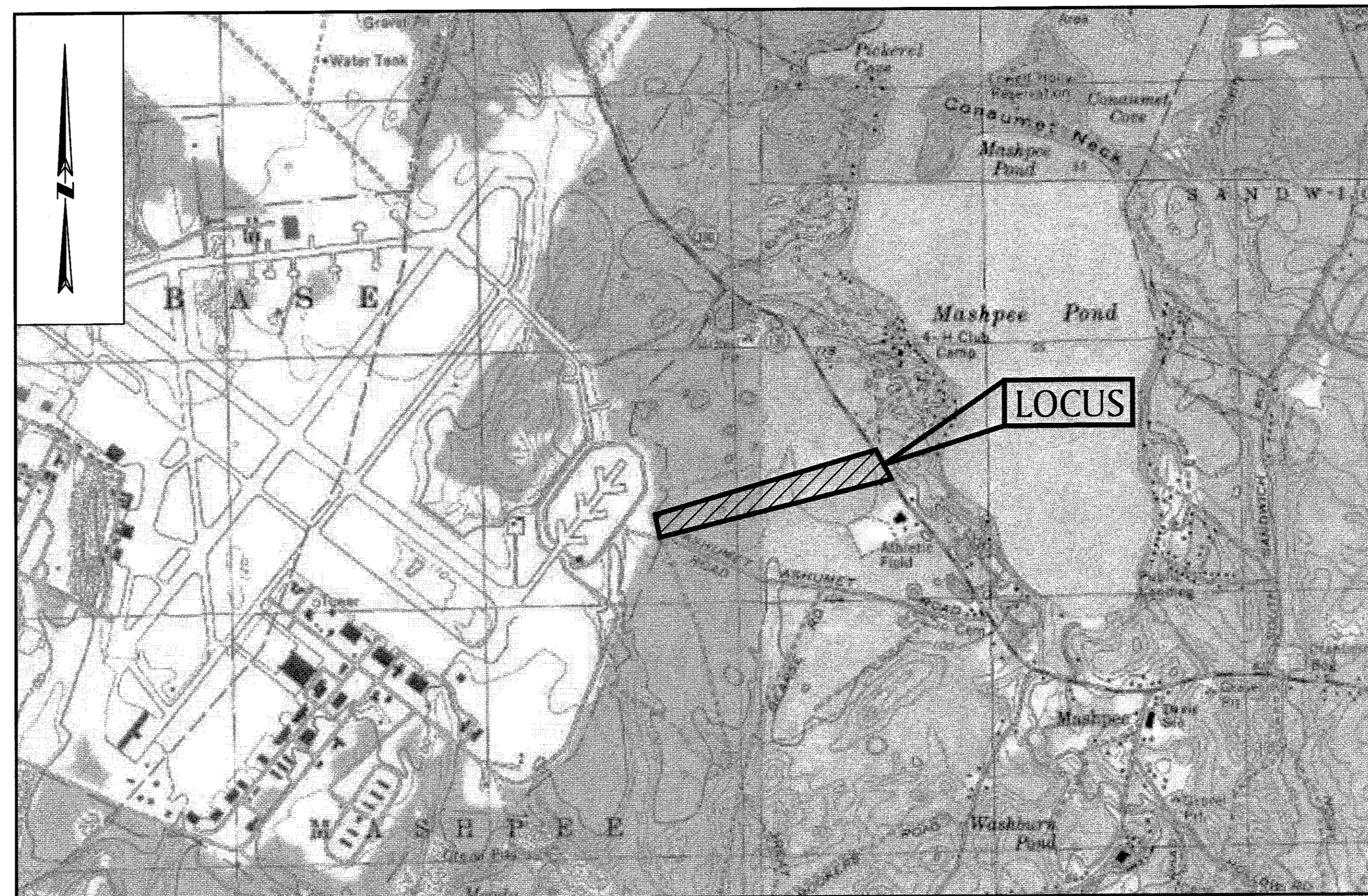
LEAMAR DRIVE

532 MAIN STREET (ROUTE 130)
MASHPEE, MASSACHUSETTS

AUGUST 27, 2021

REVISED: FEBRUARY 11, 2022

ZONING COMPLIANCE TABLE			
ZONING DISTRICT: C3, I1, & R5			
	C3	I1	R5
MINIMUM LOT SIZE	40,000 S.F.	40,000± S.F.	80,000± S.F.
MINIMUM LOT FRONTAGE	200'	200'	150'
MINIMUM BUILDING FRONT YARD SETBACK	75'	75'	40'
MINIMUM BUILDING SIDE YARD SETBACK	20'	50'	15'
MINIMUM BUILDING REAR YARD SETBACK	20'	30'	15'
LOT COVERAGE	20%	25%	20%
MAXIMUM BUILDING HEIGHT (STORIES)	2-1/2 STORIES	2 STORIES	2-1/2 STORIES
MAXIMUM BUILDING HEIGHT (FEET)	35'	35'	35'



LOCUS MAP

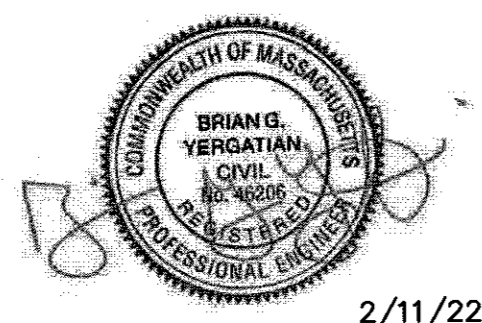
SCALE: 1" = 1,200'

INDEX OF DRAWINGS

- 1 TITLE SHEET
- 2 OVERALL LOT PLAN
- 3-4 PLAN & PROFILE
- 5 EROSION & SEDIMENT CONTROL PLAN
- 6 SIGHT DISTANCE & TURNING PLAN
- 7-8 DETAIL SHEETS

PREPARED FOR:

MARCELLO MALLEGNI
80 AIRPORT ROAD
HYANNIS, MA 02601



2/11/22



2/11/2022

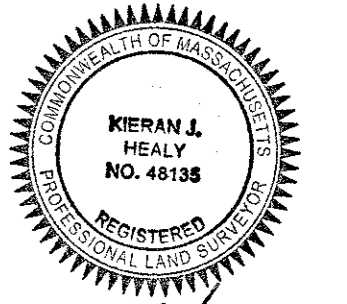
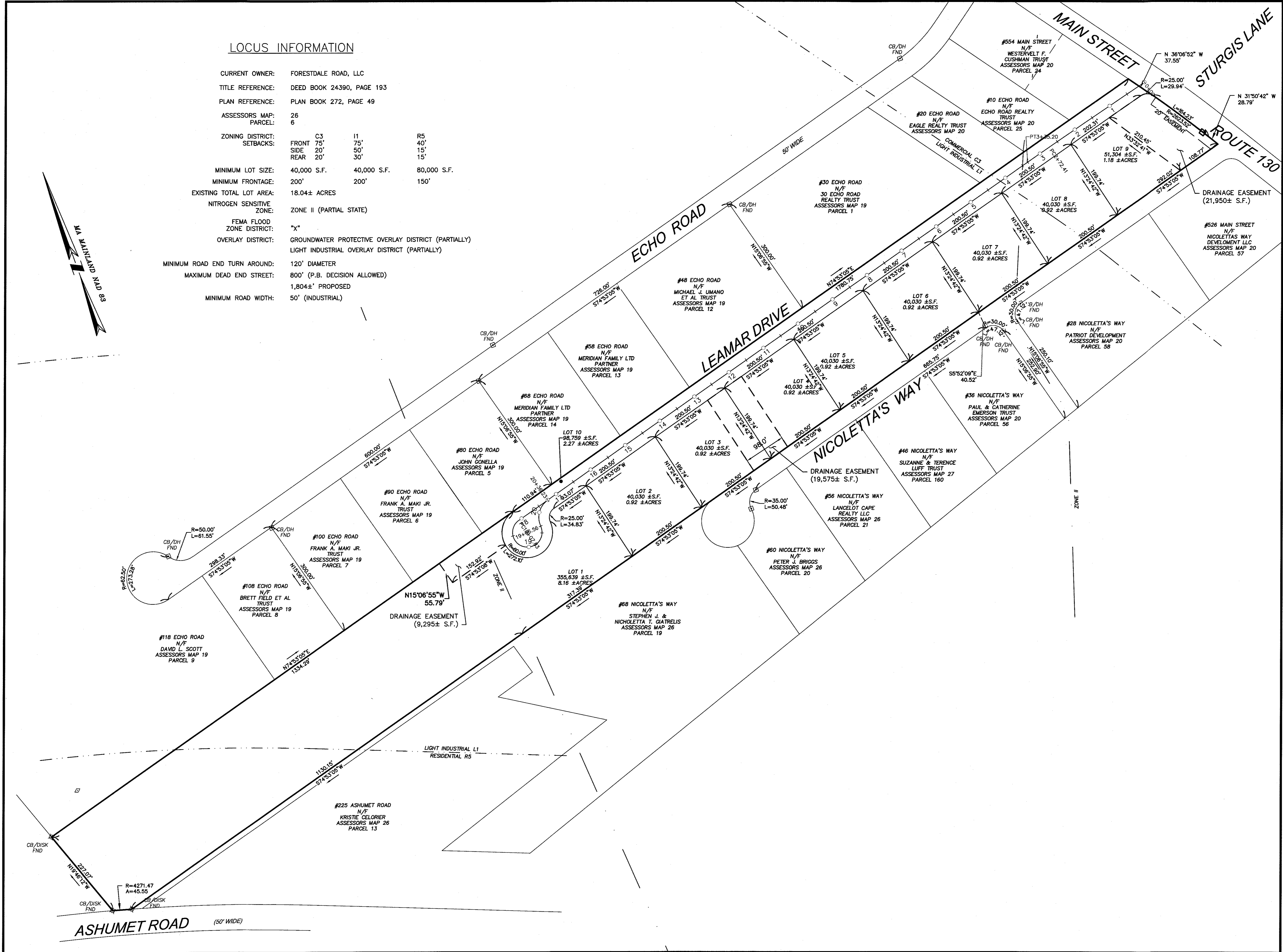
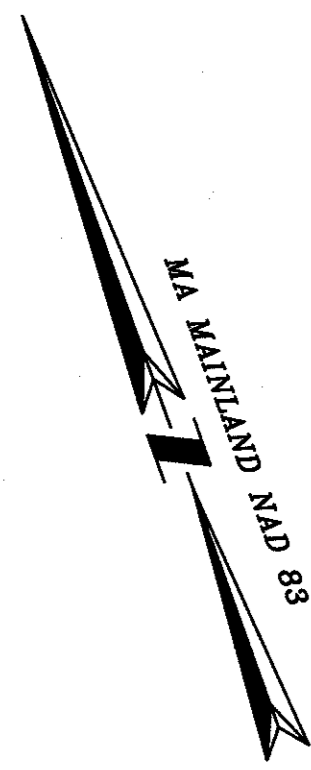
ISSUED FOR PERMITTING
NOT FOR CONSTRUCTION

PREPARED BY:

BSC GROUP
349 Main Street - Route 28
W. Yarmouth, Massachusetts
02673

LOCUS INFORMATION

CURRENT OWNER: FORESDALE ROAD, LLC
 TITLE REFERENCE: DEED BOOK 24390, PAGE 193
 PLAN REFERENCE: PLAN BOOK 272, PAGE 49
 ASSESSORS MAP: 26
 PARCEL: 6
 ZONING DISTRICT: C3 11 R5
 SETBACKS: FRONT 75' 75' 40'
 SIDE 20' 50' 15'
 REAR 20' 30' 15'
 MINIMUM LOT SIZE: 40,000 S.F. 40,000 S.F. 80,000 S.F.
 MINIMUM FRONTAGE: 200' 200' 150'
 EXISTING TOTAL LOT AREA: 18.04± ACRES
 NITROGEN SENSITIVE ZONE: ZONE II (PARTIAL STATE)
 FEMA FLOOD ZONE DISTRICT: "X"
 OVERLAY DISTRICT: GROUNDWATER PROTECTIVE OVERLAY DISTRICT (PARTIALLY)
 LIGHT INDUSTRIAL OVERLAY DISTRICT (PARTIALLY)
 MINIMUM ROAD END TURN AROUND: 120' DIAMETER
 MAXIMUM DEAD END STREET: 800' (P.B. DECISION ALLOWED)
 MINIMUM ROAD WIDTH: 50' (INDUSTRIAL)



Kieran J. Healy
 KIERAN J. HEALY
 PROFESSIONAL LAND SURVEYOR
 DATE

**DEFINITIVE
 SUBDIVISION
 PLAN**

532 MAIN STREET (ROUTE 130)
 IN
 MASHPEE
 MASSACHUSETTS
 (BARNSTABLE COUNTY)
 OVERALL LOT PLAN

AUGUST 27, 2021

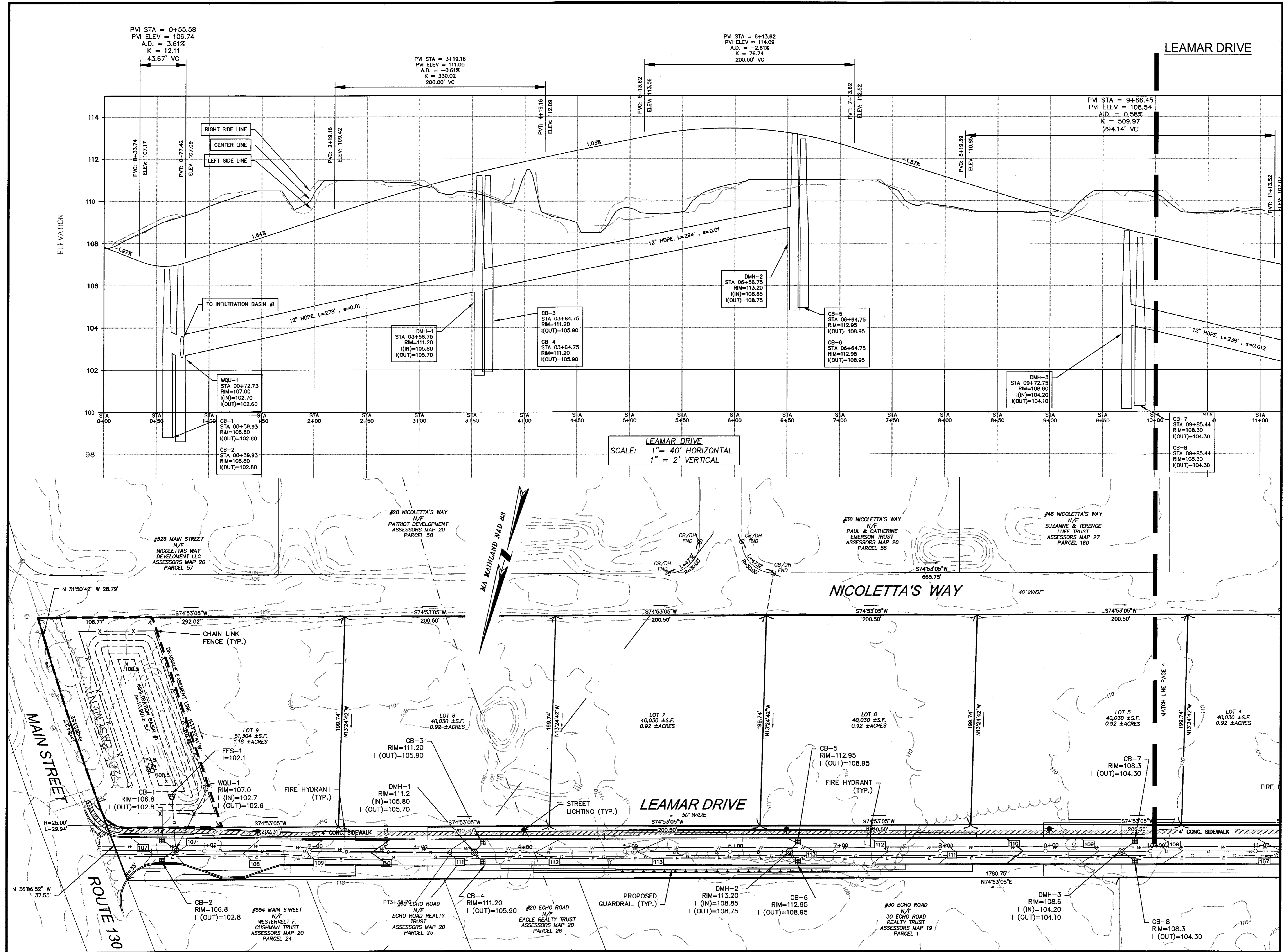
REVISIONS:

NO.	DATE	DESC.
1	2/11/22	PER PLANNING BOARD

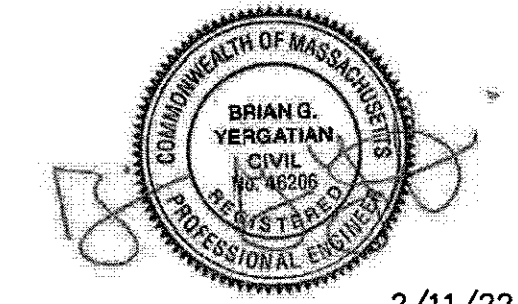
PREPARED FOR:
 MARCELLO MALLEGI
 80 AIRPORT ROAD
 HYANNIS, MA 02601

BSC GROUP
 349 Main Street - Route 28
 West Yarmouth, Massachusetts
 02673
 508 778 8919

© 2022 The BSC Group, Inc.
 SCALE: 1" = 100'



LEAMAR DRIVE



2/11/22

BRIAN G YERGATIAN
PROFESSIONAL ENGINEER DATE

DEFINITIVE
SUBDIVISION
PLAN

532 MAIN STREET (ROUTE 130)

IN
MASHPEE
MASSACHUSETTS
(BARNSTABLE COUNTY)

PLAN & PROFILE
LEAMAR DRIVE

AUGUST 27, 2021

REVISIONS:

NO.	DATE	DESC.
1	2/11/22	PER PLANNING BOARD

PREPARED FOR:
MARCELLO MALLEGNI
80 AIRPORT ROAD
HYANNIS, MA 02601



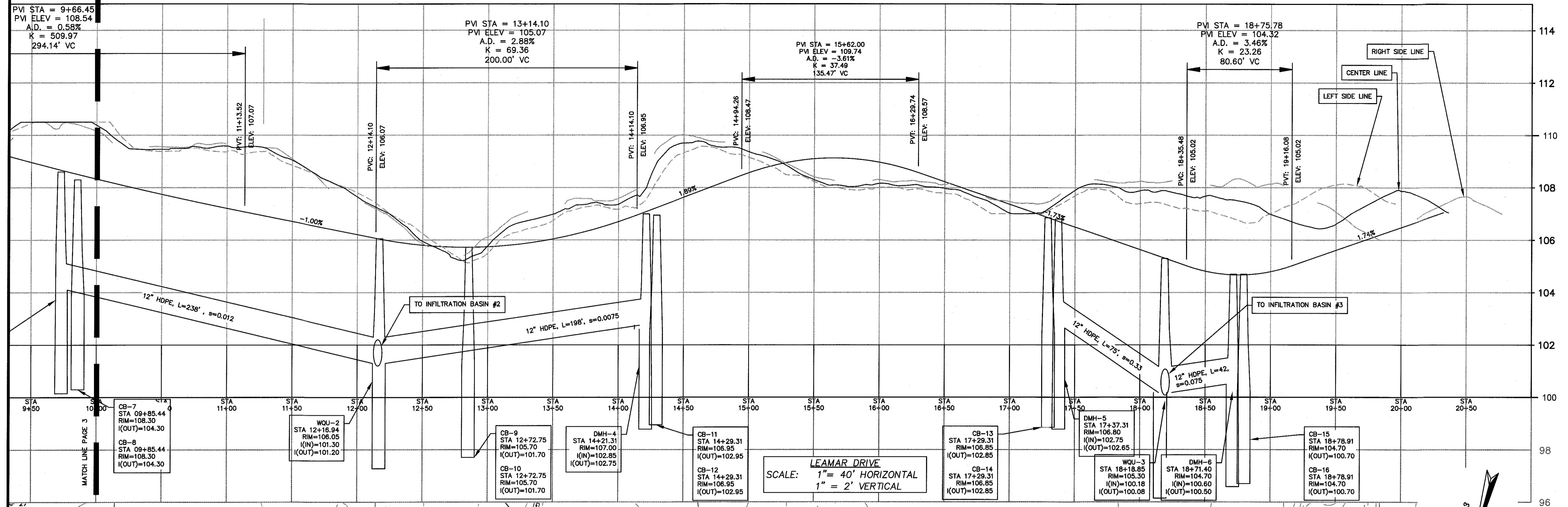
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02673
508 778 8919

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SCALE: 1" = 40'



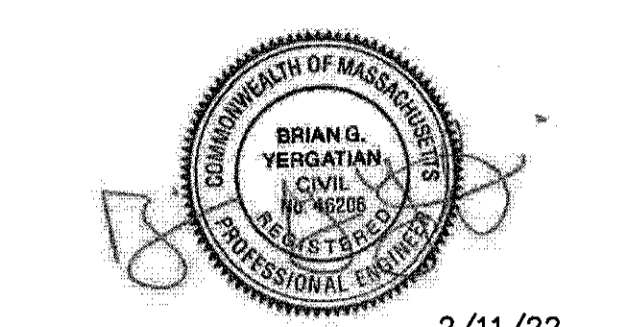
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JOB. NO: 5-0474.00 SHEET 3 OF 8

LEAMAR DRIVE



LEAMAR DRIVE
SCALE: 1" = 40' HORIZONTAL
1" = 2' VERTICAL

ELEVATION



BRIAN G. YERGATIAN
PROFESSIONAL ENGINEER

DEFINITIVE
SUBDIVISION
PLAN
532 MAIN STREET (ROUTE 130)
IN
MASHPEE
MASSACHUSETTS
(BARNSTABLE COUNTY)

PLAN & PROFILE
LEAMAR DRIVE
AUGUST 27, 2021

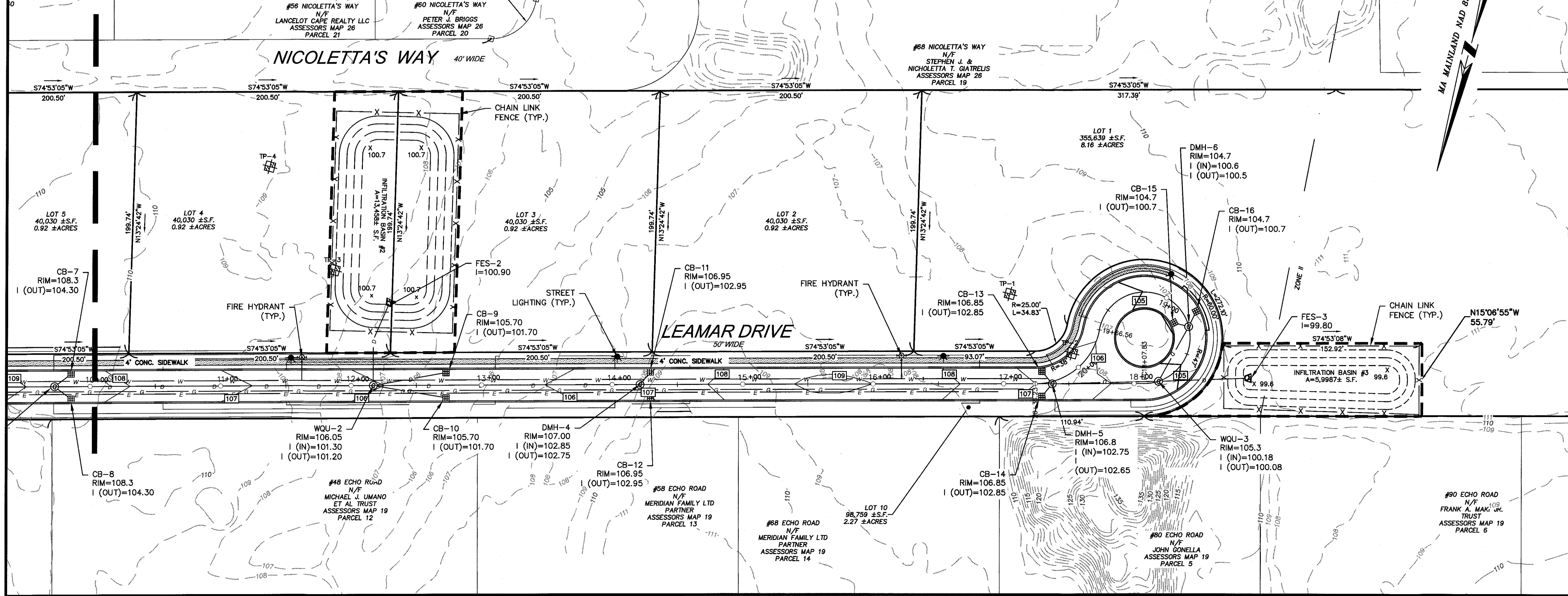
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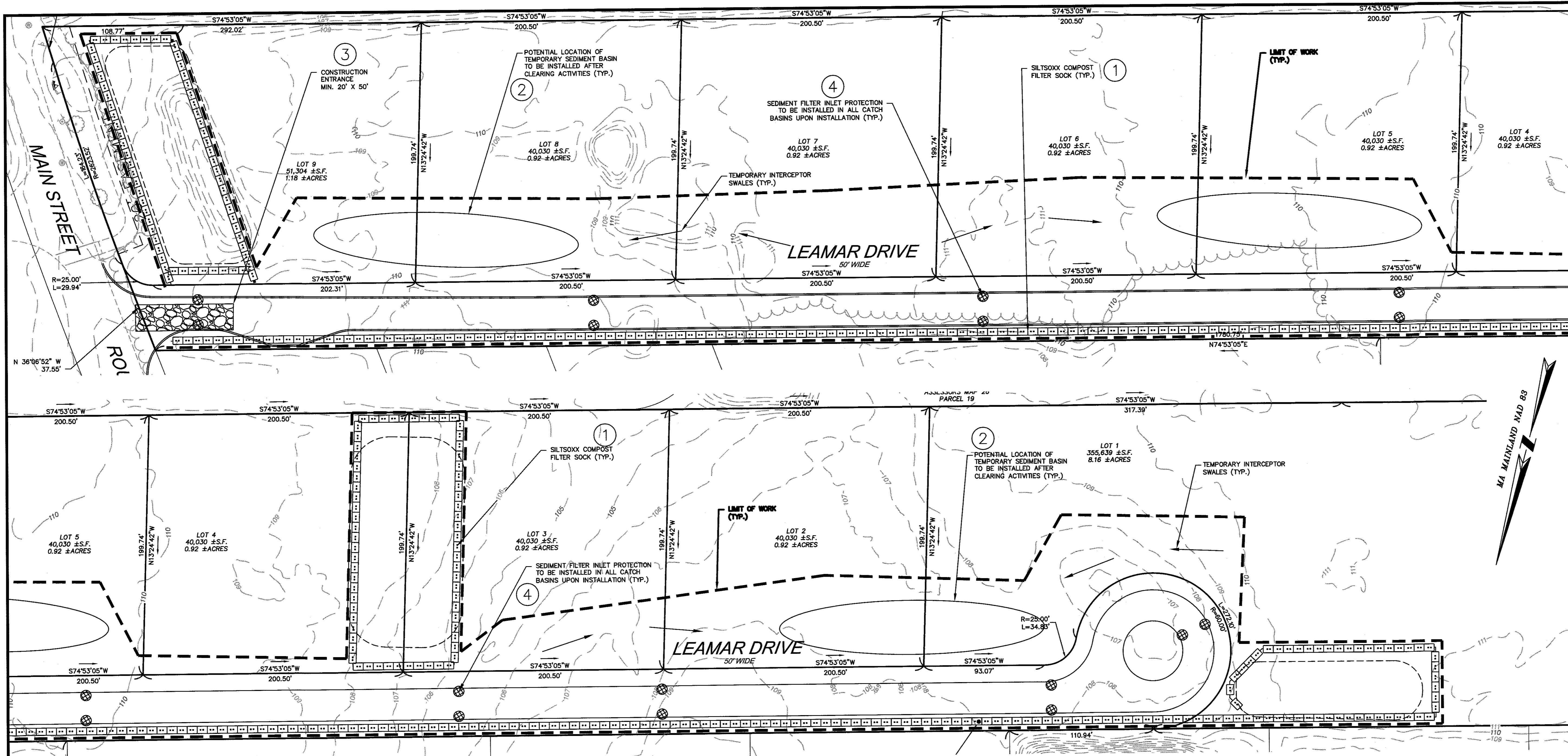
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SCALE: 1" = 40'
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JOB. NO: 5-0474.00 SHEET 4 OF 7



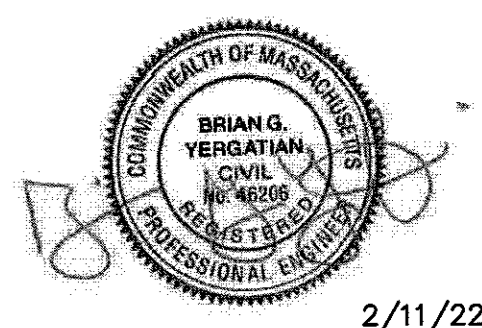


LEGEND

- SILTSOXX COMPOST FILTER SOCK
- LIMIT OF WORK
- BEST MANAGEMENT PRACTICES (BMPs)**
- ① SILTSOXX COMPOST FILTER SOCK
- ② TEMPORARY SEDIMENT BASIN WITH INTERCEPTOR SWALES
- ③ CONSTRUCTION ENTRANCE/EXIT
- ④ SEDIMENT FILTER INLET PROTECTION (CATCH BASINS)

EROSION AND SEDIMENT CONTROL NOTES:

1. PRIOR TO ANY LAND DISTURBANCE ACTIVITIES COMMENCING ON THE SITE, THE DEVELOPER SHALL PHYSICALLY MARK LIMITS OF NO LAND DISTURBANCE ON THE SITE WITH TAPE, SIGNS, OR ORANGE CONSTRUCTION FENCE, SO THAT WORKERS CAN SEE THE AREAS TO BE PROTECTED. THE PHYSICAL MARKERS SHALL REMAIN IN PLACE UNTIL A CERTIFICATE OF COMPLETION HAS BEEN ISSUED.
2. APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO SOIL DISTURBANCE. MEASURES SHALL BE TAKEN TO CONTROL EROSION WITHIN THE PROJECT AREA. SEDIMENT IN RUNOFF WATER SHALL BE TRAPPED AND RETAINED WITHIN THE PROJECT AREA. WETLAND AREAS AND SURFACE WATERS SHALL BE PROTECTED FROM SEDIMENT.
3. MINIMIZE TOTAL AREA OF DISTURBANCE AND PROTECT NATURAL FEATURES AND SOIL.
4. THE CONTRACTOR SHALL SEQUENCE ALL ACTIVITIES TO MINIMIZE SIMULTANEOUS AREAS OF DISTURBANCE. MASS CLEARING AND GRADING OF THE ENTIRE SITE SHALL BE AVOIDED.
5. MINIMIZE SOIL EROSION AND CONTROL SEDIMENTATION DURING CONSTRUCTION.
6. DIVERT UNCONTAMINATED WATER AROUND DISTURBED AREAS.
7. INSTALL AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND GOOD ENGINEERING PRACTICES OR IN ACCORDANCE WITH THE 2017 EPA CONSTRUCTION GENERAL PERMIT.
8. PROTECT AND MANAGE ON AND OFF-SITE MATERIAL STORAGE AREAS (OVERBURDEN AND STOCKPILES OF DIRT, BORROW AREAS, OR OTHER AREAS USED SOLELY BY THE PERMITTED PROJECT ARE CONSIDERED A PART OF THE PROJECT).
9. COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS INCLUDING WASTE DISPOSAL, SANITARY OR SEWER REGULATIONS, AND AIR QUALITY REQUIREMENTS, INCLUDING DUST CONTROL.
10. SEDIMENT SHALL BE REMOVED ONCE THE VOLUME REACHES 1/4 TO 1/2 THE HEIGHT OF THE EROSION CONTROL DEVICE. SEDIMENT SHALL BE REMOVED FROM SILT FENCE PRIOR TO REACHING THE LOAD-BEARING CAPACITY OF THE SILT FENCE WHICH MAY BE LOWER THAN 1/4 TO 1/2 THE HEIGHT.
11. SEDIMENT FROM SEDIMENT TRAPS OR SEDIMENTATION PONDS SHALL BE REMOVED WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT.
12. BMPs TO BE USED FOR INFILTRATION AFTER CONSTRUCTION SHALL NOT BE USED AS BMPs DURING CONSTRUCTION UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEER AND THE TOWN OF BOURNE. MANY INFILTRATION TECHNOLOGIES ARE NOT DESIGNED TO HANDLE THE HIGH CONCENTRATIONS OF SEDIMENTS TYPICALLY FOUND IN CONSTRUCTION RUNOFF, AND THIS MUST BE PROTECTED FROM CONSTRUCTION RELATED SEDIMENT LOADINGS.
13. SOIL STOCKPILES MUST BE STABILIZED OR COVERED AT THE END OF EACH WORKDAY. STOCKPILE SIDE SLOPES SHALL NOT BE GREATER THAN 2:1. ALL STOCKPILES SHALL BE SURROUNDED BY SEDIMENT CONTROLS.
14. FOR ACTIVE CONSTRUCTION AREAS SUCH AS BORROW OR STOCKPILE AREAS, ROADWAY IMPROVEMENTS AND AREAS WITHIN 50 FEET OF A BUILDING UNDER CONSTRUCTION, A PERIMETER SEDIMENT CONTROL SYSTEM SHALL BE INSTALLED AND MAINTAINED TO CONTAIN SOIL.
15. A TRACKING PAD OR OTHER APPROVED STABILIZATION METHOD SHALL BE CONSTRUCTED AT ALL ENTRANCE/EXITS POINTS OF THE SITE TO REDUCE THE AMOUNT OF SOIL CARRIED ONTO ROADWAYS AND OFF THE SITE.
16. ON THE CUT SIDE OF ROADS, DITCHES SHALL BE STABILIZED IMMEDIATELY WITH ROCK RIP-RAP OR OTHER NON-ERODIBLE LINERS, OR WHERE APPROPRIATE, VEGETATIVE MEASURES SUCH AS HYDROSEEDING OR JUTE MATTING.
17. PERMANENT SEEDING SHALL BE UNDERTAKEN IN THE SPRING FROM MARCH THROUGH MAY, AND IN LATE SUMMER AND EARLY FALL FROM AUGUST TO OCTOBER 15. DURING THE PEAK SUMMER MONTHS AND IN THE FALL AFTER OCTOBER 15, WHEN SEEDING IS FOUND TO BE IMPRACTICAL, APPROPRIATE TEMPORARY STABILIZATION SHALL BE APPLIED. PERMANENT SEEDING MAY BE UNDERTAKEN DURING THE SUMMER IF PLANS PROVIDE FOR ADEQUATE MULCHING AND WATERING.
18. ALL SLOPES STEEPER THAN 3:1 (H:V, 33.3%), AS WELL AS PERIMETER DIKES, SEDIMENT BASINS OR TRAPS, AND EMBANKMENTS MUST, UPON COMPLETION, BE IMMEDIATELY STABILIZED WITH SOD, SEED AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES. AREAS OUTSIDE OF THE PERIMETER SEDIMENT CONTROL SYSTEM MUST NOT BE DISTURBED.
19. TEMPORARY SEDIMENT TRAPPING DEVICES MUST NOT BE REMOVED UNTIL PERMANENT STABILIZATION IS ESTABLISHED IN ALL CONTRIBUTORY DRAINAGE AREAS.
20. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AFTER FINAL SITE STABILIZATION. DISTURBED SOIL AREAS RESULTING FROM THE REMOVAL OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED WITHIN 30 DAYS OF REMOVAL.
21. PROPERLY MANAGE ON-SITE CONSTRUCTION AND WASTE MATERIALS.
22. PREVENT OFF-SITE VEHICLE TRACKING OF SEDIMENTS.
23. DUST SHALL BE CONTROLLED AT THE SITE.
24. ALL PREVIOUSLY DISTURBED LAND SHALL BE STABILIZED BY APPROVED METHODS AFTER 14 DAYS IF LEFT UNDISTURBED, THIS INCLUDES STOCKPILES, CONSTRUCTION ENTRANCES, GRADED AREAS AND OTHER CONSTRUCTION ACTIVITY RELATED CLEARING.
25. IF WORK IS HALTED OVER WINTER MONTHS THE CONTRACTOR SHALL BE RESPONSIBLE FOR STABILIZING THE AREA THROUGH GROUND COVER PRACTICES.



2/11/22

BRIAN G. YERGATIAN
PROFESSIONAL ENGINEER DATE

**DEFINITIVE
SUBDIVISION
PLAN**

532 MAIN STREET (ROUTE 130)

IN
MASHPEE
MASSACHUSETTS
(BARNSTABLE COUNTY)

**EROSION & SEDIMENT
CONTROL PLAN**

AUGUST 27, 2021

REVISIONS:

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PREPARED FOR:

MARCELLO MALLEGNI
80 AIRPORT ROAD
HYANNIS, MA 02601

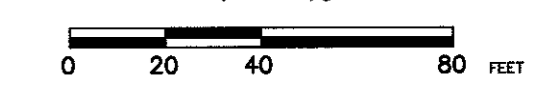


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SCALE: 1" = 40'



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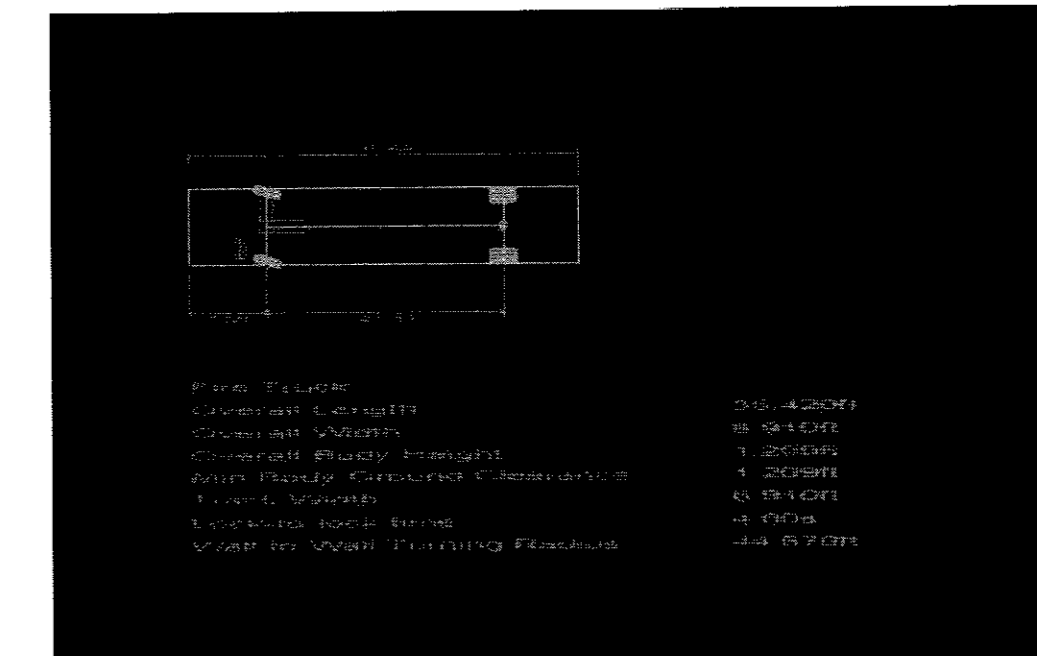
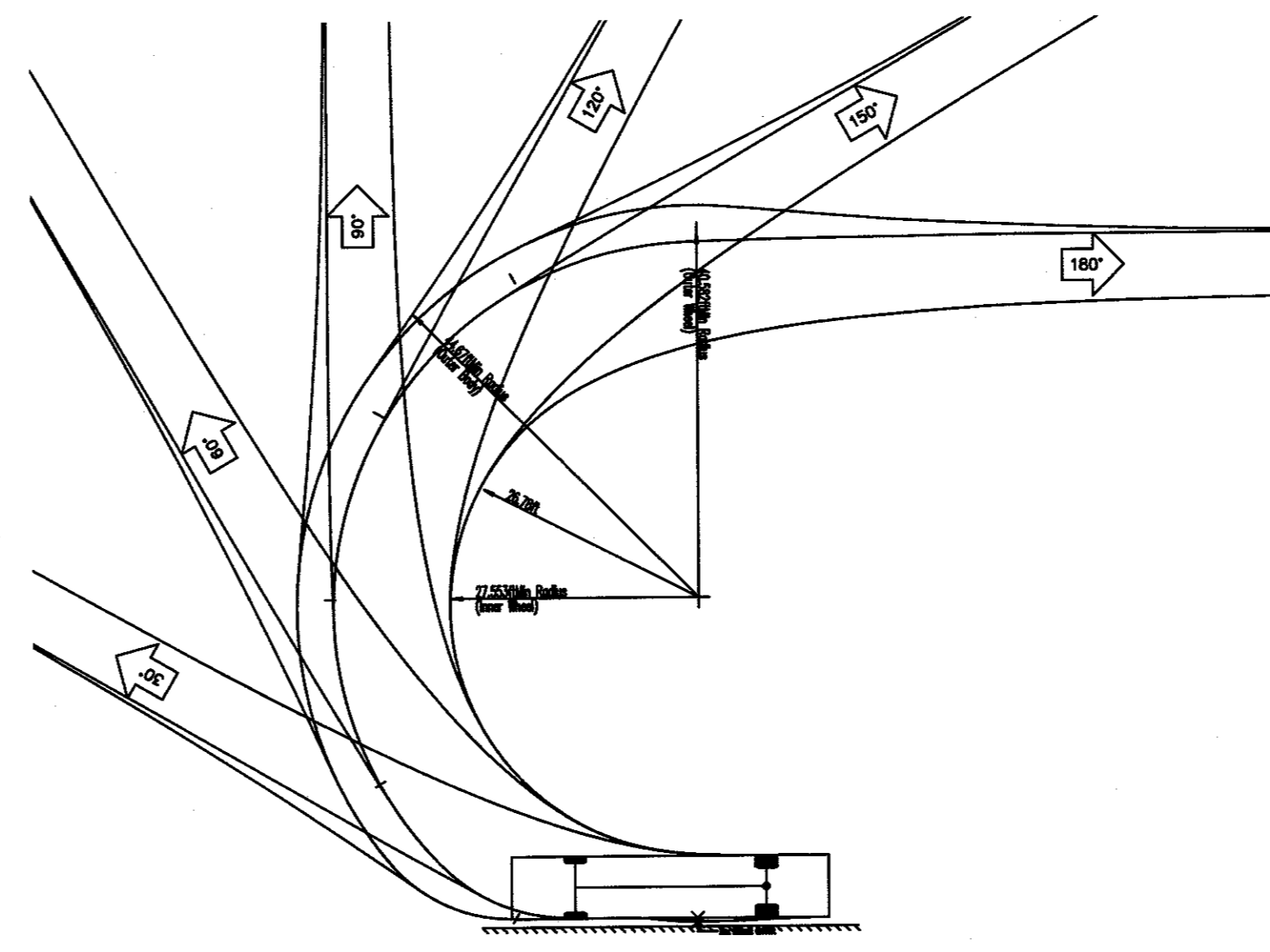
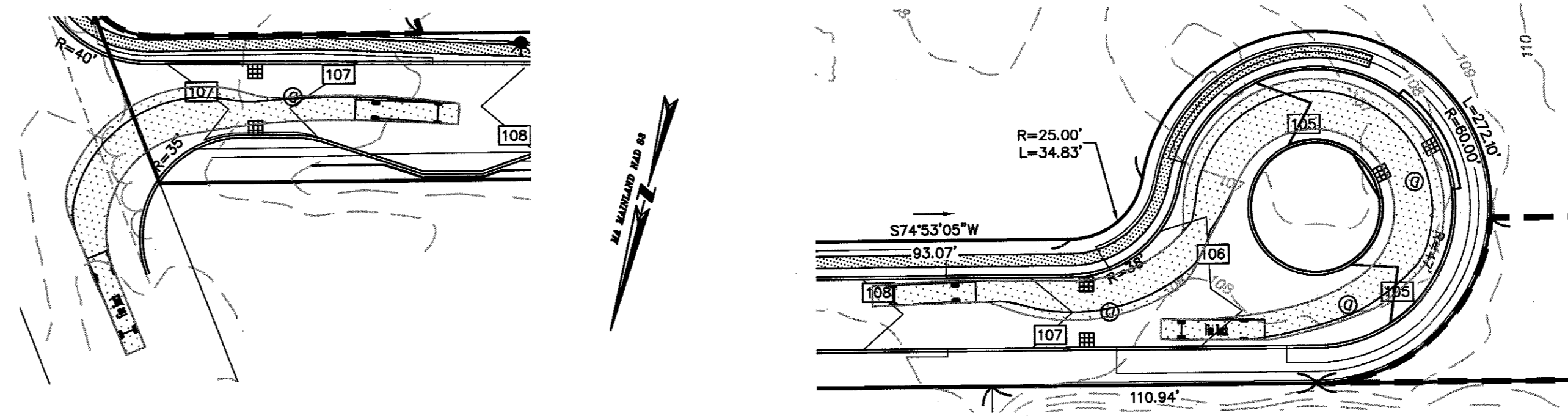
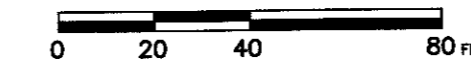
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SHEET 5 OF 8

JOB. NO: 5-0474.00

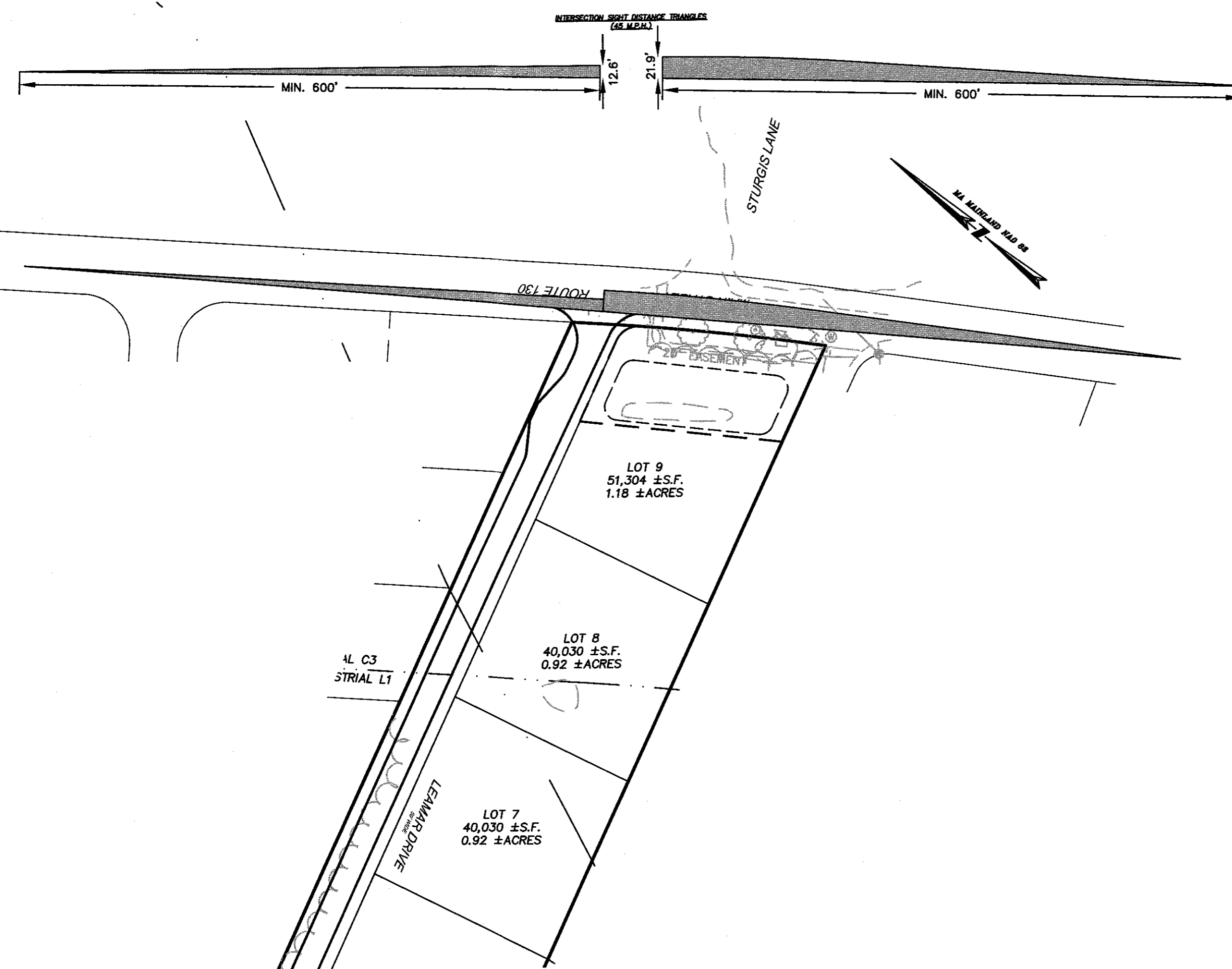
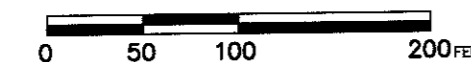
FIRE TRUCK TURNING PLAN

SCALE: 1" = 40'

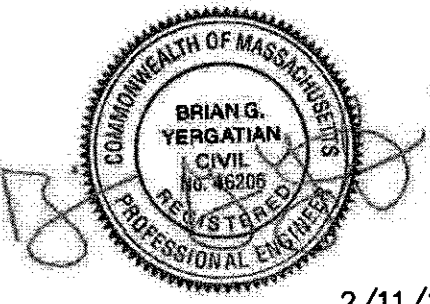


SIGHT DISTANCE PLAN

SCALE: 1" = 100'



ISSUED FOR PERMITTING
NOT FOR CONSTRUCTION



2/11/22

BRIAN G. YERGATIAN DATE
PROFESSIONAL ENGINEER

DEFINITIVE
SUBDIVISION
PLAN

532 MAIN STREET (ROUTE 130)

IN
MASHPEE
MASSACHUSETTS
(BARNSTABLE COUNTY)

SIGHT DISTANCE &
TURNING PLAN

AUGUST 27, 2021

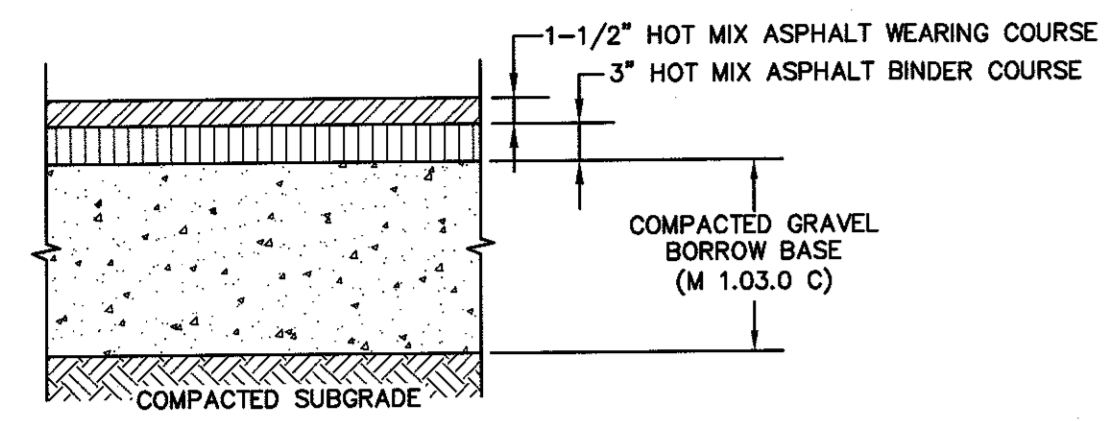
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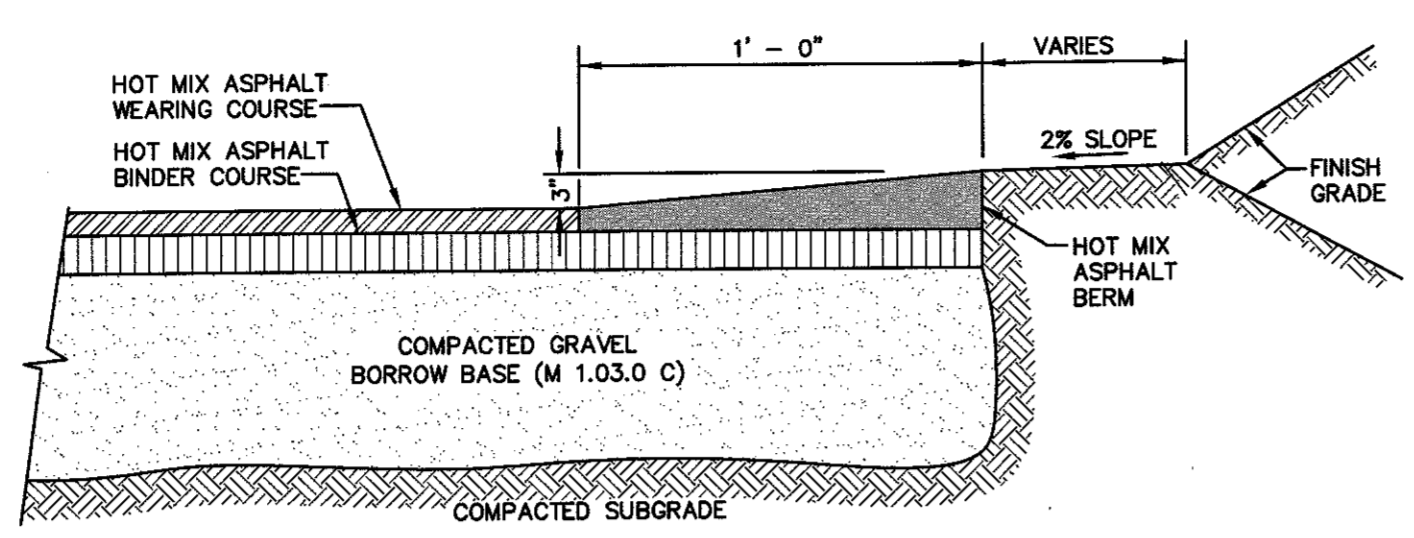
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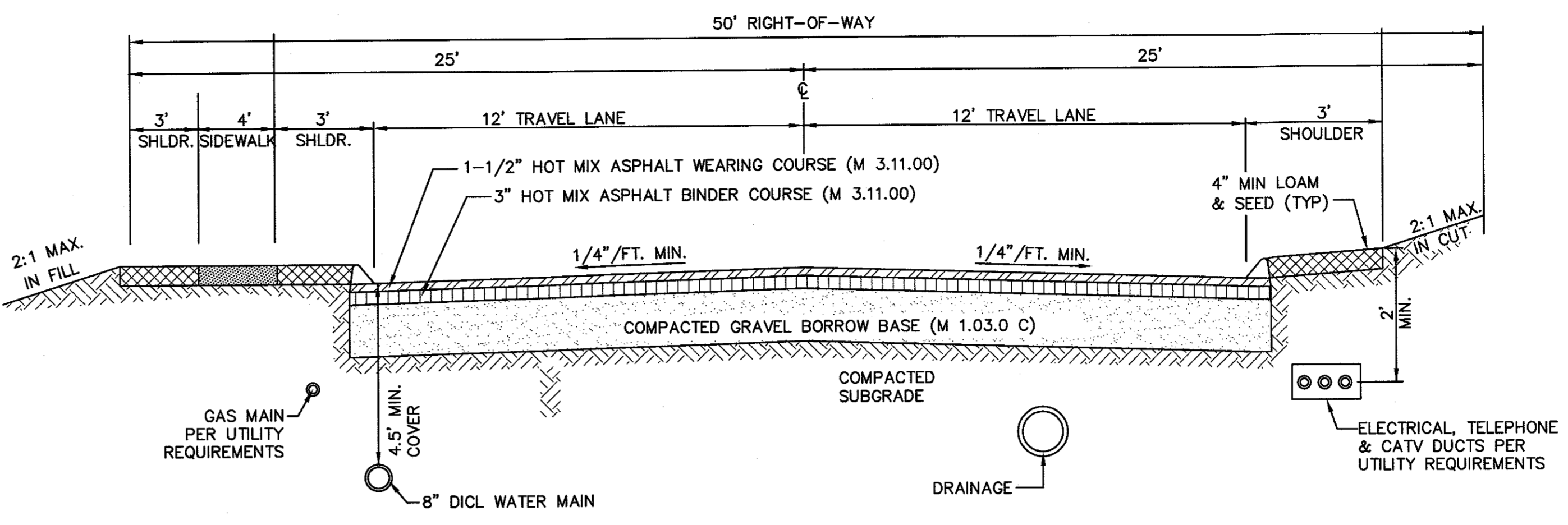
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SCALE: AS NOTED



HEAVY DUTY FLEXIBLE PAVEMENT



MODIFIED CAPE COD BERM

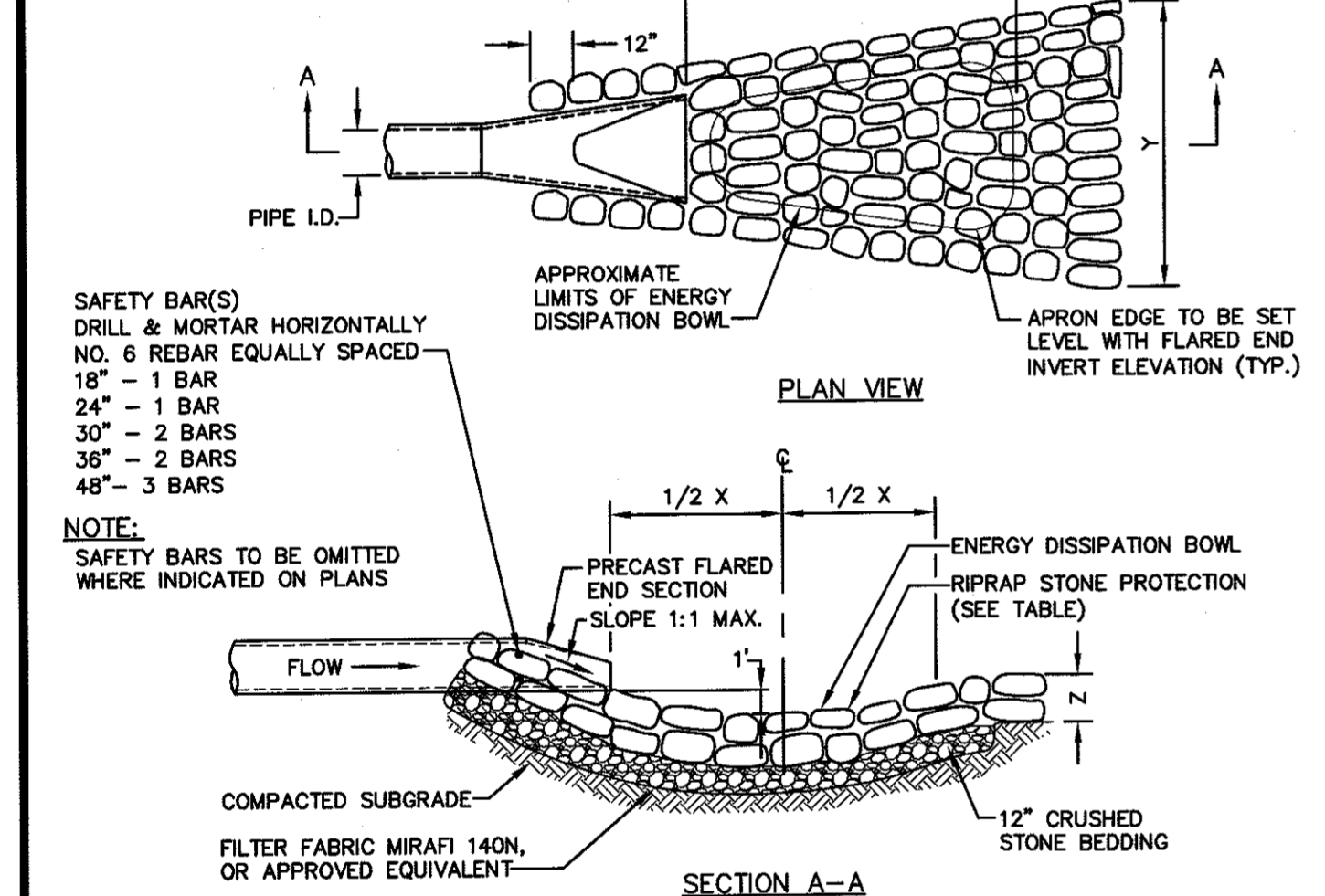


TYPICAL ROADWAY PAVEMENT SECTION

NOTE: PAVEMENT SECTIONS ARE SUBJECT TO CHANGE AND WILL BE BASED ON THE RESULTS OF GEOTECHNICAL INVESTIGATIONS

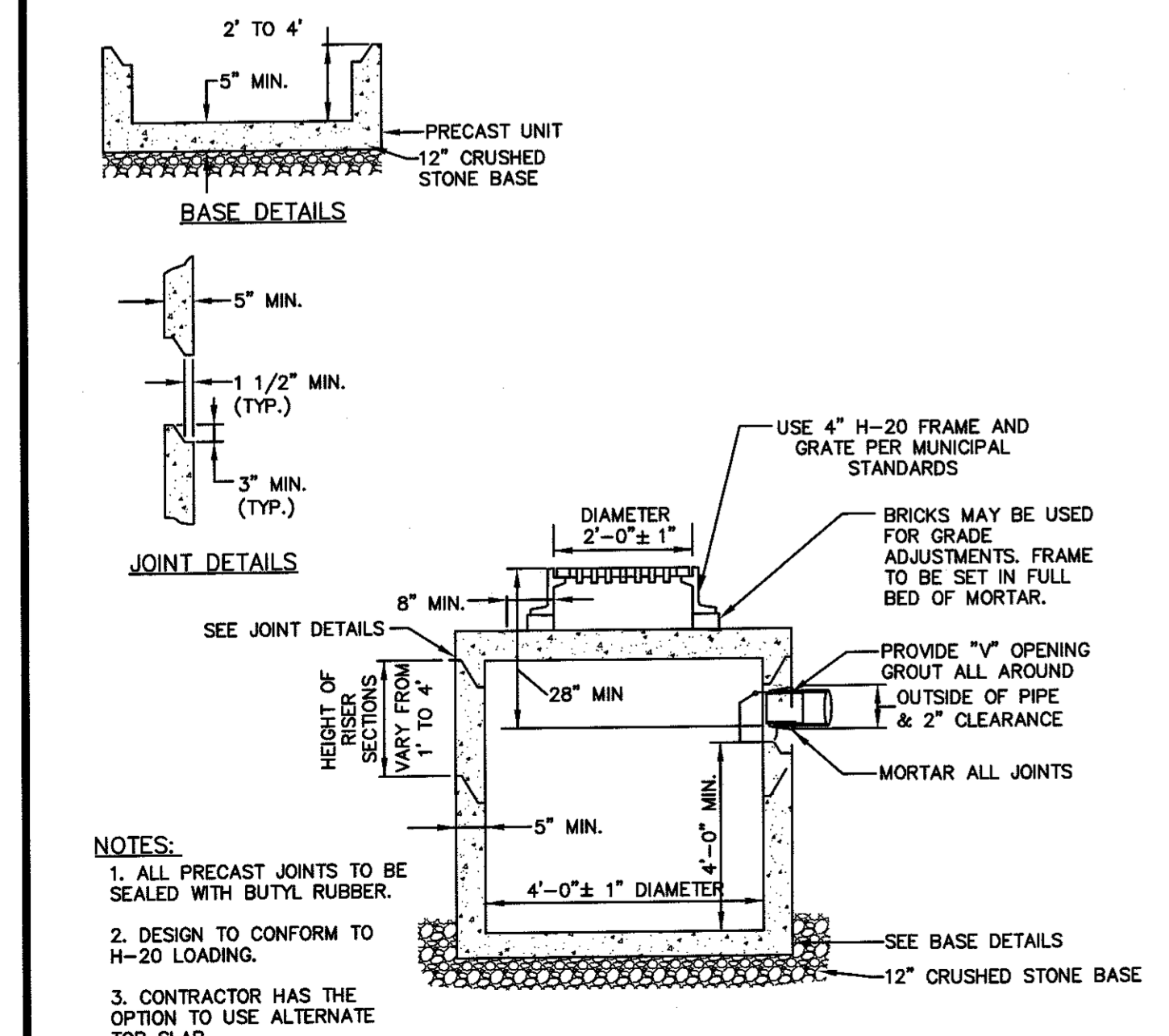
HOT MIX ASPHALT PAVEMENT SECTIONS

OUTLET NO.		X	Y	Z	STONE DIA. (D50)
FES-1	1' CULVERT	5'	6.33'	20"	10"
FES-2	1.25' CULVERT	8'	8.75'	30.8"	14"
FES-3	1' CULVERT	4'	5.67'	17.5"	5"

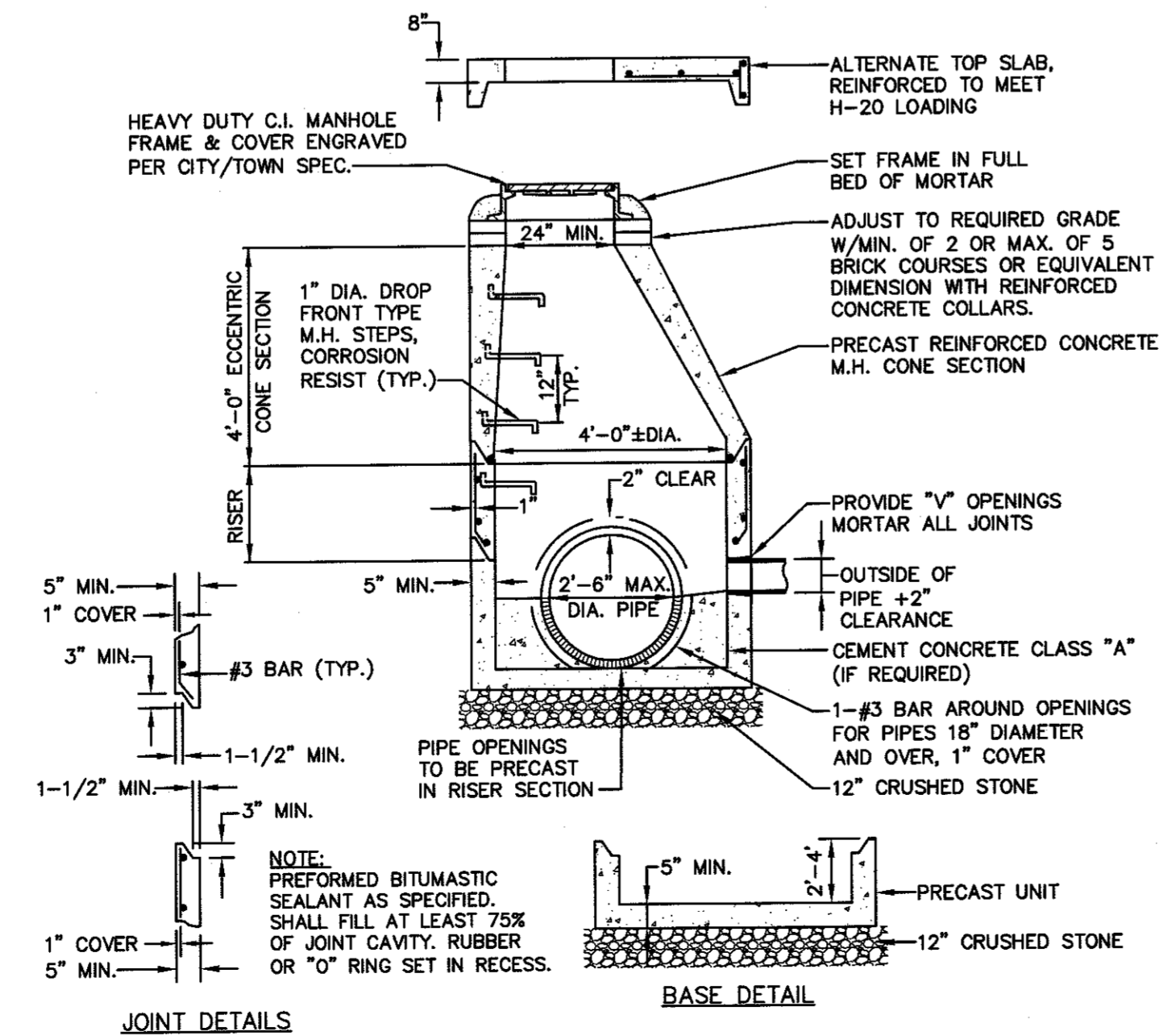


FLARED END SECTION W/ STONE PROTECTION (DISSIPATION BOWL)

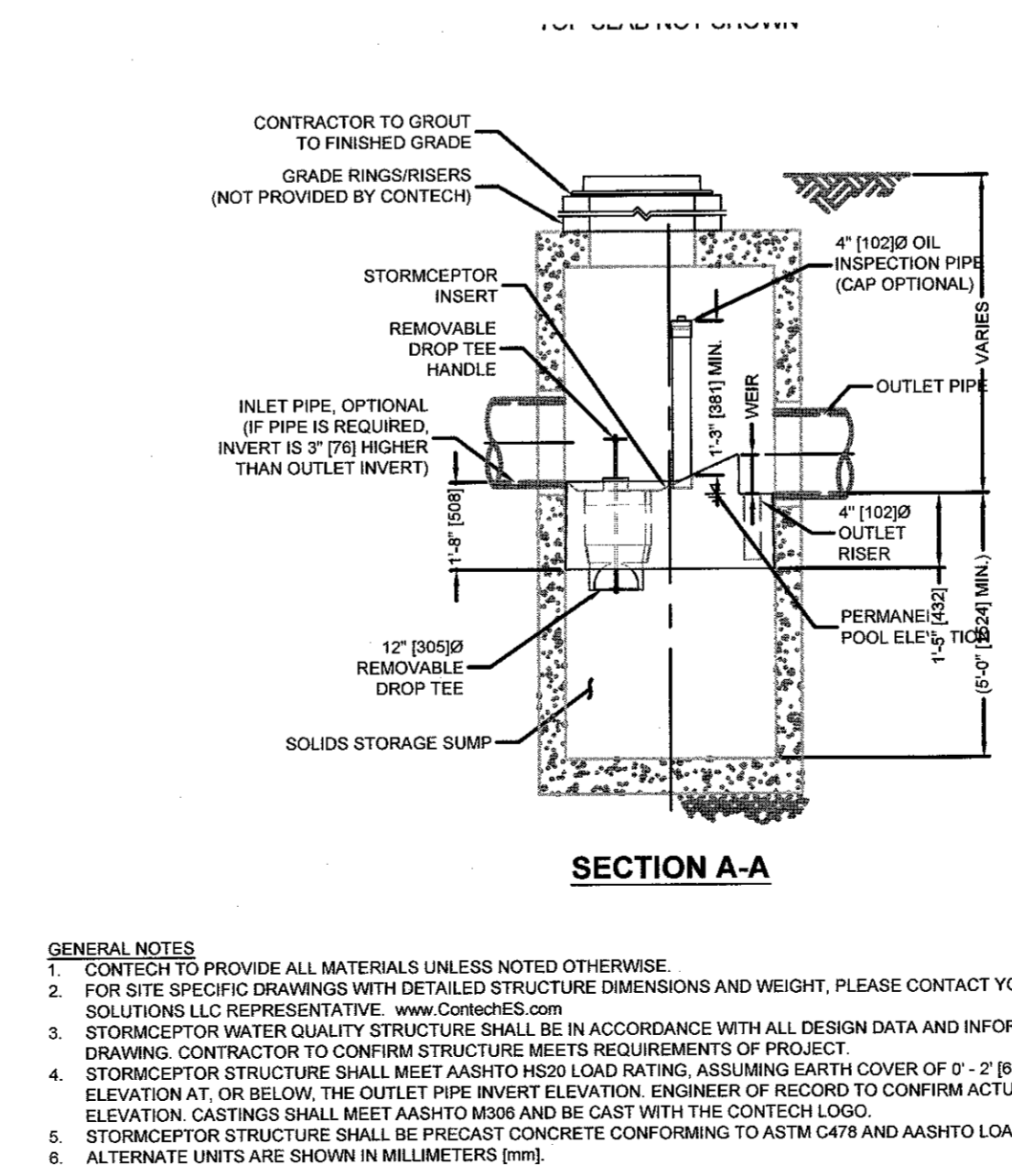
SCALE: NONE



PRECAST CONCRETE CATCH BASIN



PRECAST CONCRETE DMH



STORMCEPTOR SC450i

- GENERAL NOTES
- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
 - FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contech.com
 - STORMCEPTOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PRODUCT.
 - STORMCEPTOR STRUCTURE SHALL MEET AASHTO H20 LOAD RATING, ASSUMING EARTH COVER OF 0'-2" (B10) AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M270 AND BE CAST WITH THE CONTECH LOGO.
 - STORMCEPTOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
 - ALTERNATE UNITS ARE SHOWN IN MILLIMETERS (mm).



2/11/22

BRIAN G. YERGATIAN
PROFESSIONAL ENGINEER

DEFINITIVE SUBDIVISION PLAN
532 MAIN STREET (ROUTE 130)
IN
MASHPEE MASSACHUSETTS
(BARNSTABLE COUNTY)

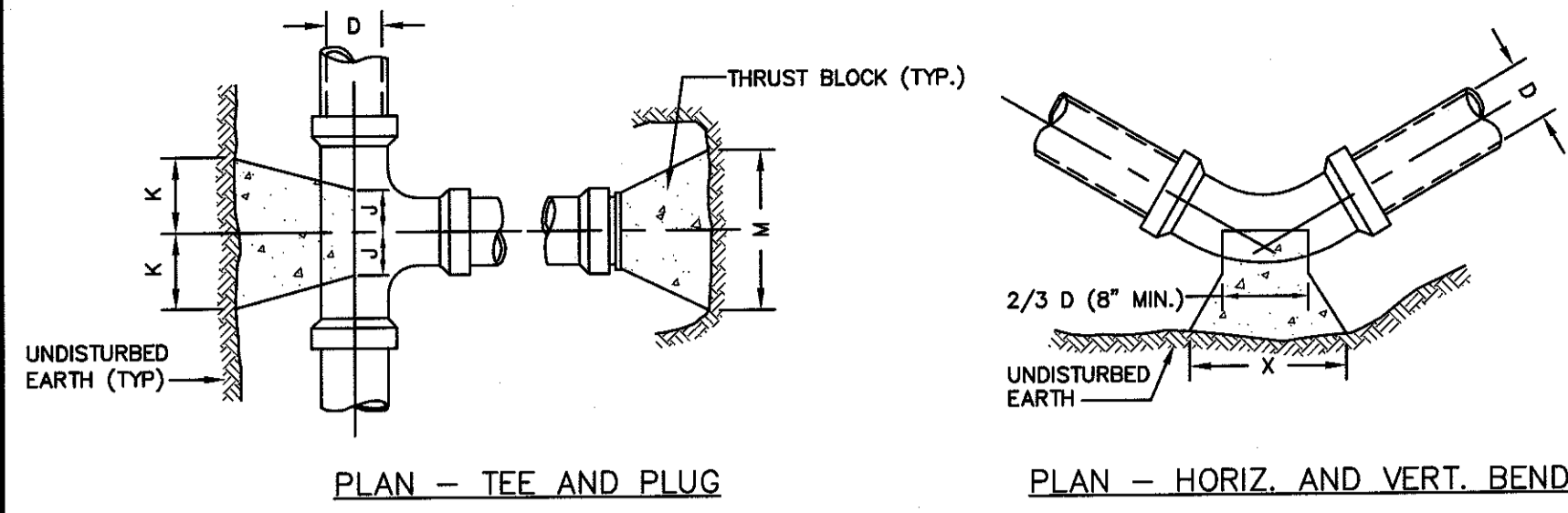
DETAIL SHEET I
AUGUST 27, 2021

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PREPARED FOR:
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80 AIRPORT ROAD
HYANNIS, MA 02601

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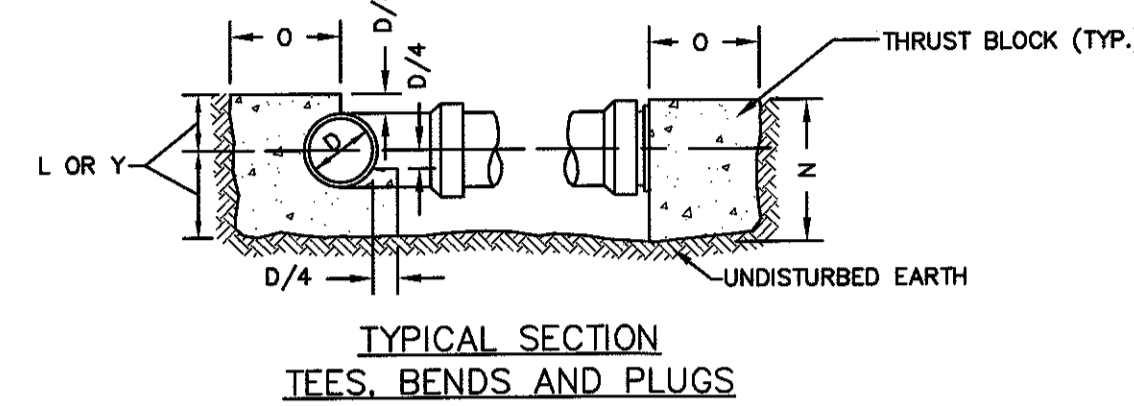


SIZE OF BRANCH	J	K	L	M	N	O
4" THRU 8"	10"	10"	1'-0"	2'-0"	1'-6"	10"
10" THRU 16"	1'-0"	1'-6"	1'-8"	3'-10"	2'-10"	1'-8"
24"	1'-4"	2'-0"	2'-6"	5'-0"	3'-6"	1'-8"

TEES AND PLUGS		BENDS	
D	X	Y	Z
4" TO 8"	10" TO 16"	22 1/2"	11 1/4"
1'-8"	3'-4"	3'-6"	1'-4"
1'-2"	1'-8"	2'-4"	1'-0"
		1'-2"	2'-4"

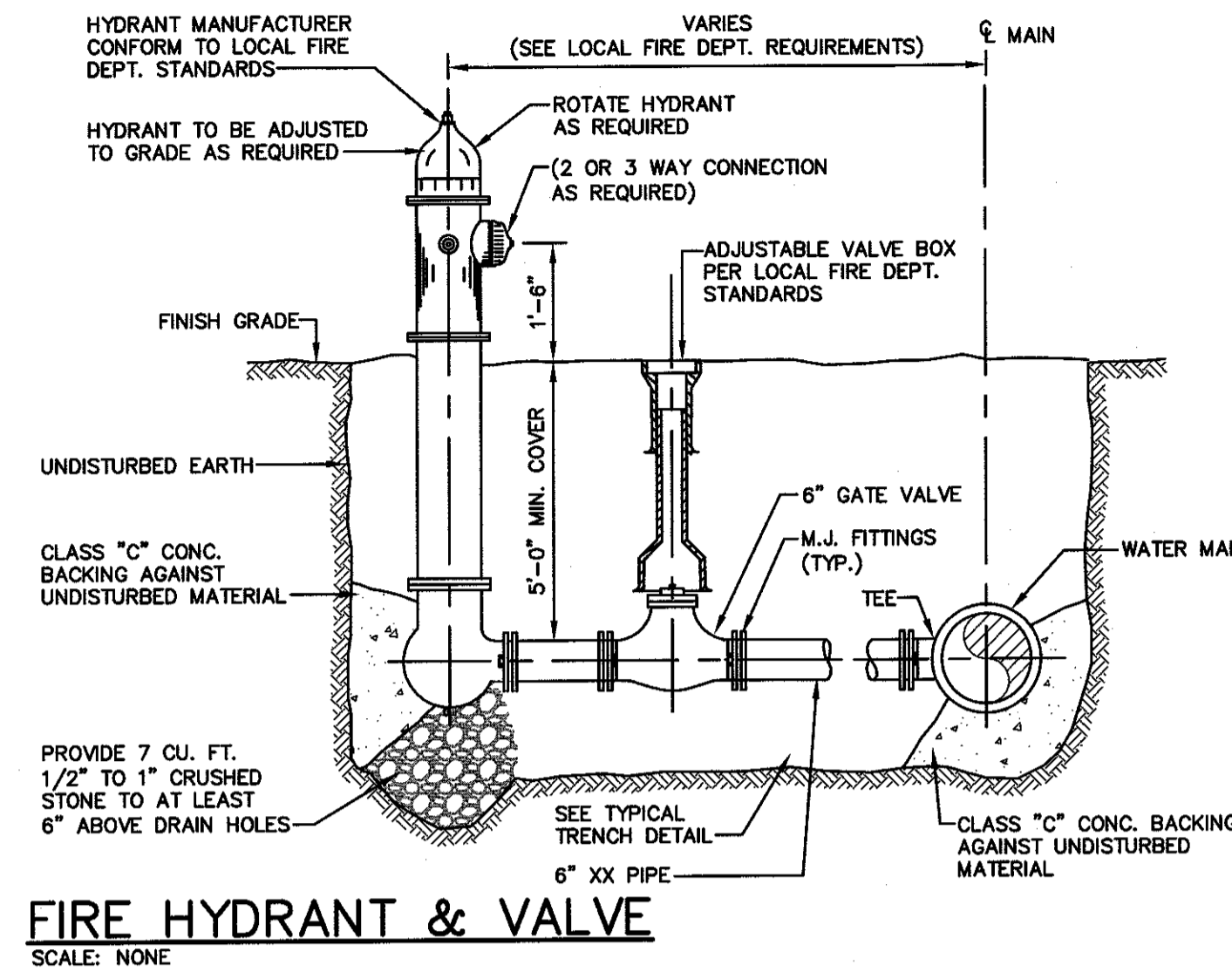
NOTES:

1. PROVIDE 3000 psi CONCRETE THRUST BLOCKS AT ALL BENDS, DEAD ENDS, & TEES UNLESS OTHERWISE DIRECTED. CONCRETE FOR ALL THRUST BLOCKS TO BE PLACED AGAINST FIRM, UNDISTURBED SOIL. PROVIDE APPROVED ANCHOR HARNESSE RODS & SOCKET CLAMPS AS SPECIFIED & IN ACCORDANCE WITH PIPE MANUFACTURERS RECOMMENDATIONS WHERE SOIL HAS BEEN DISTURBED OR THRUST BLOCKS CANNOT BE USED, AS DIRECTED BY THE ENGINEER.
2. ALL SOCKET CLAMP METAL SHALL BE COATED WITH BLACK ASPHALTUM OR OTHER WATER DEPARTMENT APPROVED COATINGS.
3. CONCRETE THRUST BLOCKS POURED BEHIND 3-WAY TEE & HYDRANT SHOES TO BE USED WITH SOCKET CLAMPS.
4. NO CONCRETE SHALL COVER PIPE JOINTS, FITTING JOINTS, BOLTS OR HYDRANT DRAINS.



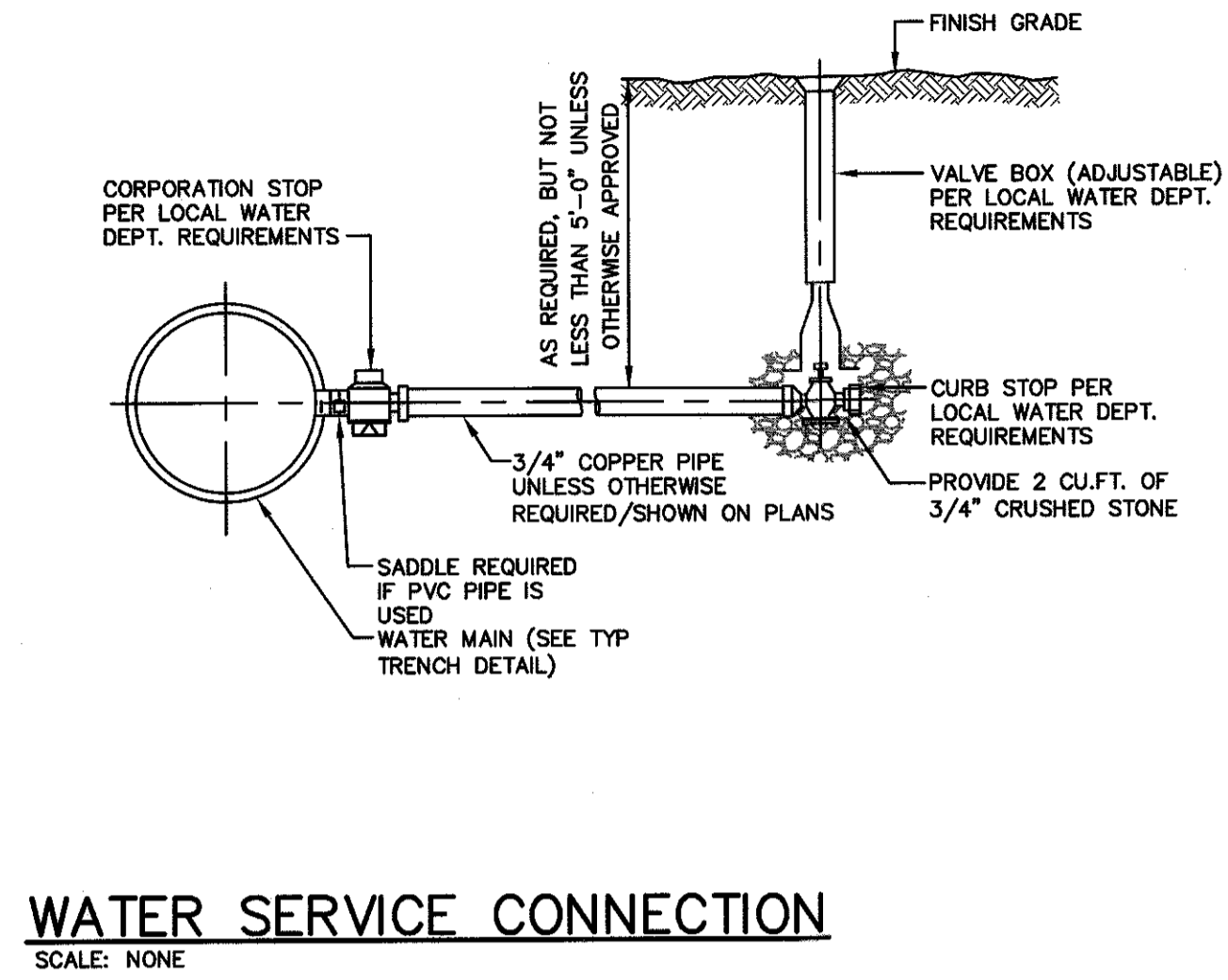
CONCRETE THRUST BLOCK FOR PRESSURE PIPE

SCALE: NONE



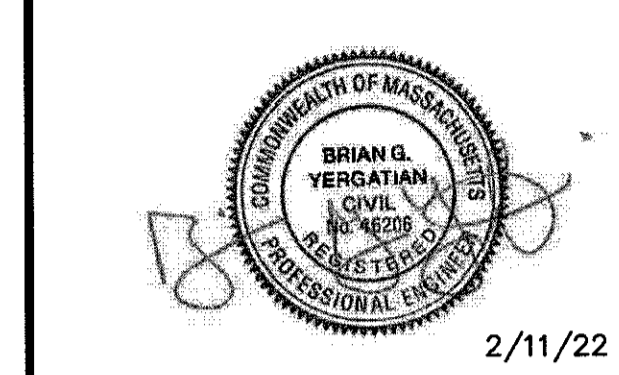
FIRE HYDRANT & VALVE

SCALE: NONE



WATER SERVICE CONNECTION

SCALE: NONE



BRIAN G. YERGATIAN DATE
PROFESSIONAL ENGINEER

DEFINITIVE SUBDIVISION PLAN

532 MAIN STREET (ROUTE 130)

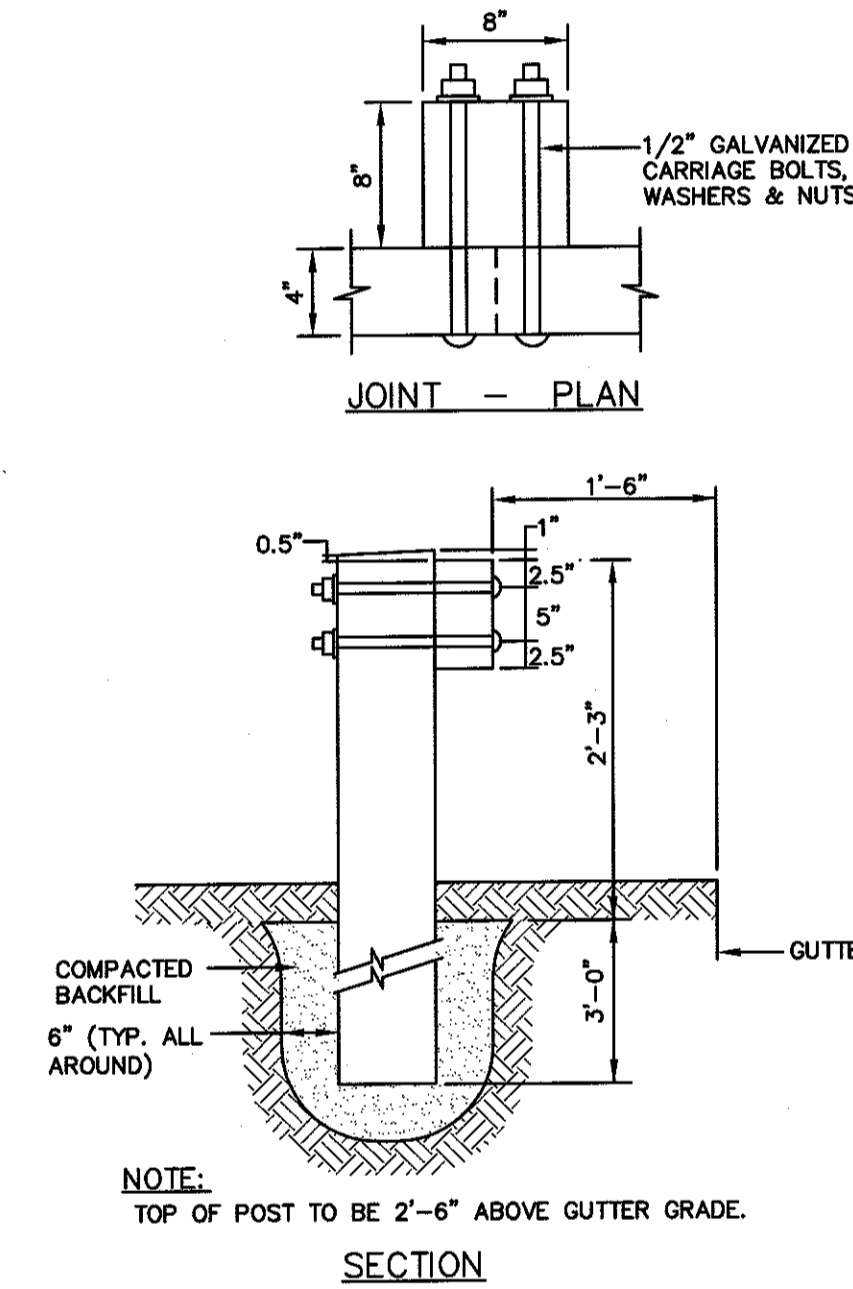
IN
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DETAIL SHEET II

AUGUST 26, 2021

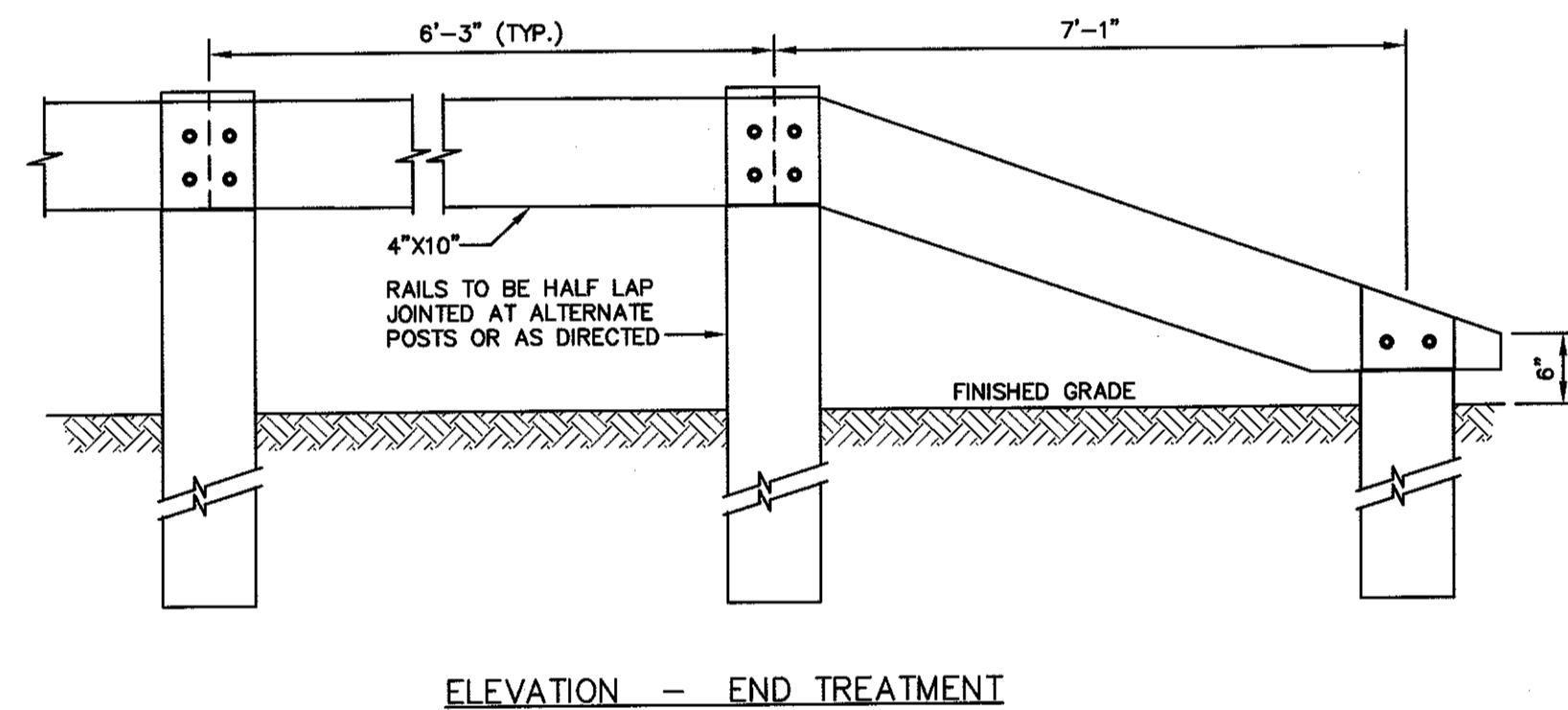
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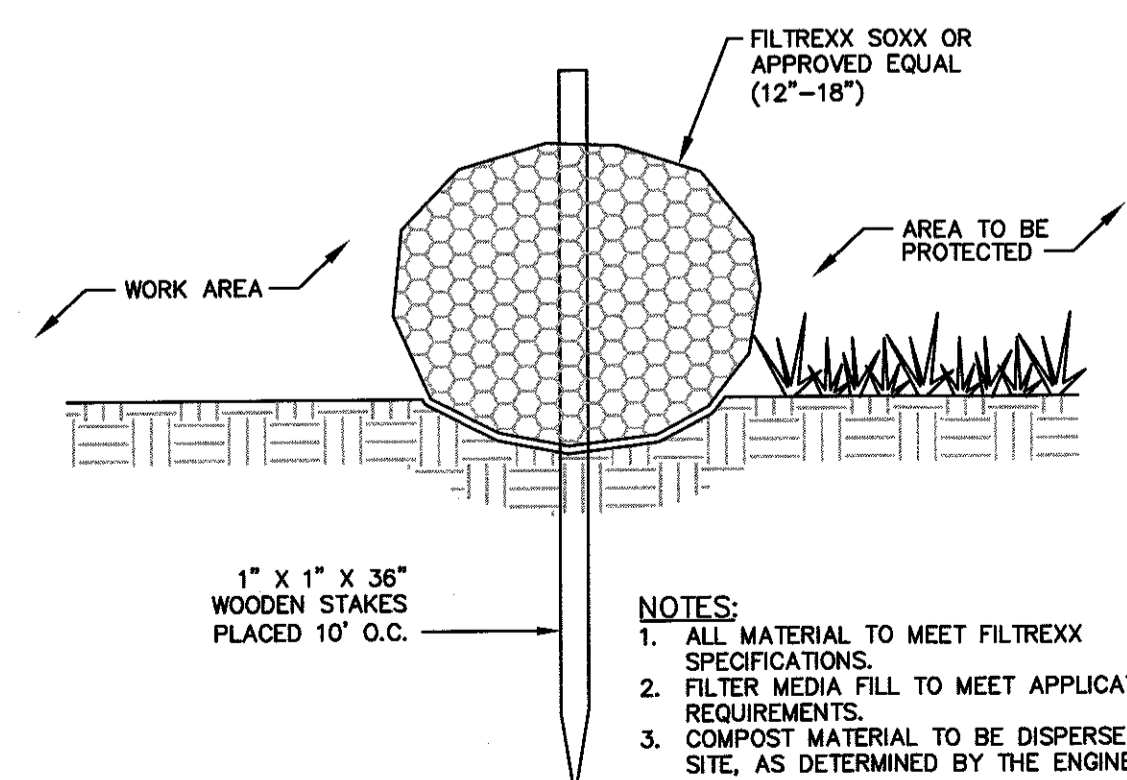
SINGLE FACE WOOD GUARD RAIL

SCALE: NONE



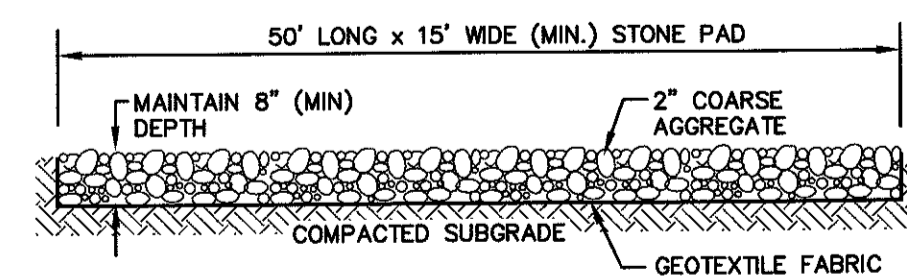
CONSTRUCTION NOTES:

1. WOOD RAILS AND POSTS TO BE SOUTHERN YELLOW PINE STRUCTURAL GRADE OR BETTER.
2. TIMBER PRESERVATIVES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO 14-133 AND THE AMERICAN WOOD PRESERVERS ASSOCIATION STANDARDS C1, C2, AND C3. ANY CUTS MADE IN THE FIELD SHALL BE PAINTED WITH TWO BRUSH COATS OF TIMBER PRESERVATIVE.



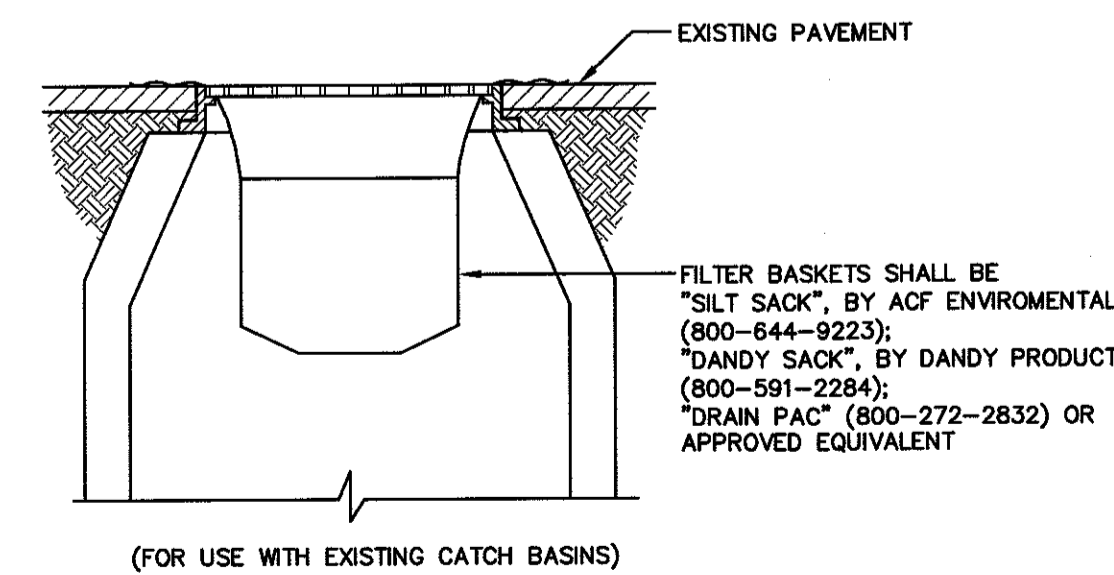
SILT SOXX COMPOST FILTER SOCK

SCALE: NONE



TEMPORARY CONSTRUCTION ENTRANCE

SCALE: NONE



SEDIMENT FILTER INLET PROTECTION

SCALE: NONE

PREPARED FOR:
MARCELLO MALLEGNI
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HYANNIS, MA 02601

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SCALE: NOT TO SCALE

STORMWATER REPORT

**DEFINITIVE SUBDIVISION
532 MAIN STREET (ROUTE 130)
MASHPEE, MA 02571**

FEBRUARY 2022

Owner/Applicant:

MARCELLO MALLEGNI
80 Airport Road
Hyannis, MA 02601

BSC Job Number: 5-0474.00

Prepared by:



349 Main Street
West Yarmouth, MA 02673

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SECTION 1.0

PROJECT INFORMATION

1.01 PROJECT DESCRIPTION

The proposed subdivision at 532 Main Street (Route 130) is located on 18.05± of land in Mashpee, Massachusetts. There are no known wetland resource areas on the site. The existing site is entirely wooded other than a 20' easement containing a sidewalk that is along Main Street (Route 130). The project contains approximately 2,035 linear feet of pavement containing a cul-de-sac and 9 lots.

1.02 PRE-DEVELOPMENT CONDITIONS

The pre-development conditions include wooded areas with slopes generally 0-3%. There are 4 subcatchment areas that have been identified in the Pre-Development drainage analysis. There are areas that flow off-site to towards Main Street, off-site to the north, off-site to the south, and retained on-site in natural depressions.

NRCS Web Soil Survey has identified two classifications of soil underlying the site. The soil map units that have been identified are 254A Merrimac fine sandy loam, 0 to 3 percent slopes (5.7% of area) and 265A Enfield silt loam, 0 to 3 percent slopes (94.3% of area).

In August of 2020, BSC Group conducted exploratory test pits on the site. All of the test pits were conducted within Map Unit 265A, and in the approximate location of the proposed stormwater management facilities. The result of the test pits indicated a parent material of medium sand and no groundwater was encountered. As such the site has been modeled as Hydrologic Soil Group A. For additional information regarding the test holes, refer to Appendix D – Soil Test Pit Logs.

1.03 POST-DEVELOPMENT CONDITIONS

The proposed stormwater management system has been designed in a manner that will exceed the provisions of the Massachusetts Department of Environmental Protection (MassDEP) Stormwater Management Policy for a new construction project. The design is also in conformance with the Town of Mashpee Zoning Bylaws.

The subdivision roadway is designed to contain all stormwater on-site from the roadway surface, plus additional land area from the proposed lots. There are three proposed infiltration basins that will serve to infiltrate the stormwater that is collected on-site. There are 8 pairs of catch basins that collect the stormwater from the roadway. All stormwater collected from paved areas will run through a Stormceptor unit for pre-treatment and flared end sections before entering the drainage basins. Specifics of the project's compliance with the MassDEP Stormwater Management Standards are discussed in detail in the following sections.

SECTION 2.0

DRAINAGE SUMMARY

2.01 Stormwater Standard 1 – New Stormwater Conveyances

Per MassDEP Stormwater Management Standard #1, no new outfalls may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth. There are no known stormwater outfalls in this development and no new outfalls are proposed.

2.02 Stormwater Standard 2 – Stormwater Runoff Rates

Watershed modeling was performed using HydroCAD Stormwater Modeling Software version 10.0, a computer aided design program that combines SCS runoff methodology with standard hydraulic calculations. A model of the site's hydrology was developed for both pre- and post-development conditions to assess the effects of the proposed development surrounding areas.

The stormwater management systems for the project has been designed such that the post-development conditions do not increase the peak runoff rates or runoff volumes for the 2-year, 10-year, 25-year and 100-year, 24-hour storm events, as detailed in the tables below.

Peak Flow Discharge Rates and Volumes

Peak Runoff - Node 1R – Off-site – Route 130

Storm Event	Pre-Development Peak Discharge Rate (cfs)	Post-Development Peak Discharge Rate (cfs)	Change in Peak Discharge Rate (cfs)
2-Year	0.00	0.01	+0.01
10-Year	0.00	0.03	+0.03
25-Year	0.02	0.08	+0.06
100-Year	0.10	0.17	+0.07

Runoff Volume - Node 1R – Off-site – Route 130

Storm Event	Pre-Development Runoff Volume (af)	Post-Development Runoff Volume (af)	Change in Runoff Volume (af)
2-Year	0.000	0.002	+0.002
10-Year	0.002	0.006	+0.004
25-Year	0.011	0.010	-0.001
100-Year	0.039	0.018	-0.021

Peak Runoff - Node 2R – Off-site – North

Storm Event	Pre-Development Peak Discharge Rate (cfs)	Post-Development Peak Discharge Rate (cfs)	Change in Peak Discharge Rate (cfs)
2-Year	0.00	0.00	0.00
10-Year	0.00	0.00	0.00
25-Year	0.01	0.00	-0.01
100-Year	0.07	0.01	-0.06

Runoff Volume - Node 2R – Off-site – North

Storm Event	Pre-Development Runoff Volume (af)	Post-Development Runoff Volume (af)	Change in Runoff Volume (af)
2-Year	0.000	0.000	0.000
10-Year	0.000	0.000	0.000
25-Year	0.008	0.001	-0.007
100-Year	0.044	0.004	-0.040

Peak Runoff - Node 3R – Off-site – South

Storm Event	Pre-Development Peak Discharge Rate (cfs)	Post-Development Peak Discharge Rate (cfs)	Change in Peak Discharge Rate (cfs)
2-Year	0.00	0.00	0.00
10-Year	0.00	0.00	0.00
25-Year	0.03	0.01	-0.02
100-Year	0.17	0.05	-0.12

Runoff Volume - Node 3R – Off-site – South

Storm Event	Pre-Development Runoff Volume (af)	Post-Development Runoff Volume (af)	Change in Runoff Volume (af)
2-Year	0.000	0.000	0.000
10-Year	0.000	0.000	0.000
25-Year	0.019	0.006	-0.013
100-Year	0.101	0.032	-0.069

Peak Runoff - Node 4R – Retained On-site

Storm Event	Pre-Development Peak Discharge Rate (cfs)	Post-Development Peak Discharge Rate (cfs)	Change in Peak Discharge Rate (cfs)
2-Year	0.00	0.00	0.00
10-Year	0.00	0.00	0.00
25-Year	0.05	0.00	-0.05
100-Year	0.29	0.00	-0.29

Runoff Volume - Node 4R – Retained On-site

Storm Event	Pre-Development Runoff Volume (af)	Post-Development Runoff Volume (af)	Change in Runoff Volume (af)
2-Year	0.000	0.000	0.000
10-Year	0.001	0.000	-0.001
25-Year	0.033	0.000	-0.033
100-Year	0.173	0.000	-0.173

2.03 Stormwater Standard 3 – Groundwater Recharge

The ground water recharge is estimated based on the Massachusetts Stormwater Management Standard #3, as follows:

$$R_v = F \times \text{impervious area}$$

- R_v = Required Recharge Volume, expressed in Ft³, cubic yards, or acre-feet
 F = Target Depth Factor associated with each Hydrologic Soil Group
Impervious Area= pavement and rooftop area on site

Table 1.2 Recharge Target Depth by Hydrologic Soil Group

NRCS HYDROLOGIC SOIL TYPE	APPROX. SOIL TEXTURE	TARGET DEPTH FACTOR (F)
A	sand	0.60-inch
B	loam	0.35-inch
C	silty loam	0.25-inch
D	clay	0.10-inch

The Natural Resources Conservation Service (NRCS) has classified the soils underlying the project site as a combination of soil groups 254A (5.7%) and 265A (94.3%). The entire roadway and proposed drainage locations are located in Group 265A, Enfiled silt loam, 0-3 percent slopes. Additionally, test pits were performed in the approximate location of the proposed drainage areas, and based on the results of the test pits, the site is classified as Hydrologic Soil Type A.

To determine the recharge volume provided in the recharge system, the *Static Method* was used as described in the

DEP's Massachusetts Stormwater Handbook, Volume 3. A drawdown calculation was performed in accordance with the DEP's Massachusetts Stormwater Handbook, Volume 3, to verify that the proposed recharge systems would drain completely within 72-hours. This drawdown calculation along with calculations to determine the recharge required are provided in Section 7.0 of this report.

2.04 Stormwater Standard 4 – TSS Removal

As a new development, the Project stormwater management system will achieve a TSS removal greater than 80%. The proposed stormwater management system has been designed to provide treatment of runoff in order to reduce suspended solids prior to discharge off-site through the implementation of the following best management practices:

- Stormceptor Water Quality Units (or approved equal) (Pre-treatment)
- Infiltration Basin (80% TSS removal)

The water quality volume is defined as the runoff volume requiring TSS Removal for the site and is equal to 1-inch of runoff over the total impervious area of the post-development site. The required water quality volume required for the project is calculated below based on the post-development impervious area:

$$WQV = 1.0 \cancel{\text{in}} \times \frac{1 \text{ ft}}{12 \cancel{\text{in}}} \times 1.292 \text{ ac} \times 43,560 \text{ ft}^2 = \mathbf{4,690 \text{ ft}^3}$$

∴ Water Quality Volume = 4,690 cubic feet

The underground infiltration systems have been sized to treat the required water quality volume and calculation are included in Section 7.0 of this Report.

A long-term pollution prevention plan complying with the requirements of Standard 4 is included in Section 5.0 of this Report.

2.05 Stormwater Standard 5 – Land Uses with Higher Potential Pollutant Loads

The Project will not generate over a 1,000 Vehicle Trips per day, therefore this Standard does not apply.

2.06 Stormwater Standard 6 – Stormwater Discharges to a Critical Area

The project is not subject to Standard 6. There are no discharges to any Critical Area, as defined by the Massachusetts Stormwater Handbook.

2.07 Stormwater Standard 7 – Redevelopment Projects

This project has been designed to fully comply with the MassDEP Stormwater Management Standards.

2.08 Stormwater Standard 8 – Sedimentation and Erosion Control Plan

Erosion and sedimentation controls are shown on the Project Plans. Additionally, a Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan is included in Section 4.0 of this Report.

2.09 Stormwater Standard 9 – Long Term Operation and Maintenance Plan

A Long Term Operation and Maintenance Plan is included in Section 5.0 of this Report.

2.10 Stormwater Standard 10 – Illicit Discharges

There are no known illicit discharges on the project site, and none are proposed. A signed, illicit discharge compliance statement will be submitted prior to the start of construction.

2.11 Conclusion

The Project has been designed to meet the applicable provisions of the Stormwater Management Standards. The use of infiltration basins, along with pre-treatment such as water quality units will attenuate peak runoff rates, provide treatment to stormwater prior to discharge, and promote infiltration to groundwater. The project will protect the adjacent wetlands and meet the requirements of the MassDEP Stormwater Management Standards.

SECTION 3.0

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
CHECKLIST FOR STORMWATER REPORT**



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 8²
- 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.



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



02/11/2022

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



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): _____

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.



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 Field¹
- 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.



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.



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.



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.



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.

SECTION 4.0

CONSTRUCTION PERIOD POLLUTION PREVENTION AND EROSION AND SEDIMENTATION CONTROL PLAN

4.0 CONSTRUCTION PERIOD POLLUTION PREVENTION AND EROSION AND SEDIMENTATION CONTROL PLAN

This Section specifies requirements and suggestions for implementation of a Stormwater Pollution Prevention Plan (SWPPP) for the proposed subdivision located at 532 Main Street (Route 130). The SWPPP shall be provided and maintained on-site by the Contractor(s) during all construction activities. The SWPPP shall be updated as required to reflect changes to construction activity.

The stormwater pollution prevention measures contained in the SWPPP shall be at least the minimum required by Local Regulations. The Contractor shall provide additional measures to prevent pollution from stormwater discharges in compliance with the National Pollution Discharge Elimination System (NPDES) Phase II permit requirements and all other local, state and federal requirements.

The SWPPP shall include provisions for, but not be limited to, the following:

1. Construction Trailers
2. Lay-down Areas
3. Equipment Storage Areas
4. Stockpile Areas
5. Disturbed Areas

The Contractor shall NOT begin construction without submitting evidence that a NPDES Notice of Intent (NOI) governing the discharge of stormwater from the construction site for the entire construction period has been filed **at least fourteen (14) days prior to construction**. It is the Contractor's responsibility to complete and file the NOI, unless otherwise determined by the project team.

The cost of any fines, construction delays and remedial actions resulting from the Contractor's failure to comply with all provisions of local regulations and Federal NPDES permit requirements shall be paid for by the Contractor at no additional cost to the Owner.

As a requirement of the EPA's NPDES permitting program, each Contractor and Subcontractor responsible for implementing and maintaining stormwater Best Management Practices shall execute a Contractor's Certification form.

Erosion and Sedimentation Control

The Contractor shall be solely responsible for erosion and sedimentation control at the site. The Contractor shall utilize a system of operations and all necessary erosion and sedimentation control measures, even if not specified herein or elsewhere, to minimize erosion damage at the site to prevent the migration of sediment into environmentally sensitive areas. Environmentally sensitive areas include all wetland resource areas within, and downstream of, the site, and those areas of the site that are not being altered.

Erosion and sedimentation control shall be in accordance with this Section, the design drawings, and the following:

- ❑ "National Pollutant Discharge Elimination System General Permit for Discharges from Construction Activities (EPA Construction General Permit February 16, 2017).
- ❑ Massachusetts Stormwater Management Policy Handbook issued by the Massachusetts Department of Environmental Protection, January 2008.
- ❑ Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas, A Guide for Planners, Designers and Municipal Officials, March 1997.

The BMP's presented herein should be used as a guide for erosion and sedimentation control and are not intended to be considered specifications for construction. The most important BMP is maintaining a rapid

construction process, resulting in prompt stabilization of surfaces, thereby reducing erosion potential. Given the primacy of rapid construction, these guidelines have been designed to allow construction to progress with essentially no hindrance by the erosion control methods prescribed. These guidelines have also been designed with sufficient flexibility to allow the Contractor to modify the suggested methods as required to suit seasonal, atmospheric, and site-specific physical constraints.

Another important BMP is the prevention of concentrated water flow. Sheet flow does not have the erosive potential of a concentrated rivulet. These guidelines recommend construction methods that allow localized erosion control and a system of construction, which inhibits the development of shallow concentrated flow. These BMP's shall be maintained throughout the construction process.

CONTACT INFORMATION AND RESPONSIBLE PARTIES

The following is a list of all project-associated parties:

Owner

Marcello Mallegni
80 Airport Road
Hyannis, MA 02601

Contractor

To be determined

Environmental Consultant

BSC Group, Inc.
349 Route 28, Unit D
West Yarmouth, MA 02673

Contact: Brian G. Yergatian, P.E.
Phone: (617) 896-4590
Email: byergatian@bscgroup.com

Qualified SWPPP Inspectors

To Be Determined

4.1 Procedural Conditions of the Construction General Permit (CGP)

The following list outlines the stormwater responsibilities for all construction operators working on the Project. The operators below agree through a cooperative agreement to abide by the following conditions throughout the duration of the construction project, effective the date of signature of the required SWPPP. These conditions apply to all operators on the project site.

The project is subject to EPA's NPDES General Permit through the CGP. The goal of this permit is to prevent the discharge of pollutants associated with construction activity from entering the existing and proposed storm drain system or surface waters.

All contractors/operators involved in clearing, grading and excavation construction activities must sign the appropriate certification statement required, which will remain with the SWPPP. The owner must also sign a certification, which is to remain with the SWPPP in accordance with the signatory requirements of the SWPPP.

Once the SWPPP is finalized, a signed copy, plus supporting documents, must be held at the project site during construction. A copy must remain available to EPA, State and Local agencies, and other interested parties during normal business hours.

The following items associated with this SWPPP must be posted in a prominent place at the construction site until final stabilization has been achieved:

- The completed/submitted NOI form
- Location where the public can view the SWPPP during normal business hours
- A copy of the signed/submitted NOI, permit number issued by the EPA and a copy of the current CGP.

Project specific SWPPP documents are not submitted to the US EPA unless the agency specifically requests a copy for review. SWPPP documents requested by a permitting authority, the permittee(s) will submit it in a timely manner.

EPA inspectors will be allowed free and unrestricted access to the project site and all related documentation and records kept under the conditions of the permit.

The permittee is expected to keep all BMP's and Stormwater controls operating correctly and maintained regularly.

Any additions to the project which will significantly change the anticipated discharges of pollutants, must be reported to the EPA. The EPA should also be notified in advance of any anticipated events of noncompliance. The permittee must also orally inform the EPA of any discharge, which may endanger health or the environment within 24 hours, with a written report following within 5 days.

In maintaining the SWPPP, all records and supporting documents will be compiled together in an orderly fashion. Inspection reports and amendments to the SWPPP must remain with the document. Federal regulations require permittee(s) to keep their Project Specific SWPPP and all reports and documents for at least three (3) years after the project is complete.

4.2 Project Description and Intended Construction Sequence

The site is currently comprised of one residential home, woods and wetland areas. The proposed activities will include the following major components:

- The construction of a road for access to the subdivision. The subdivision contains 9 lots
- The construction of stormwater management systems.
- Site grading, utility installation, and landscape areas.

The installation of the roadway and associated drainage features will disturb 3.735± acres.

Soil disturbing activities will include site demolition, clearing and grubbing, installing stabilized construction exits, installation of erosion and sedimentation controls, grading, storm drain inlets, stormwater management systems, utilities, building foundations, construction of site driveways and preparation for final landscaping. Please refer to Table 1 for the projects anticipated construction timetable. A description of BMP's associated with project timetable and construction-phasing elements is provided in this Erosion and Sediment Control Plan.

Table 1 – Anticipated Construction Timetable

Construction Phasing Activity	Anticipated Timetable
Demolition, Grubbing and Stripping of Limits of Construction Phase	To be determined
Rough Site Grading and Site Utilities	To be determined
Utility Plan Construction	To be determined
Landscaping	To be determined

4.3 Potential Sources of Pollution

Any project site activities that have the potential to add pollutants to runoff are subject to the requirements of the SWPPP. Listed below are a description of potential sources of pollution from both sedimentation to Stormwater runoff, and pollutants from sources other than sedimentation.

Table 2 – Potential Sources of Sediment to Stormwater Runoff

Potential Source	Activities/Comments
Construction Site Entrance and Site Vehicles	Vehicles leaving the site can track soils onto public roadways. Site Vehicles can readily transport exposed soils throughout the site and off-site areas.
Grading Operations	Exposed soils have the potential for erosion and discharge of sediment to off-site areas.
Material Excavation, Relocation, and Stockpiling	Stockpiling of materials during excavation and relocation of soils can contribute to erosion and sedimentation. In addition fugitive dust from stockpiled material, vehicle transport and site grading can be deposited in wetlands and waterway.
Landscaping Operations	Landscaping operations specifically associated with exposed soils can contribute to erosion and sedimentation. Hydroseeding, if not properly applied, can runoff to adjacent wetlands and waterways.

Table 3 – Potential Pollutants and Sources, other than Sediment to Stormwater Runoff

Potential Source	Activities/Comments
Staging Areas and Construction Vehicles	Vehicle refueling, minor equipment maintenance, sanitary facilities and hazardous waste storage
Materials Storage Area	General building materials, solvents, adhesives, paving materials, paints, aggregates, trash, etc.
Construction Activities	Construction, paving, curb/gutter installation, concrete pouring/mortar/stucco

4.4 Erosion and Sedimentation Control Best Management Practices

The project site is characterized by primarily pervious surface. All construction activities will implement Best Management Practices (BMP's) in order to minimize overall site disturbance and impacts to the sites natural features. Please refer to the following sections for a detailed description of site specific BMP's. In addition, an Erosion and Sedimentation Control Plan is provided in the Site Plans.

4.5 Timetable and Construction Phasing

This section provides the Owner and Contractor with a suggested order of construction that shall minimize erosion and the transport of sediments. The individual objectives of the construction techniques described herein shall be considered an integral component of the project design intent of each project phase. The construction sequence is not intended to prescribe definitive construction methods and should not be interpreted as a construction specification document. However, the Contractor shall follow the general construction phase principles provided below:

- Protect and maintain existing vegetation wherever possible.
- Minimize the area of disturbance.
- To the extent possible, route unpolluted flows around disturbed areas.
- Install mitigation devices as early as possible.
- Minimize the time disturbed areas are left unstabilized.
- Maintain siltation control devices in proper condition.
- The contractor should use the suggested sequence and techniques as a general guide and modify the suggested methods and procedures as required to best suit seasonal, atmospheric, and site specific physical constraints for the purpose of minimizing the environmental impact of construction.

Demolition, Grubbing and Stripping of Limits of Construction Phase

- Install Temporary Erosion Control (TEC) devices as required to prevent sediment transport into resource areas.
- Place a ring of silt socks and/or haybales around stockpiles.
- Stabilize all exposed surfaces that will not be under immediate construction.
- Store and/or dispose all pavement and building demolition debris as indicated in accordance with all applicable local, state, and federal regulations.

Driveway Area Sub-base Construction

- Install temporary culverts and diversion ditches and additional TEC devices as required by individual construction area constraints to direct potential runoff toward detention areas designated for the current construction phase.
- Compact gravel as work progresses to control erosion potential.
- Apply water to control air suspension of dust.
- Avoid creating an erosive condition due to over-watering.
- Install piped utility systems as required as work progresses, keeping all inlets sealed until all downstream drainage system components are functional.

Binder Construction

- Fine grade gravel base and install processed gravel to the design grades.
- Compact pavement base as work progresses.
- Install pavement binder coat starting from the downhill end of the site and work toward the top.

Finish Paving

- Repair and stabilize damaged side slopes.
- Clean inverts of drainage structures.
- Install final top coat of pavement.

Final Clean-up

- Clean inverts of culverts and catch basins.
- Remove sediment and debris from rip-rap outlet areas.
- Remove TEC devices only after permanent vegetation and erosion control has been fully established.

4.6 Site Stabilization

Grubbing Stripping and Grading

- Erosion control devices shall be in place as shown on the design plans before grading commences.
- Stripping shall be done in a manner, which will not concentrate runoff. If precipitation is expected, earthen berms shall be constructed around the area being stripped, with a silt sock, silt fence or haybale dike situated in an arc at the low point of the berm.
- If intense precipitation is anticipated, silt socks, haybales, dikes and /or silt fences shall be used as required to prevent erosion and sediment transport. The materials required shall be stored on site at all time.
- If water is required for soil compaction, it shall be added in a uniform manner that does not allow excess water to flow off the area being compacted.
- Dust shall be held at a minimum by sprinkling exposed soil with an appropriate amount of water.

Maintenance of Disturbed Surfaces

- Runoff shall be diverted from disturbed side slopes in both cut and fill.
- Mulching may be used for temporary stabilization.
- Silt sock, haybale or silt fences shall be set where required to trap products of erosion and shall be maintained on a continuing basis during the construction process.

Loaming and Seeding

- Loam shall not be placed unless it is to be seeded directly thereafter.
- All disturbed areas shall have a minimum of 4" of loam placed before seeded and mulched.
- Consideration shall be given to hydro-mulching, especially on slopes in excess of 3 to 1.
- Loamed and seeded slopes shall be protected from washout by mulching or other acceptable slope protection until vegetation begins to grow.

Stormwater Collection System Installation

- The Stormwater drainage system shall be installed from the downstream end up and in a manner which will not allow runoff from disturbed areas to enter pipes.
- Excavation for the drainage system shall not be left open when rainfall is expected overnight. If left open under other circumstances, pipe ends shall be closed by a staked board or by an equivalent method.
- All catch basin openings shall be covered by a silt bag between the grate and the frame or protected from sediment by silt fence surrounding the catch basin grate.

Completion of Paved Areas

- During the placement of sub-base and pavement, the entrance to the Stormwater drainage systems shall be sealed when rain is expected. When these entrances are closed, consideration must be given to the direction of run-off and measures shall be undertaken to minimize erosion and to provide for the collection of sediment.
- In some situations it may be necessary to keep catch basins open.

- Appropriate arrangements shall be made downstream to remove all sediment deposition.

Stabilization of Surfaces

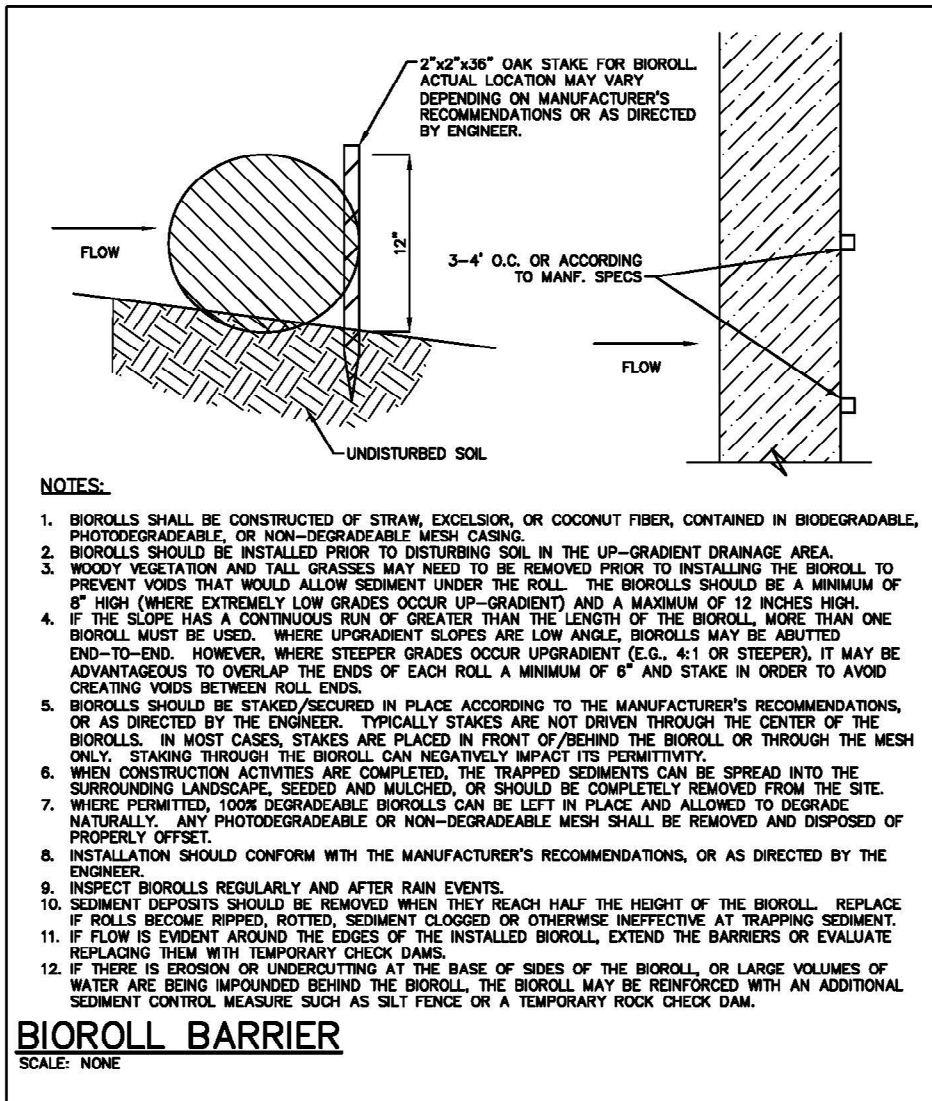
- Stabilization of surfaces includes the placement of pavement, rip-rap, wood bark mulch and the establishment of vegetated surfaces.
- Upon completion of construction, all surfaces shall be stabilized even though it is apparent that future construction efforts will cause their disturbance.
- Vegetated cover shall be established during the proper growing season and shall be enhanced by soil adjustment for proper pH, nutrients and moisture content.
- Surfaces that are disturbed by erosion processes or vandalism shall be stabilized as soon as possible.
- Areas where construction activities have permanently or temporarily ceased shall be stabilized within 14 days from the 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.
- Hay mulch is an effective method of temporarily stabilizing surfaces, but only if it is properly secured by branches, weighted snow fences or weighted chicken wire.

4.7 Temporary Structural Erosion Control Measures

Temporary erosion control measures serve to minimize construction-associated impacts to wetland resource and undisturbed areas. Please refer to the following sections for a description of temporary erosion control measures implemented as part of the project and this sample SWPPP.

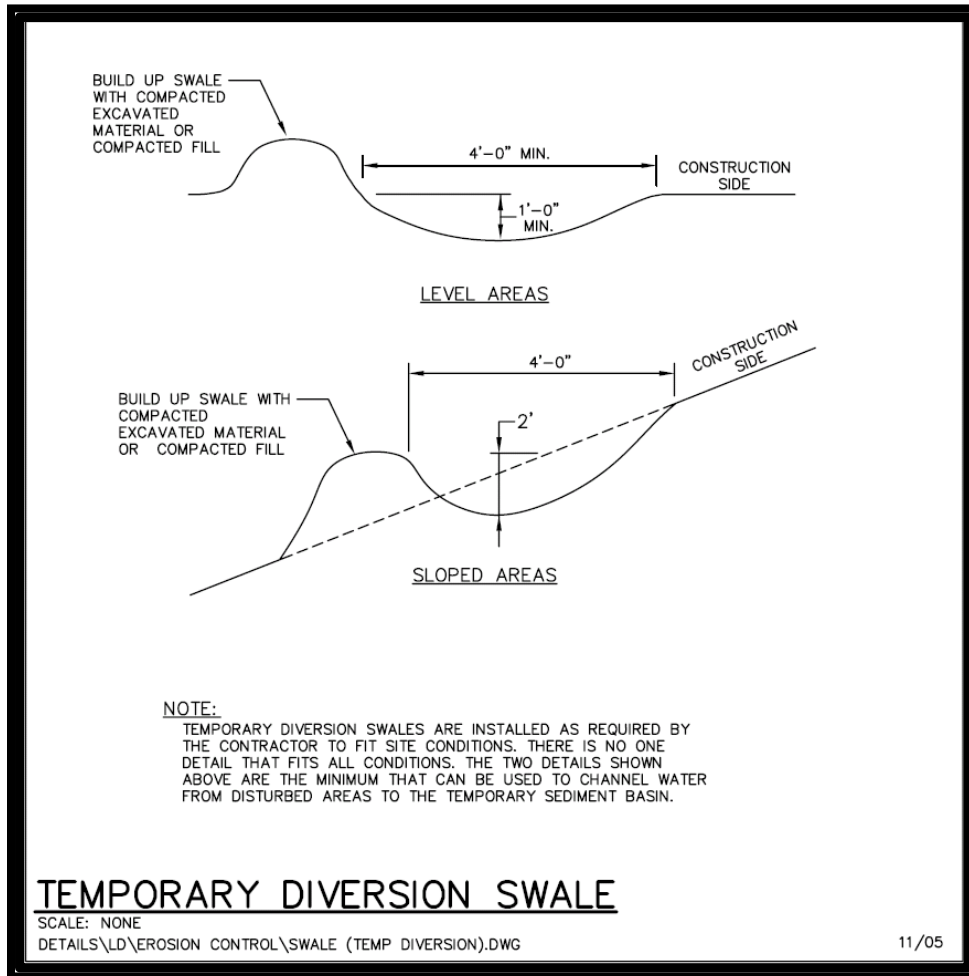
4.7.1 Staked Straw Wattles and/or Silt Fencing

The siltation barriers will demarcate the limit of work, form a work envelope and provide additional assurance that construction equipment will not enter the adjacent wetlands or undisturbed portions of the site. All barriers will remain in place until disturbed areas are stabilized.



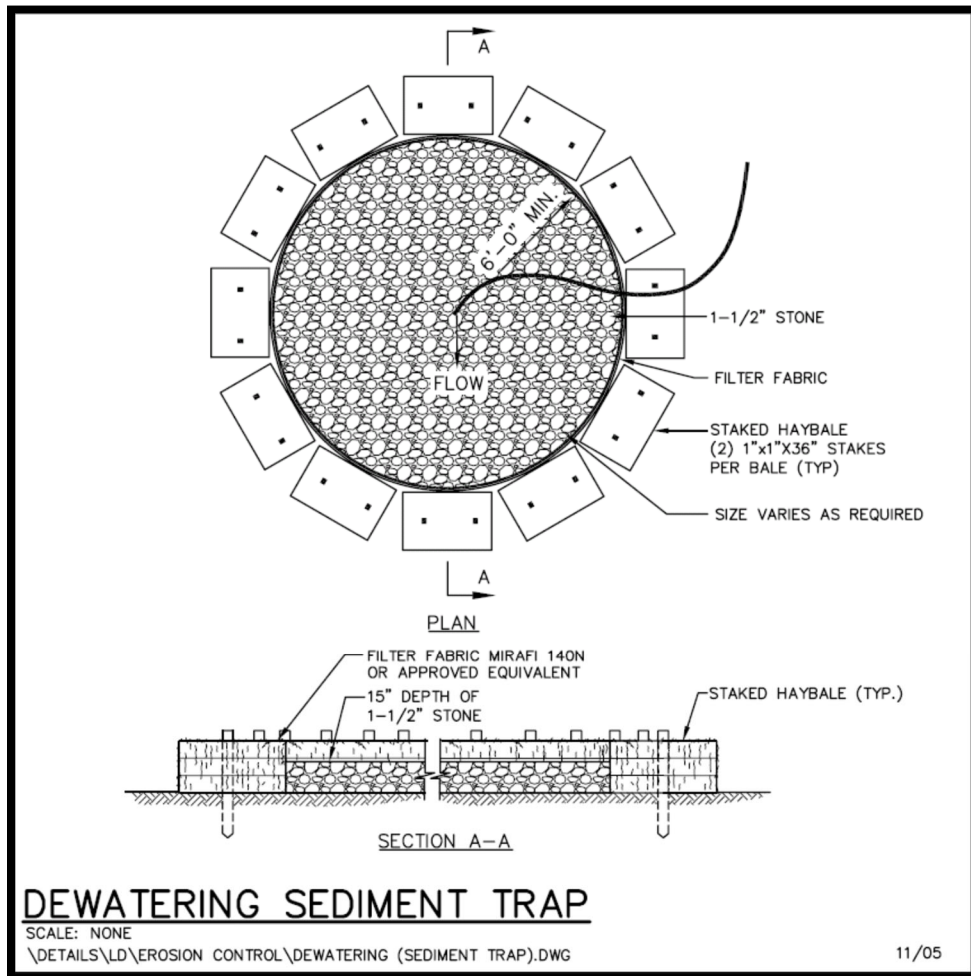
4.7.2 Temporary Stormwater Diversion Swale

A temporary diversion swale is an effective practice for temporarily diverting stormwater flows and to reduce stormwater runoff velocities during storm events. The swale channel can be installed before infrastructure construction begins at the site, or as needed throughout the construction process. The diversion swale should be routinely compacted or seeded to minimize the amount of exposed soil.



4.7.3 Dewatering Basins

Dewatering may be required during stormwater system, foundation construction and utility installation. Should the need for dewatering arise, groundwater will be pumped directly into a temporary settling basin, which will act as a sediment trap during construction. All temporary settling basins will be located within close proximity of daily work activities. Prior to discharge, all groundwater will be treated by means of the settling basin or acceptable substitute. Discharges from sediment basins will be free of visible floating, suspended and settleable solids that would impair the functions of a wetland or degrade the chemical composition of the wetland resource area receiving ground or surface water flows and will be to the combined system.



4.7.4 Material Stockpiling Locations

Piping and trench excavate associated with the subsurface utility work will be contained with a single row of silt socks and/or haybales.

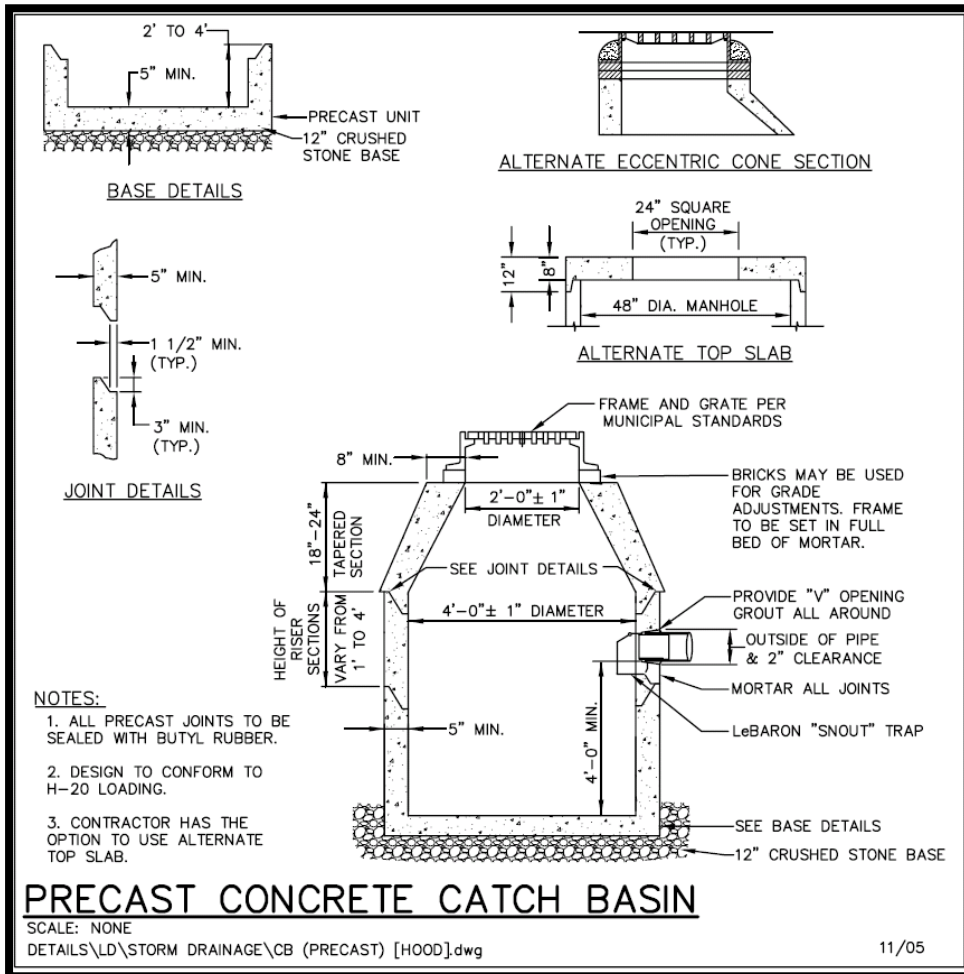
4.8 Permanent Structural Erosion Control Measures

Permanent erosion control measures serve to minimize post-construction impacts to wetland resource areas and undisturbed areas. Please refer to the following sections for a description of permanent erosion control measures implemented as part of the project and this SWPPP.

4.8.1 Catch Basins with Deep Sumps and Hooded Traps

Driveways will be bermed (or curbed) and provided with catch basins to collect runoff. The entire drainage system for each respective project phase will be installed during the initial phases of construction. The collection system will be installed from the downstream end up, and in a manner which will not allow runoff from disturbed areas to enter the pipes.

The catch basins will be inspected and cleaned as necessary (sediment depth of 12") at least two times per year. The optimum time for cleaning is during the period just after the snowmelt of late winter and prior to the onset of heavy spring precipitation. All sediments and hydrocarbons will be properly handled and disposed of in accordance with local state and federal guidelines and regulations.



4.9 Good Housekeeping Best Management Practices

4.9.1 Material Handling and Waste Management

Solid waste generation during the construction period will be primarily construction debris. The debris will include scrap lumber (used forming and shoring pallets and other shipping containers), waste packaging materials (plastic sheeting and cardboard), scrap cable and wire, roll-off containers (or dumpsters) and will be removed by a contract hauler to a properly licensed landfill. The roll-off containers will be covered with

a properly secured tarp before the hauler exits the site. In addition to construction debris, the construction work force will generate some amount of household-type wastes (food packing, soft drink containers, and other paper). Trash containers for these wastes will be located around the site and will be emptied regularly so as to prevent wind-blown litter. This waste will also be removed by a contract hauler.

All hazardous waste material such as oil filters, petroleum products, paint and equipment maintenance fluids will be stored in structurally sound and sealed shipping containers in the hazardous-materials storage area and segregated from other non-waste materials. Secondary containment will be provided for all materials in the hazardous materials storage area and will consist of commercially available spill pallets. Additionally, all hazardous materials will be disposed of in accordance with federal, state and municipal regulations.

Two temporary sanitary facilities (portable toilets) will be provided at the site in the combined staging area. The toilets will be away from a concentrated flow path and traffic flow and will have collection pans underneath as secondary treatment. All sanitary waste will be collected from an approved party at a minimum of three times per week.

4.9.2 Building Material Staging Areas

Construction equipment and maintenance materials will be stored at the combined staging area and materials storage areas. Silt fence will be installed around the perimeter to designate the staging and materials storage area. A watertight shipping container will be used to store hand tools, small parts and other construction materials.

Non-hazardous building materials such as packaging material (wood, plastic and glass) and construction scrap material (brick, wood, steel, metal scraps, and pine cuttings) will be stored in a separate covered storage facility adjacent to other stored materials. All hazardous-waste materials such as oil filters, petroleum products, paint and equipment maintenance fluids will be stored in structurally sound and sealed containers under cover within the hazardous materials storage area.

Large items such as framing materials and stockpiled lumber will be stored in the open storage area. Such materials will be elevated on wood blocks to minimize contact with runoff.

The combined storage areas are expected to remain clean, well-organized and equipped with ample cleaning supplies as appropriate for the materials being stored. Perimeter controls such as containment structures, covers and liners will be repaired or replaced as necessary to maintain proper function.

4.9.3 Designated Washout Areas

Designated temporary, below-ground concrete washout areas will be constructed, as required, to minimize the pollution potential associated with concrete, paint, stucco, mixers etc. Signs will, if required, be posted marking the location of the washout area to ensure that concrete equipment operators use the proper facility. Concrete pours will not be conducted during or before an anticipated precipitation event. All excess concrete and concrete washout slurries from the concrete mixer trucks and chutes will be discharged to the washout area or hauled off-site for disposal.

4.9.4 Equipment/Vehicle Maintenance and Fueling Areas

Several types of vehicles and equipment will be used on-site throughout the project including graders, scrapers, excavators, loaders, paving equipment, rollers, trucks and trailers, backhoes and forklifts. All major equipment/vehicle fueling and maintenance will be performed off-site. A small, 20-gallon pickup bed fuel tank will be kept on-site in the combined staging area. When vehicle fueling must occur on-site, the fueling activity will occur in the staging area. Only minor equipment maintenance will occur on-site. All equipment fluids generated from maintenance activities will be disposed of into designated drums stored on spill pallets. Absorbent, spill-cleanup materials and spill kits will be available at the combined staging

and materials storage area. Drip pans will be placed under all equipment receiving maintenance and vehicles and equipment parked overnight.

4.9.5 Equipment/Vehicle Wash down Area

All equipment and vehicle washing will be performed off-site.

4.9.6 Spill Prevention Plan

A spill containment kit will be kept on-site in the Contractor's trailer and/or the designated staging area throughout the duration of construction. Should there be an accidental release of petroleum product into a resource area, the appropriate agencies will be immediately notified.

4.9.7 Inspections

Maintenance of existing and proposed BMP's to address stormwater management facilities during construction is an on-going process. The purpose of the inspections is to observe all sources of stormwater or non-stormwater discharge as identified in the SWPPP as well as the status of the receiving waters and fulfill the requirements of the Order of Conditions. The following sections describe the appropriate inspection measures to adequately implement the project's SWPPP. A blank inspection form is provided at the end of this section. Completed inspection forms are to be maintained on site.

Inspection Personnel

The owner's appointed representative will be responsible for performing regular inspections of erosion controls and ordering repairs as necessary.

Inspection Frequency

Inspections will be performed by qualified personnel once every 7 days and within 24-hours after a storm event of greater than one-quarter inch, in accordance with the CGP. The inspections must be documented on the inspection form provided at the end of this section, and completed forms will be provided to the on-site supervisor and maintained at the Owner's office throughout the entire duration of construction.

Inspection Reporting

Each inspection report will summarize the scope of the inspection, name(s) and qualifications of personnel making the inspection, and major observations relating to the implementation of the SWPPP, including compliance and non-compliance items. Completed inspection reports will remain with the completed SWPPP on site.

4.9.8 Amendment Requirements

The final SWPPP is intended to be a working document that is utilized regularly on the construction site, and provides guidance to the Contractor. It must reflect changes made to the originally proposed plan and will be updated to include project specific activities and ensure that they are in compliance with the NPDES General Permit and state and local laws and regulations. It should be amended whenever there is a change in design, construction, operation or maintenance that affects discharge of pollutants. The following items should be addressed should an amendment to the SWPPP occur:

- Dates of certain construction activities such as major grading activities, clearing and initiation of and completion of stabilization measures should be recorded.
- Future amendments to the SWPPP will be recorded as required. As this SWPPP is amended, all amendments will be kept on site and made part of the SWPPP.

- Upon completion of site stabilization (completed as designed and/or 70% background vegetative cover), it can be documented and marked on the plans. Inspections are no longer required at this time.
- Inspections often identify areas not included in the original SWPPP, which will require the SWPPP to be amended. These updates should be made within seven days of being recognized by the inspector.

4.10 SWPPP Inspection and Maintenance Report

The following form is an example to be used for SWPPP Inspection Reporting.

Stormwater Construction Site Inspection and Maintenance Report

TO BE COMPLETED AT LEAST EVERY 7 DAYS AND WITHIN 24 HOURS OF A STORM EVENT OF AT LEAST 0.25 INCHES. AFTER SITE STABILIZATION, TO BE COMPLETED AT LEAST ONCE PER MONTH FOR THREE YEARS OR UNTIL A NOTICE OF TERMINATION IS FILED (IF APPLICABLE).

General Information			
Project Name	Leamar Drive (532 Main Street (Route 130)) – Mashpee, MA		
NPDES Tracking No. (if applicable)		Location	532 Main Street (Route 130) Mashpee, MA
Date of Inspection		Start/End Time	
Inspector's Name(s)			
Inspector's Title(s)			
Inspector's Contact Information			
Inspector's Qualifications			
Describe present phase of construction			
Type of Inspection:			
<input type="checkbox"/> Regular <input type="checkbox"/> Pre-storm event <input type="checkbox"/> During storm event <input type="checkbox"/> Post-storm event			
Weather Information			
Has there been a storm event since the last inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No			
If yes, provide:			
Storm Start Date & Time:	Storm Duration (hrs):	Approximate Amount of Precipitation (in):	
Weather at time of this inspection?			
<input type="checkbox"/> Clear <input type="checkbox"/> Cloudy <input type="checkbox"/> Rain <input type="checkbox"/> Sleet <input type="checkbox"/> Fog <input type="checkbox"/> Snowing <input type="checkbox"/> High Winds			
<input type="checkbox"/> Other: _____ Temperature: _____			
Have any discharges occurred since the last inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No			
If yes, describe:			
Are there any discharges at the time of inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No			
If yes, describe:			

Site-specific BMPs

- *Number the structural and non-structural BMPs identified in your SWPPP on your site map and list them below (add as many BMPs as necessary). Carry a copy of the numbered site map with you during your inspections. This list will ensure that you are inspecting all required BMPs at your site.*
- *Describe corrective actions initiated, date completed, and note the person that completed the work in the Corrective Action Log.*

	BMP	BMP Installed?	BMP Maintenance Required?	Corrective Action Needed and Notes Action required by whom and when
1	Catch Basin Protection	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2	Haybale & Silt Fencing	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3	Straw Wattles	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
4	Construction Entrance	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5	Sediment Basins	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
6	Dewatering Pit	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Overall Site Issues

Below are some general site issues that should be assessed during inspections. Customize this list as needed for conditions at your site.

	BMP/activity	Implemented?	Maintenance Required?	Corrective Action Needed and Notes Action required by whom and when
1	Are all slopes and disturbed areas not actively being worked properly stabilized?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2	Are natural resource areas (e.g., streams, wetlands, mature trees, etc.) protected with barriers or similar BMPs?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3	Are perimeter controls and sediment barriers adequately installed (keyed into substrate) and maintained?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
4	Are discharge points and receiving waters free of any sediment deposits?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5	Are storm drain inlets properly protected?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
6	Is the construction exit preventing sediment from being tracked into the street?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
7	Is trash/litter from work areas collected and placed in covered dumpsters?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
8	Are washout facilities (e.g., paint, stucco, concrete) available, clearly marked, and maintained?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
9	Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	Vehicle Maintenance not allowed on site
10	Are materials that are potential stormwater	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	

	BMP/activity	Implemented?	Maintenance Required?	Corrective Action Needed and Notes Action required by whom and when
	contaminants stored inside or under cover?			
11	Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
12	(Other)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Non-Compliance

Describe any incidents of non-compliance not described above:

CERTIFICATION STATEMENT

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Print name and title: _____
 (Qualified Person Performing the Inspection)

Signature: _____ **Date:** _____

Print name and title: _____
 (Contractor/Operator)

Signature: _____ **Date:** _____

SECTION 5.0

**LONG-TERM POLLUTION PREVENTION & OPERATION AND MAINTENANCE
PLAN**

5.0 LONG-TERM POLLUTION PREVENTION & OPERATION AND MAINTENANCE PLAN

As required by Standard #4 of the Stormwater Management Policy, this Long-Term Pollution Prevention Plan has been developed for source control and pollution prevention at the site after construction.

MAINTENANCE RESPONSIBILITY

Ensuring that the provisions of the Long-Term Pollution Prevention Plan are followed will be the responsibility of The Applicant.

GOOD HOUSEKEEPING PRACTICES

The site to be kept clean of trash and debris at all times. Trash, junk, etc. is not to be left outside.

VEHICLE WASHING CONTROLS

The following BMP's, or equivalent measures, methods or practices are required if you are engaged in vehicle washing and/or steam cleaning:

It is allowable to rinse down the body or a vehicle, including the bed of a truck, with just water without doing any wash water control BMP's.

If you wash (with mild detergents) on an area that infiltrates water, such as gravel, grass, or loose soil, it is acceptable to let the wash water infiltrate as long as you only wash the body of vehicles.

However, if you wash on a paved area and use detergents or other cleansers, or if you wash/rinse the engine compartment or the underside of vehicles, you must take the vehicles to a commercial vehicle wash.

REQUIREMENTS FOR ROUTINE INSPECTIONS AND MAINTENANCE OF STORMWATER BMPS

All stormwater BMPs are to be inspected and maintain as follows;

Straw Wattles, Silt Fence, and other temporary measures

The temporary erosion control measures will be installed up gradient of any wetland resource area where any disturbance or alteration might otherwise allow for erosion or sedimentation. They will be regularly inspected to ensure that they are functioning adequately. Additional supplies of these temporary measures will be stockpiled on site for any immediate needs or routine replacement.

Water Quality Treatment Units, Deep Sump Hooded Catch Basins, and Drain Manholes

Regular maintenance is essential. Catch basins remain effective at removing pollutants only if they are cleaned out frequently. Inspect or clean basins at least four times per year and at the end of the foliage and snow removal seasons. Sediments must also be removed four times per year or whenever the depth of the deposits in the catch basin sump is greater than or equal to one half the depth from the bottom of the invert of the lowest pipe in the basin.

Infiltration Basins

Infiltration Basins are prone to clogging and failure, so it is imperative to develop and implement aggressive maintenance schedules. Installing the required pretreatment BMPs will significantly reduce maintenance requirements for the basin.

The Operation and Maintenance Plan required by Standard 9 must include inspections and preventative maintenance at least twice a year, and after every time drainage discharges through the high outlet orifice. The Plan must require inspecting the pretreatment BMPs in accordance with the minimal requirements specified for those practices and after every major storm event. A major storm event defined as a storm that is equal to or greater than the 2-year, 24-hour storm (generally 2.9 to 3.6 inches in a 24-hour period, depending on geographic location in Massachusetts).

Once the basin is in use, inspect after every major storm for the first few months to ensure it is stabilized and functioning properly and if necessary, take corrective action. Note how long water remains standing in the basin after a storm; standing water within the basin 48 to 72 hours after a storm indicates that the infiltration capacity may have been overestimated. If the ponding is due to clogging, immediately address the reasons for the clogging (such as upland sediment erosion, excessive compaction of soils, or low spots).

Thereafter, inspect the infiltration basin at least twice per year. Important items to check during the inspection include signs of differential settlement, cracking, erosion, leakage in the embankments, tree growth on the embankments, condition of riprap, sediment accumulation, and the health of the turf.

At least twice a year, mow the buffer area, side slopes, and basin bottom. Remove grass clippings and accumulated organic matter to prevent an impervious organic mat from forming. Remove trash and debris at the same time. Use deep tilling to break up clogged surfaces and revegetate immediately.

Remove sediment from the basin as necessary but wait until the floor of the basin is thoroughly dry. Use light equipment to remove the top layer so as to not compact the underlying soil. Deeply till the remaining soil and revegetate as soon as possible. Inspect and clean pretreatment devices associated with basins at least twice a year, and ideally every other month.

PROVISIONS FOR MAINTENANCE OF LAWNS, GARDENS AND OTHER LANDSCAPE AREAS

Suggested Maintenance Operations

A. *Trees and Shrubs*

Disease and Pest Management - Prevention of disease or infestation is the first step of Pest Management. A plant that is in overall good health is far less susceptible to disease. Good general landscape maintenance can reduce problems from disease.

Inspections of plant materials for signs of disease or infestation are to be performed monthly by the Landscape Maintenance Contractor's Certified Arborist. This is a critical step for early diagnosis. Trees and Shrubs that have been diagnosed to have a plant disease or an infestation of insect pests are to be treated promptly with an appropriate material by a licensed applicator.

Fertilization - Trees and shrubs live outside their natural environment and should be given proper care to maintain health and vigor. Fertilizing trees and shrubs provides the plants with nutrients needed to resist insect attack, to resist drought and to grow thicker foliage. Fertilizing of new and old trees may be done in one of three ways, in either the early spring or the late fall.

- Systemic Injection of new and existing trees on trees 2 inches or greater in diameter. You must be licensed to apply this method.
- Soil Injection – a liquid fertilizer with a product such as Arbor Green or Rapid Grow injected into the soil under the drip zone of a tree or shrub. Material must be used according to manufacturers' specifications to be effective. Outside contracting is recommended.
- Punch Bar Method – a dry fertilizer such as 10-10-10, may be used by punched holes in the drip zone of the tree 12-18" deep, two feet apart around the circumference, to the edge of the drip line. Three pounds of fertilizer should be used per diameter inch for trees with trunks six inches or more in diameter.
- Fertilizer of shrubs – use a fertilizer such as 10-10-10, broadcast over the planting area according to the manufacturers' rate and water in.
- All fertilization must be noted on daily maintenance log.

Watering - Trees and Shrubs will need supplemental watering to remain in vigorous health. All new plants need to be watered once a week in cool weather, twice a week during warm weather, and up to three times in a week during periods of extreme heat and drought. Trees and shrubs should be watered in such a manner as to totally saturate the soil in the root zone area. Over-watering or constant saturation of the soil must be avoided as this could lead to root rot and other disease problems. The use of a soil moisture meter can help you monitor the soil's water intake.

Plant Replacement - Unhealthy plants that may cause widespread infestation of other nearby plants shall be immediately removed from the site. Any vegetation removed from the site must be recorded and submitted with the daily maintenance log. The area shall be treated to prevent further infestation. The plant shall then be replaced with a healthy specimen of the same species and size. This work shall have a pre-established budget allowance for the year.

A spring inspection of all plant materials shall be performed to identify those plant materials that are not in vigorously healthy condition. Unhealthy plant materials shall be evaluated. If the problem is determined to be minor the plant material shall be given appropriate restorative care in accordance with this maintenance guideline until it is restored to a vigorously healthy condition. Unhealthy plant materials that do not respond to restorative care or are determined to be beyond saving shall be replaced with a healthy specimen of the same species and size. In the case of the necessity of replacing extremely large plant materials the Landscape Architect shall determine the size of the replacement plant.

Pruning - Proper pruning is the selective removal of branches without changing the plant's natural appearance, or habit of growth. All tree pruning is to be performed by a licensed Arborist. All branches that are dead, broken, scared or crossing should be removed. All cuts should be made at the collar and not cut flush with the base.

Pruning on the site shall be done for the following purposes;

- To maintain or reduce the size of a tree or shrub
- To remove dead, diseased or damaged branches
- To rejuvenate old shrubs and encourage new growth
- To stimulate future flower and fruit development
- To maximize the visibility of twig color
- To prevent damage and reduce hazards to people and properties

All shrubs are recommended to be pruned on an annual basis to prevent the shrub from becoming overgrown and eliminate the need for drastic pruning. There are several types of pruning for deciduous shrubs. Hand snips should be used to maintain a more natural look or hand shears can be used for a more formal appearance.

Winter Protection - All trees and shrubs are to be watered, fertilized, and mulched before the first frost. All stakes should be checked and ties adjusted. Damaged branches should be pruned.

Broadleaf and Coniferous Evergreen plant materials are to be sprayed with an anti-desiccant product to prevent winter burn. The application shall be repeated during a suitable mid-winter thaw.

Shrubs located in areas likely to be piled with snow during snow removal (but not designated as Snow Storage Areas) shall be marked by six-foot high poles with bright green banner flags. Stockpiles of snow are not to be located in these areas due to potential damage to the plant materials from both the weight of the snow and the snow melting chemicals.

At the fall landscape maintenance conference parameters will be discussed between the Landscape Maintenance Contractor and the snow removal contractor to assure minimal damage and loss of landscape amenities during the winter season.

Seasonal Clean Up - A thorough spring cleanup is to be performed. This includes the removal and replacement of dead or unhealthy plant materials and the cleanup of plant debris and any general debris that has accumulated over the winter season. Mulch is to be lightly raked to clean debris from the surface without removing any mulch. Twigs and debris are to be removed from the planting beds throughout the growing season.

Mulching - Planting beds shall be mulched with a treated shredded hardwood mulch free from dirt, debris, and insects. A sample of this mulch shall be given to the Owner for approval prior to installation.

Maintain a 2-3" maximum depth and keep free of weeds either by hand weeding or by the use of a pre-emergent weed control such as Treflan or Serfian. Seasonal re-mulching shall occur as necessary in the spring and the fall to maintain this minimum depth. When new mulch is added to the planting bed it shall be spread to create a total depth of no more than three inches. Edges should be maintained in a cleanly edged fashion.

Mulch shall not be placed directly against the trunk of any tree or shrub.

B. *Groundcover and Perennials*

Disease and Pest Management – Pesticides and herbicides should be applied only as problems occur, with the proper chemical applied only by a trained professional or in the case of pesticide, a Certified Pesticide Applicator. Plants should be monitored weekly and treated accordingly.

Fertilizer – The health of the plants can be maintained or improved, and their growth encouraged by an application of complete fertilizer. Apply a fertilizer such as 4-12-4 as growth becomes apparent and before mulching. Apply to all groundcover and perennial planting areas by hand and avoid letting the fertilizer come in contact with the foliage, or use a liquid fertilizer and apply by soaking the soil. Apply according to the manufacturers' specifications.

Fertilization shall stop at the end of July.

Water – Groundcovers and Perennials will need supplemental watering in order to become established, healthy plants. All new plants need to be watered once a week in cool weather, twice a week during warm weather, and up to three times in a week during periods of extreme heat and drought. Until established, groundcovers and perennials should be watered in such a manner as to totally saturate the soil in the root zone area, to a depth of 6 inches. Once established, perennials shall continue to be watered as necessary to maintain them in a vigorous healthy condition. Over-watering or constant saturation of the soil must be avoided as this could lead to root rot and other disease problems. The use of a soil moisture meter can help you monitor the soil's water intake.

On-site water shall be furnished by the Owner. Hose and other watering equipment shall be furnished by the Landscape Maintenance Contractor.

Replacement – Any unhealthy plant/s that may cause widespread infestation of other nearby plants shall be immediately removed from the site. Any vegetation removed from the site must be recorded and submitted with the landscape maintenance log. The area shall be treated to prevent further infestation. The plant/s shall then be replaced with healthy specimen/s of the same species and size. Old Forge shall have a pre-established budget allowance for this type of replacement, each year.

Plant material that is damaged as a result of other landscape maintenance activities, such as mowing, shall be replaced with healthy specimens of the same species and size, at no additional cost to the owner.

Deadheading – Perennials shall be checked on a weekly basis and dead-headed once flowers have faded or as necessary based on plant type and duration of flower. Spent flowers can be pinched off with the thumb and forefinger. Continue to remove all faded flowers until Fall. All associated debris shall be removed from site daily.

Staking – Upright-growing perennials need support especially when in flower. Use of bamboo stakes, galvanized wire hoops or mesh may be necessary for their support. Supports should be put in place before they have become too difficult to handle. The supports should not be taller than the mature height of the perennial plant.

Division of Perennials – Two or three year-old perennials are easily divided in the spring if more plants are needed. To divide, cut out the entire section of plant to be divided, including roots. The larger divisions (those with three or more shoots), can be set out immediately in their permanent location, where they can be expected to bloom the same season. Smaller divisions are best planted in an out-of-the-way planting bed until the following autumn or spring, when they can be moved to their permanent location.

Weeding – All planting beds should be kept weed-free. Weed either by hand or with a pre-emergent herbicide such as Treflen used according to manufacturers' specifications. Manual weeding is to be used in combination with the use of spot applications of herbicides. Both live and dead weeds are to be pulled and removed from the site.

All herbicide applications shall be documented in the Landscape Maintenance Log. The actual product label or the manufacturer's product specification sheet for the specific product shall also be included in the Log.

Only personnel with appropriate applicator licenses shall supervise and/or perform the application of pesticide products requiring a license.

Winterizing – Perennial gardens should be cleaned-up when growth ceases in the fall. Remove foliage of plants that normally die down to the ground. Divide and replant over-grown clumps.

C. *Lawn Areas - Turf Systems*

Mowing – Proper mowing is an integral part of any good turf maintenance program. Without it, the finest in fertilization, watering and other vital maintenance practices would be completely ineffective. Proper mowing will help control dicot weeds; help the turf survive during periods of extreme heat, and gain strength and vigor to resist disease and other infestations.

Mowing height – The proper mowing height will vary somewhat according to the type of grass. The most common type of seed & sod lawns contain a mixture of bluegrass, fine fescue and perennial rye, which should be mowed at 2-3 inches.

Mowing frequency – The basic rule of thumb for mowing frequency is to never remove more than 1/3 of the grass blade in one mowing. Example: if you want to mow your turf at 2 inches, you should cut it when it reaches 3 inches. Removing more than 1/2 of the grass plant at a time can put the plant into shock, thus making it more susceptible to stress disease and weed infestation.

Mowing frequency will vary with the growing season and should be set by the plant height and not a set date. It will often be necessary to mow twice a week during periods of surge growth to help maintain plant health and color. Mowing should be cut back during periods of stress.

Grass clippings should be removed whenever they are thick enough to layer the turf. The return of clippings to the soil actually adds nutrients and helps retain moisture. Heavily clumped grass clippings are a sign of infrequent mowing, calling for an adjustment in the mowing schedule.

When mowing any area, try to alternate mowing patterns. This tends to keep grass blades more erect and assures an even cut. A dull mower will cause color loss due to tearing of the turf plant, and since mowing will ultimately determine the appearance of any turf area there is an absolute necessity for a clean sharp cut.

Weed & Pest Control and Fertilizing- In order to maintain turf grass health, vigor color, and nutrients, fertilizer must be added to the soil. Recommendations for fertilization of lawn areas are as follows; fertilize at the rate of one (1) pound of nitrogen per thousand square feet, per year is optimum. Fertilizer should be a balanced slow release, sulfur coated type fertilizer.

Weed Control - All turf areas will require some weed control, for both weed grasses and dicot weeds. Weeds should be treated at the appropriate time and with a material labeled for the target weed. Please refer to the fertilizer weed and pest schedule for timing.

Pest Control - All turf areas will require some pest control. Pests should be treated at the appropriate time with a material labeled for the target pest. Please refer to the fertilizer, weed and pest schedule for timing.

Lime - A common cause for an unhealthy lawn is acidic soil. When the PH is below the neutral range (between 6-7) vital plant nutrients become fixed in the soil and cannot be absorbed by the grass plant. Lime corrects an acid soil

condition, supplies calcium for plant growth and improves air and water circulation. Limestone applied at the rate of 50 lbs. per thousand square feet will adjust the soil PH one point over a period of 6-9 months.

D. Fertilizer, Weed & Pest Control Schedule – Turf Systems

Spring - Fertilize one (1) pound of nitrogen per 1,000 square feet
(April) Pre-emergent weed grass control
Broadleaf weed control

Late Spring - Fertilize one (1) pound of nitrogen per 1,000 square feet
(June) Pre-emergent weed grass control
Broadleaf weed control
Insect Control (if needed)

*Summer - Fertilize one (1) pound of nitrogen per 1,000 square feet
(August) Broadleaf weed control (if needed)
Insect Control (if needed)

Fall - Fertilize one (1) pound of nitrogen per 1,000 square feet
(September)

*Omit if area is not to be irrigated

Lawn Maintenance Task Schedule

MARCH (Weather permitting)

- Clean up winter debris, sand, leaves, trash etc.
- Re-edge mulch beds, maintain at 2-3” maximum.
- Fertilize plants
- Aerate and thatch turf (conditions permitting)

APRIL

- Reseed or sod all areas needing attention.
- Fertilize and weed control
- Lime
- Start mowing when grass reaches 2-1/2”, mow to 2”

MAY

- Mow turf to 2-2-1/2”
- Weed as necessary.
- Check for disease and pest problems in both turf and plants.

JUNE

- Mow turf to 2-1/2” – 3”
- Fertilize and weed control.
- Weed
- Check for disease and pest problems in both turf and plants, treat as necessary.

PROVISIONS FOR SOLID WASTE MANAGEMENT (SITE TRASH)

Trash will be placed in on-site dumpsters and the Owner will make provisions for its regular and timely removal.

SNOW DISPOSAL AND PLOWING PLANS

The purpose of the snow and snowmelt management plan is to provide guidelines regarding snow disposal site selection, site preparation and maintenance that are acceptable to the Department of Environmental Protection. For the areas that require snow removal, snow storage onsite will largely be accomplished by using pervious areas along the shoulder of the roadway and development as windrowed by plows.

- Avoid dumping of snow into any water body, including rivers, ponds, or wetlands. In addition to water quality impacts and flooding, snow disposed of in open water can cause navigational hazards when it freezes into ice blocks.
- Avoid disposing of snow on top of storm drain catch basins or in stormwater basins. Snow combined with sand and debris may block a storm drainage system, causing localized flooding. A high volume of sand, sediment, and litter released from melting snow also may be quickly transported through the system into surface water.
- In significant storm events, the melting or off-site trucking of snow may be implemented. These activities shall be conducted in accordance with all local, state and federal regulations.

WINTER ROAD SALT AND/OR SAND USE AND STORAGE RESTRICTIONS

The applicant will be responsible for sanding and salting the site. No storage on site.

STREET SWEEPING SCHEDULES

There are three types of sweepers: Mechanical, Regenerative Air, and Vacuum Filter.

- 1) Mechanical: Mechanical sweepers use brooms or rotary brushes to scour the pavement.
- 2) Regenerative Air: These sweepers blow air onto the road or parking lot surface, causing fines to rise where they are vacuumed.
- 3) Vacuum filter: These sweepers remove fines along roads. Two general types of vacuum filter sweepers are available - wet and dry. The dry type uses a broom in combination with the vacuum. The wet type uses water for dust suppression

Regardless of the type chosen, the efficiency of street sweeping is increased when sweepers are operated in tandem.

This project has not included street sweeping as part of the TSS removal calculations. However, it is recommended that street sweeping of the parking areas occur four times a year, including once after the spring snow melt.

Reuse and Disposal of Street Sweepings

Once removed from paved surfaces, the sweepings must be handled and disposed of properly. Mass DEP's Bureau of Waste Prevention has issued a written policy regarding the reuse and disposal of street sweepings. These sweepings are regulated as a solid waste, and can be used in three ways:

- In one of the ways already approved by Mass DEP (e.g., daily cover in a landfill, additive to compost, fill in a public way)
- If approved under a Beneficial Use Determination
- Disposed in a landfill

TRAINING OF STAFF OR PERSONNEL INVOLVED WITH IMPLEMENTING LONG-TERM POLLUTION PREVENTION PLAN

The Long-Term Pollution Prevention Plan is to be implemented by property owner of the site. Trained and, if required, licensed Professionals are to be hired by the owner as applicable to implement the Long-Term Pollution Prevention Plan.

LIST OF EMERGENCY CONTACTS FOR IMPLEMENTING LONG-TERM POLLUTION PREVENTION PLAN

The applicant will be required to implement the Long-Term Pollution Prevention Plan and will create and maintain a list of emergency contacts.

POST CONSTRUCTION PHASE INSPECTION SCHEDULE AND EVALUATION CHECKLIST

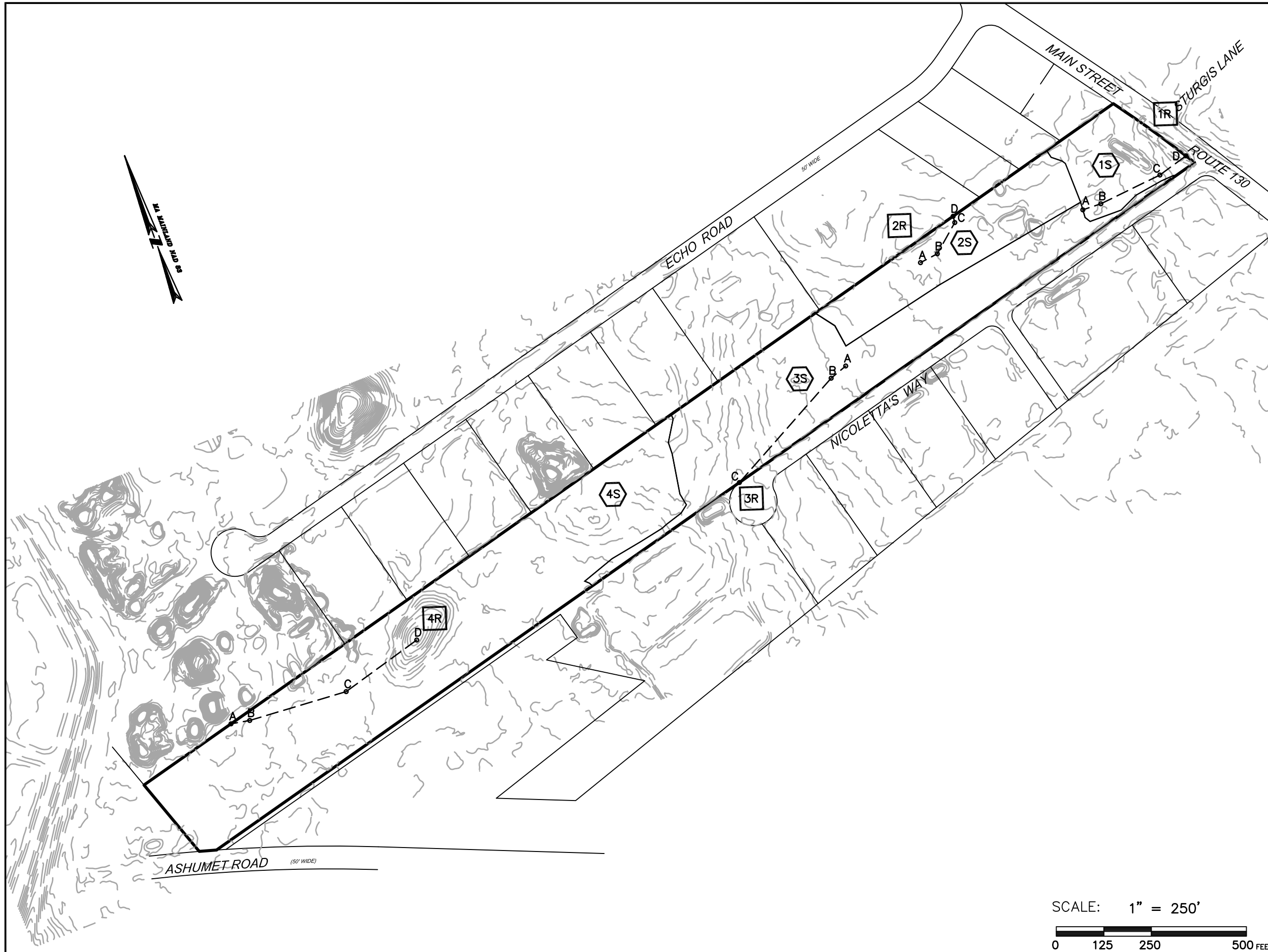
Inspection Date	Inspector	BMP Inspected	Inspection Frequency Requirements	Comments	Recommendation	Follow-up Inspection Required (yes/no)
		Catch Basin	Four times a year			
		Water Quality Units	Four times a year			
		Infiltration Basin	Twice a year			
		Pipe Outlet Protection	Once a year			

1. Refer to the Massachusetts Stormwater Handbook Volume Two: Stormwater Technical Handbook (February 2008) for recommendations regarding frequency for inspections and maintenance of specific BMP's
2. Inspections to be conducted by a qualified professional such as an environmental scientist or civil engineer.
3. Limited or no use of sodium chloride salts, fertilizers or pesticides recommended.
4. Other Notes: (Include deviations from Conservation Commission Approvals, Planning Board Approvals and Approved Plans)

SECTION 6.0

HYDROLOGY CALCULATIONS

6.01 EXISTING WATERSHED PLAN



LEMEAR DRIVE

532 MAIN ST (ROUTE 130)

**MASHPEE
MASSACHUSETTS**
(BARNSTABLE COUNTY)

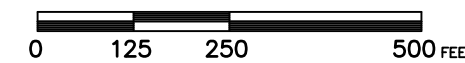
**PRE-DEVELOPMENT
WATERSHED PLAN**

FEBRUARY 11, 2022

PREPARED
FOR: **MARCELLO MALLEGNI**
80 AIRPORT ROAD
HYANNIS, MA 02601

BSC GROUP
349 Main Street - Route 28
West Yarmouth, Massachusetts
02673
508 778 8919

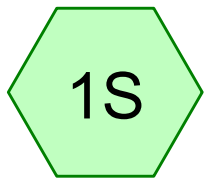
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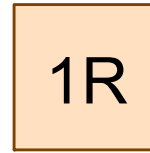
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Scale: **1" = 250'** Revised: _____
Dwg No: _____

File: **Projects-YAR\5047400\C\5047400-PP.dwg**

6.02 EXISTING HYDROLOGY CALCULATIONS (HYDROCAD™ PRINTOUTS)



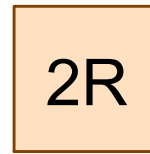
Area 1



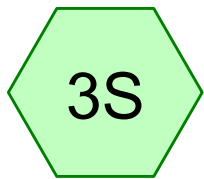
Off-site - Route 130



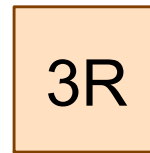
Area 2



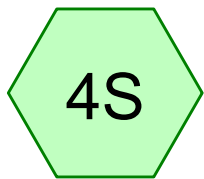
Off-site North



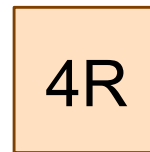
Area 3



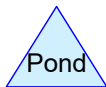
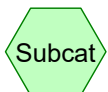
Off-site South



Area 4



Retained On-site



5047400-Pre

Prepared by BSC Group

Printed 2/11/2022

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Page 2

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1	Runoff Area=60,850 sf 2.60% Impervious Runoff Depth=0.00" Flow Length=307' Tc=17.1 min CN=32 Runoff=0.00 cfs 0.000 af
Subcatchment 2S: Area 2	Runoff Area=100,817 sf 0.00% Impervious Runoff Depth=0.00" Flow Length=161' Slope=0.0200 '/' Tc=14.2 min CN=30 Runoff=0.00 cfs 0.000 af
Subcatchment 3S: Area 3	Runoff Area=230,191 sf 0.00% Impervious Runoff Depth=0.00" Flow Length=415' Slope=0.0200 '/' Tc=20.2 min CN=30 Runoff=0.00 cfs 0.000 af
Subcatchment 4S: Area 4	Runoff Area=394,080 sf 0.00% Impervious Runoff Depth=0.00" Flow Length=545' Tc=21.2 min CN=30 Runoff=0.00 cfs 0.000 af
Reach 1R: Off-site - Route 130	Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Reach 2R: Off-site North	Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Reach 3R: Off-site South	Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Reach 4R: Retained On-site	Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Total Runoff Area = 18.043 ac Runoff Volume = 0.000 af Average Runoff Depth = 0.00"
99.80% Pervious = 18.006 ac 0.20% Impervious = 0.036 ac

Summary for Subcatchment 1S: Area 1

[45] Hint: Runoff=Zero

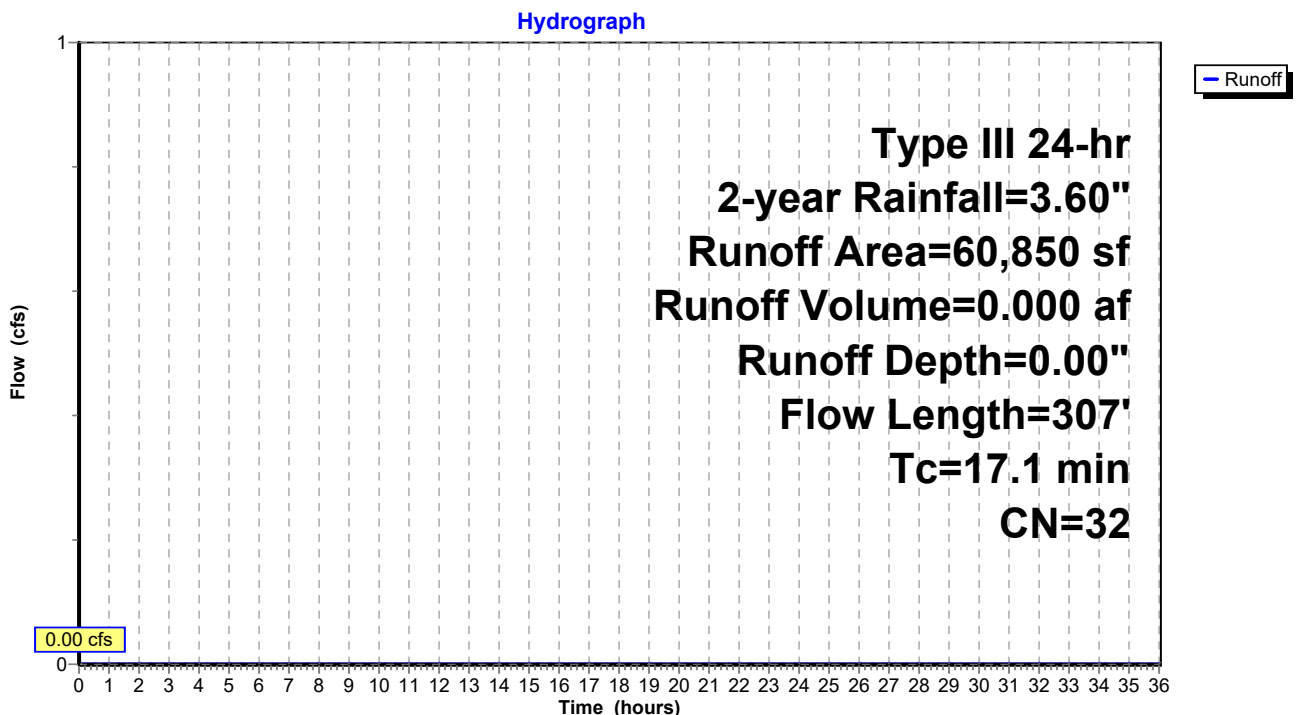
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-year Rainfall=3.60"

Area (sf)	CN	Description
1,584	98	Paved parking, HSG A
59,266	30	Woods, Good, HSG A
60,850	32	Weighted Average
59,266		97.40% Pervious Area
1,584		2.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
4.1	172	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
1.4	85	0.0400	1.00		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
17.1	307	Total			

Subcatchment 1S: Area 1



Summary for Subcatchment 2S: Area 2

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

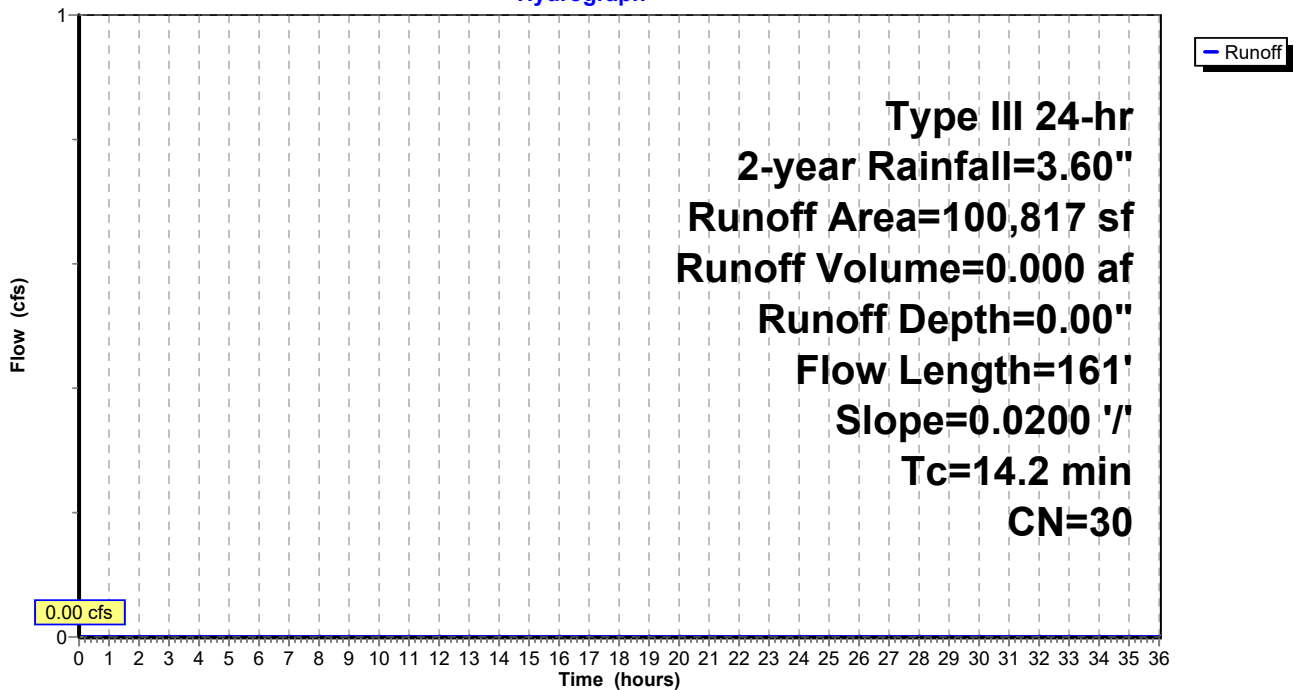
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-year Rainfall=3.60"

Area (sf)	CN	Description
100,817	30	Woods, Good, HSG A
100,817		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
2.2	94	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
0.4	17	0.0200	0.71		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
14.2	161	Total			

Subcatchment 2S: Area 2

Hydrograph



Summary for Subcatchment 3S: Area 3

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

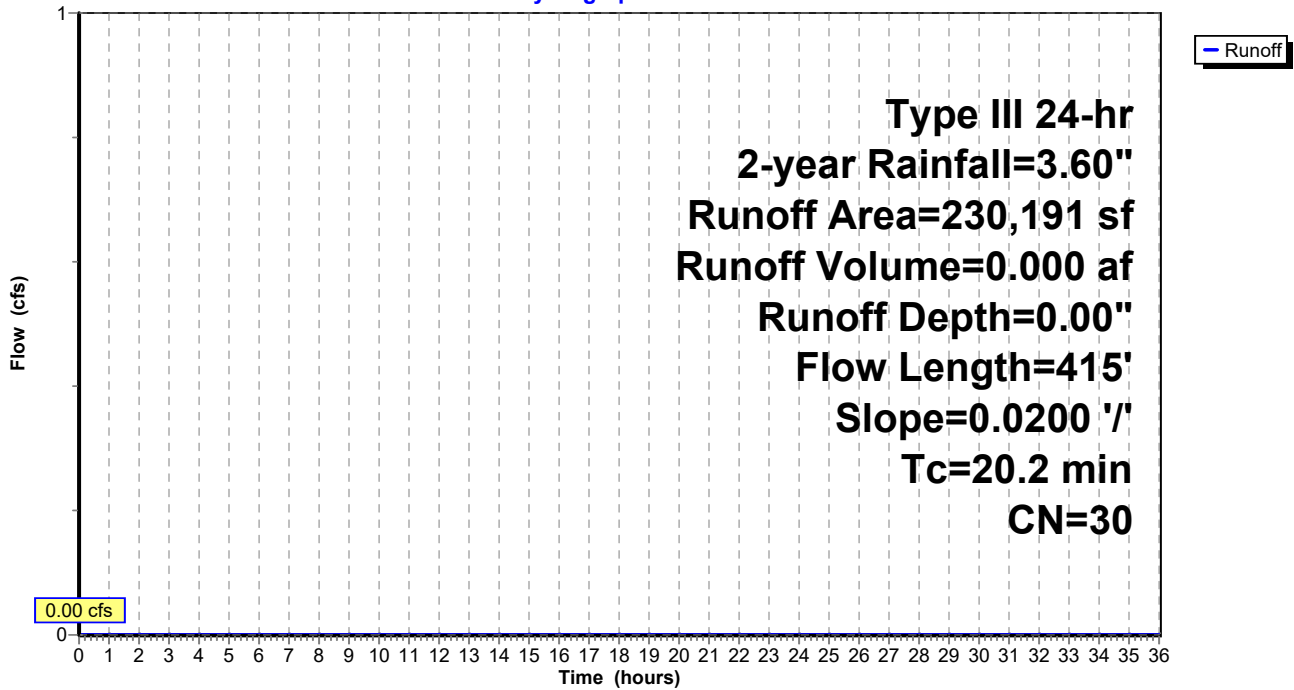
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-year Rainfall=3.60"

Area (sf)	CN	Description
230,191	30	Woods, Good, HSG A
230,191		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
8.6	365	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
20.2	415	Total			

Subcatchment 3S: Area 3

Hydrograph



Summary for Subcatchment 4S: Area 4

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

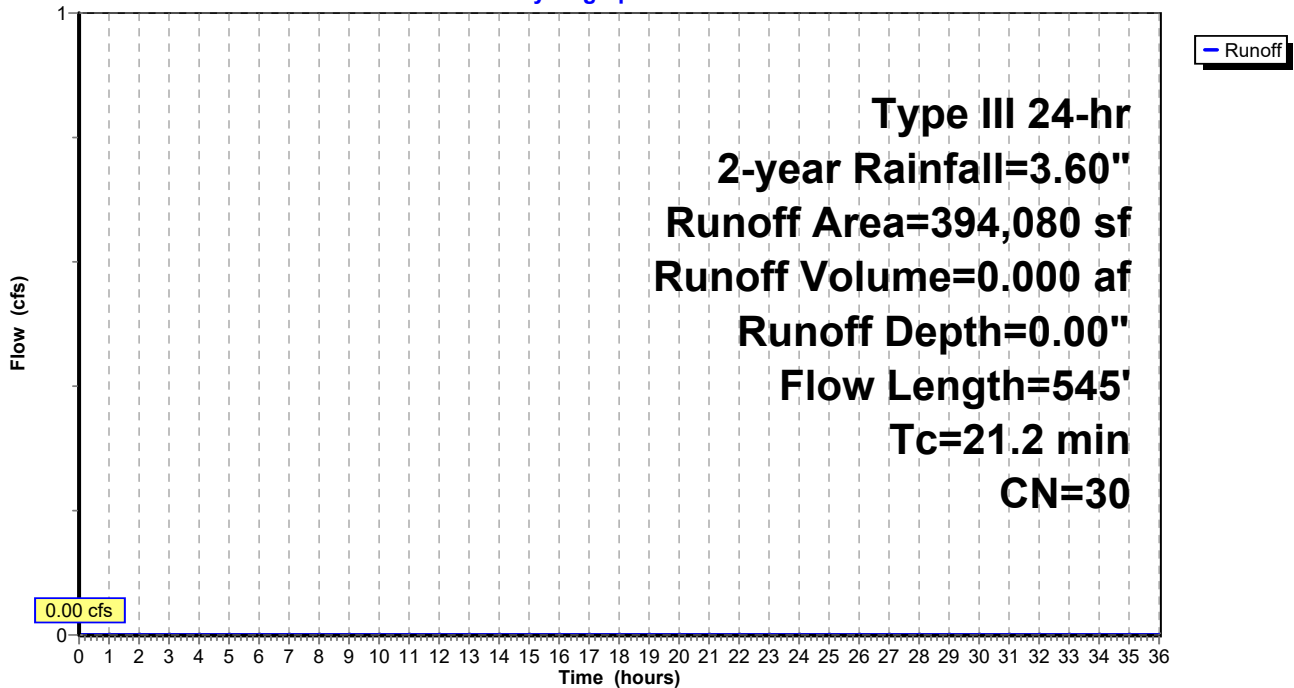
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-year Rainfall=3.60"

Area (sf)	CN	Description
394,080	30	Woods, Good, HSG A
394,080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
6.2	265	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
3.4	230	0.0500	1.12		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
21.2	545	Total			

Subcatchment 4S: Area 4

Hydrograph



Summary for Reach 1R: Off-site - Route 130

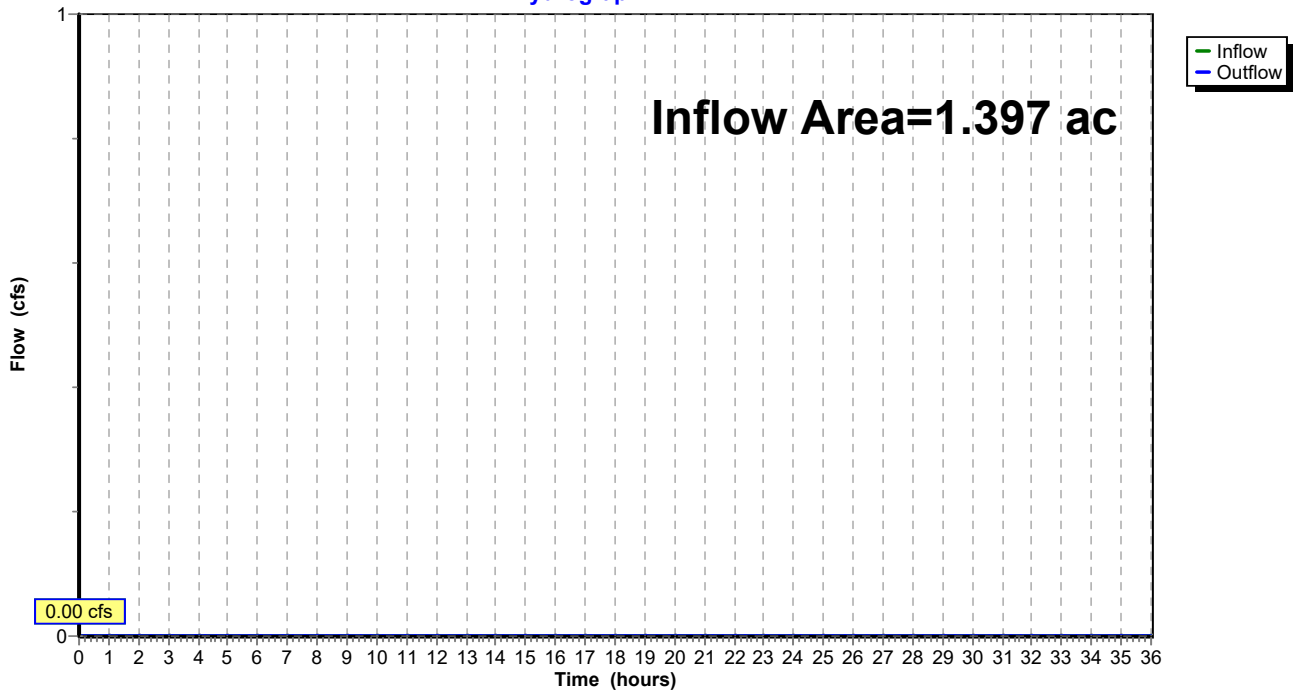
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.397 ac, 2.60% Impervious, Inflow Depth = 0.00" for 2-year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 1R: Off-site - Route 130

Hydrograph



Summary for Reach 2R: Off-site North

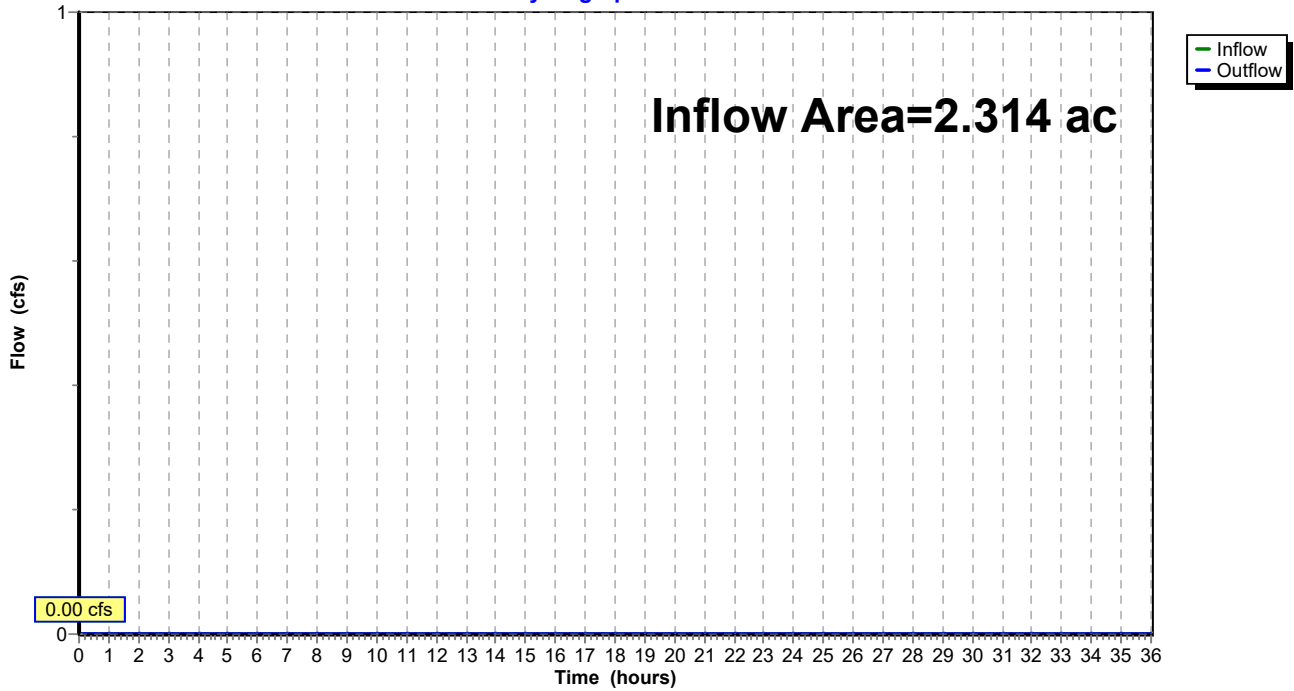
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.314 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 2R: Off-site North

Hydrograph



Summary for Reach 3R: Off-site South

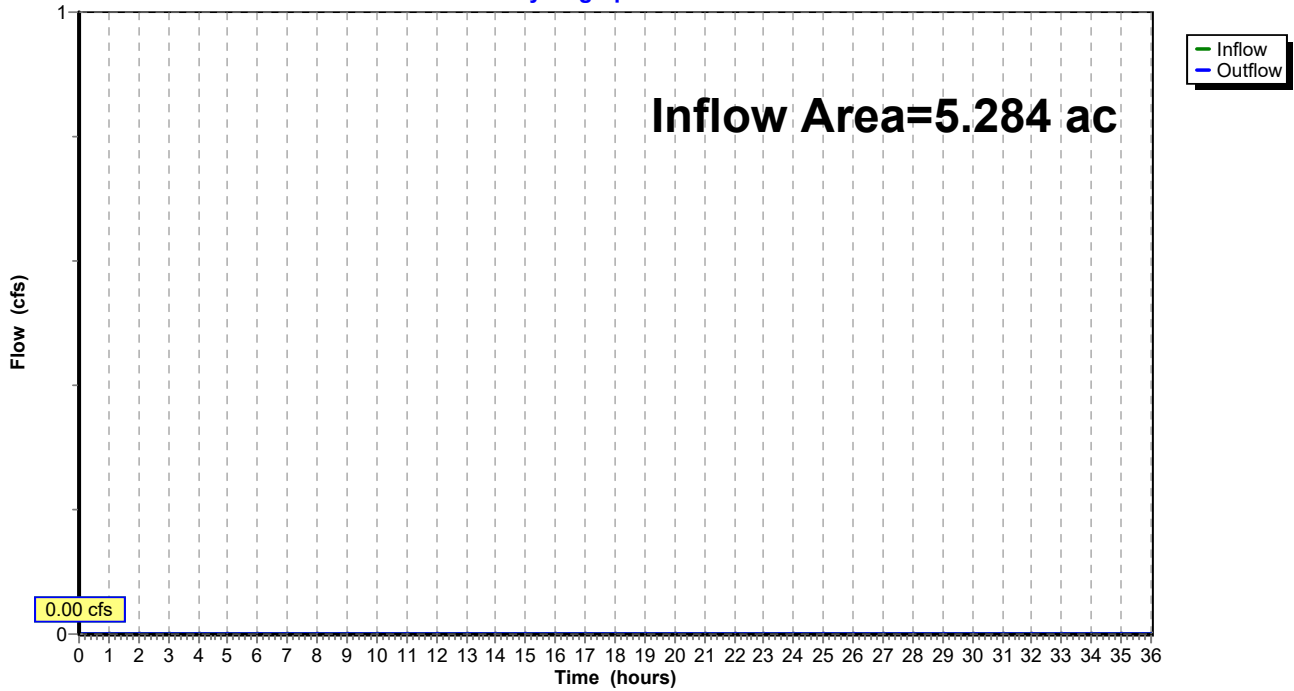
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.284 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 3R: Off-site South

Hydrograph



Summary for Reach 4R: Retained On-site

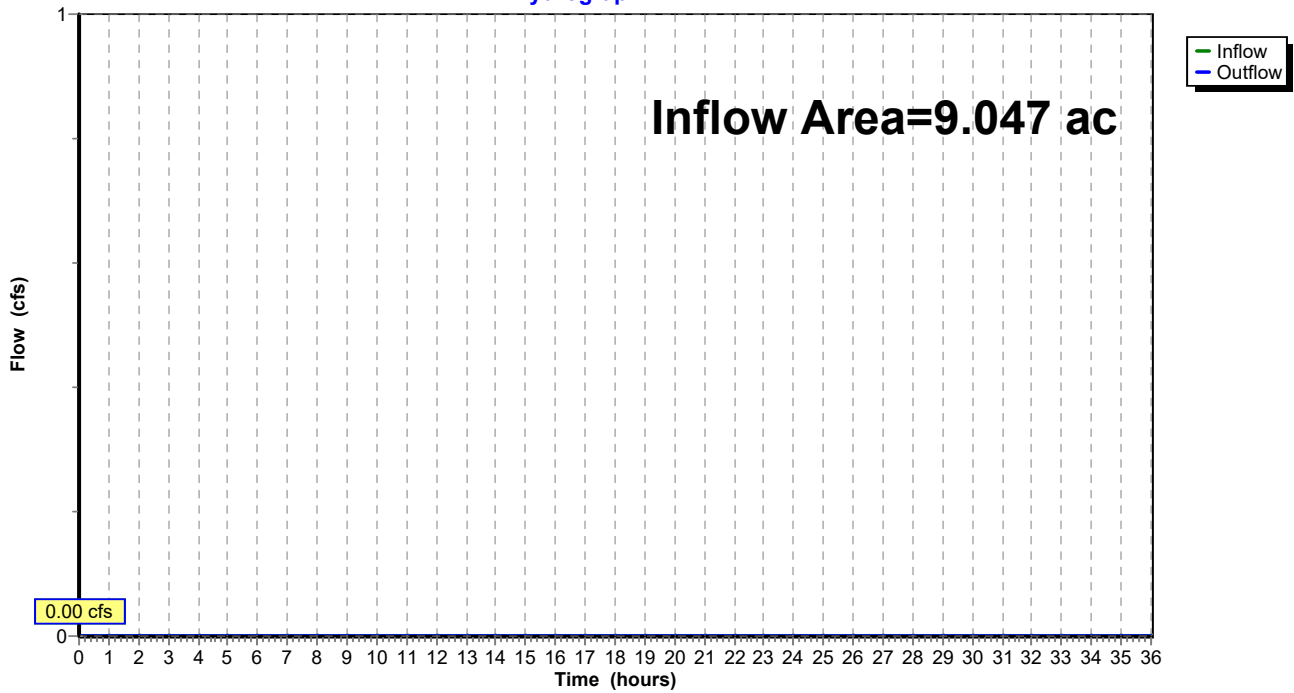
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.047 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 4R: Retained On-site

Hydrograph



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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1	Runoff Area=60,850 sf 2.60% Impervious Runoff Depth=0.01" Flow Length=307' Tc=17.1 min CN=32 Runoff=0.00 cfs 0.002 af
Subcatchment 2S: Area 2	Runoff Area=100,817 sf 0.00% Impervious Runoff Depth=0.00" Flow Length=161' Slope=0.0200 '/' Tc=14.2 min CN=30 Runoff=0.00 cfs 0.000 af
Subcatchment 3S: Area 3	Runoff Area=230,191 sf 0.00% Impervious Runoff Depth=0.00" Flow Length=415' Slope=0.0200 '/' Tc=20.2 min CN=30 Runoff=0.00 cfs 0.000 af
Subcatchment 4S: Area 4	Runoff Area=394,080 sf 0.00% Impervious Runoff Depth=0.00" Flow Length=545' Tc=21.2 min CN=30 Runoff=0.00 cfs 0.001 af
Reach 1R: Off-site - Route 130	Inflow=0.00 cfs 0.002 af Outflow=0.00 cfs 0.002 af
Reach 2R: Off-site North	Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Reach 3R: Off-site South	Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Reach 4R: Retained On-site	Inflow=0.00 cfs 0.001 af Outflow=0.00 cfs 0.001 af

Total Runoff Area = 18.043 ac Runoff Volume = 0.003 af Average Runoff Depth = 0.00"
99.80% Pervious = 18.006 ac 0.20% Impervious = 0.036 ac

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532 Main Street (Route 130) - Mashpee, MA

Type III 24-hr 10-year Rainfall=4.80"

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Summary for Subcatchment 1S: Area 1

Runoff = 0.00 cfs @ 22.40 hrs, Volume= 0.002 af, Depth= 0.01"

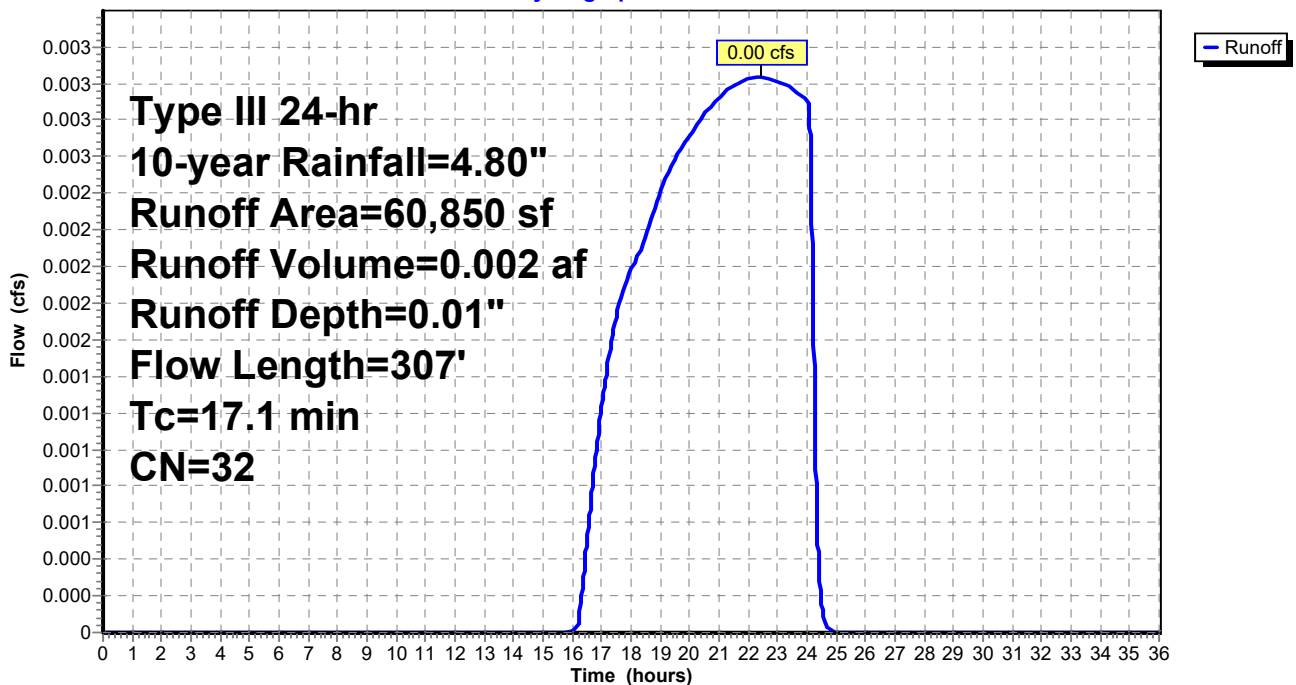
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-year Rainfall=4.80"

Area (sf)	CN	Description
1,584	98	Paved parking, HSG A
59,266	30	Woods, Good, HSG A
60,850	32	Weighted Average
59,266		97.40% Pervious Area
1,584		2.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
4.1	172	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
1.4	85	0.0400	1.00		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
17.1	307	Total			

Subcatchment 1S: Area 1

Hydrograph



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Summary for Subcatchment 2S: Area 2

Runoff = 0.00 cfs @ 24.03 hrs, Volume= 0.000 af, Depth= 0.00"

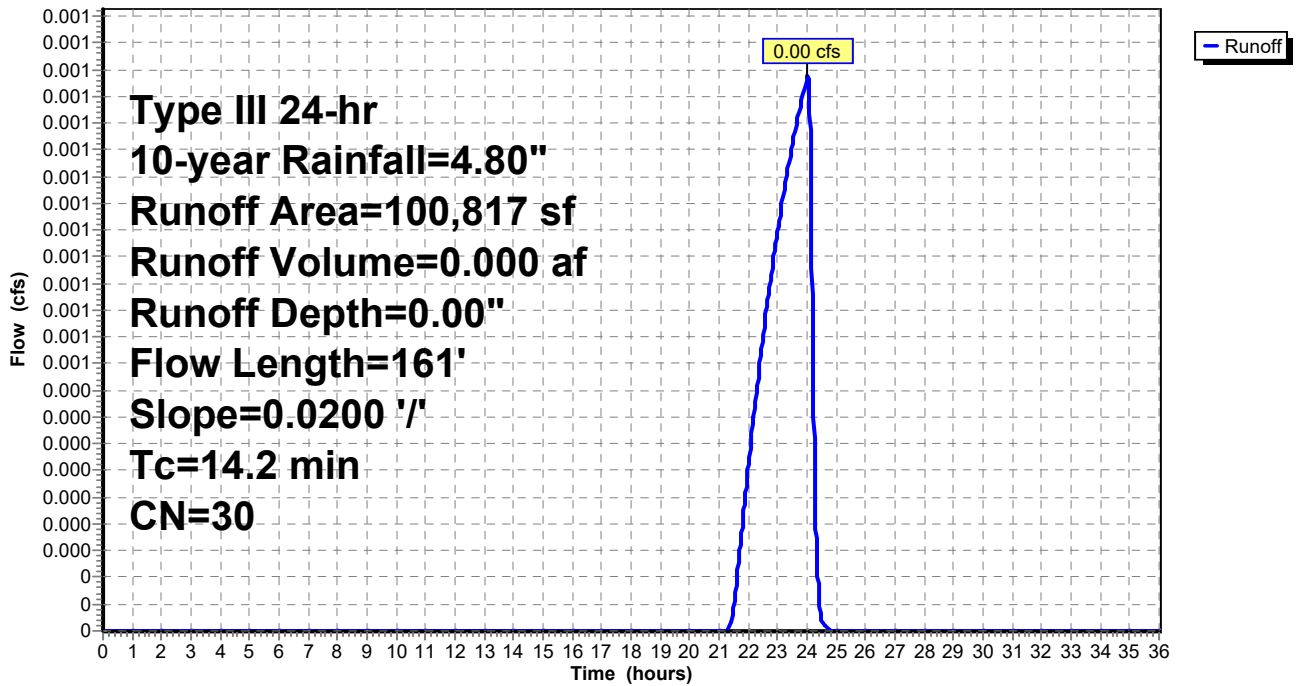
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-year Rainfall=4.80"

Area (sf)	CN	Description
100,817	30	Woods, Good, HSG A
100,817		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
2.2	94	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
0.4	17	0.0200	0.71		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
14.2	161	Total			

Subcatchment 2S: Area 2

Hydrograph



Summary for Subcatchment 3S: Area 3

Runoff = 0.00 cfs @ 24.04 hrs, Volume= 0.000 af, Depth= 0.00"

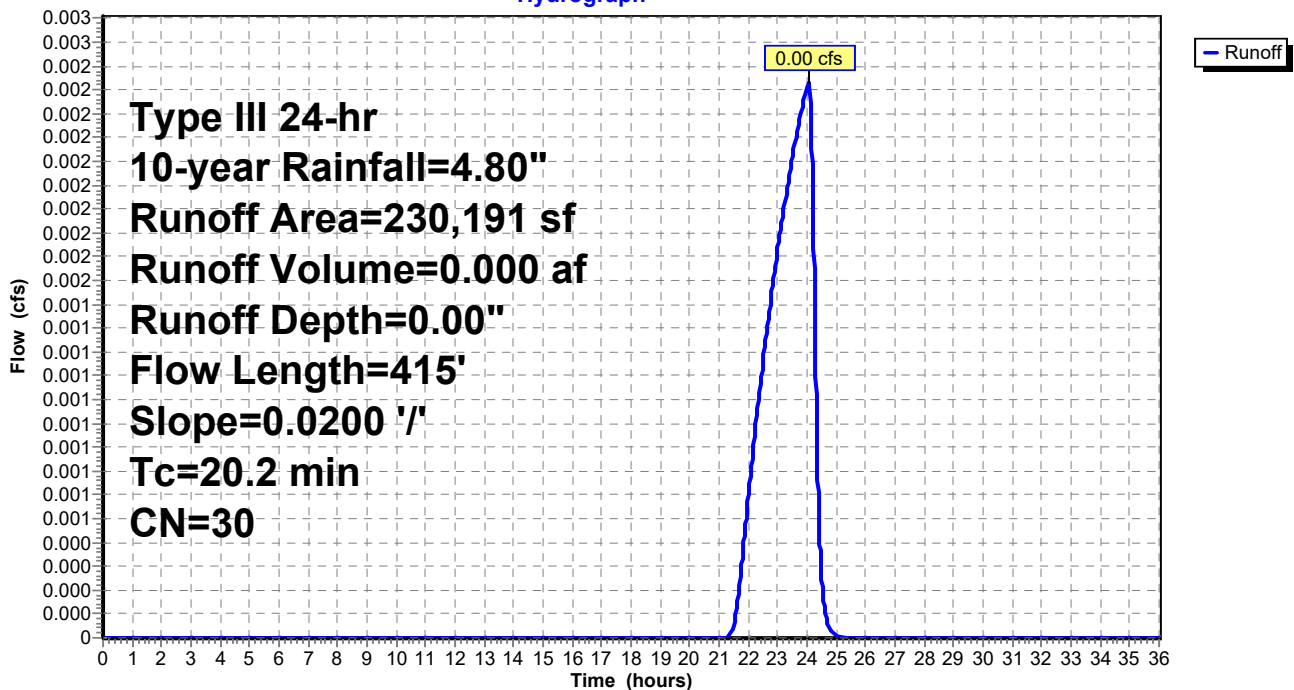
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-year Rainfall=4.80"

Area (sf)	CN	Description
230,191	30	Woods, Good, HSG A
230,191		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
8.6	365	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
20.2	415	Total			

Subcatchment 3S: Area 3

Hydrograph



Summary for Subcatchment 4S: Area 4

Runoff = 0.00 cfs @ 24.05 hrs, Volume= 0.001 af, Depth= 0.00"

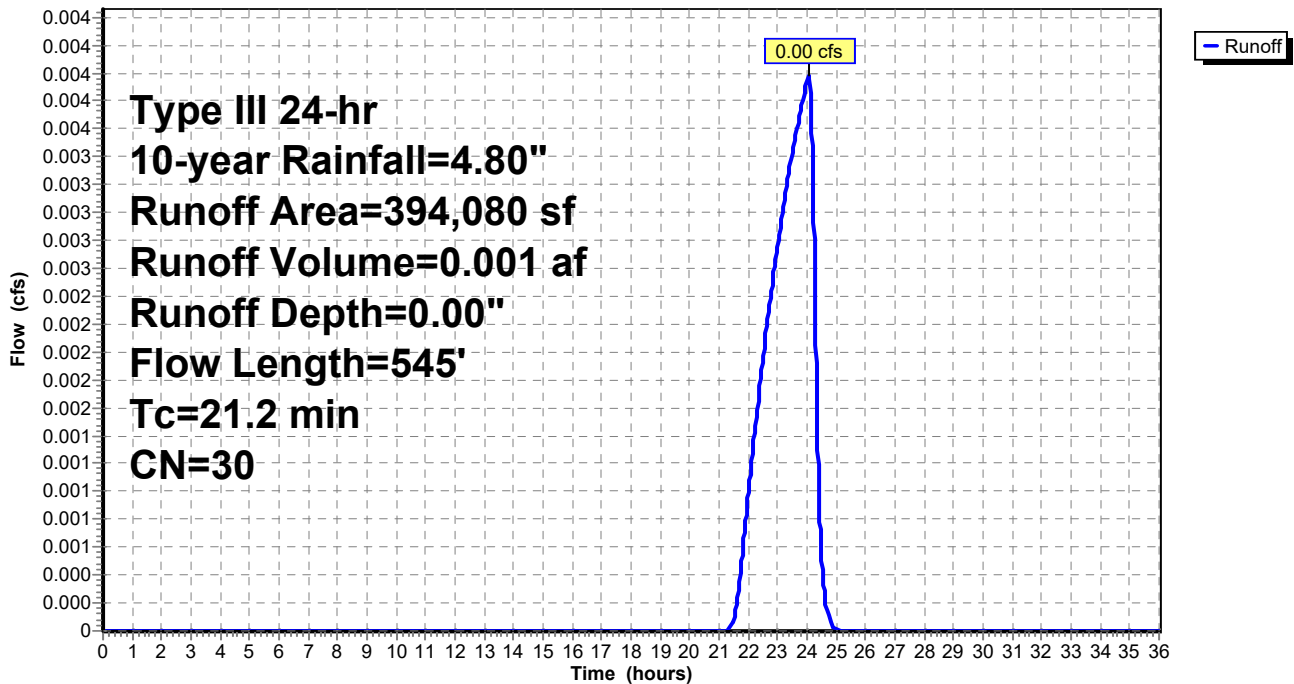
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-year Rainfall=4.80"

Area (sf)	CN	Description
394,080	30	Woods, Good, HSG A
394,080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
6.2	265	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
3.4	230	0.0500	1.12		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
21.2	545	Total			

Subcatchment 4S: Area 4

Hydrograph



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532 Main Street (Route 130) - Mashpee, MA

Type III 24-hr 10-year Rainfall=4.80"

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Summary for Reach 1R: Off-site - Route 130

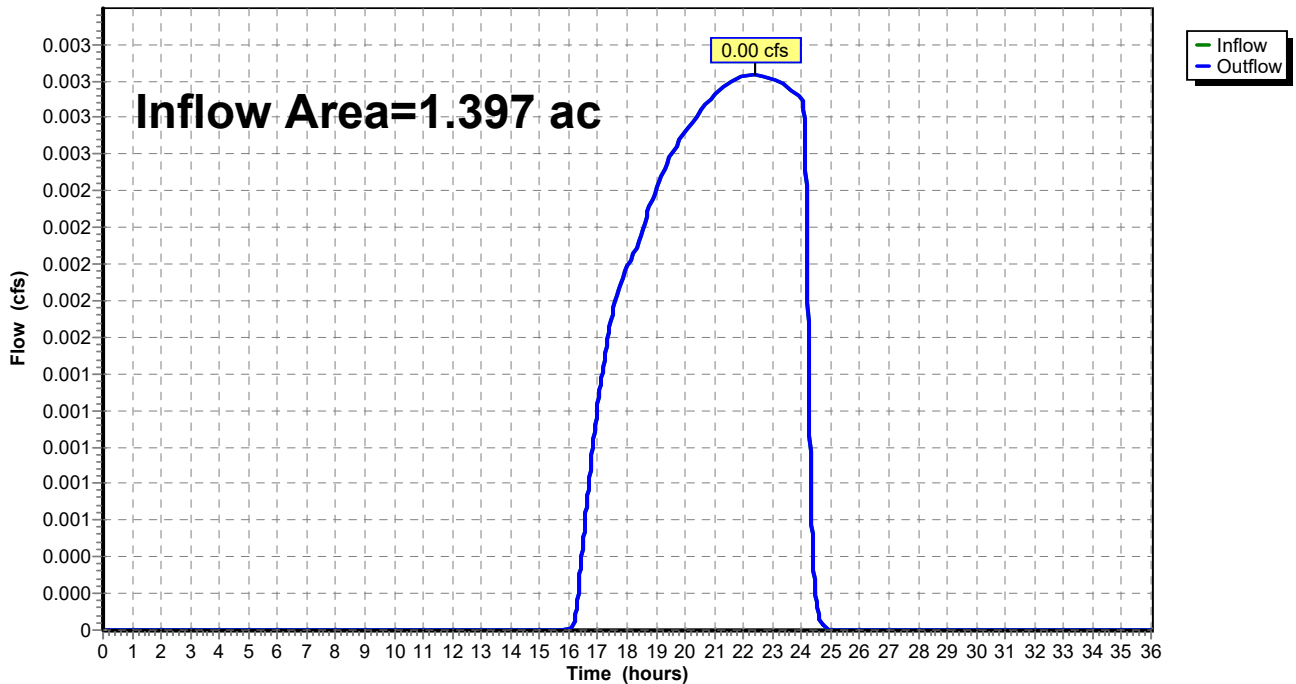
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.397 ac, 2.60% Impervious, Inflow Depth = 0.01" for 10-year event
Inflow = 0.00 cfs @ 22.40 hrs, Volume= 0.002 af
Outflow = 0.00 cfs @ 22.40 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 1R: Off-site - Route 130

Hydrograph



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532 Main Street (Route 130) - Mashpee, MA

Type III 24-hr 10-year Rainfall=4.80"

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Summary for Reach 2R: Off-site North

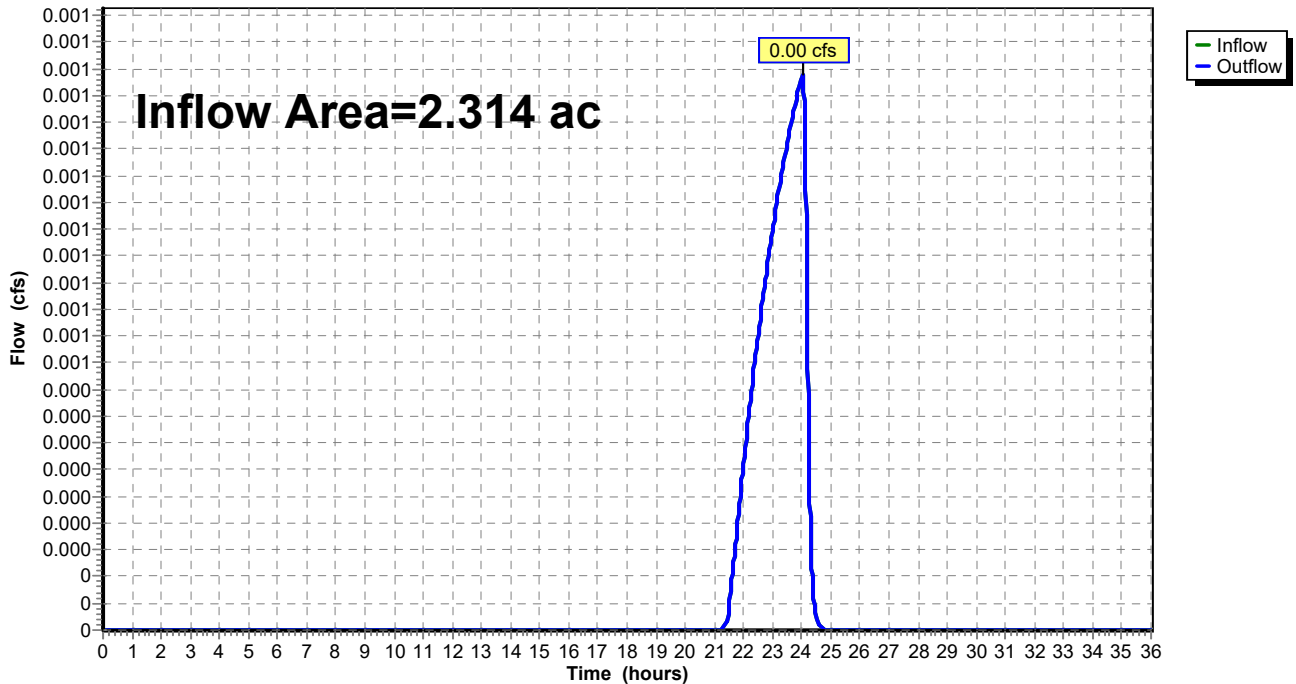
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.314 ac, 0.00% Impervious, Inflow Depth = 0.00" for 10-year event
Inflow = 0.00 cfs @ 24.03 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 24.03 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 2R: Off-site North

Hydrograph



Summary for Reach 3R: Off-site South

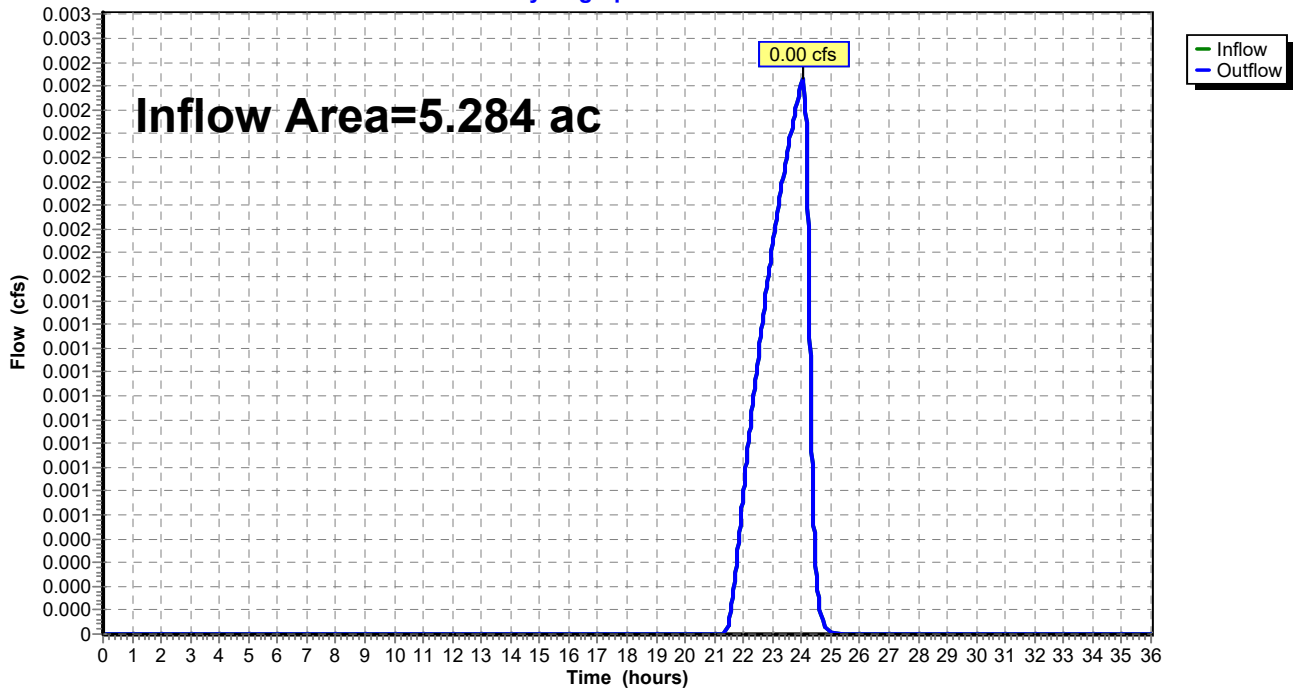
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.284 ac, 0.00% Impervious, Inflow Depth = 0.00" for 10-year event
Inflow = 0.00 cfs @ 24.04 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 24.04 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 3R: Off-site South

Hydrograph



Summary for Reach 4R: Retained On-site

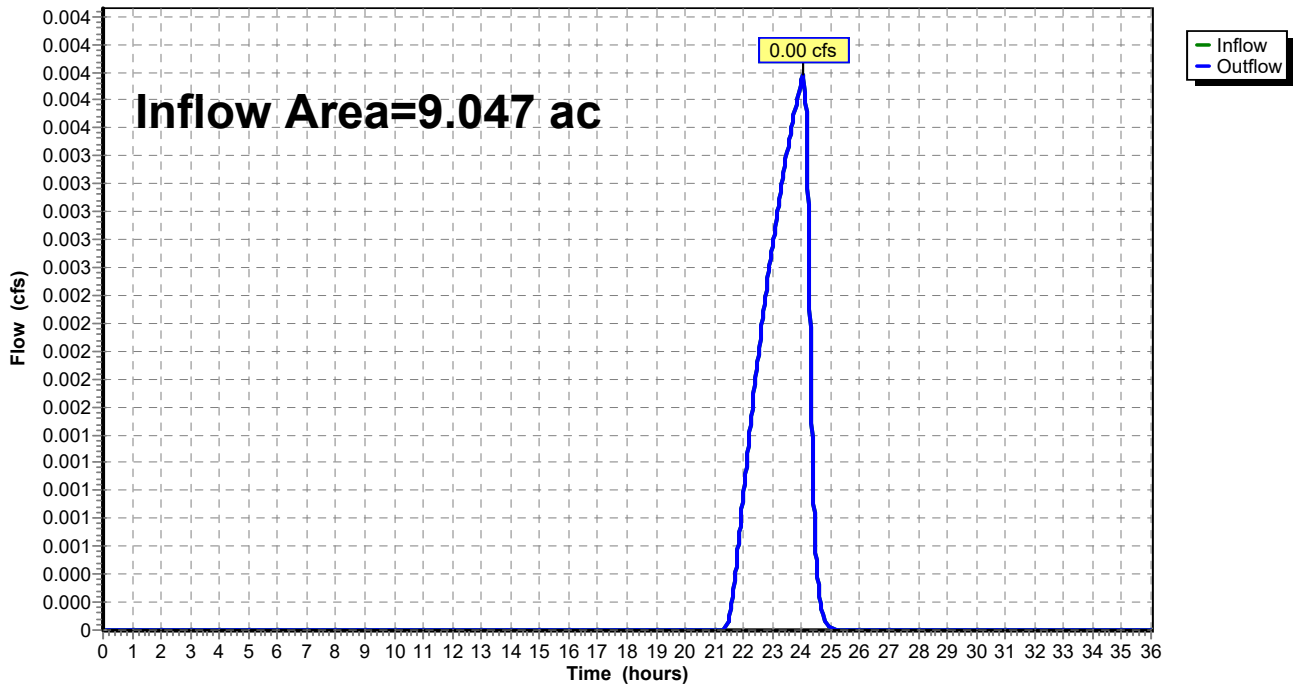
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.047 ac, 0.00% Impervious, Inflow Depth = 0.00" for 10-year event
Inflow = 0.00 cfs @ 24.05 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 24.05 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 4R: Retained On-site

Hydrograph



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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1	Runoff Area=60,850 sf 2.60% Impervious Runoff Depth=0.09" Flow Length=307' Tc=17.1 min CN=32 Runoff=0.02 cfs 0.011 af
Subcatchment 2S: Area 2	Runoff Area=100,817 sf 0.00% Impervious Runoff Depth=0.04" Flow Length=161' Slope=0.0200 '/' Tc=14.2 min CN=30 Runoff=0.01 cfs 0.008 af
Subcatchment 3S: Area 3	Runoff Area=230,191 sf 0.00% Impervious Runoff Depth=0.04" Flow Length=415' Slope=0.0200 '/' Tc=20.2 min CN=30 Runoff=0.03 cfs 0.019 af
Subcatchment 4S: Area 4	Runoff Area=394,080 sf 0.00% Impervious Runoff Depth=0.04" Flow Length=545' Tc=21.2 min CN=30 Runoff=0.05 cfs 0.033 af
Reach 1R: Off-site - Route 130	Inflow=0.02 cfs 0.011 af Outflow=0.02 cfs 0.011 af
Reach 2R: Off-site North	Inflow=0.01 cfs 0.008 af Outflow=0.01 cfs 0.008 af
Reach 3R: Off-site South	Inflow=0.03 cfs 0.019 af Outflow=0.03 cfs 0.019 af
Reach 4R: Retained On-site	Inflow=0.05 cfs 0.033 af Outflow=0.05 cfs 0.033 af

Total Runoff Area = 18.043 ac Runoff Volume = 0.072 af Average Runoff Depth = 0.05"
99.80% Pervious = 18.006 ac 0.20% Impervious = 0.036 ac

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Summary for Subcatchment 1S: Area 1

Runoff = 0.02 cfs @ 15.37 hrs, Volume= 0.011 af, Depth= 0.09"

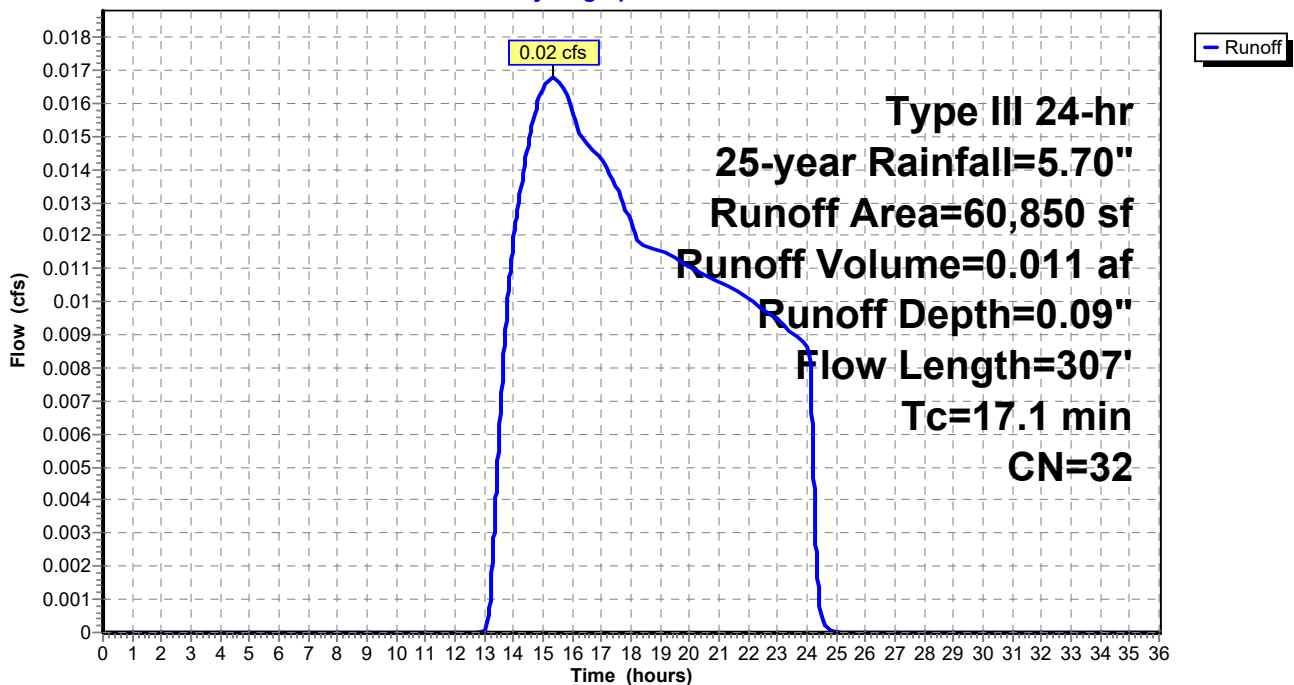
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.70"

Area (sf)	CN	Description
1,584	98	Paved parking, HSG A
59,266	30	Woods, Good, HSG A
60,850	32	Weighted Average
59,266		97.40% Pervious Area
1,584		2.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
4.1	172	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
1.4	85	0.0400	1.00		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
17.1	307	Total			

Subcatchment 1S: Area 1

Hydrograph



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Summary for Subcatchment 2S: Area 2

Runoff = 0.01 cfs @ 17.15 hrs, Volume= 0.008 af, Depth= 0.04"

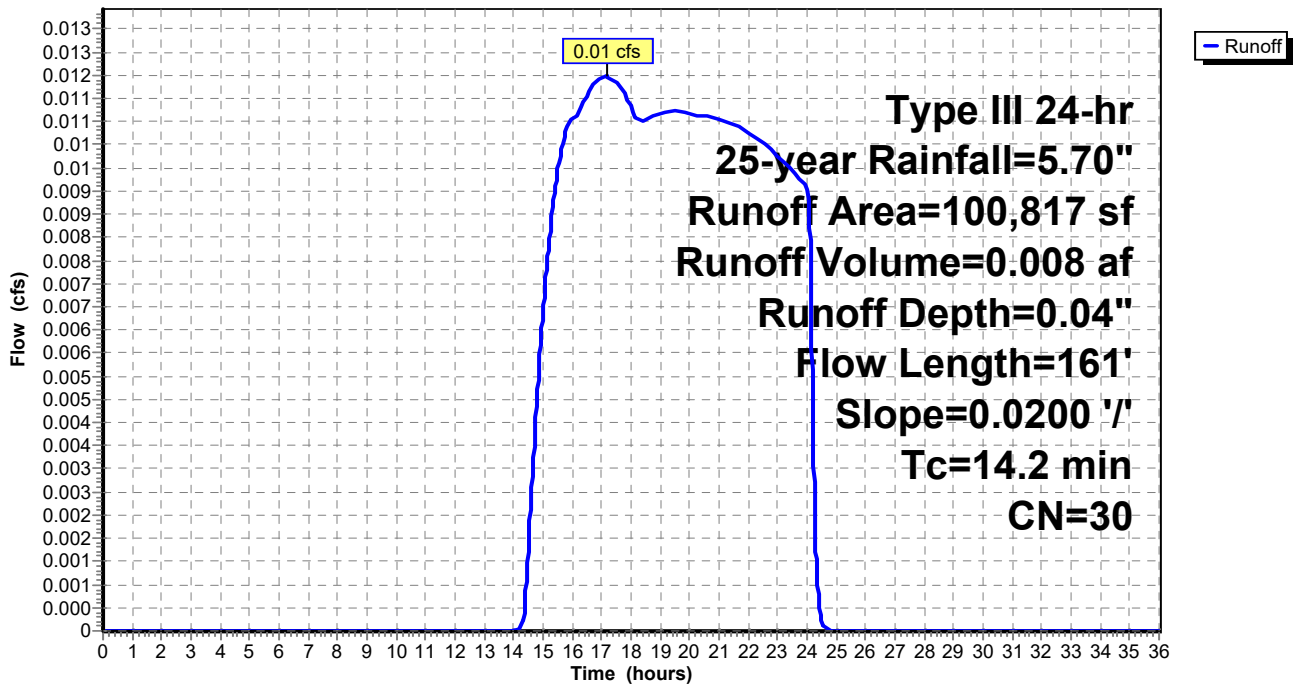
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.70"

Area (sf)	CN	Description
100,817	30	Woods, Good, HSG A
100,817		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
2.2	94	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
0.4	17	0.0200	0.71		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
14.2	161	Total			

Subcatchment 2S: Area 2

Hydrograph



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Summary for Subcatchment 3S: Area 3

Runoff = 0.03 cfs @ 17.26 hrs, Volume= 0.019 af, Depth= 0.04"

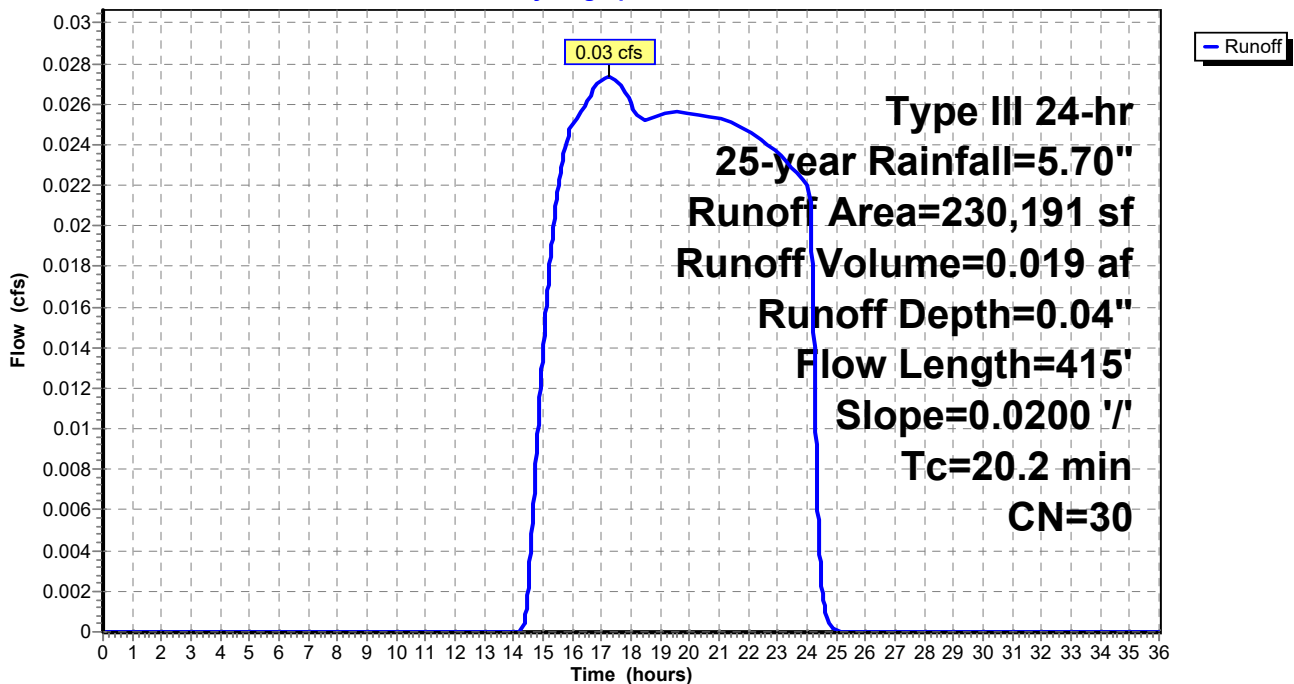
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.70"

Area (sf)	CN	Description
230,191	30	Woods, Good, HSG A
230,191		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
8.6	365	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
20.2	415	Total			

Subcatchment 3S: Area 3

Hydrograph



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Summary for Subcatchment 4S: Area 4

Runoff = 0.05 cfs @ 17.22 hrs, Volume= 0.033 af, Depth= 0.04"

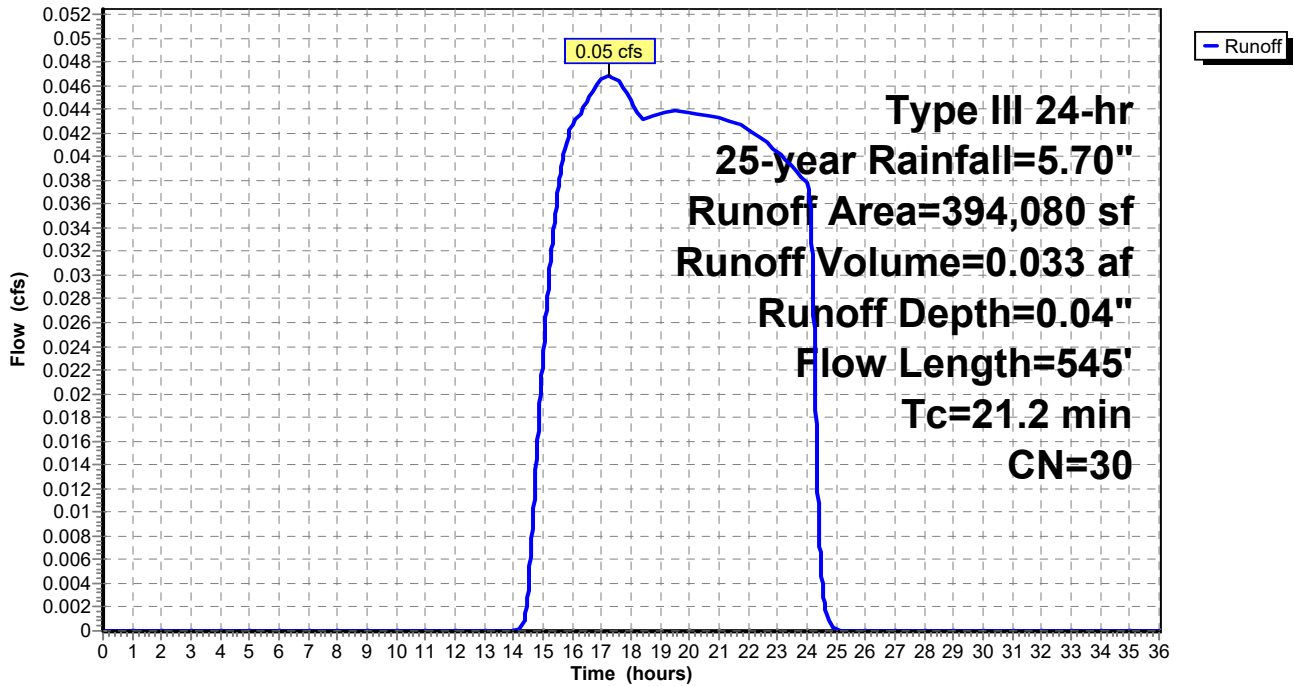
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.70"

Area (sf)	CN	Description
394,080	30	Woods, Good, HSG A
394,080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
6.2	265	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
3.4	230	0.0500	1.12		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
21.2	545	Total			

Subcatchment 4S: Area 4

Hydrograph



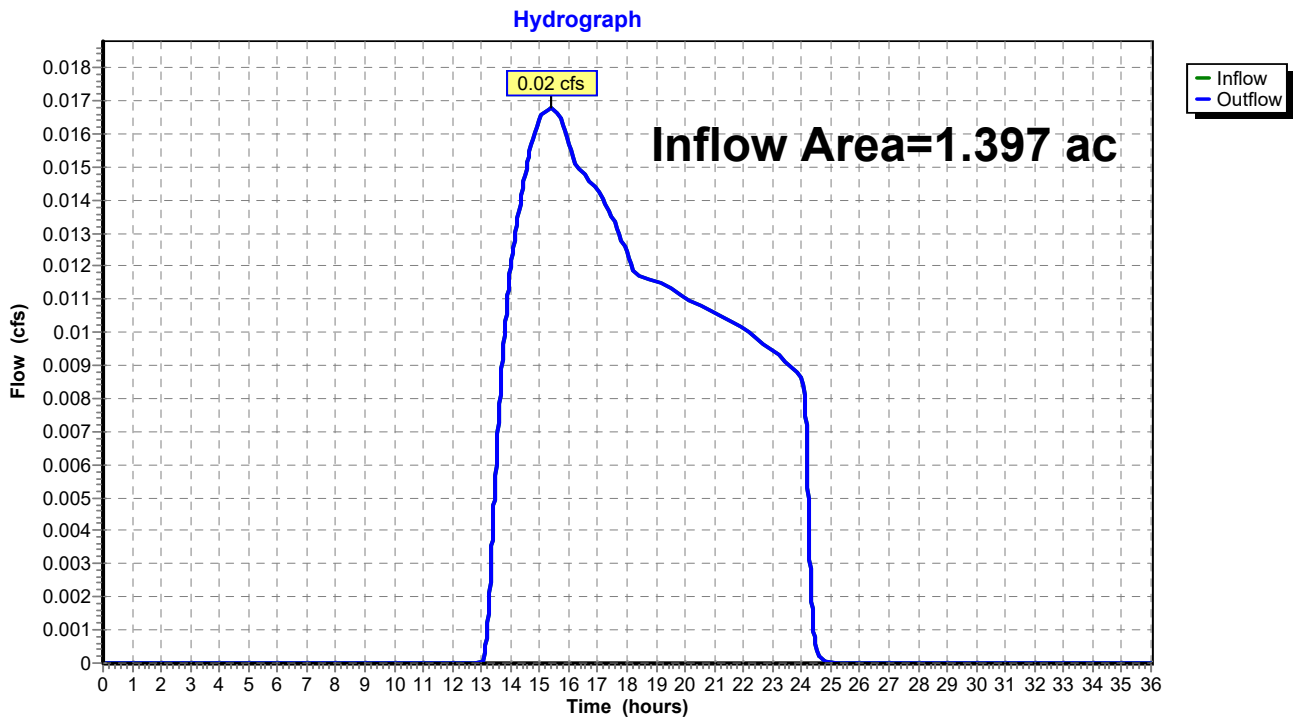
Summary for Reach 1R: Off-site - Route 130

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.397 ac, 2.60% Impervious, Inflow Depth = 0.09" for 25-year event
Inflow = 0.02 cfs @ 15.37 hrs, Volume= 0.011 af
Outflow = 0.02 cfs @ 15.37 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 1R: Off-site - Route 130



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532 Main Street (Route 130) - Mashpee, MA

Type III 24-hr 25-year Rainfall=5.70"

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Summary for Reach 2R: Off-site North

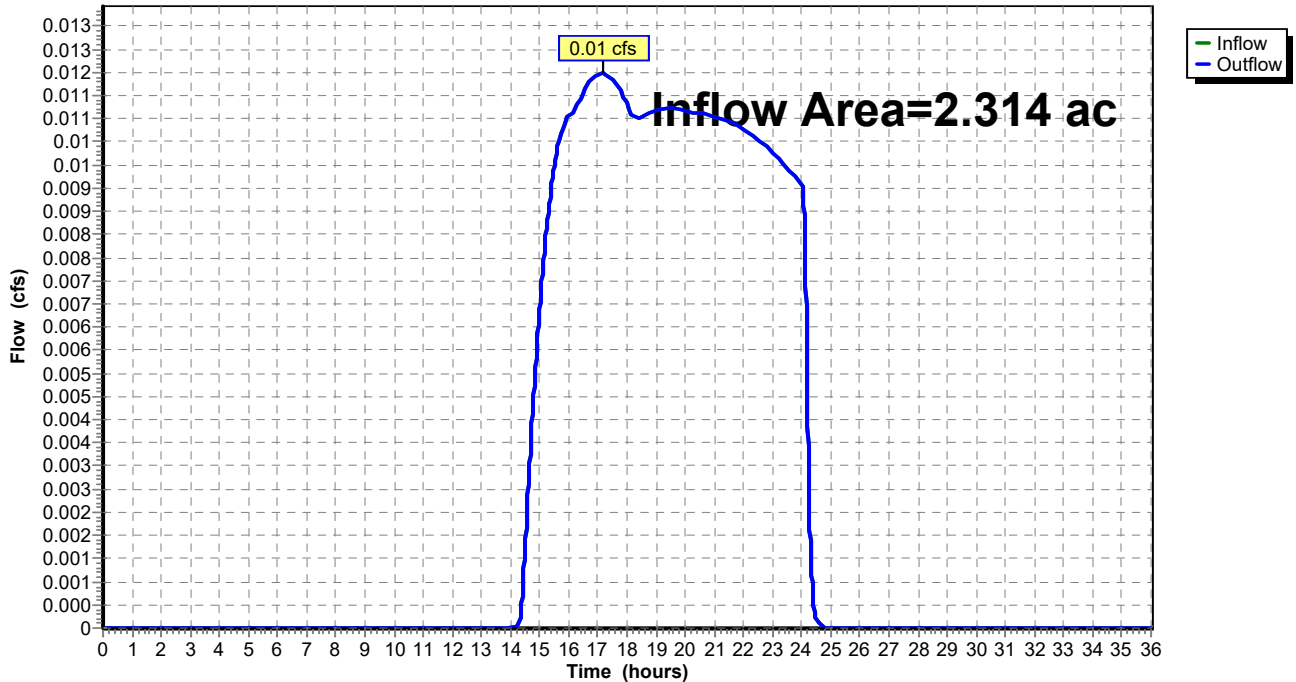
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.314 ac, 0.00% Impervious, Inflow Depth = 0.04" for 25-year event
Inflow = 0.01 cfs @ 17.15 hrs, Volume= 0.008 af
Outflow = 0.01 cfs @ 17.15 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 2R: Off-site North

Hydrograph



Summary for Reach 3R: Off-site South

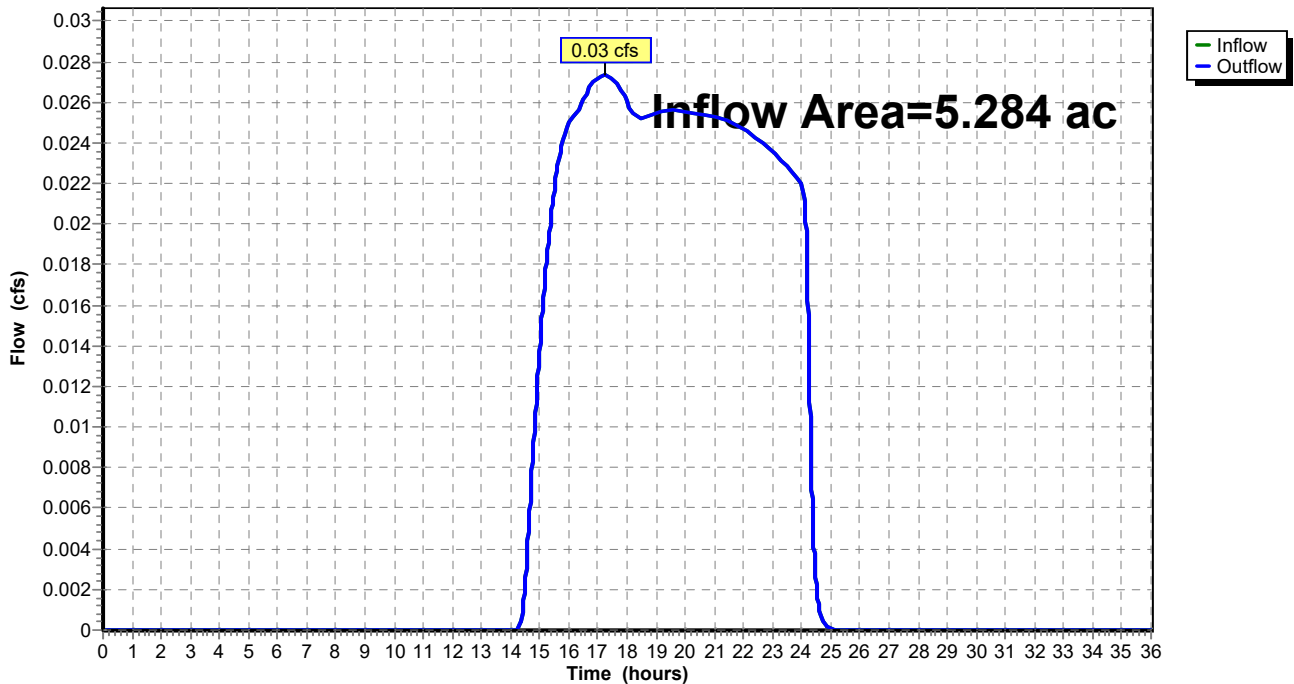
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.284 ac, 0.00% Impervious, Inflow Depth = 0.04" for 25-year event
Inflow = 0.03 cfs @ 17.26 hrs, Volume= 0.019 af
Outflow = 0.03 cfs @ 17.26 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 3R: Off-site South

Hydrograph



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Summary for Reach 4R: Retained On-site

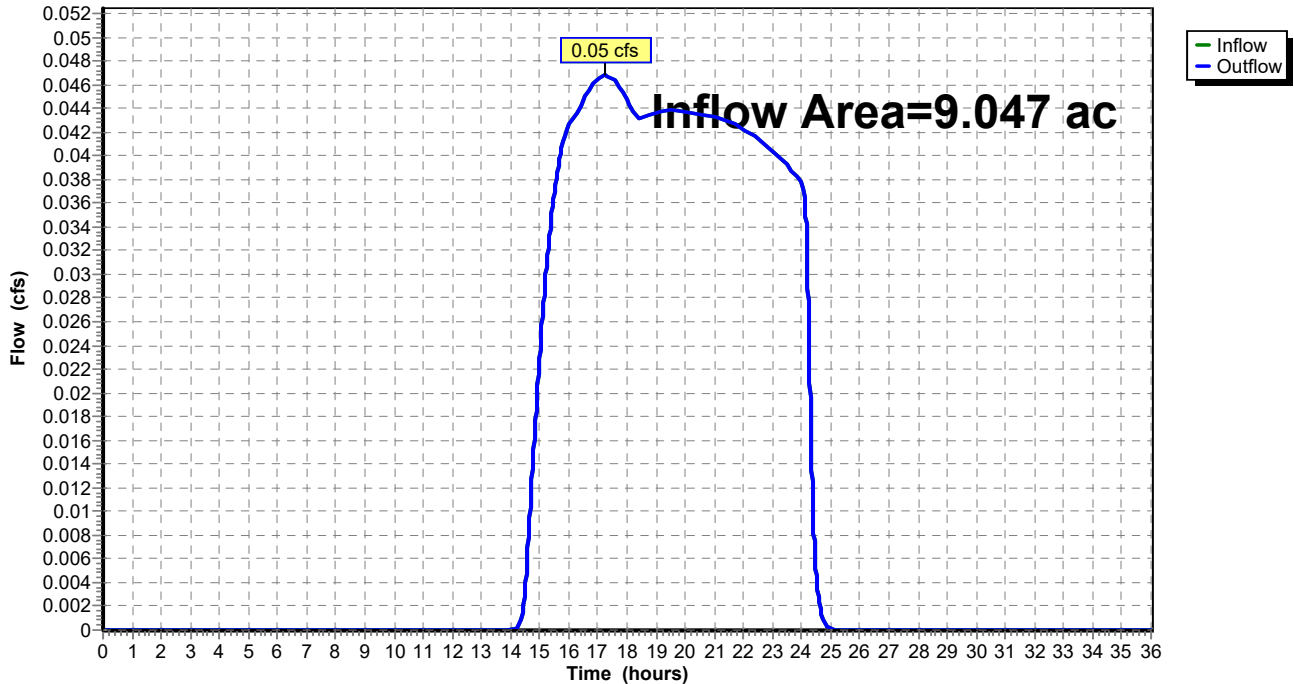
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.047 ac, 0.00% Impervious, Inflow Depth = 0.04" for 25-year event
Inflow = 0.05 cfs @ 17.22 hrs, Volume= 0.033 af
Outflow = 0.05 cfs @ 17.22 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 4R: Retained On-site

Hydrograph



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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1	Runoff Area=60,850 sf 2.60% Impervious Runoff Depth=0.34" Flow Length=307' Tc=17.1 min CN=32 Runoff=0.10 cfs 0.039 af
Subcatchment 2S: Area 2	Runoff Area=100,817 sf 0.00% Impervious Runoff Depth=0.23" Flow Length=161' Slope=0.0200 '/' Tc=14.2 min CN=30 Runoff=0.07 cfs 0.044 af
Subcatchment 3S: Area 3	Runoff Area=230,191 sf 0.00% Impervious Runoff Depth=0.23" Flow Length=415' Slope=0.0200 '/' Tc=20.2 min CN=30 Runoff=0.17 cfs 0.101 af
Subcatchment 4S: Area 4	Runoff Area=394,080 sf 0.00% Impervious Runoff Depth=0.23" Flow Length=545' Tc=21.2 min CN=30 Runoff=0.29 cfs 0.173 af
Reach 1R: Off-site - Route 130	Inflow=0.10 cfs 0.039 af Outflow=0.10 cfs 0.039 af
Reach 2R: Off-site North	Inflow=0.07 cfs 0.044 af Outflow=0.07 cfs 0.044 af
Reach 3R: Off-site South	Inflow=0.17 cfs 0.101 af Outflow=0.17 cfs 0.101 af
Reach 4R: Retained On-site	Inflow=0.29 cfs 0.173 af Outflow=0.29 cfs 0.173 af

Total Runoff Area = 18.043 ac Runoff Volume = 0.358 af Average Runoff Depth = 0.24"
99.80% Pervious = 18.006 ac 0.20% Impervious = 0.036 ac

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Summary for Subcatchment 1S: Area 1

Runoff = 0.10 cfs @ 12.60 hrs, Volume= 0.039 af, Depth= 0.34"

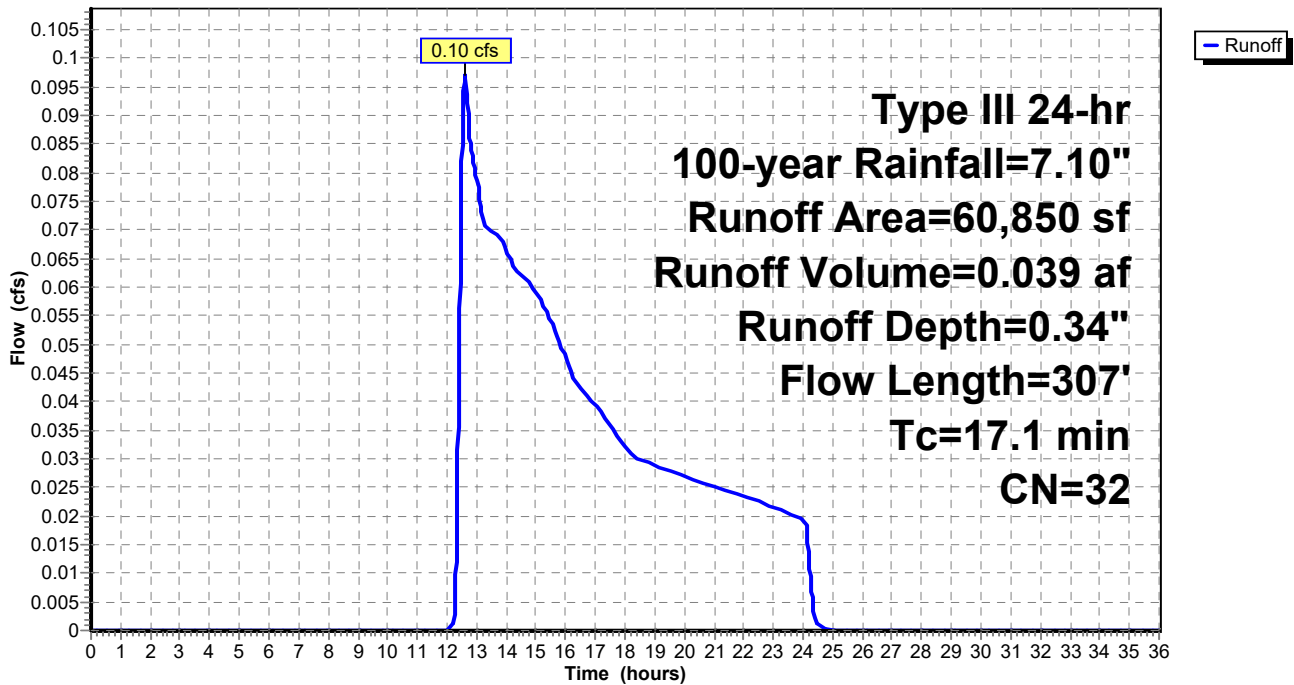
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-year Rainfall=7.10"

Area (sf)	CN	Description
1,584	98	Paved parking, HSG A
59,266	30	Woods, Good, HSG A
60,850	32	Weighted Average
59,266		97.40% Pervious Area
1,584		2.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
4.1	172	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
1.4	85	0.0400	1.00		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
17.1	307	Total			

Subcatchment 1S: Area 1

Hydrograph



Summary for Subcatchment 2S: Area 2

Runoff = 0.07 cfs @ 13.84 hrs, Volume= 0.044 af, Depth= 0.23"

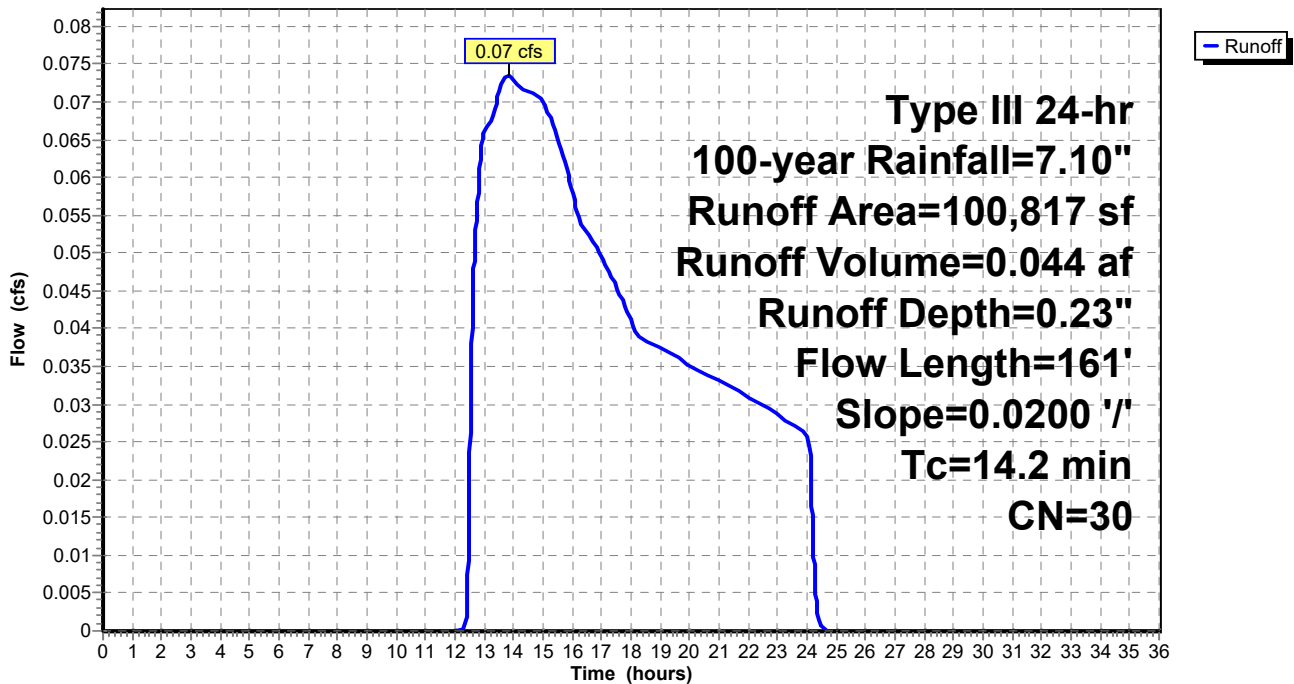
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-year Rainfall=7.10"

Area (sf)	CN	Description
100,817	30	Woods, Good, HSG A
100,817		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
2.2	94	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
0.4	17	0.0200	0.71		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
14.2	161	Total			

Subcatchment 2S: Area 2

Hydrograph



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Summary for Subcatchment 3S: Area 3

Runoff = 0.17 cfs @ 13.94 hrs, Volume= 0.101 af, Depth= 0.23"

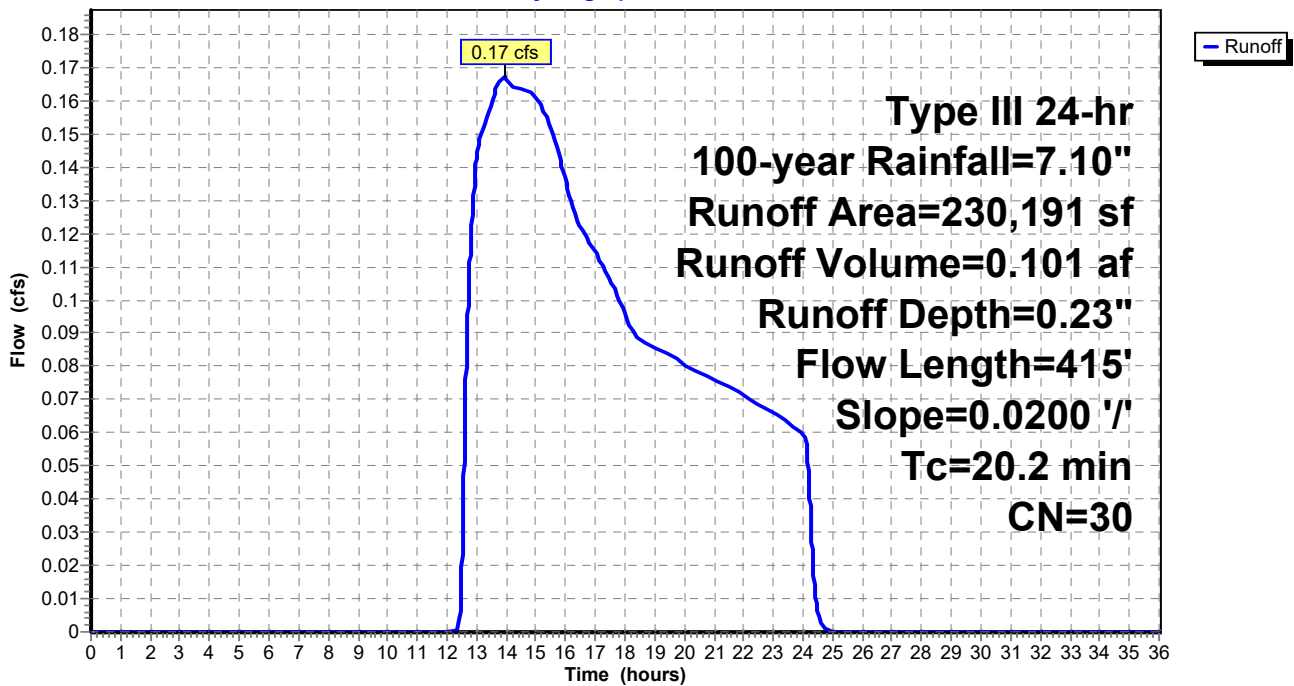
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-year Rainfall=7.10"

Area (sf)	CN	Description
230,191	30	Woods, Good, HSG A
230,191		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
8.6	365	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
20.2	415	Total			

Subcatchment 3S: Area 3

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Summary for Subcatchment 4S: Area 4

Runoff = 0.29 cfs @ 13.92 hrs, Volume= 0.173 af, Depth= 0.23"

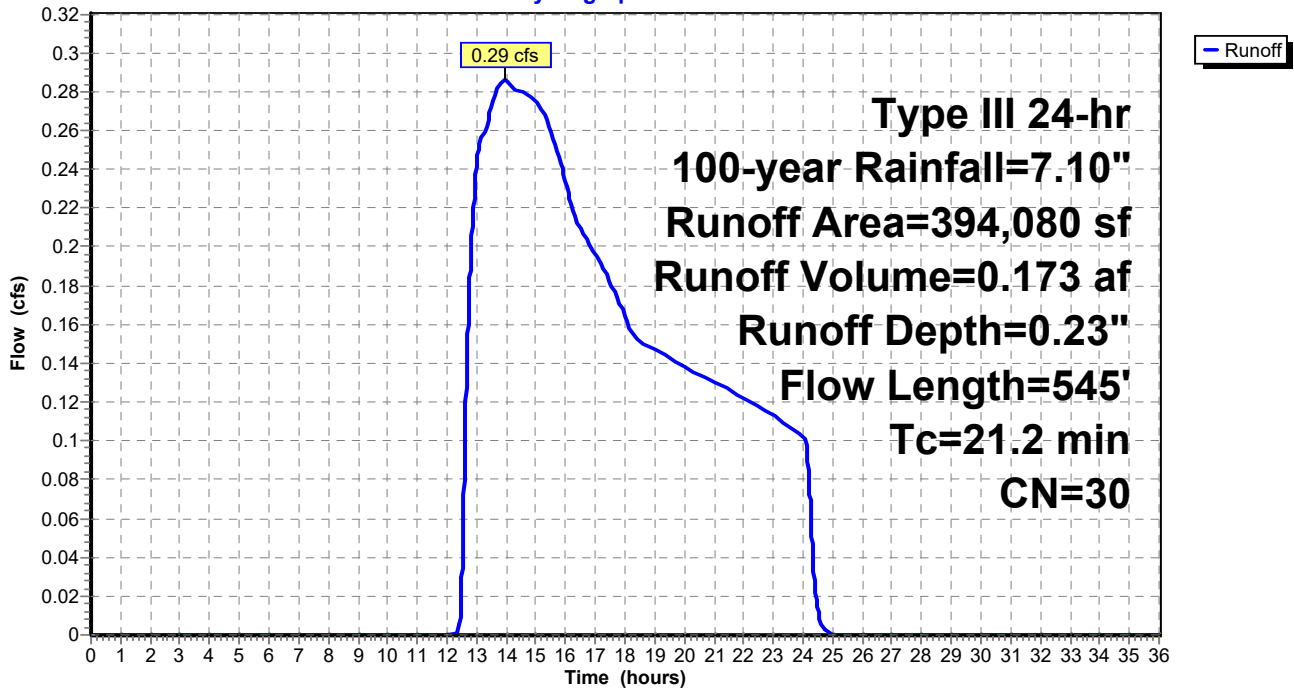
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-year Rainfall=7.10"

Area (sf)	CN	Description
394,080	30	Woods, Good, HSG A
394,080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
6.2	265	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
3.4	230	0.0500	1.12		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
21.2	545	Total			

Subcatchment 4S: Area 4

Hydrograph



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532 Main Street (Route 130) - Mashpee, MA

Type III 24-hr 100-year Rainfall=7.10"

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Summary for Reach 1R: Off-site - Route 130

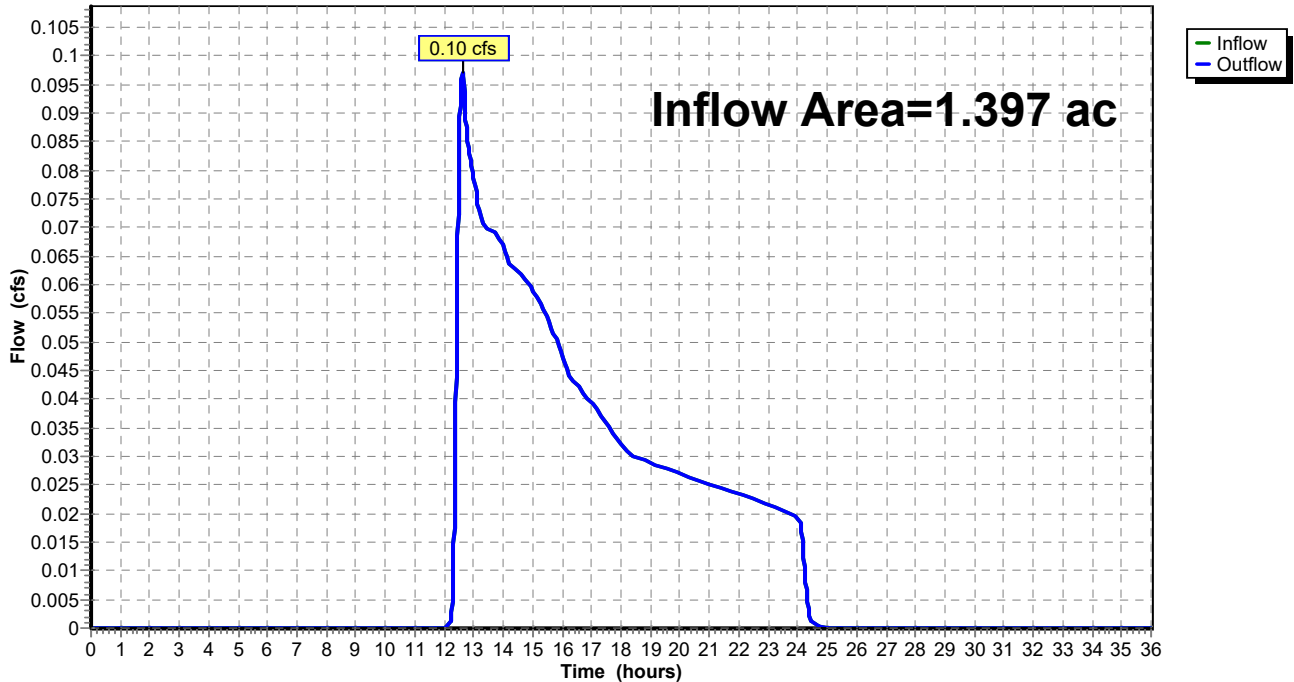
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.397 ac, 2.60% Impervious, Inflow Depth = 0.34" for 100-year event
Inflow = 0.10 cfs @ 12.60 hrs, Volume= 0.039 af
Outflow = 0.10 cfs @ 12.60 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 1R: Off-site - Route 130

Hydrograph



Summary for Reach 2R: Off-site North

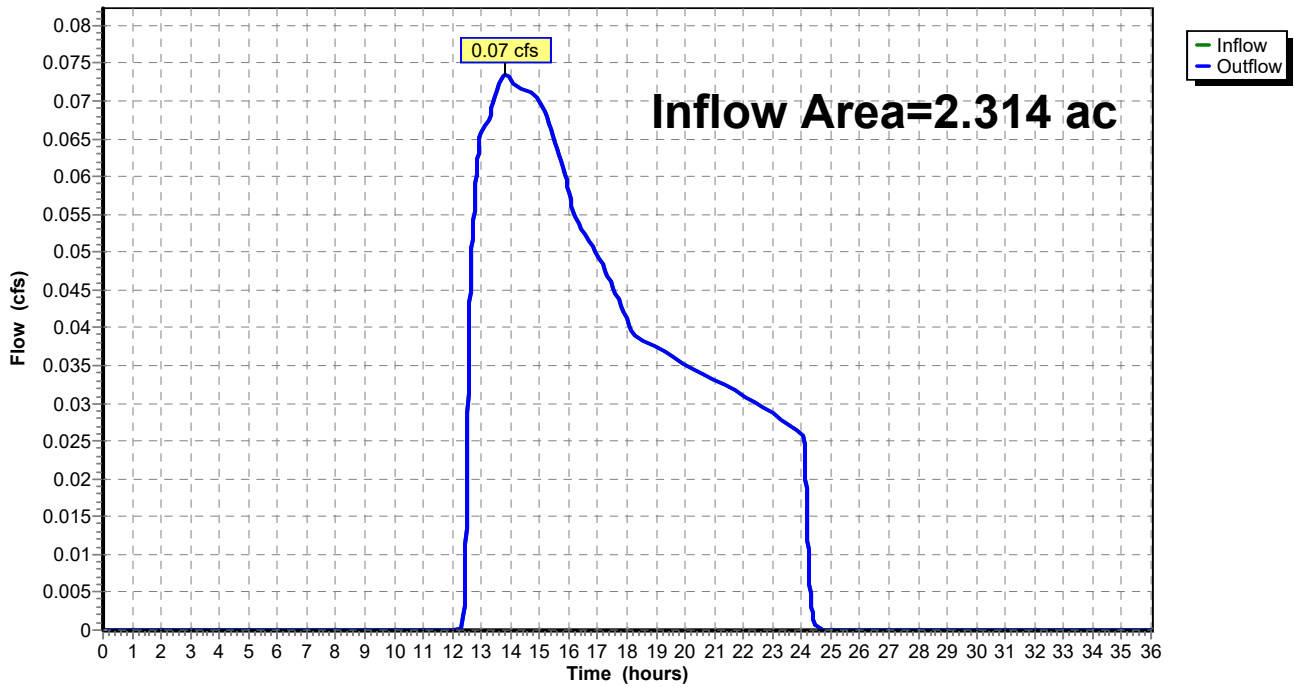
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.314 ac, 0.00% Impervious, Inflow Depth = 0.23" for 100-year event
Inflow = 0.07 cfs @ 13.84 hrs, Volume= 0.044 af
Outflow = 0.07 cfs @ 13.84 hrs, Volume= 0.044 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 2R: Off-site North

Hydrograph



Summary for Reach 3R: Off-site South

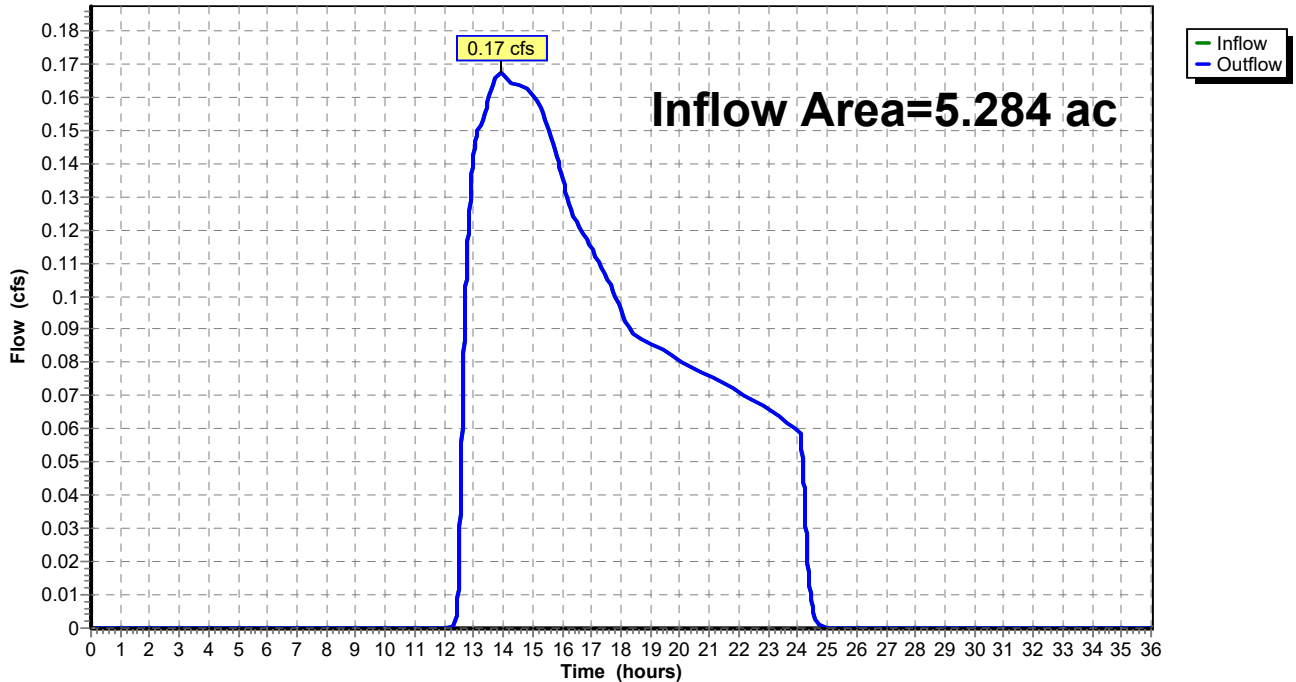
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.284 ac, 0.00% Impervious, Inflow Depth = 0.23" for 100-year event
Inflow = 0.17 cfs @ 13.94 hrs, Volume= 0.101 af
Outflow = 0.17 cfs @ 13.94 hrs, Volume= 0.101 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 3R: Off-site South

Hydrograph



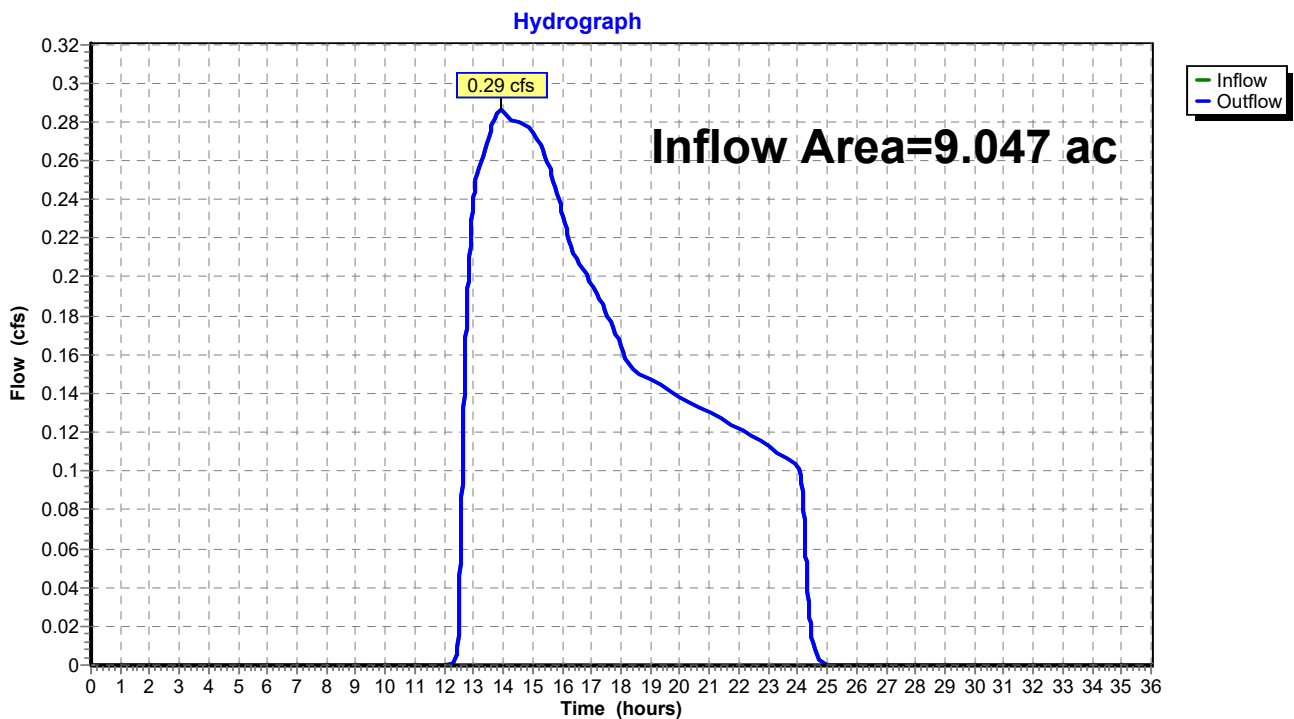
Summary for Reach 4R: Retained On-site

[40] Hint: Not Described (Outflow=Inflow)

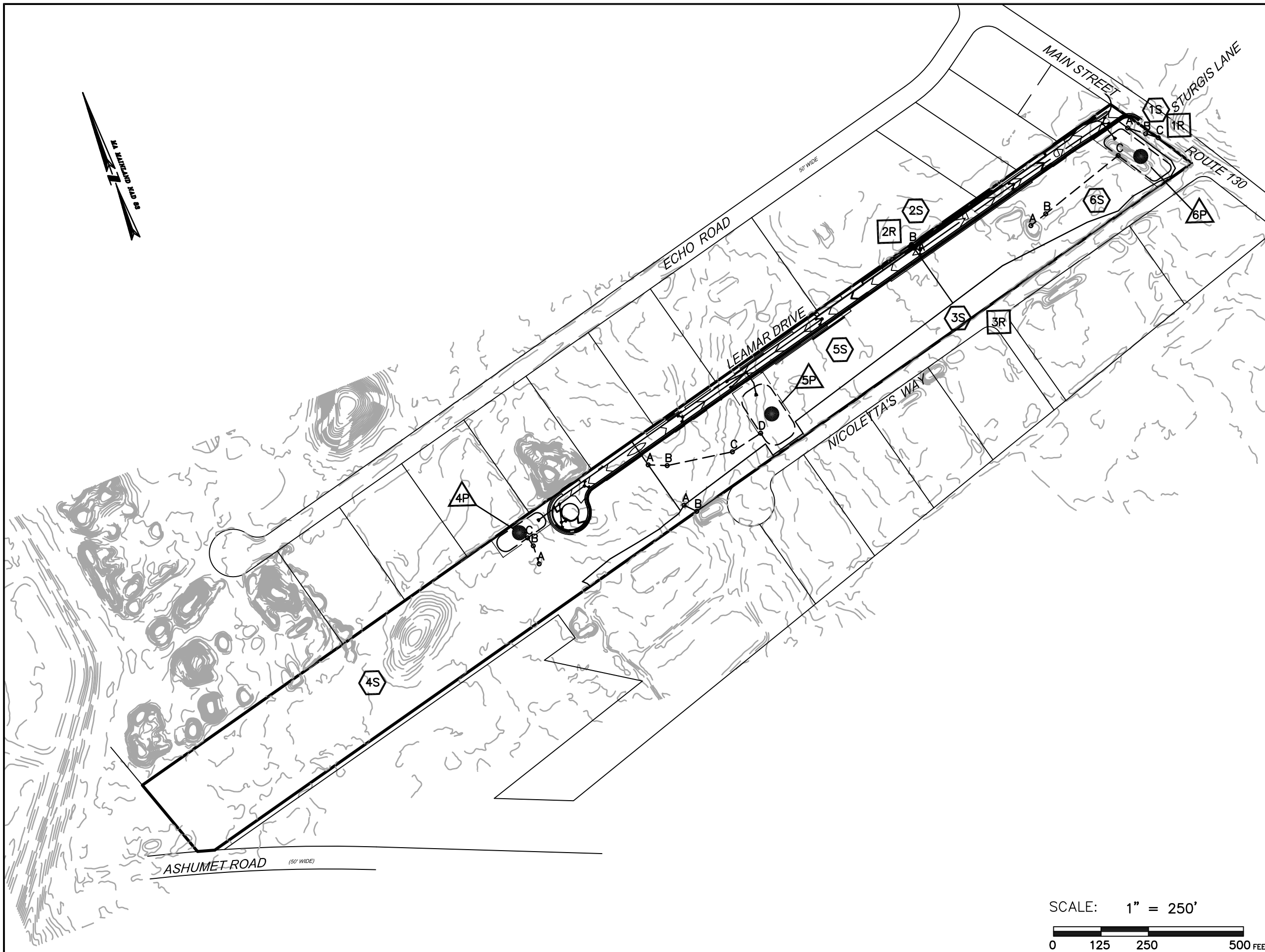
Inflow Area = 9.047 ac, 0.00% Impervious, Inflow Depth = 0.23" for 100-year event
Inflow = 0.29 cfs @ 13.92 hrs, Volume= 0.173 af
Outflow = 0.29 cfs @ 13.92 hrs, Volume= 0.173 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 4R: Retained On-site



6.03 PROPOSED WATERSHED PLAN



LEMEAR DRIVE

532 MAIN ST (ROUTE 130)

MASHPEE
MASSACHUSETTS
(BARNSTABLE COUNTY)

POST-DEVELOPMENT WATERSHED PLAN

FEBRUARY 11, 2022

PREPARED
FOR: MARCELLO MALLEGNI
80 AIRPORT ROAD
HYANNIS, MA 02601



349 Main Street - Route 28
West Yarmouth, Massachusetts
02673

508 778 8919

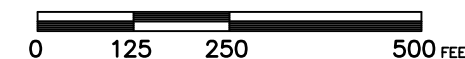
Job No.: 5-0474.00 Date: 2/4/22

Scale: 1" = 250' Revised: _____

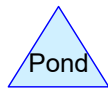
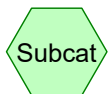
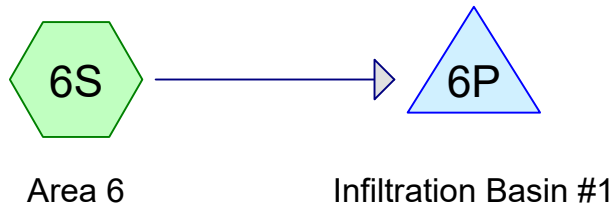
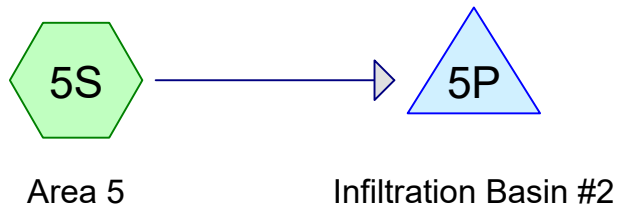
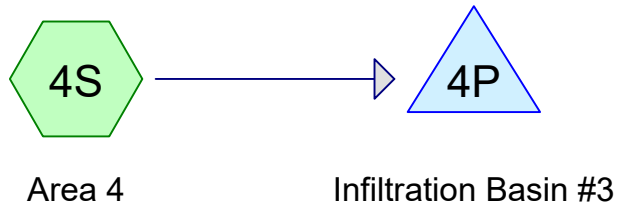
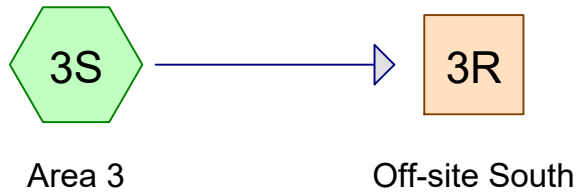
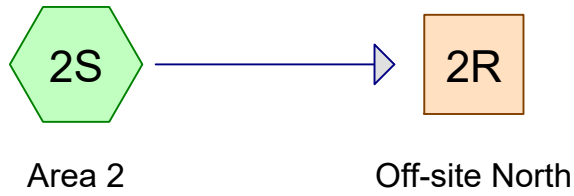
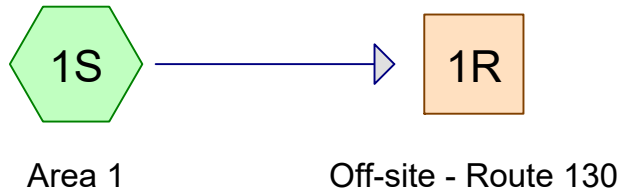
Dwg No: _____

File: Projects-YAR\5047400\C\5047400-PP.dwg

SCALE: 1" = 250'



**6.04 PROPOSED HYDROLOGY CALCULATIONS
(HYDROCAD™ PRINTOUTS)**



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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1	Runoff Area=6,144 sf 25.78% Impervious Runoff Depth=0.17"
Flow Length=85'	Slope=0.0200 '/ Tc=12.4 min CN=48 Runoff=0.01 cfs 0.002 af
Subcatchment 2S: Area 2	Runoff Area=8,894 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=13'	Slope=0.0200 '/ Tc=6.0 min CN=30 Runoff=0.00 cfs 0.000 af
Subcatchment 3S: Area 3	Runoff Area=71,718 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=37'	Slope=0.0200 '/ Tc=9.1 min CN=30 Runoff=0.00 cfs 0.000 af
Subcatchment 4S: Area 4	Runoff Area=382,748 sf 9.27% Impervious Runoff Depth=0.01"
Flow Length=76'	Slope=0.0200 '/ Tc=12.2 min CN=38 Runoff=0.01 cfs 0.005 af
Subcatchment 5S: Area 5	Runoff Area=182,954 sf 38.96% Impervious Runoff Depth=0.66"
Flow Length=314'	Slope=0.0200 '/ Tc=7.3 min CN=62 Runoff=2.40 cfs 0.232 af
Subcatchment 6S: Area 6	Runoff Area=133,475 sf 39.60% Impervious Runoff Depth=0.71"
Flow Length=295'	Slope=0.0200 '/ Tc=7.1 min CN=63 Runoff=1.96 cfs 0.181 af
Reach 1R: Off-site - Route 130	Inflow=0.01 cfs 0.002 af Outflow=0.01 cfs 0.002 af
Reach 2R: Off-site North	Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Reach 3R: Off-site South	Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond 4P: Infiltration Basin #3	Peak Elev=99.60' Storage=1 cf Inflow=0.01 cfs 0.005 af Outflow=0.01 cfs 0.005 af
Pond 5P: Infiltration Basin #2	Peak Elev=100.87' Storage=1,035 cf Inflow=2.40 cfs 0.232 af Outflow=1.19 cfs 0.232 af
Pond 6P: Infiltration Basin #1	Peak Elev=101.46' Storage=1,762 cf Inflow=1.96 cfs 0.181 af Outflow=0.52 cfs 0.181 af

Total Runoff Area = 18.043 ac Runoff Volume = 0.420 af Average Runoff Depth = 0.28"
79.49% Pervious = 14.342 ac 20.51% Impervious = 3.700 ac

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Summary for Subcatchment 1S: Area 1

Runoff = 0.01 cfs @ 12.54 hrs, Volume= 0.002 af, Depth= 0.17"

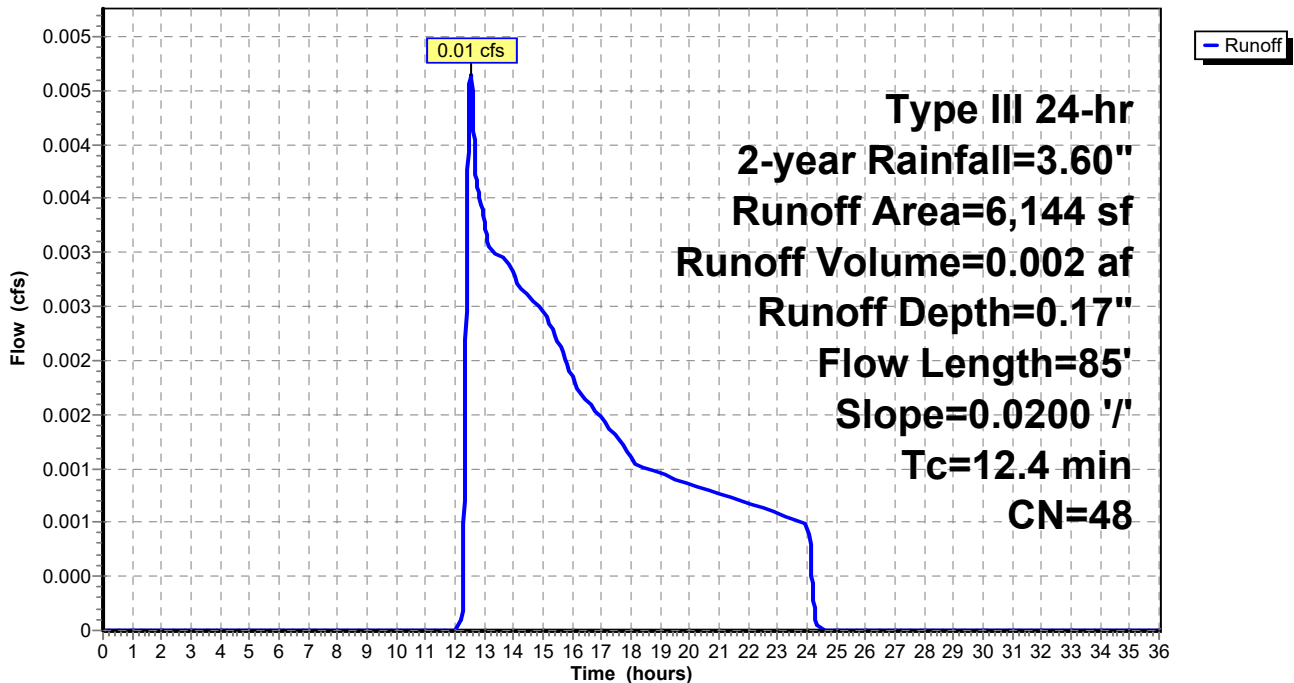
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-year Rainfall=3.60"

Area (sf)	CN	Description
1,584	98	Paved parking, HSG A
4,560	30	Woods, Good, HSG A
6,144	48	Weighted Average
4,560		74.22% Pervious Area
1,584		25.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
0.8	35	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
12.4	85	Total			

Subcatchment 1S: Area 1

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Summary for Subcatchment 2S: Area 2

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

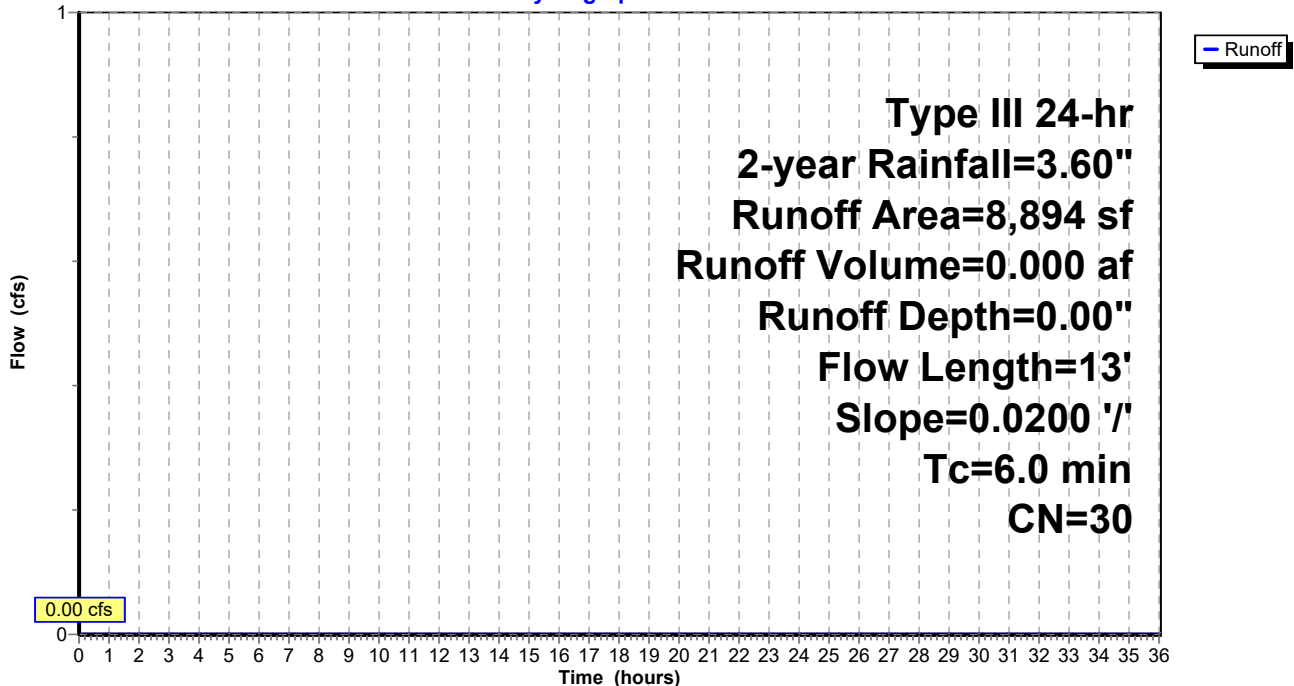
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-year Rainfall=3.60"

Area (sf)	CN	Description
8,894	30	Woods, Good, HSG A
8,894		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	13	0.0200	0.05		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
2.0					Direct Entry,
6.0	13	Total			

Subcatchment 2S: Area 2

Hydrograph



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Summary for Subcatchment 3S: Area 3

[45] Hint: Runoff=Zero

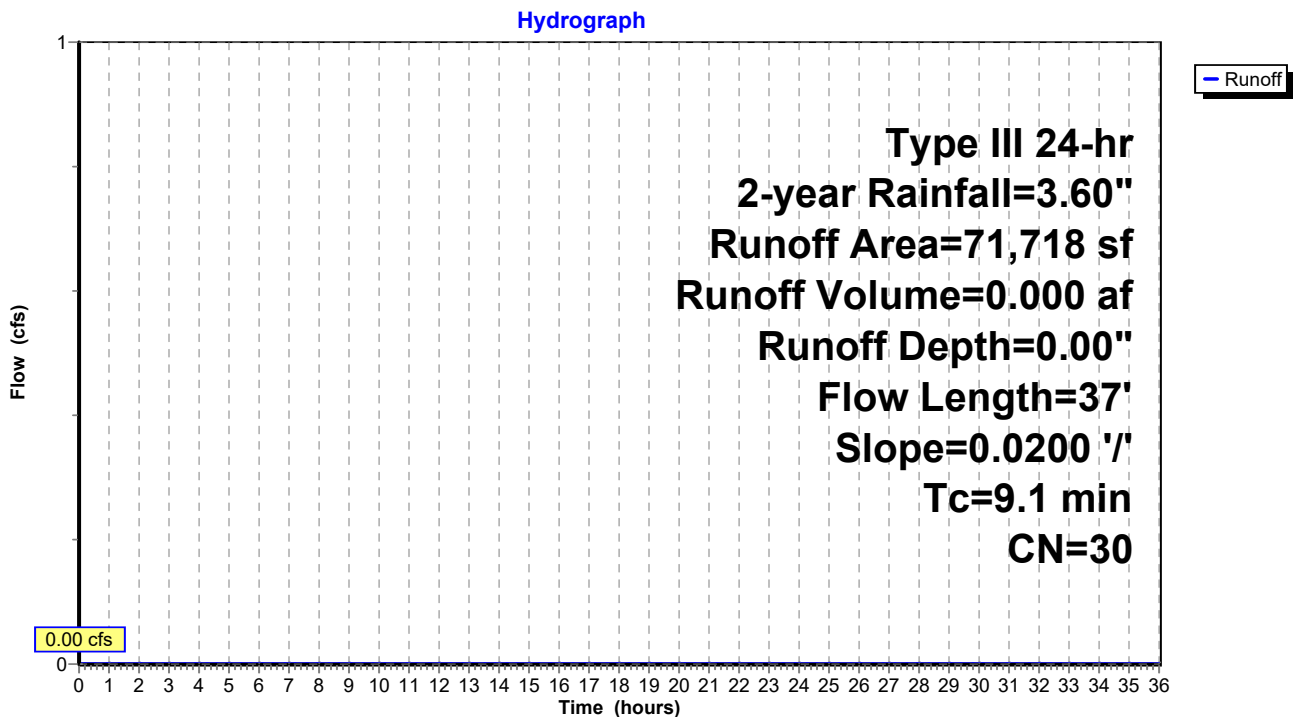
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-year Rainfall=3.60"

Area (sf)	CN	Description
71,718	30	Woods, Good, HSG A
71,718		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	37	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"

Subcatchment 3S: Area 3



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Summary for Subcatchment 4S: Area 4

Runoff = 0.01 cfs @ 23.03 hrs, Volume= 0.005 af, Depth= 0.01"

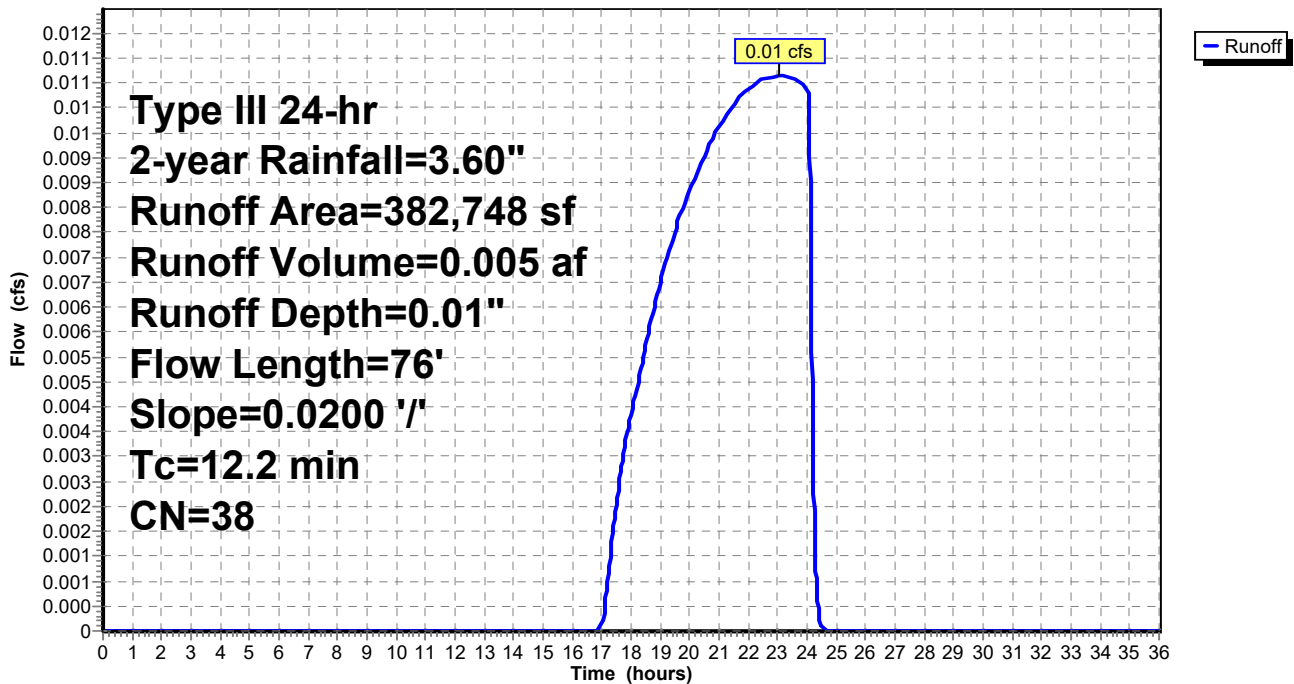
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-year Rainfall=3.60"

Area (sf)	CN	Description
12,975	98	Paved parking, HSG A
75,000	57	1/3 acre lots, 30% imp, HSG A
294,773	30	Woods, Good, HSG A
382,748	38	Weighted Average
347,273		90.73% Pervious Area
35,475		9.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
0.6	26	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
12.2	76	Total			

Subcatchment 4S: Area 4

Hydrograph



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Summary for Subcatchment 5S: Area 5

Runoff = 2.40 cfs @ 12.13 hrs, Volume= 0.232 af, Depth= 0.66"

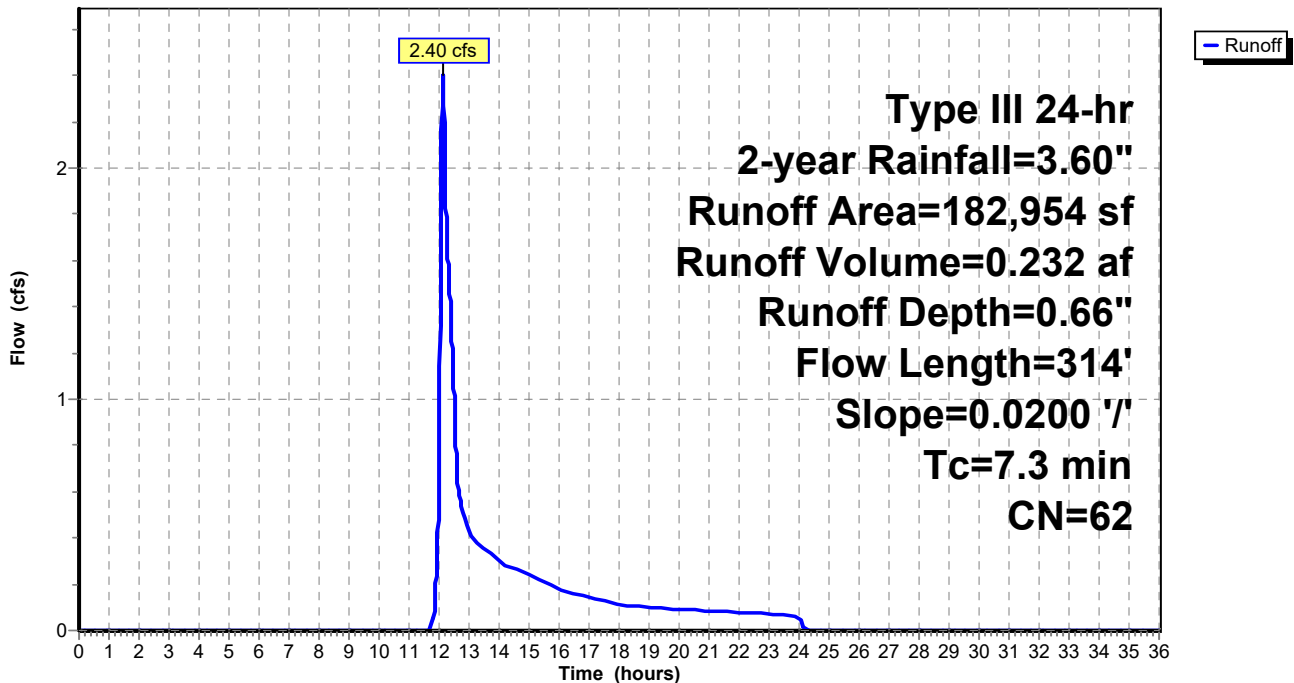
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-year Rainfall=3.60"

Area (sf)	CN	Description
23,422	98	Paved parking, HSG A
159,532	57	1/3 acre lots, 30% imp, HSG A
182,954	62	Weighted Average
111,672		61.04% Pervious Area
71,282		38.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0200	0.16		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.60"
1.3	175	0.0200	2.28		Shallow Concentrated Flow, B-C Unpaved Kv= 16.1 fps
0.7	89	0.0200	2.28		Shallow Concentrated Flow, C-D Unpaved Kv= 16.1 fps
7.3	314	Total			

Subcatchment 5S: Area 5

Hydrograph



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Summary for Subcatchment 6S: Area 6

Runoff = 1.96 cfs @ 12.12 hrs, Volume= 0.181 af, Depth= 0.71"

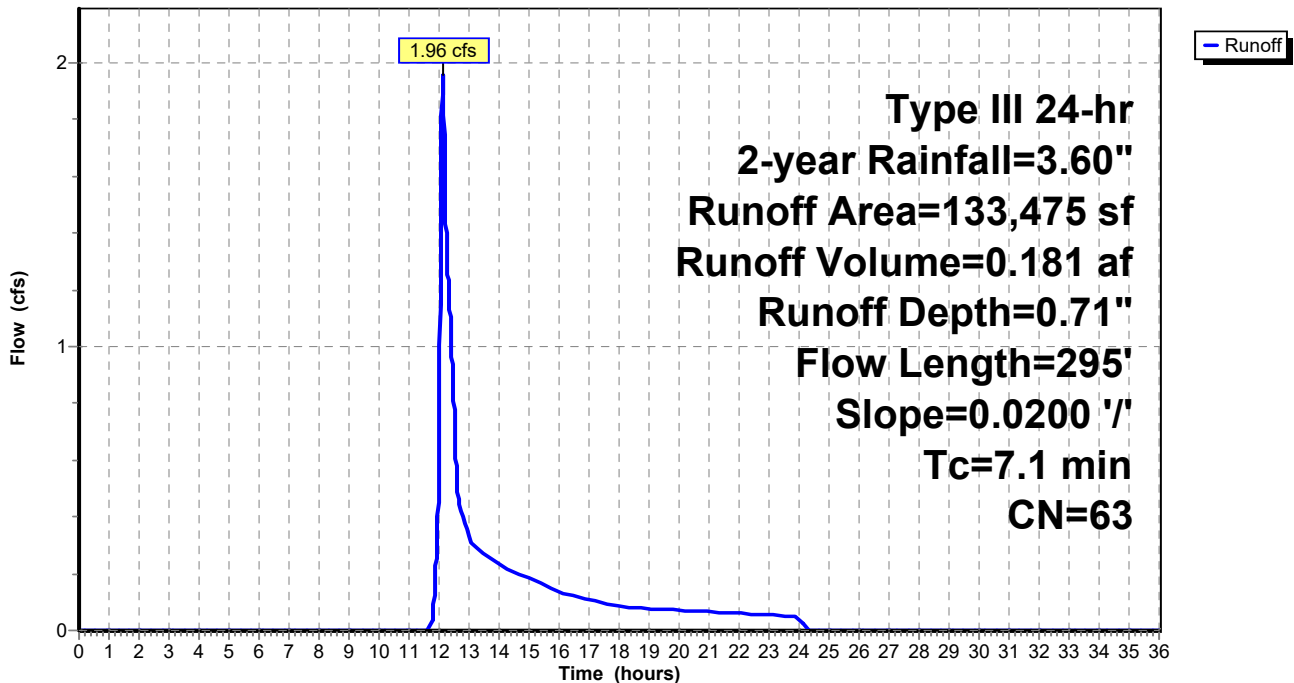
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-year Rainfall=3.60"

Area (sf)	CN	Description
18,300	98	Paved parking, HSG A
115,175	57	1/3 acre lots, 30% imp, HSG A
133,475	63	Weighted Average
80,623		60.40% Pervious Area
52,853		39.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0200	0.16		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.60"
1.8	245	0.0200	2.28		Shallow Concentrated Flow, B-C Unpaved Kv= 16.1 fps
7.1	295	Total			

Subcatchment 6S: Area 6

Hydrograph



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Summary for Reach 1R: Off-site - Route 130

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.141 ac, 25.78% Impervious, Inflow Depth = 0.17" for 2-year event

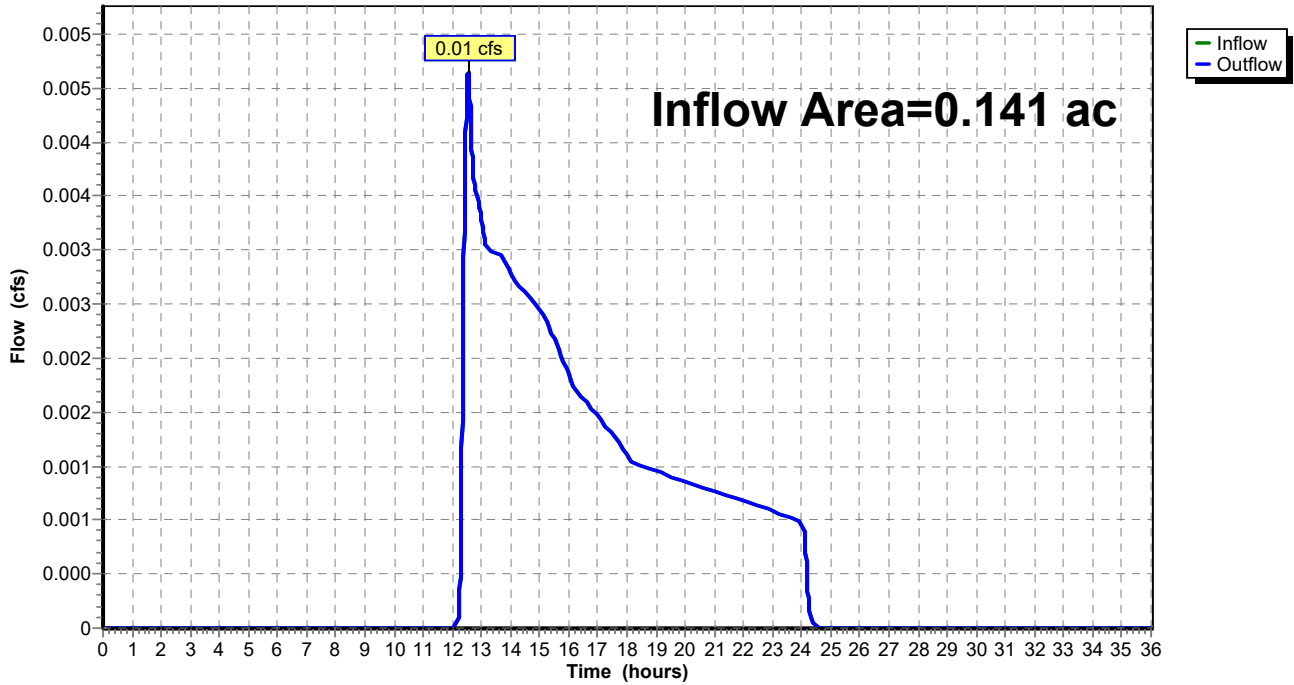
Inflow = 0.01 cfs @ 12.54 hrs, Volume= 0.002 af

Outflow = 0.01 cfs @ 12.54 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 1R: Off-site - Route 130

Hydrograph



Summary for Reach 2R: Off-site North

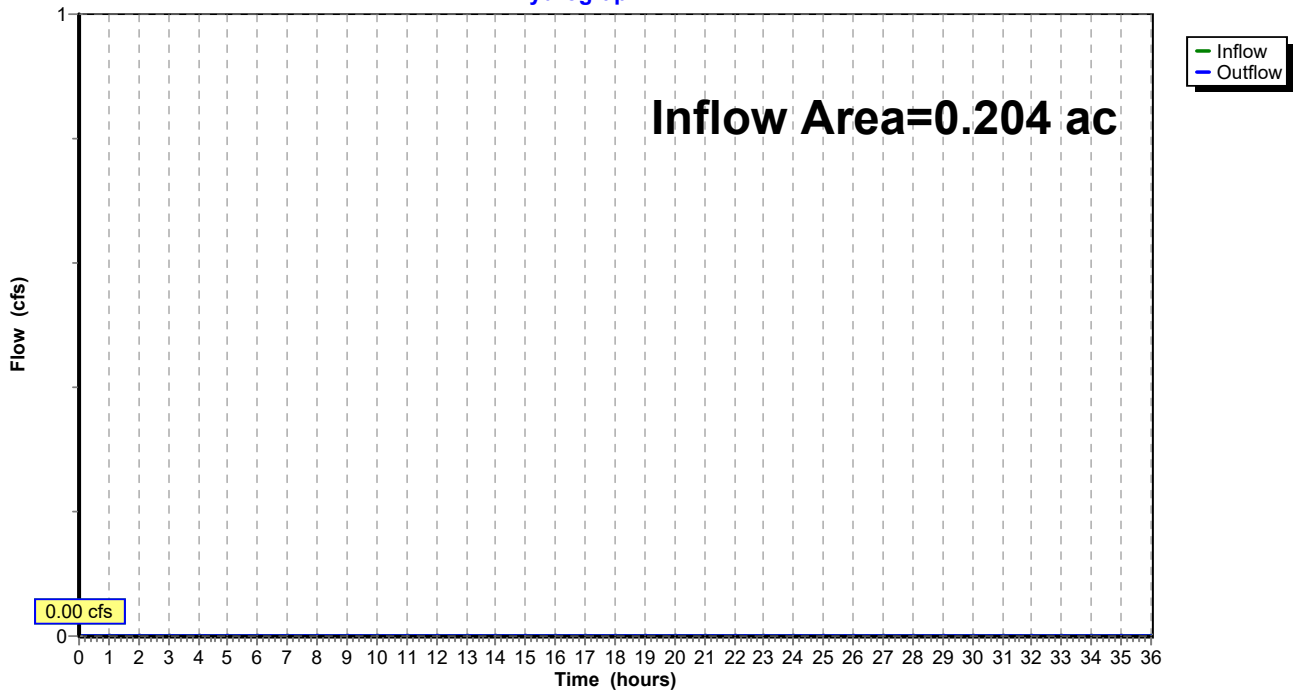
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.204 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 2R: Off-site North

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Summary for Reach 3R: Off-site South

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.646 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-year event

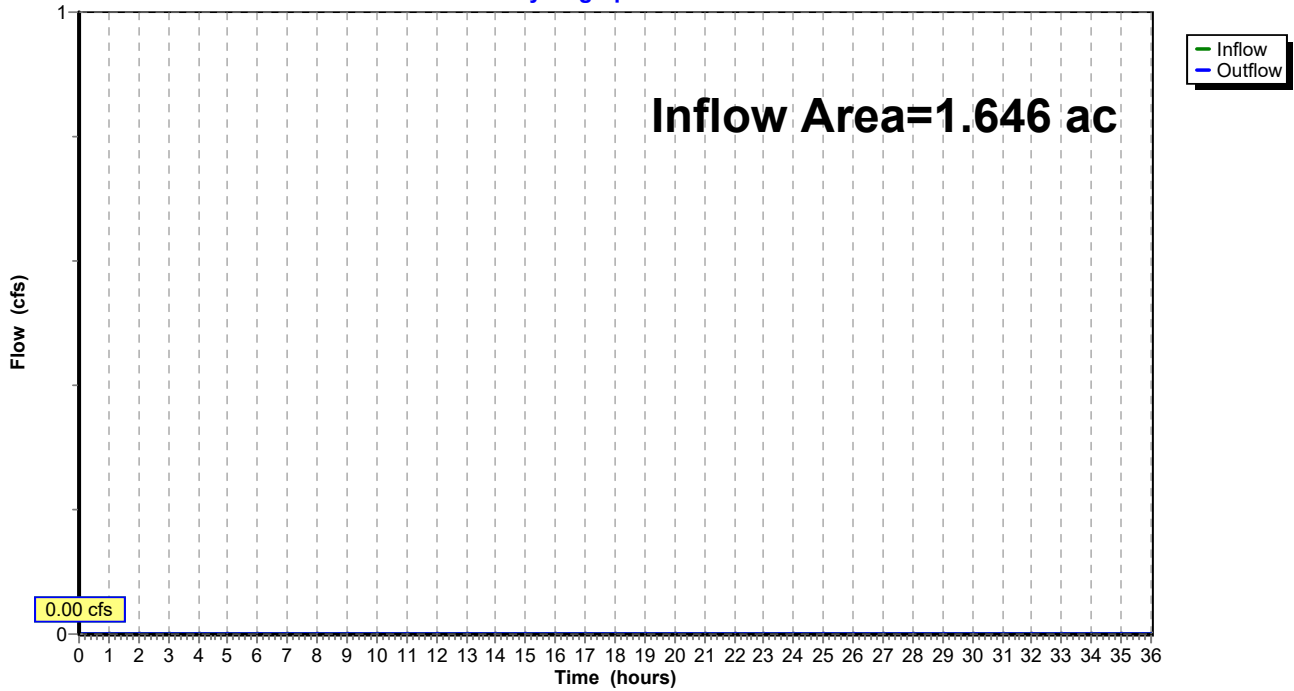
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 3R: Off-site South

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Summary for Pond 4P: Infiltration Basin #3

Inflow Area = 8.787 ac, 9.27% Impervious, Inflow Depth = 0.01" for 2-year event
 Inflow = 0.01 cfs @ 23.03 hrs, Volume= 0.005 af
 Outflow = 0.01 cfs @ 23.09 hrs, Volume= 0.005 af, Atten= 0%, Lag= 3.6 min
 Discarded = 0.01 cfs @ 23.09 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 99.60' @ 23.09 hrs Surf.Area= 1,879 sf Storage= 1 cf

Plug-Flow detention time= 2.1 min calculated for 0.005 af (100% of inflow)
 Center-of-Mass det. time= 2.1 min (1,279.4 - 1,277.3)

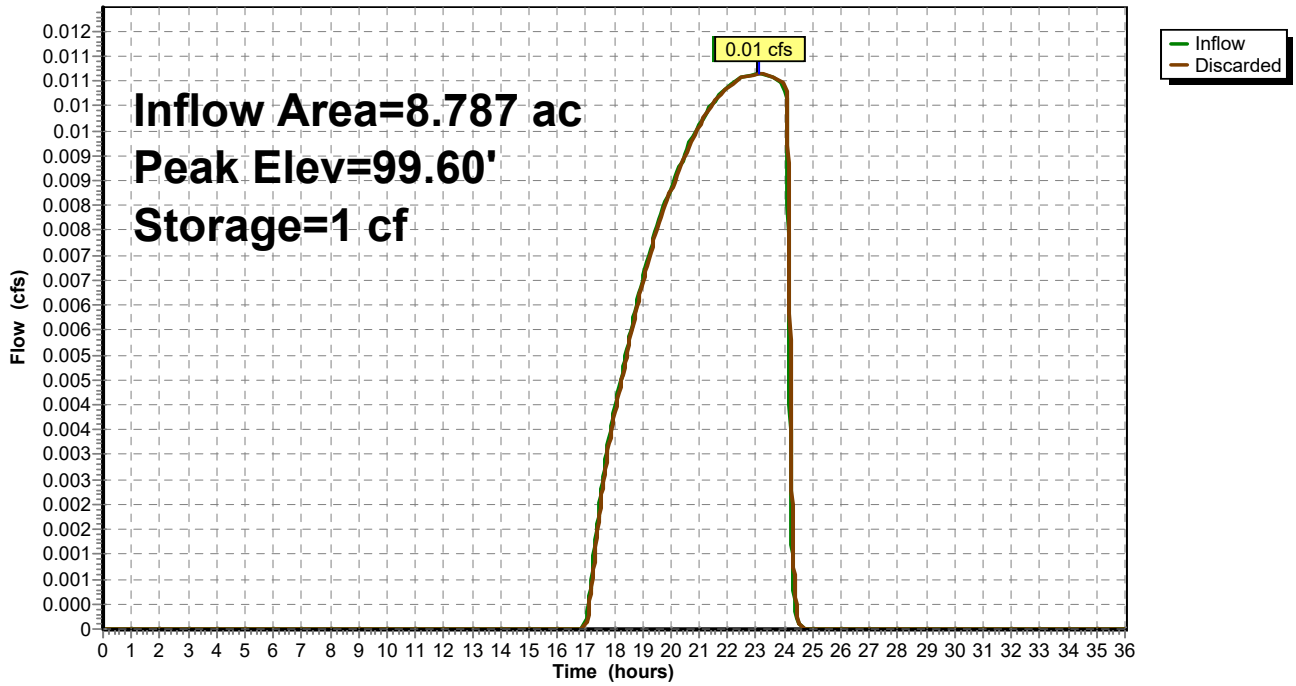
Volume	Invert	Avail.Storage	Storage Description			
#1	99.60'	9,006 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
99.60	1,878	255.2	0	0	1,878	
100.00	2,348	266.5	843	843	2,359	
101.00	4,060	304.2	3,165	4,009	4,094	
102.00	5,998	341.9	4,998	9,006	6,059	

Device	Routing	Invert	Outlet Devices
#1	Discarded	99.60'	8.270 in/hr Exfiltration over Horizontal area Conductivity to Groundwater Elevation = 80.00'

Discarded OutFlow Max=0.36 cfs @ 23.09 hrs HW=99.60' (Free Discharge)
 ↑1=Exfiltration (Controls 0.36 cfs)

Pond 4P: Infiltration Basin #3

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Summary for Pond 5P: Infiltration Basin #2

Inflow Area = 4.200 ac, 38.96% Impervious, Inflow Depth = 0.66" for 2-year event
 Inflow = 2.40 cfs @ 12.13 hrs, Volume= 0.232 af
 Outflow = 1.19 cfs @ 12.45 hrs, Volume= 0.232 af, Atten= 50%, Lag= 19.2 min
 Discarded = 1.19 cfs @ 12.45 hrs, Volume= 0.232 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 100.87' @ 12.45 hrs Surf.Area= 6,159 sf Storage= 1,035 cf

Plug-Flow detention time= 5.5 min calculated for 0.232 af (100% of inflow)
 Center-of-Mass det. time= 5.5 min (903.2 - 897.7)

Volume	Invert	Avail.Storage	Storage Description			
#1	100.70'	31,116 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
100.70	5,821	323.5	0	0	5,821	
101.00	6,413	334.8	1,834	1,834	6,421	
102.00	8,535	372.5	7,449	9,283	8,572	
103.00	10,883	410.2	9,685	18,968	10,953	
104.00	13,458	447.9	12,148	31,116	13,563	

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.70'	8.270 in/hr Exfiltration over Horizontal area Conductivity to Groundwater Elevation = 80.00'

Discarded OutFlow Max=1.19 cfs @ 12.45 hrs HW=100.87' (Free Discharge)

↑1=Exfiltration (Controls 1.19 cfs)

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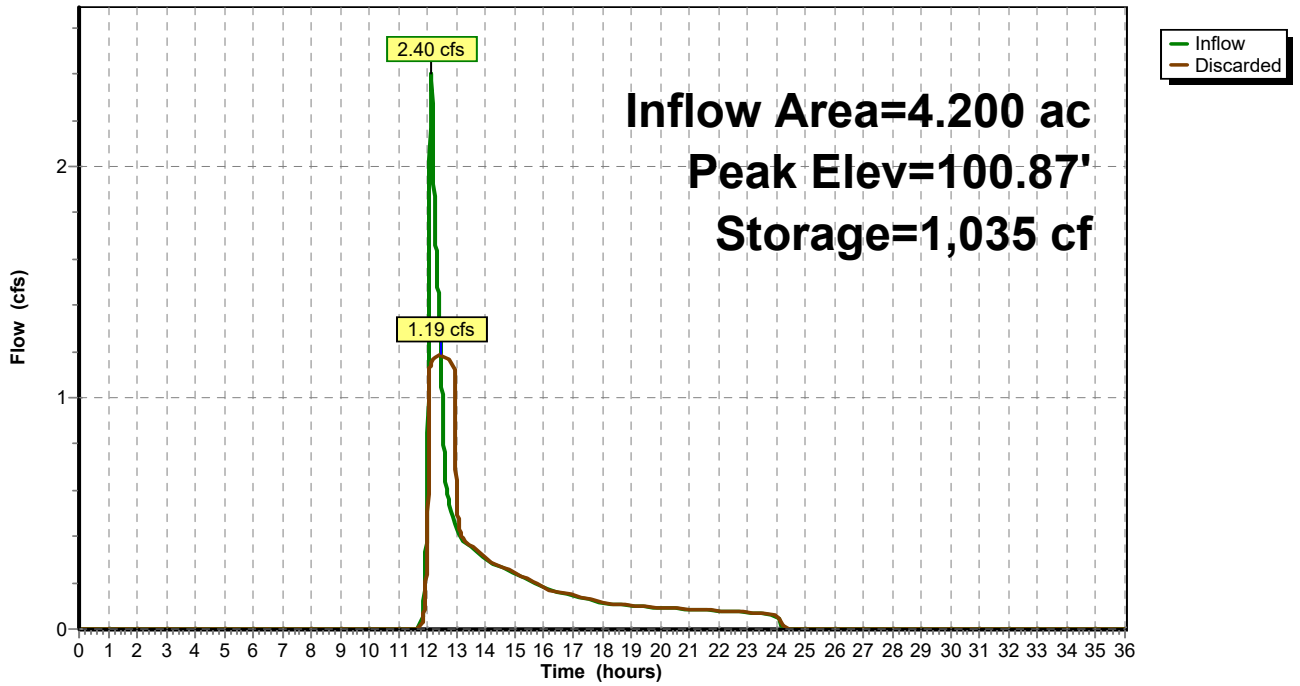
Type III 24-hr 2-year Rainfall=3.60"

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Pond 5P: Infiltration Basin #2

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Summary for Pond 6P: Infiltration Basin #1

Inflow Area = 3.064 ac, 39.60% Impervious, Inflow Depth = 0.71" for 2-year event
 Inflow = 1.96 cfs @ 12.12 hrs, Volume= 0.181 af
 Outflow = 0.52 cfs @ 12.60 hrs, Volume= 0.181 af, Atten= 73%, Lag= 28.6 min
 Discarded = 0.52 cfs @ 12.60 hrs, Volume= 0.181 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 101.46' @ 12.60 hrs Surf.Area= 2,652 sf Storage= 1,762 cf

Plug-Flow detention time= 28.3 min calculated for 0.181 af (100% of inflow)
 Center-of-Mass det. time= 28.3 min (921.7 - 893.4)

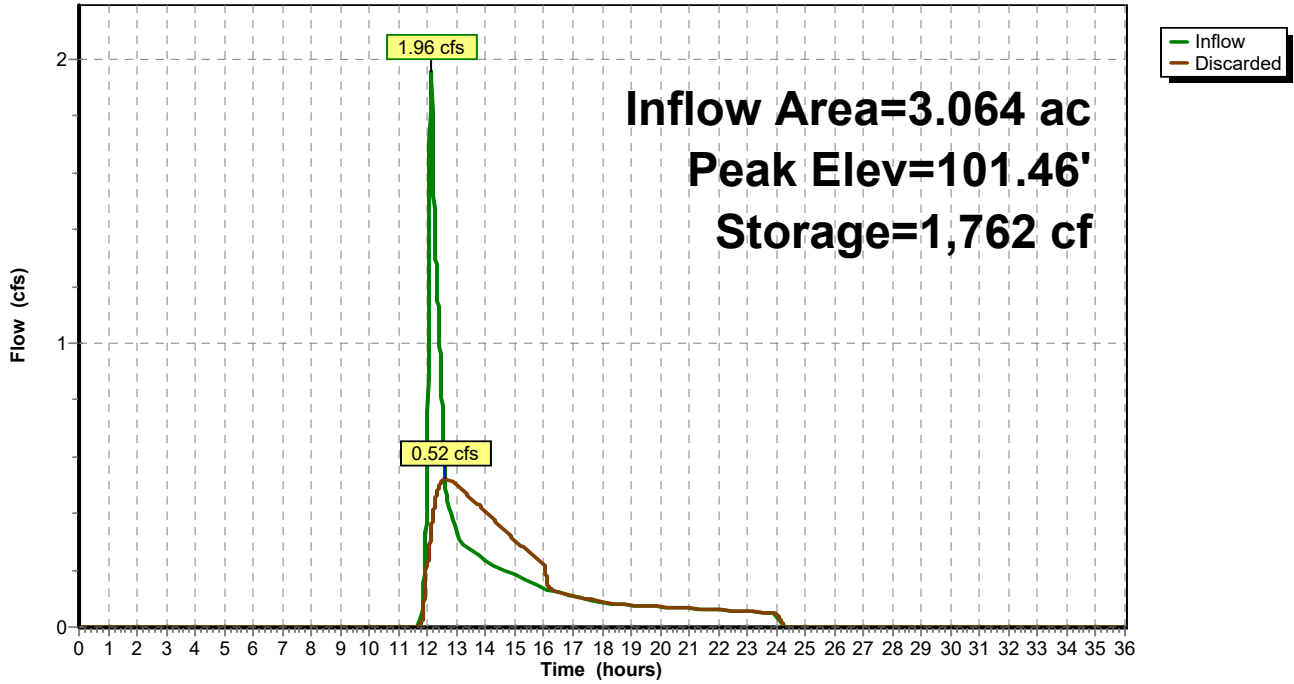
Volume	Invert	Avail.Storage	Storage Description			
#1	100.50'	24,860 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
100.50	1,068	258.2	0	0	1,068	
101.00	1,881	283.5	728	728	2,167	
102.00	3,733	334.0	2,755	3,482	4,668	
103.00	5,885	380.3	4,768	8,251	7,324	
104.00	8,280	418.0	7,049	15,299	9,752	
105.00	10,901	455.7	9,561	24,860	12,409	

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.50'	8.270 in/hr Exfiltration over Horizontal area Conductivity to Groundwater Elevation = 80.00'

Discarded OutFlow Max=0.52 cfs @ 12.60 hrs HW=101.46' (Free Discharge)
 ↑1=Exfiltration (Controls 0.52 cfs)

Pond 6P: Infiltration Basin #1

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1	Runoff Area=6,144 sf 25.78% Impervious Runoff Depth=0.51"
Flow Length=85'	Slope=0.0200 '/' Tc=12.4 min CN=48 Runoff=0.03 cfs 0.006 af
Subcatchment 2S: Area 2	Runoff Area=8,894 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=13'	Slope=0.0200 '/' Tc=6.0 min CN=30 Runoff=0.00 cfs 0.000 af
Subcatchment 3S: Area 3	Runoff Area=71,718 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=37'	Slope=0.0200 '/' Tc=9.1 min CN=30 Runoff=0.00 cfs 0.000 af
Subcatchment 4S: Area 4	Runoff Area=382,748 sf 9.27% Impervious Runoff Depth=0.13"
Flow Length=76'	Slope=0.0200 '/' Tc=12.2 min CN=38 Runoff=0.16 cfs 0.097 af
Subcatchment 5S: Area 5	Runoff Area=182,954 sf 38.96% Impervious Runoff Depth=1.32"
Flow Length=314'	Slope=0.0200 '/' Tc=7.3 min CN=62 Runoff=5.62 cfs 0.461 af
Subcatchment 6S: Area 6	Runoff Area=133,475 sf 39.60% Impervious Runoff Depth=1.38"
Flow Length=295'	Slope=0.0200 '/' Tc=7.1 min CN=63 Runoff=4.41 cfs 0.353 af
Reach 1R: Off-site - Route 130	Inflow=0.03 cfs 0.006 af Outflow=0.03 cfs 0.006 af
Reach 2R: Off-site North	Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Reach 3R: Off-site South	Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond 4P: Infiltration Basin #3	Peak Elev=99.61' Storage=19 cf Inflow=0.16 cfs 0.097 af Outflow=0.16 cfs 0.097 af
Pond 5P: Infiltration Basin #2	Peak Elev=101.40' Storage=4,574 cf Inflow=5.62 cfs 0.461 af Outflow=1.43 cfs 0.461 af
Pond 6P: Infiltration Basin #1	Peak Elev=102.29' Storage=4,630 cf Inflow=4.41 cfs 0.353 af Outflow=0.86 cfs 0.353 af

Total Runoff Area = 18.043 ac Runoff Volume = 0.917 af Average Runoff Depth = 0.61"
79.49% Pervious = 14.342 ac 20.51% Impervious = 3.700 ac

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Summary for Subcatchment 1S: Area 1

Runoff = 0.03 cfs @ 12.36 hrs, Volume= 0.006 af, Depth= 0.51"

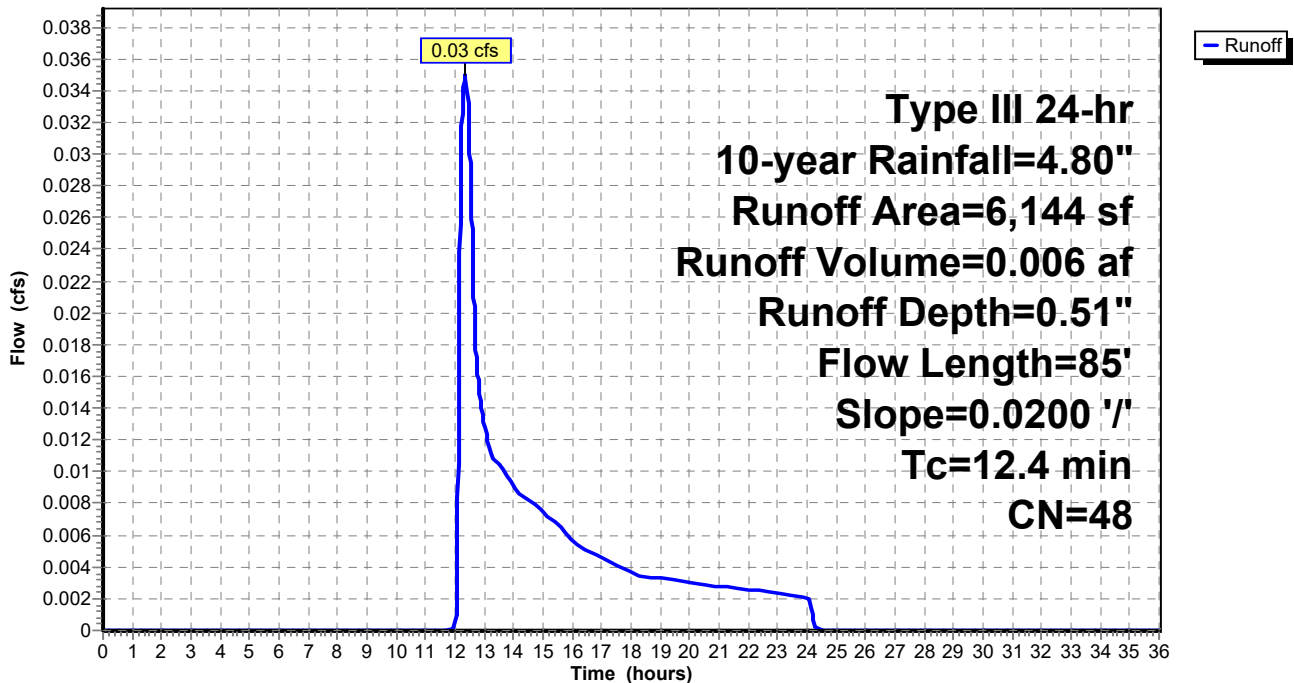
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-year Rainfall=4.80"

Area (sf)	CN	Description
1,584	98	Paved parking, HSG A
4,560	30	Woods, Good, HSG A
6,144	48	Weighted Average
4,560		74.22% Pervious Area
1,584		25.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
0.8	35	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
12.4	85	Total			

Subcatchment 1S: Area 1

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Summary for Subcatchment 3S: Area 3

Runoff = 0.00 cfs @ 24.02 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-year Rainfall=4.80"

Area (sf)	CN	Description
71,718	30	Woods, Good, HSG A
71,718		100.00% Pervious Area

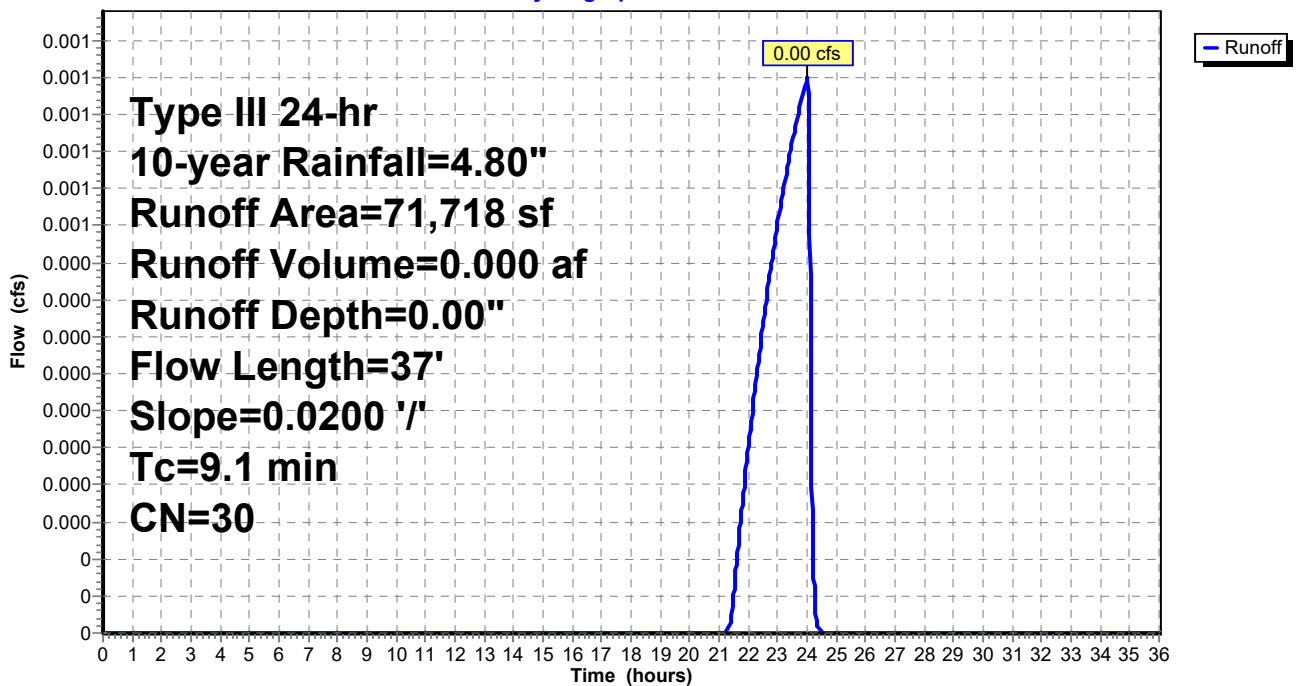
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	37	0.0200	0.07		

Sheet Flow, A-B

Woods: Light underbrush n= 0.400 P2= 3.60"

Subcatchment 3S: Area 3

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Summary for Subcatchment 4S: Area 4

Runoff = 0.16 cfs @ 14.68 hrs, Volume= 0.097 af, Depth= 0.13"

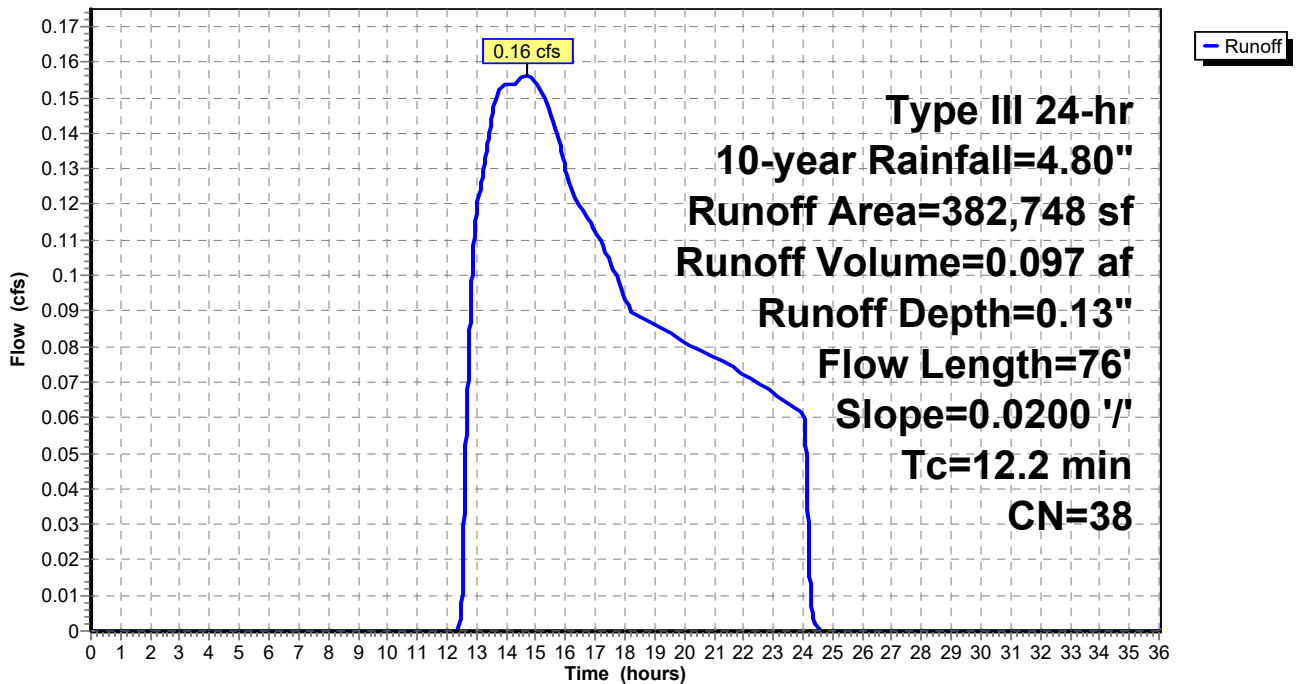
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-year Rainfall=4.80"

Area (sf)	CN	Description
12,975	98	Paved parking, HSG A
75,000	57	1/3 acre lots, 30% imp, HSG A
294,773	30	Woods, Good, HSG A
382,748	38	Weighted Average
347,273		90.73% Pervious Area
35,475		9.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
0.6	26	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
12.2	76	Total			

Subcatchment 4S: Area 4

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Summary for Subcatchment 5S: Area 5

Runoff = 5.62 cfs @ 12.12 hrs, Volume= 0.461 af, Depth= 1.32"

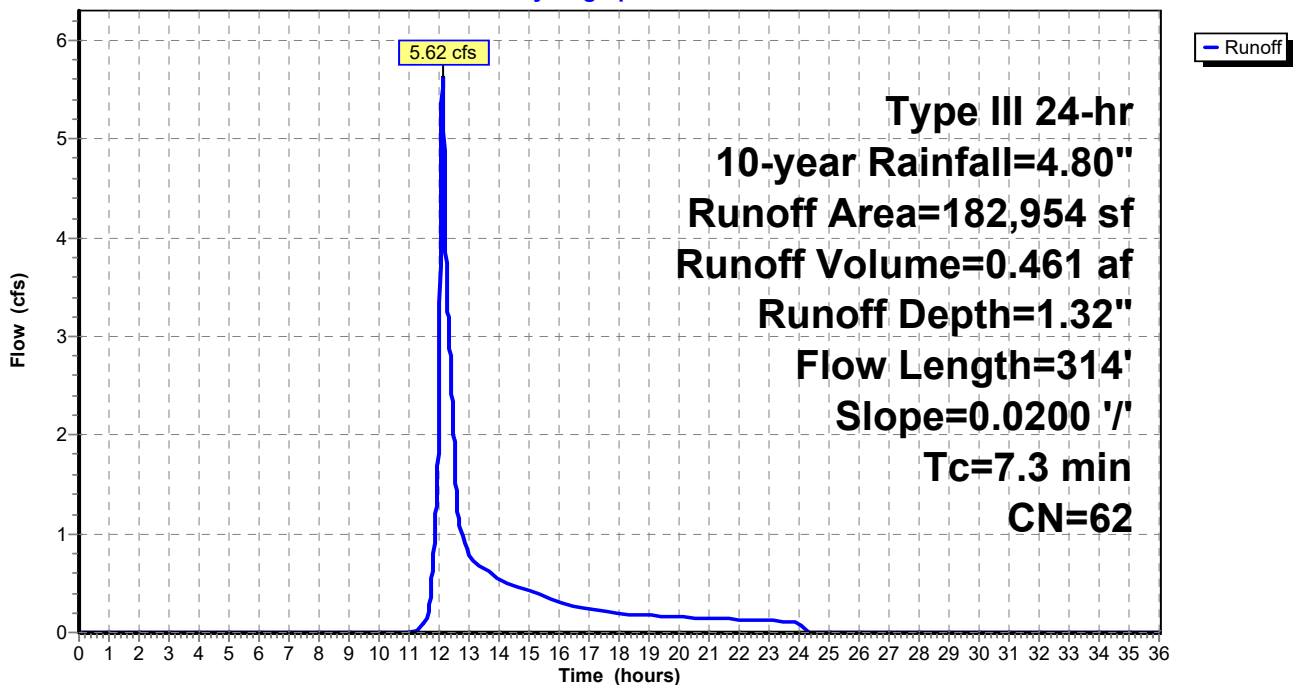
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-year Rainfall=4.80"

Area (sf)	CN	Description
23,422	98	Paved parking, HSG A
159,532	57	1/3 acre lots, 30% imp, HSG A
182,954	62	Weighted Average
111,672		61.04% Pervious Area
71,282		38.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0200	0.16		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.60"
1.3	175	0.0200	2.28		Shallow Concentrated Flow, B-C Unpaved Kv= 16.1 fps
0.7	89	0.0200	2.28		Shallow Concentrated Flow, C-D Unpaved Kv= 16.1 fps
7.3	314	Total			

Subcatchment 5S: Area 5

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Summary for Subcatchment 6S: Area 6

Runoff = 4.41 cfs @ 12.11 hrs, Volume= 0.353 af, Depth= 1.38"

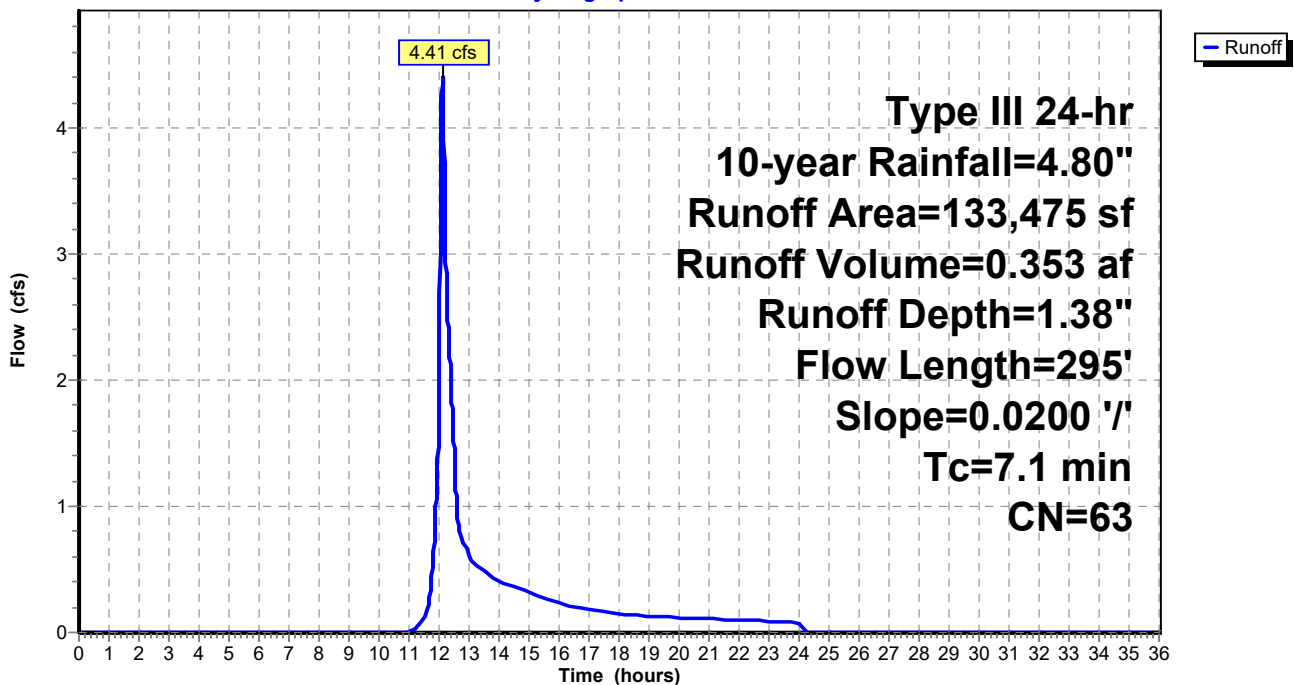
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-year Rainfall=4.80"

Area (sf)	CN	Description
18,300	98	Paved parking, HSG A
115,175	57	1/3 acre lots, 30% imp, HSG A
133,475	63	Weighted Average
80,623		60.40% Pervious Area
52,853		39.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0200	0.16		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.60"
1.8	245	0.0200	2.28		Shallow Concentrated Flow, B-C Unpaved Kv= 16.1 fps
7.1	295	Total			

Subcatchment 6S: Area 6

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Type III 24-hr 10-year Rainfall=4.80"

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Summary for Reach 1R: Off-site - Route 130

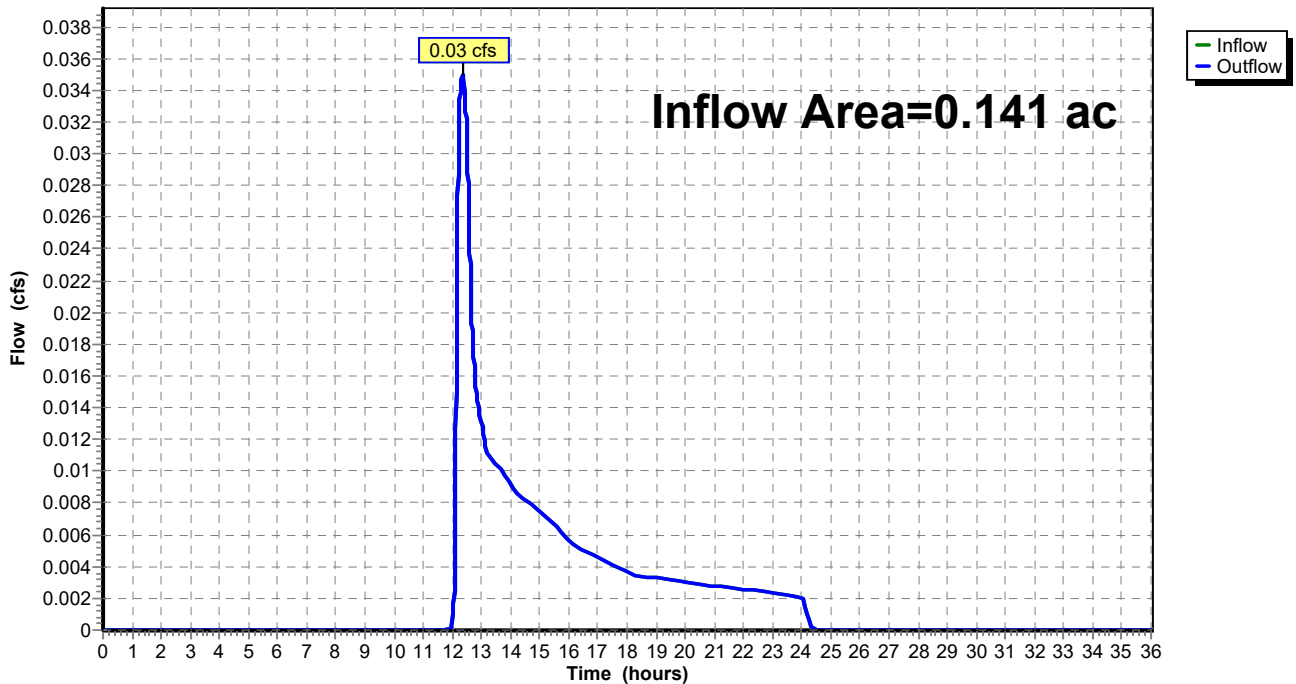
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.141 ac, 25.78% Impervious, Inflow Depth = 0.51" for 10-year event
Inflow = 0.03 cfs @ 12.36 hrs, Volume= 0.006 af
Outflow = 0.03 cfs @ 12.36 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 1R: Off-site - Route 130

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532 Main Street (Route 130) - Mashpee, MA

Type III 24-hr 10-year Rainfall=4.80"

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Summary for Reach 2R: Off-site North

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.204 ac, 0.00% Impervious, Inflow Depth = 0.00" for 10-year event

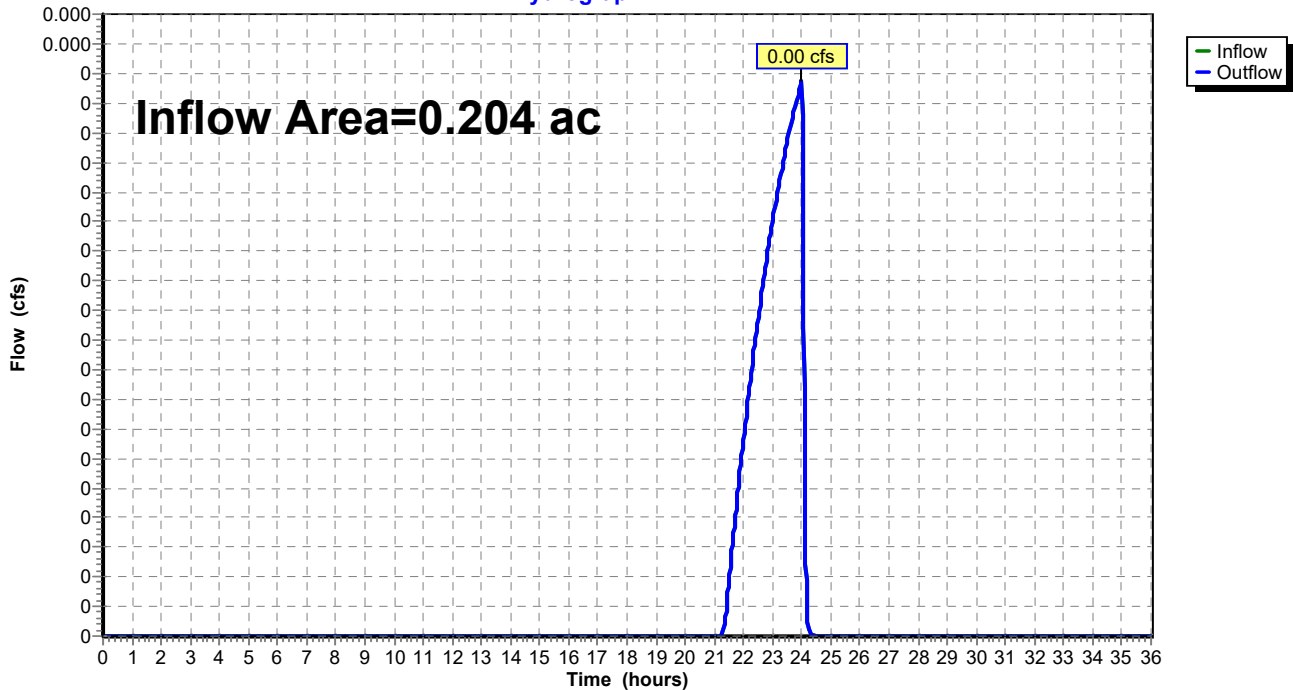
Inflow = 0.00 cfs @ 24.01 hrs, Volume= 0.000 af

Outflow = 0.00 cfs @ 24.01 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 2R: Off-site North

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532 Main Street (Route 130) - Mashpee, MA

Type III 24-hr 10-year Rainfall=4.80"

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Summary for Reach 3R: Off-site South

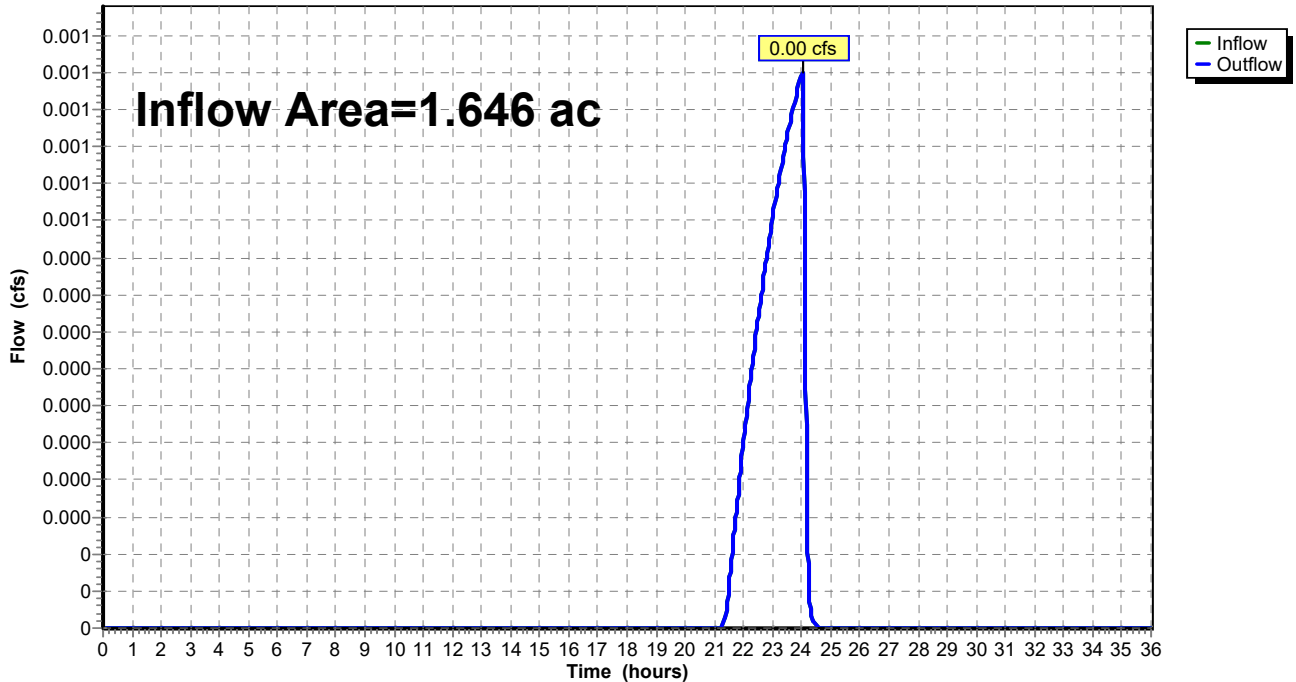
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.646 ac, 0.00% Impervious, Inflow Depth = 0.00" for 10-year event
Inflow = 0.00 cfs @ 24.02 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 24.02 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 3R: Off-site South

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Summary for Pond 4P: Infiltration Basin #3

Inflow Area = 8.787 ac, 9.27% Impervious, Inflow Depth = 0.13" for 10-year event
 Inflow = 0.16 cfs @ 14.68 hrs, Volume= 0.097 af
 Outflow = 0.16 cfs @ 14.71 hrs, Volume= 0.097 af, Atten= 0%, Lag= 1.9 min
 Discarded = 0.16 cfs @ 14.71 hrs, Volume= 0.097 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 99.61' @ 14.71 hrs Surf.Area= 1,889 sf Storage= 19 cf

Plug-Flow detention time= 2.1 min calculated for 0.097 af (100% of inflow)
 Center-of-Mass det. time= 2.1 min (1,051.2 - 1,049.2)

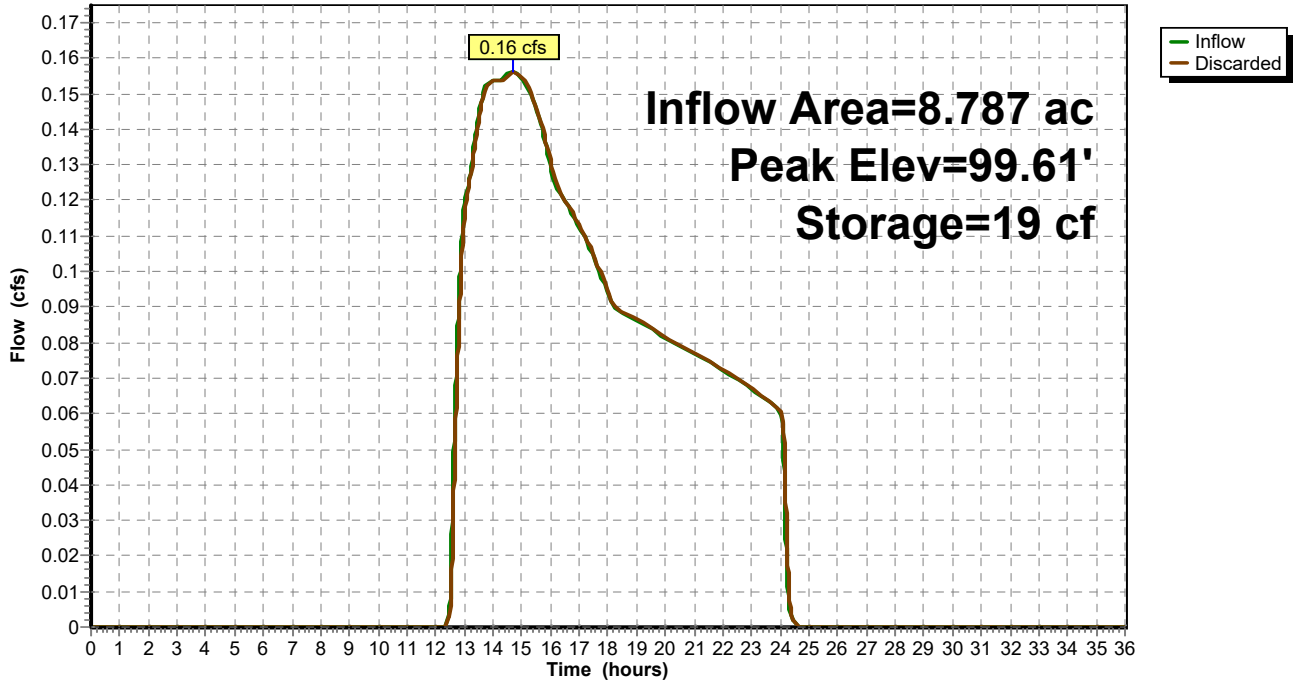
Volume	Invert	Avail.Storage	Storage Description			
#1	99.60'	9,006 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
99.60	1,878	255.2	0	0	1,878	
100.00	2,348	266.5	843	843	2,359	
101.00	4,060	304.2	3,165	4,009	4,094	
102.00	5,998	341.9	4,998	9,006	6,059	

Device	Routing	Invert	Outlet Devices
#1	Discarded	99.60'	8.270 in/hr Exfiltration over Horizontal area Conductivity to Groundwater Elevation = 80.00'

Discarded OutFlow Max=0.36 cfs @ 14.71 hrs HW=99.61' (Free Discharge)
 ↑1=Exfiltration (Controls 0.36 cfs)

Pond 4P: Infiltration Basin #3

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Summary for Pond 5P: Infiltration Basin #2

Inflow Area = 4.200 ac, 38.96% Impervious, Inflow Depth = 1.32" for 10-year event
 Inflow = 5.62 cfs @ 12.12 hrs, Volume= 0.461 af
 Outflow = 1.43 cfs @ 12.57 hrs, Volume= 0.461 af, Atten= 75%, Lag= 27.4 min
 Discarded = 1.43 cfs @ 12.57 hrs, Volume= 0.461 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 101.40' @ 12.57 hrs Surf.Area= 7,229 sf Storage= 4,574 cf

Plug-Flow detention time= 21.8 min calculated for 0.461 af (100% of inflow)
 Center-of-Mass det. time= 21.8 min (895.2 - 873.4)

Volume	Invert	Avail.Storage	Storage Description			
#1	100.70'	31,116 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
100.70	5,821	323.5	0	0	5,821	
101.00	6,413	334.8	1,834	1,834	6,421	
102.00	8,535	372.5	7,449	9,283	8,572	
103.00	10,883	410.2	9,685	18,968	10,953	
104.00	13,458	447.9	12,148	31,116	13,563	

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.70'	8.270 in/hr Exfiltration over Horizontal area Conductivity to Groundwater Elevation = 80.00'

Discarded OutFlow Max=1.43 cfs @ 12.57 hrs HW=101.40' (Free Discharge)
 ↑1=Exfiltration (Controls 1.43 cfs)

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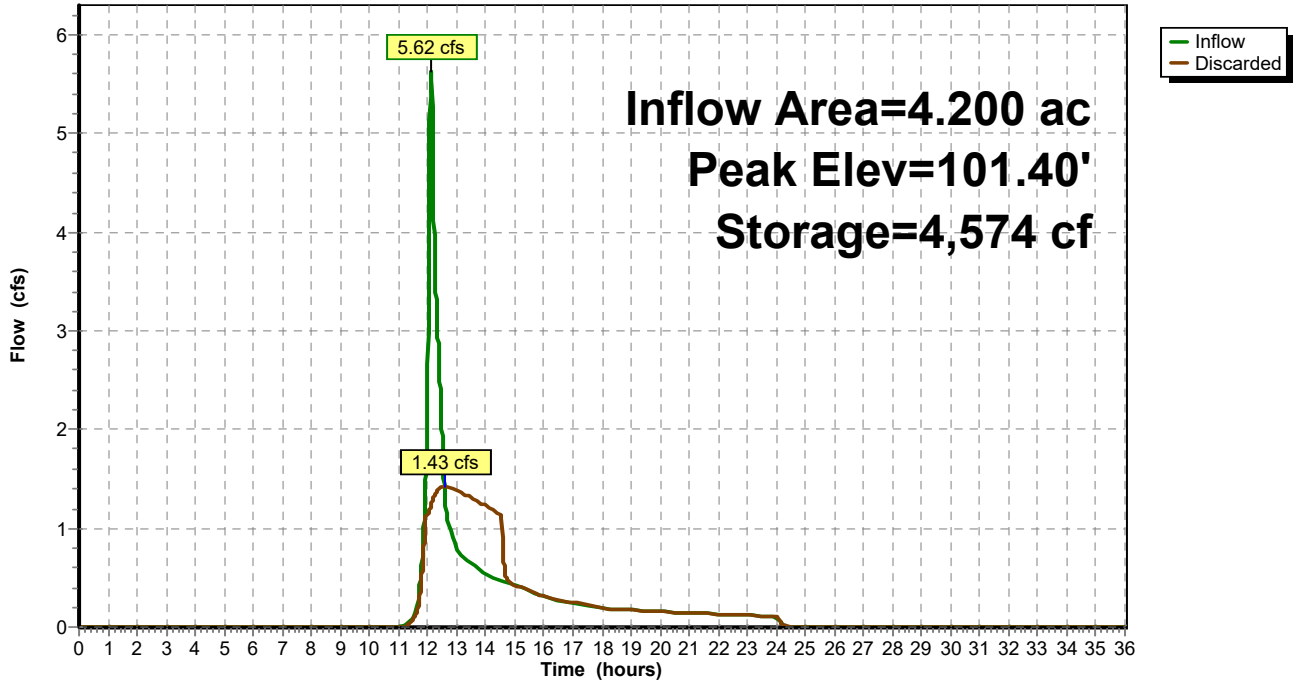
Type III 24-hr 10-year Rainfall=4.80"

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Pond 5P: Infiltration Basin #2

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Summary for Pond 6P: Infiltration Basin #1

Inflow Area = 3.064 ac, 39.60% Impervious, Inflow Depth = 1.38" for 10-year event
 Inflow = 4.41 cfs @ 12.11 hrs, Volume= 0.353 af
 Outflow = 0.86 cfs @ 12.64 hrs, Volume= 0.353 af, Atten= 80%, Lag= 31.8 min
 Discarded = 0.86 cfs @ 12.64 hrs, Volume= 0.353 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 102.29' @ 12.64 hrs Surf.Area= 4,299 sf Storage= 4,630 cf

Plug-Flow detention time= 54.3 min calculated for 0.353 af (100% of inflow)
 Center-of-Mass det. time= 54.3 min (924.5 - 870.2)

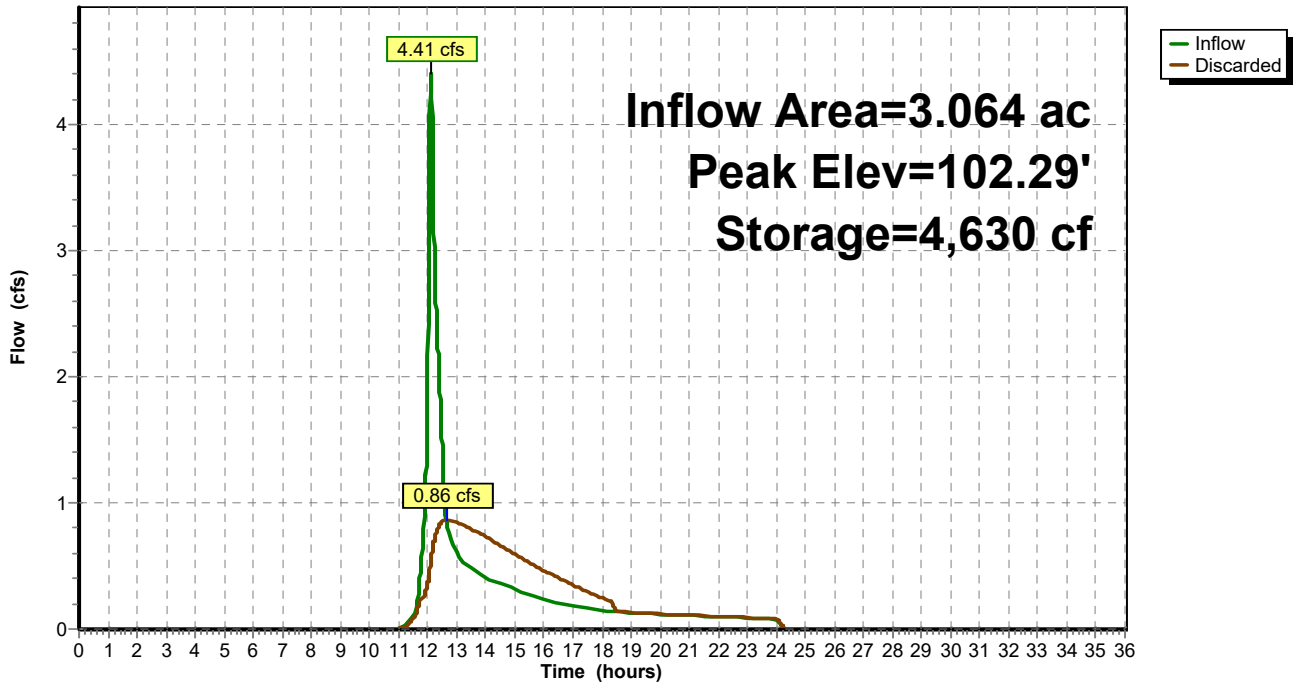
Volume	Invert	Avail.Storage	Storage Description			
#1	100.50'	24,860 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
100.50	1,068	258.2	0	0	1,068	
101.00	1,881	283.5	728	728	2,167	
102.00	3,733	334.0	2,755	3,482	4,668	
103.00	5,885	380.3	4,768	8,251	7,324	
104.00	8,280	418.0	7,049	15,299	9,752	
105.00	10,901	455.7	9,561	24,860	12,409	

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.50'	8.270 in/hr Exfiltration over Horizontal area Conductivity to Groundwater Elevation = 80.00'

Discarded OutFlow Max=0.86 cfs @ 12.64 hrs HW=102.29' (Free Discharge)
 ↑1=Exfiltration (Controls 0.86 cfs)

Pond 6P: Infiltration Basin #1

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1	Runoff Area=6,144 sf 25.78% Impervious Runoff Depth=0.87"
	Flow Length=85' Slope=0.0200 '/ Tc=12.4 min CN=48 Runoff=0.08 cfs 0.010 af
Subcatchment 2S: Area 2	Runoff Area=8,894 sf 0.00% Impervious Runoff Depth=0.04"
	Flow Length=13' Slope=0.0200 '/ Tc=6.0 min CN=30 Runoff=0.00 cfs 0.001 af
Subcatchment 3S: Area 3	Runoff Area=71,718 sf 0.00% Impervious Runoff Depth=0.04"
	Flow Length=37' Slope=0.0200 '/ Tc=9.1 min CN=30 Runoff=0.01 cfs 0.006 af
Subcatchment 4S: Area 4	Runoff Area=382,748 sf 9.27% Impervious Runoff Depth=0.32"
	Flow Length=76' Slope=0.0200 '/ Tc=12.2 min CN=38 Runoff=0.78 cfs 0.232 af
Subcatchment 5S: Area 5	Runoff Area=182,954 sf 38.96% Impervious Runoff Depth=1.89"
	Flow Length=314' Slope=0.0200 '/ Tc=7.3 min CN=62 Runoff=8.44 cfs 0.661 af
Subcatchment 6S: Area 6	Runoff Area=133,475 sf 39.60% Impervious Runoff Depth=1.97"
	Flow Length=295' Slope=0.0200 '/ Tc=7.1 min CN=63 Runoff=6.52 cfs 0.503 af
Reach 1R: Off-site - Route 130	Inflow=0.08 cfs 0.010 af Outflow=0.08 cfs 0.010 af
Reach 2R: Off-site North	Inflow=0.00 cfs 0.001 af Outflow=0.00 cfs 0.001 af
Reach 3R: Off-site South	Inflow=0.01 cfs 0.006 af Outflow=0.01 cfs 0.006 af
Pond 4P: Infiltration Basin #3	Peak Elev=99.87' Storage=552 cf Inflow=0.78 cfs 0.232 af Outflow=0.42 cfs 0.232 af
Pond 5P: Infiltration Basin #2	Peak Elev=101.86' Storage=8,116 cf Inflow=8.44 cfs 0.661 af Outflow=1.65 cfs 0.661 af
Pond 6P: Infiltration Basin #1	Peak Elev=102.84' Storage=7,339 cf Inflow=6.52 cfs 0.503 af Outflow=1.12 cfs 0.503 af

Total Runoff Area = 18.043 ac Runoff Volume = 1.413 af Average Runoff Depth = 0.94"
79.49% Pervious = 14.342 ac 20.51% Impervious = 3.700 ac

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Summary for Subcatchment 1S: Area 1

Runoff = 0.08 cfs @ 12.22 hrs, Volume= 0.010 af, Depth= 0.87"

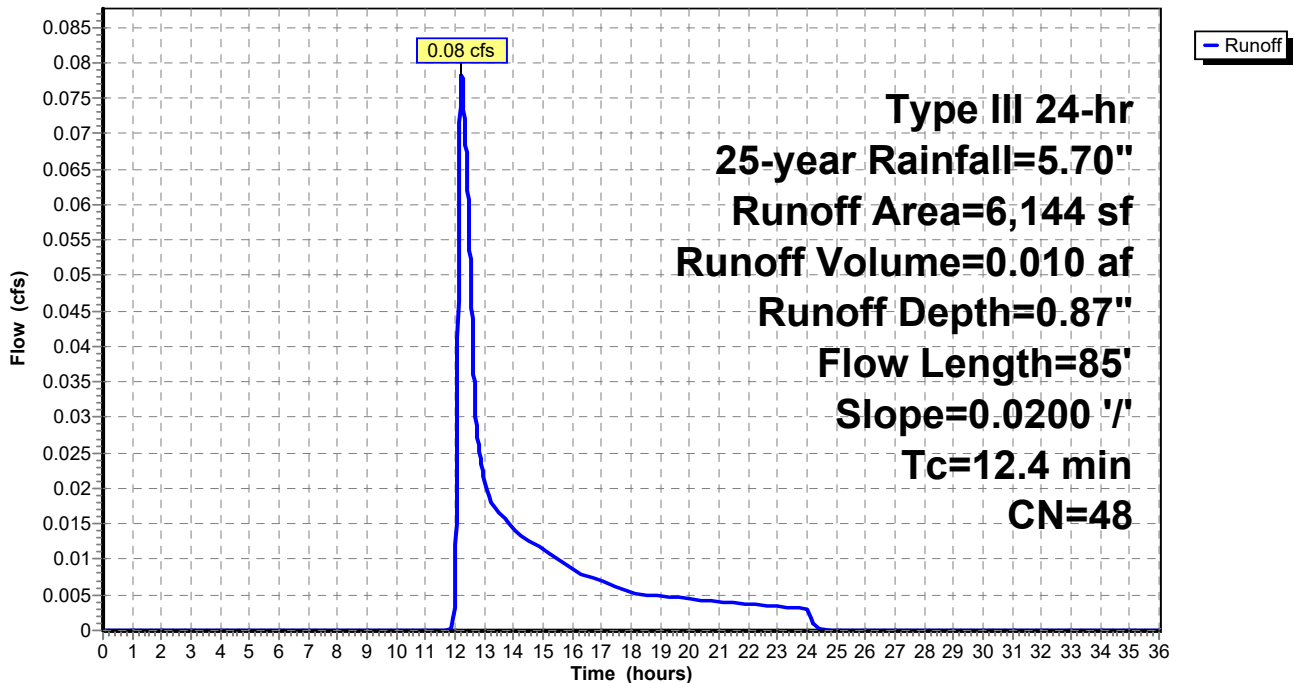
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.70"

Area (sf)	CN	Description
1,584	98	Paved parking, HSG A
4,560	30	Woods, Good, HSG A
6,144	48	Weighted Average
4,560		74.22% Pervious Area
1,584		25.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
0.8	35	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
12.4	85	Total			

Subcatchment 1S: Area 1

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Summary for Subcatchment 3S: Area 3

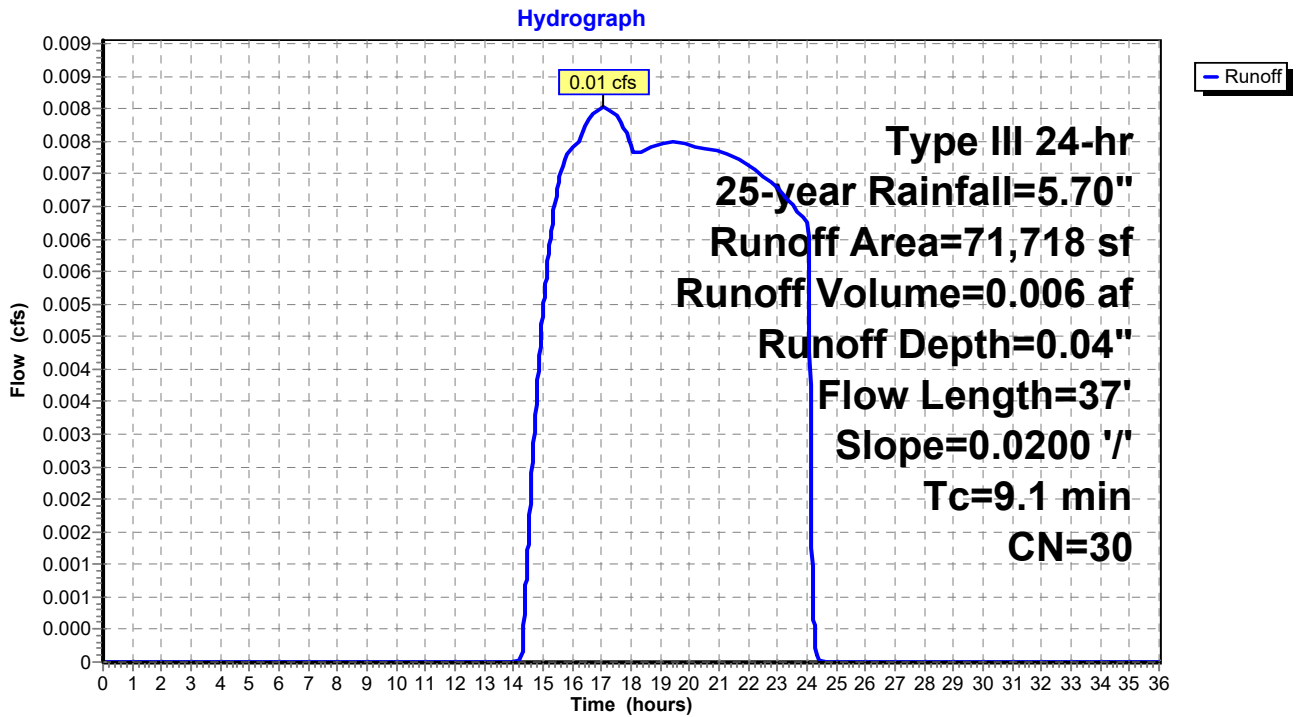
Runoff = 0.01 cfs @ 17.06 hrs, Volume= 0.006 af, Depth= 0.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.70"

Area (sf)	CN	Description
71,718	30	Woods, Good, HSG A
71,718		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	37	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"

Subcatchment 3S: Area 3



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Summary for Subcatchment 4S: Area 4

Runoff = 0.78 cfs @ 12.50 hrs, Volume= 0.232 af, Depth= 0.32"

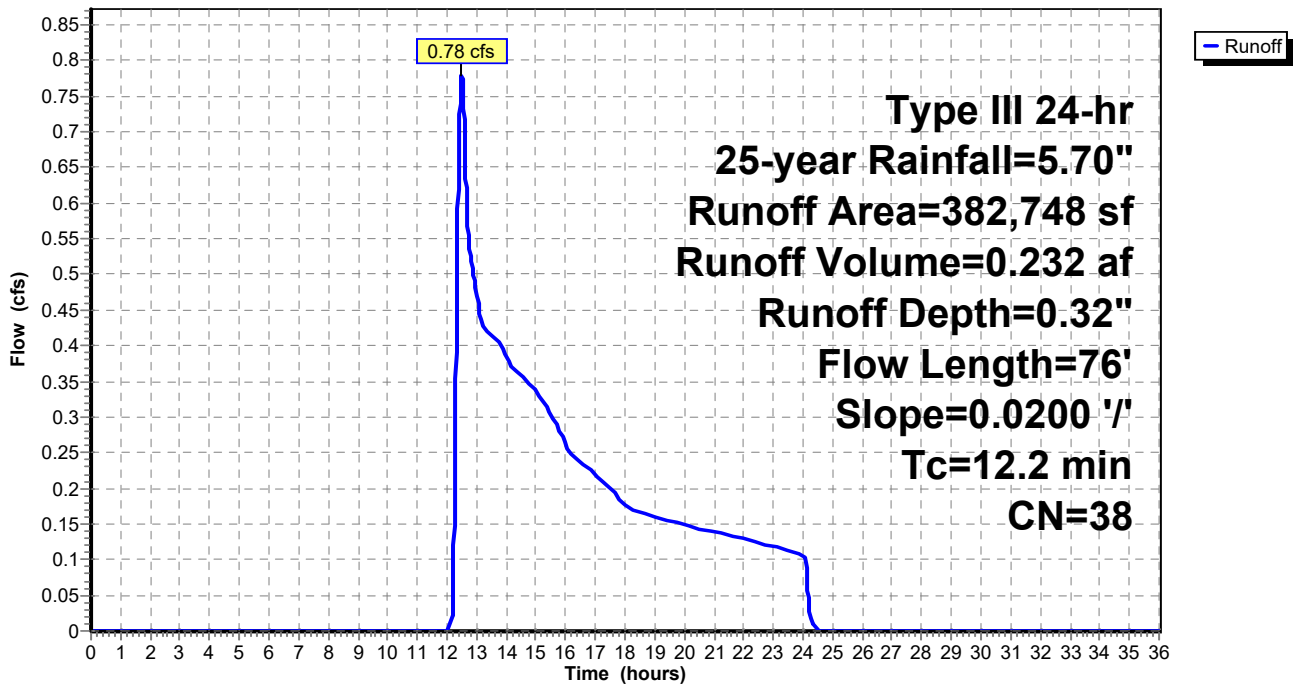
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.70"

Area (sf)	CN	Description
12,975	98	Paved parking, HSG A
75,000	57	1/3 acre lots, 30% imp, HSG A
294,773	30	Woods, Good, HSG A
382,748	38	Weighted Average
347,273		90.73% Pervious Area
35,475		9.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
0.6	26	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
12.2	76	Total			

Subcatchment 4S: Area 4

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Summary for Subcatchment 5S: Area 5

Runoff = 8.44 cfs @ 12.11 hrs, Volume= 0.661 af, Depth= 1.89"

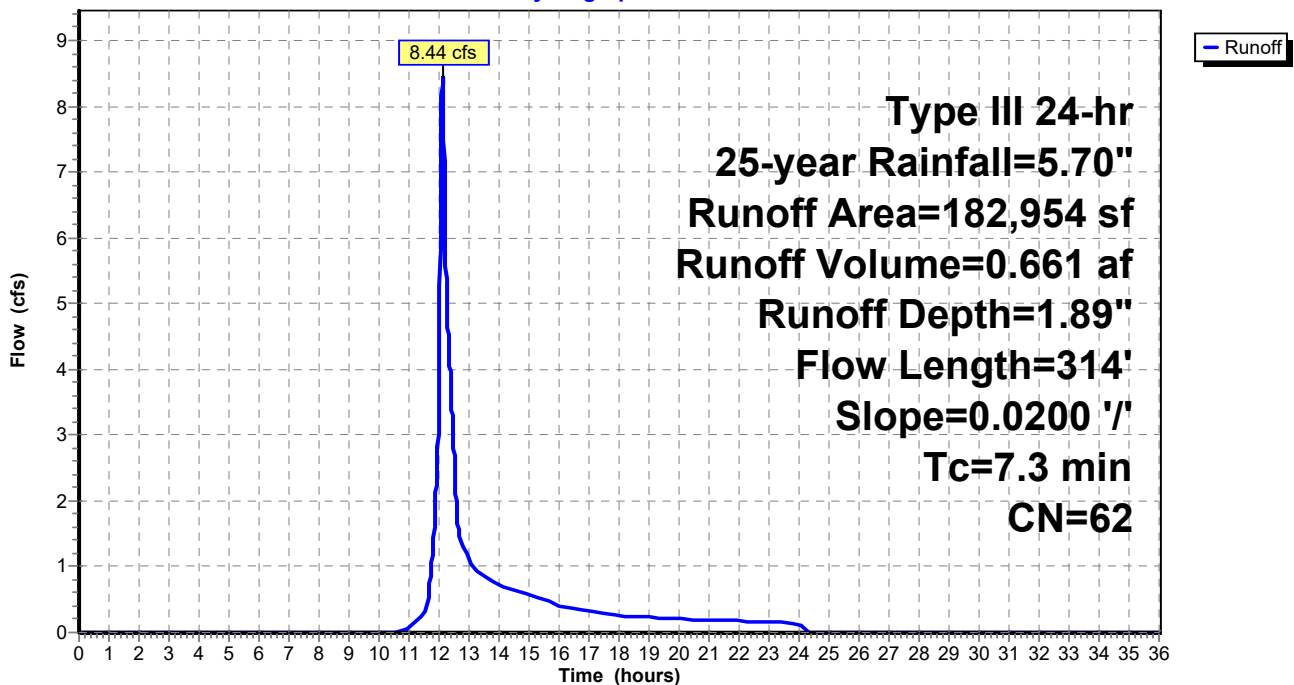
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.70"

Area (sf)	CN	Description
23,422	98	Paved parking, HSG A
159,532	57	1/3 acre lots, 30% imp, HSG A
182,954	62	Weighted Average
111,672		61.04% Pervious Area
71,282		38.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0200	0.16		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.60"
1.3	175	0.0200	2.28		Shallow Concentrated Flow, B-C Unpaved Kv= 16.1 fps
0.7	89	0.0200	2.28		Shallow Concentrated Flow, C-D Unpaved Kv= 16.1 fps
7.3	314	Total			

Subcatchment 5S: Area 5

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Summary for Subcatchment 6S: Area 6

Runoff = 6.52 cfs @ 12.11 hrs, Volume= 0.503 af, Depth= 1.97"

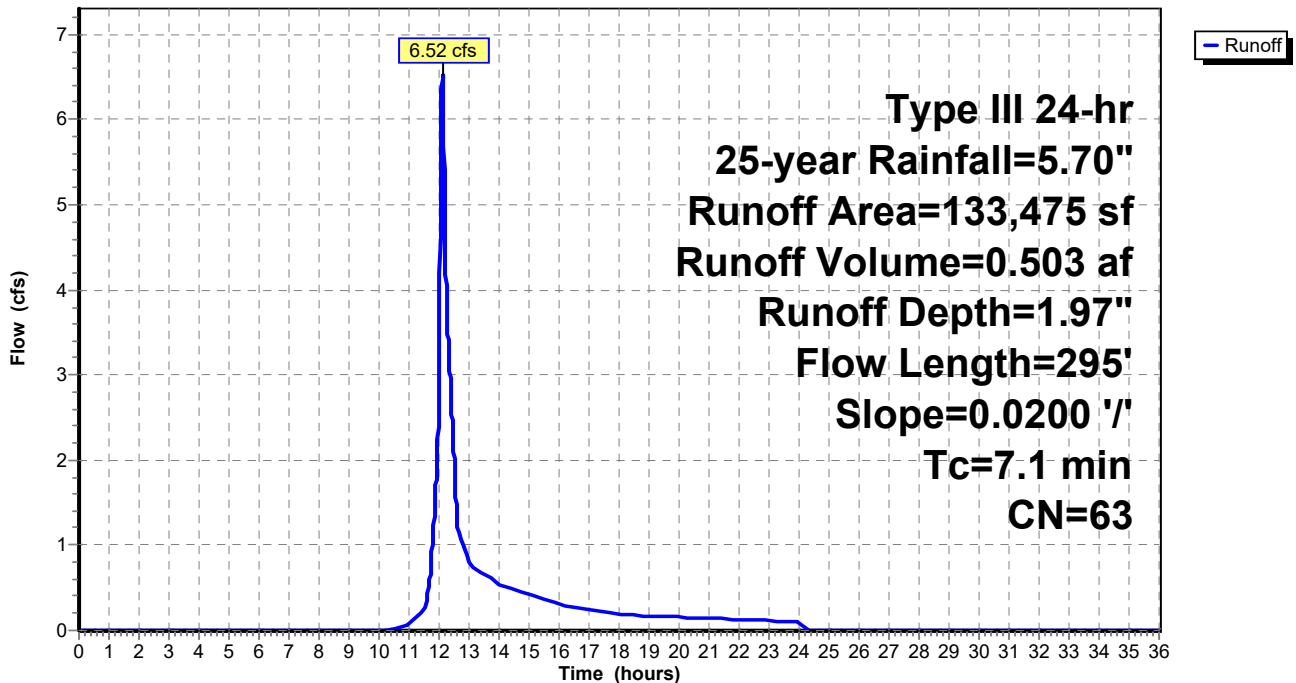
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.70"

Area (sf)	CN	Description
18,300	98	Paved parking, HSG A
115,175	57	1/3 acre lots, 30% imp, HSG A
133,475	63	Weighted Average
80,623		60.40% Pervious Area
52,853		39.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0200	0.16		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.60"
1.8	245	0.0200	2.28		Shallow Concentrated Flow, B-C Unpaved Kv= 16.1 fps
7.1	295	Total			

Subcatchment 6S: Area 6

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Summary for Reach 1R: Off-site - Route 130

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.141 ac, 25.78% Impervious, Inflow Depth = 0.87" for 25-year event

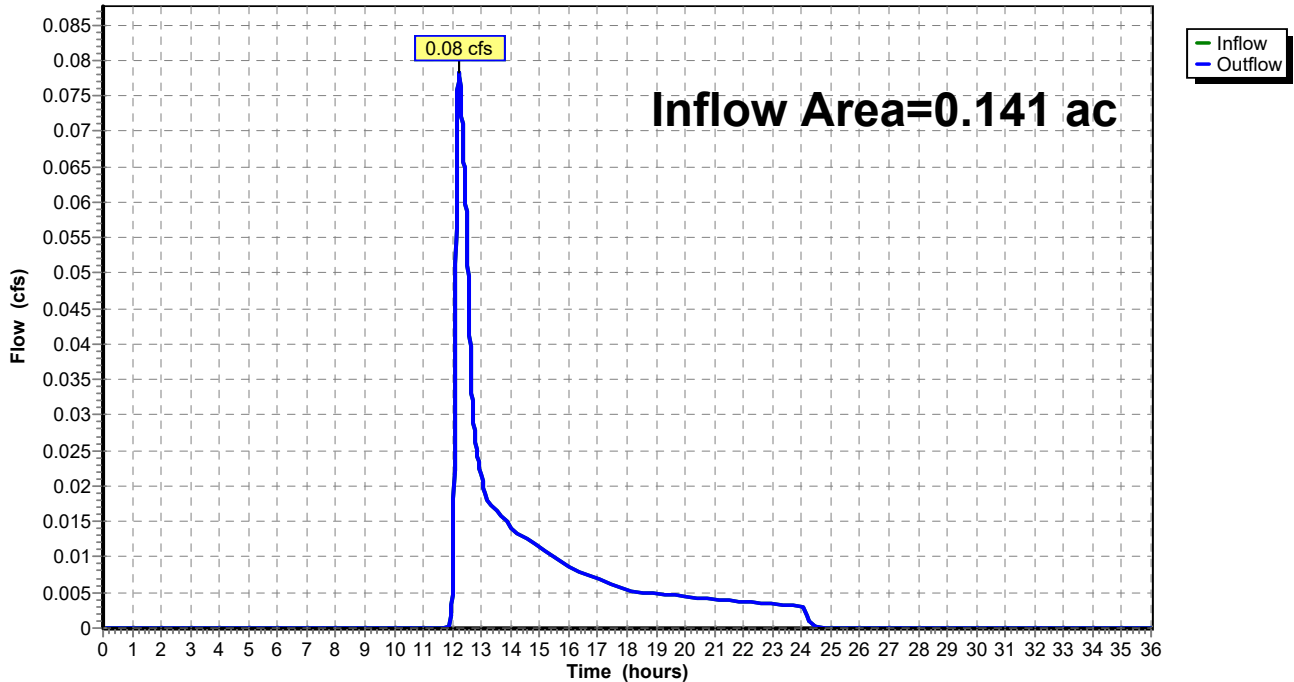
Inflow = 0.08 cfs @ 12.22 hrs, Volume= 0.010 af

Outflow = 0.08 cfs @ 12.22 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 1R: Off-site - Route 130

Hydrograph



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Summary for Reach 2R: Off-site North

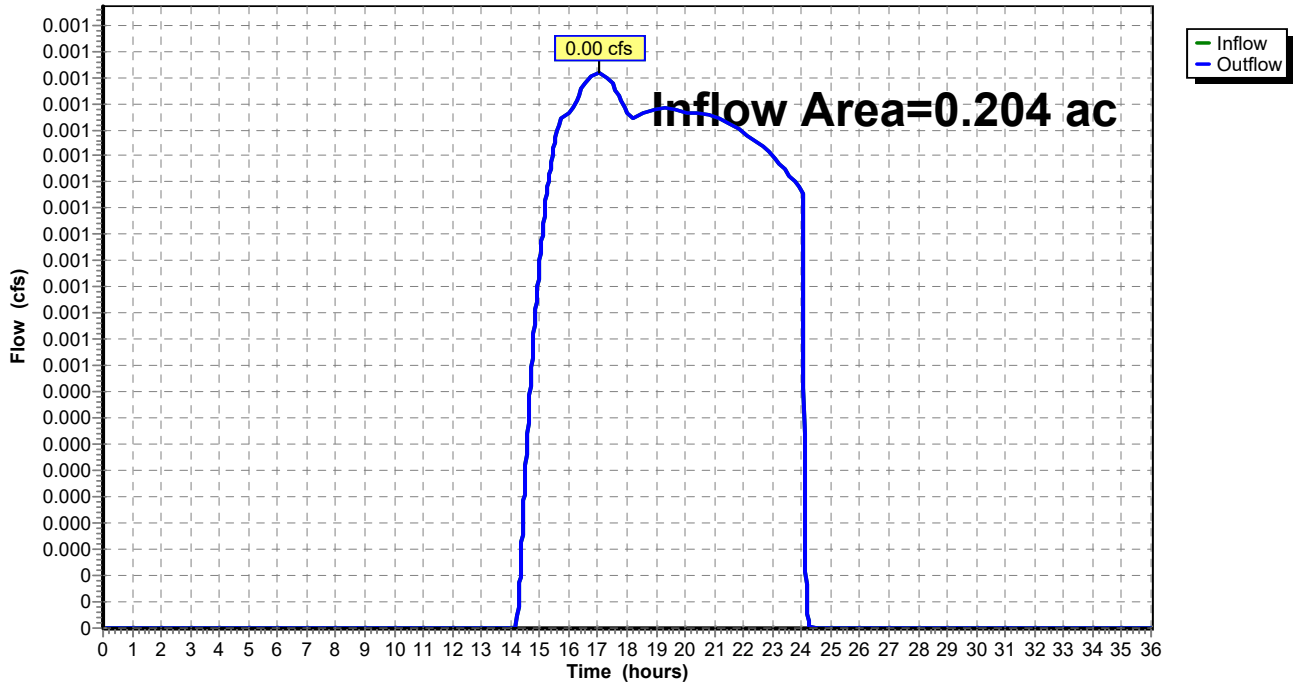
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.204 ac, 0.00% Impervious, Inflow Depth = 0.04" for 25-year event
Inflow = 0.00 cfs @ 17.02 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 17.02 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 2R: Off-site North

Hydrograph



Summary for Reach 3R: Off-site South

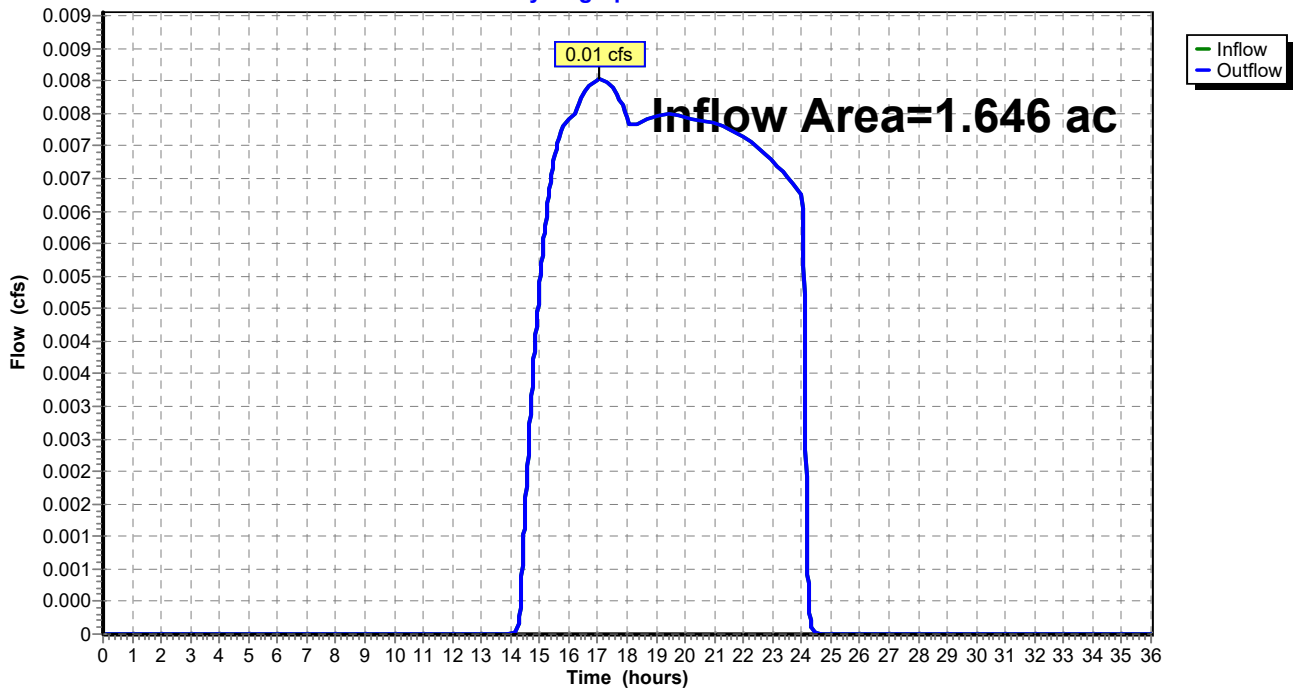
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.646 ac, 0.00% Impervious, Inflow Depth = 0.04" for 25-year event
Inflow = 0.01 cfs @ 17.06 hrs, Volume= 0.006 af
Outflow = 0.01 cfs @ 17.06 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 3R: Off-site South

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Summary for Pond 4P: Infiltration Basin #3

Inflow Area = 8.787 ac, 9.27% Impervious, Inflow Depth = 0.32" for 25-year event
 Inflow = 0.78 cfs @ 12.50 hrs, Volume= 0.232 af
 Outflow = 0.42 cfs @ 13.23 hrs, Volume= 0.232 af, Atten= 45%, Lag= 44.0 min
 Discarded = 0.42 cfs @ 13.23 hrs, Volume= 0.232 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 99.87' @ 13.23 hrs Surf.Area= 2,191 sf Storage= 552 cf

Plug-Flow detention time= 9.2 min calculated for 0.232 af (100% of inflow)
 Center-of-Mass det. time= 9.2 min (997.6 - 988.4)

Volume	Invert	Avail.Storage	Storage Description			
#1	99.60'	9,006 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
99.60	1,878	255.2	0	0	1,878	
100.00	2,348	266.5	843	843	2,359	
101.00	4,060	304.2	3,165	4,009	4,094	
102.00	5,998	341.9	4,998	9,006	6,059	

Device	Routing	Invert	Outlet Devices
#1	Discarded	99.60'	8.270 in/hr Exfiltration over Horizontal area Conductivity to Groundwater Elevation = 80.00'

Discarded OutFlow Max=0.42 cfs @ 13.23 hrs HW=99.87' (Free Discharge)
 ↑1=Exfiltration (Controls 0.42 cfs)

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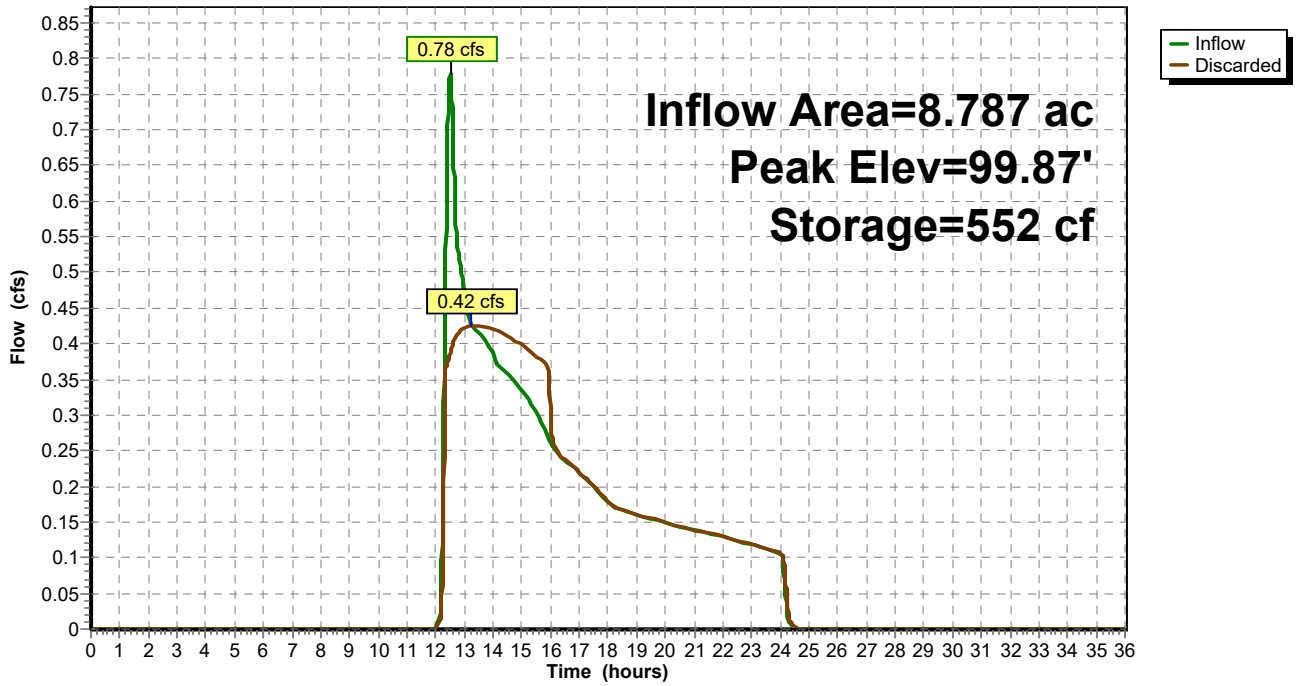
Type III 24-hr 25-year Rainfall=5.70"

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Pond 4P: Infiltration Basin #3

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Summary for Pond 5P: Infiltration Basin #2

Inflow Area = 4.200 ac, 38.96% Impervious, Inflow Depth = 1.89" for 25-year event
 Inflow = 8.44 cfs @ 12.11 hrs, Volume= 0.661 af
 Outflow = 1.65 cfs @ 12.63 hrs, Volume= 0.661 af, Atten= 80%, Lag= 30.8 min
 Discarded = 1.65 cfs @ 12.63 hrs, Volume= 0.661 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 101.86' @ 12.63 hrs Surf.Area= 8,221 sf Storage= 8,116 cf

Plug-Flow detention time= 39.2 min calculated for 0.661 af (100% of inflow)
 Center-of-Mass det. time= 39.2 min (901.2 - 862.0)

Volume	Invert	Avail.Storage	Storage Description			
#1	100.70'	31,116 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
100.70	5,821	323.5	0	0	5,821	
101.00	6,413	334.8	1,834	1,834	6,421	
102.00	8,535	372.5	7,449	9,283	8,572	
103.00	10,883	410.2	9,685	18,968	10,953	
104.00	13,458	447.9	12,148	31,116	13,563	

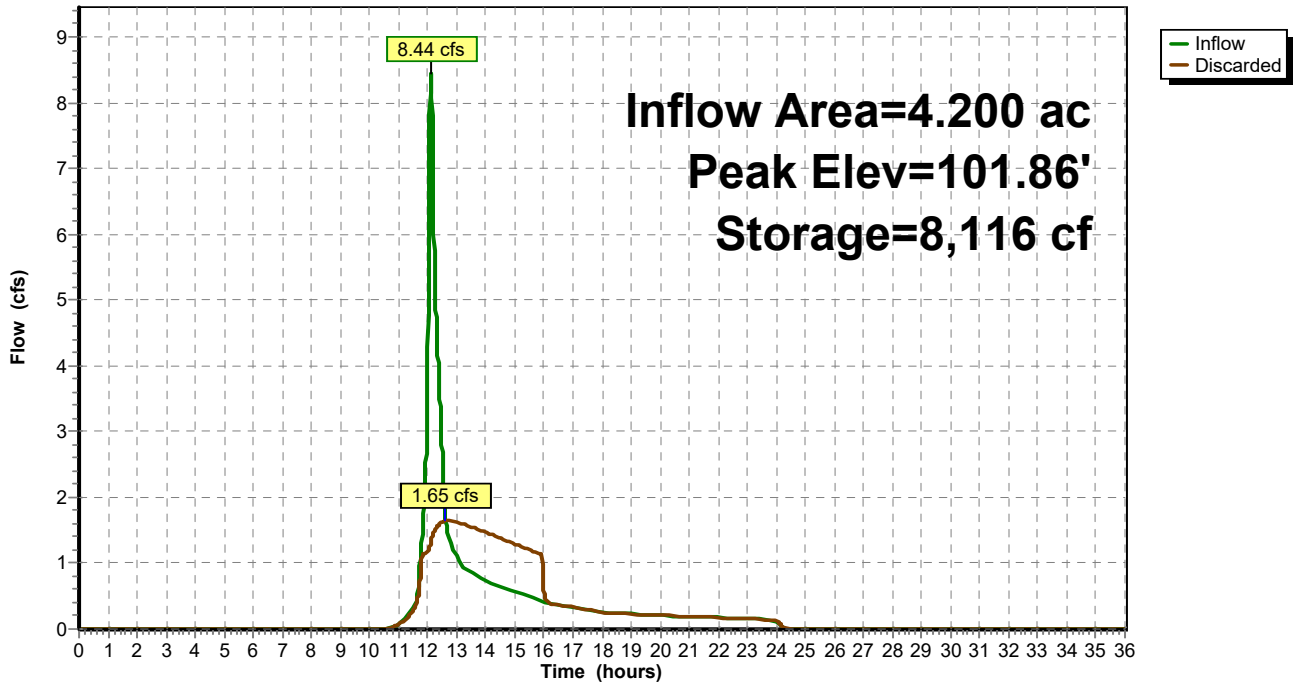
Device	Routing	Invert	Outlet Devices
#1	Discarded	100.70'	8.270 in/hr Exfiltration over Horizontal area Conductivity to Groundwater Elevation = 80.00'

Discarded OutFlow Max=1.65 cfs @ 12.63 hrs HW=101.86' (Free Discharge)

↑1=Exfiltration (Controls 1.65 cfs)

Pond 5P: Infiltration Basin #2

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Summary for Pond 6P: Infiltration Basin #1

Inflow Area = 3.064 ac, 39.60% Impervious, Inflow Depth = 1.97" for 25-year event
 Inflow = 6.52 cfs @ 12.11 hrs, Volume= 0.503 af
 Outflow = 1.12 cfs @ 12.68 hrs, Volume= 0.503 af, Atten= 83%, Lag= 34.2 min
 Discarded = 1.12 cfs @ 12.68 hrs, Volume= 0.503 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 102.84' @ 12.68 hrs Surf.Area= 5,508 sf Storage= 7,339 cf

Plug-Flow detention time= 70.7 min calculated for 0.503 af (100% of inflow)
 Center-of-Mass det. time= 70.7 min (929.8 - 859.2)

Volume	Invert	Avail.Storage	Storage Description			
#1	100.50'	24,860 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
100.50	1,068	258.2	0	0	1,068	
101.00	1,881	283.5	728	728	2,167	
102.00	3,733	334.0	2,755	3,482	4,668	
103.00	5,885	380.3	4,768	8,251	7,324	
104.00	8,280	418.0	7,049	15,299	9,752	
105.00	10,901	455.7	9,561	24,860	12,409	

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.50'	8.270 in/hr Exfiltration over Horizontal area Conductivity to Groundwater Elevation = 80.00'

Discarded OutFlow Max=1.12 cfs @ 12.68 hrs HW=102.84' (Free Discharge)
 ↑1=Exfiltration (Controls 1.12 cfs)

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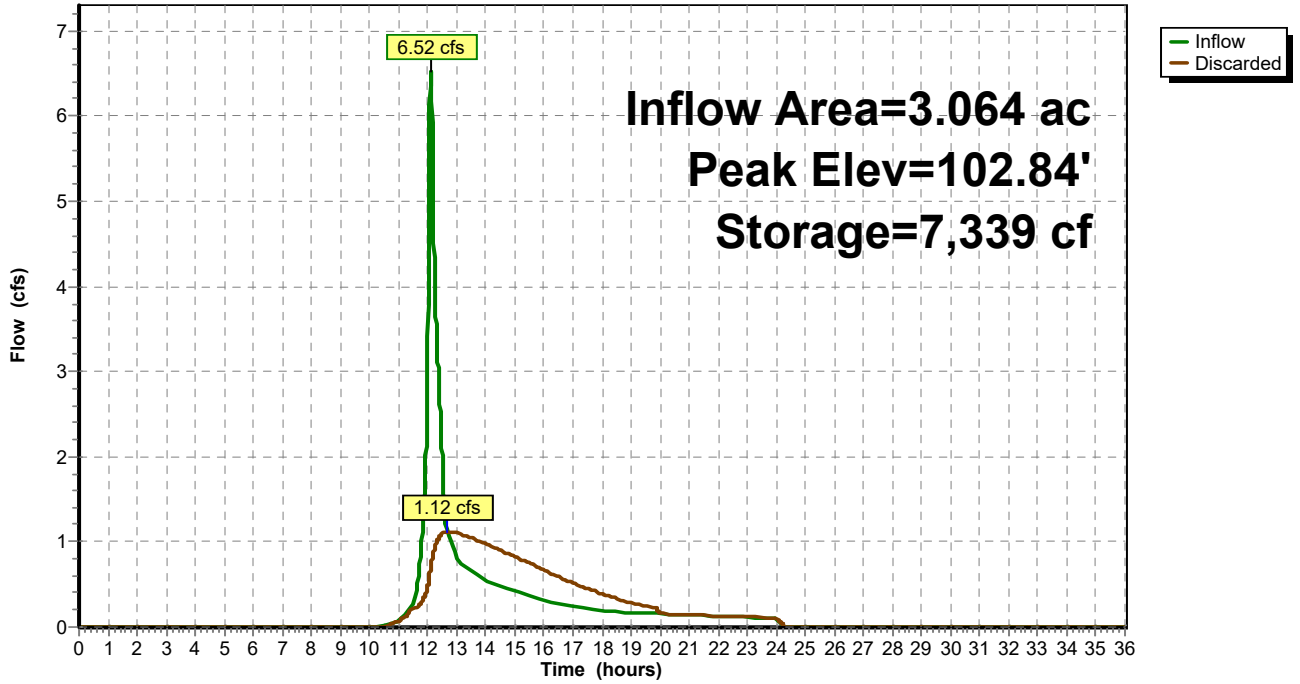
Type III 24-hr 25-year Rainfall=5.70"

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Pond 6P: Infiltration Basin #1

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1	Runoff Area=6,144 sf 25.78% Impervious Runoff Depth=1.54"
Flow Length=85'	Slope=0.0200 '/ Tc=12.4 min CN=48 Runoff=0.17 cfs 0.018 af
Subcatchment 2S: Area 2	Runoff Area=8,894 sf 0.00% Impervious Runoff Depth=0.23"
Flow Length=13'	Slope=0.0200 '/ Tc=6.0 min CN=30 Runoff=0.01 cfs 0.004 af
Subcatchment 3S: Area 3	Runoff Area=71,718 sf 0.00% Impervious Runoff Depth=0.23"
Flow Length=37'	Slope=0.0200 '/ Tc=9.1 min CN=30 Runoff=0.05 cfs 0.032 af
Subcatchment 4S: Area 4	Runoff Area=382,748 sf 9.27% Impervious Runoff Depth=0.73"
Flow Length=76'	Slope=0.0200 '/ Tc=12.2 min CN=38 Runoff=3.01 cfs 0.535 af
Subcatchment 5S: Area 5	Runoff Area=182,954 sf 38.96% Impervious Runoff Depth=2.87"
Flow Length=314'	Slope=0.0200 '/ Tc=7.3 min CN=62 Runoff=13.27 cfs 1.006 af
Subcatchment 6S: Area 6	Runoff Area=133,475 sf 39.60% Impervious Runoff Depth=2.98"
Flow Length=295'	Slope=0.0200 '/ Tc=7.1 min CN=63 Runoff=10.13 cfs 0.760 af
Reach 1R: Off-site - Route 130	Inflow=0.17 cfs 0.018 af Outflow=0.17 cfs 0.018 af
Reach 2R: Off-site North	Inflow=0.01 cfs 0.004 af Outflow=0.01 cfs 0.004 af
Reach 3R: Off-site South	Inflow=0.05 cfs 0.032 af Outflow=0.05 cfs 0.032 af
Pond 4P: Infiltration Basin #3	Peak Elev=101.16' Storage=4,681 cf Inflow=3.01 cfs 0.535 af Outflow=0.88 cfs 0.535 af
Pond 5P: Infiltration Basin #2	Peak Elev=102.59' Storage=14,682 cf Inflow=13.27 cfs 1.006 af Outflow=2.03 cfs 1.006 af
Pond 6P: Infiltration Basin #1	Peak Elev=103.61' Storage=12,299 cf Inflow=10.13 cfs 0.760 af Outflow=1.51 cfs 0.760 af

Total Runoff Area = 18.043 ac Runoff Volume = 2.355 af Average Runoff Depth = 1.57"
79.49% Pervious = 14.342 ac 20.51% Impervious = 3.700 ac

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Summary for Subcatchment 1S: Area 1

Runoff = 0.17 cfs @ 12.20 hrs, Volume= 0.018 af, Depth= 1.54"

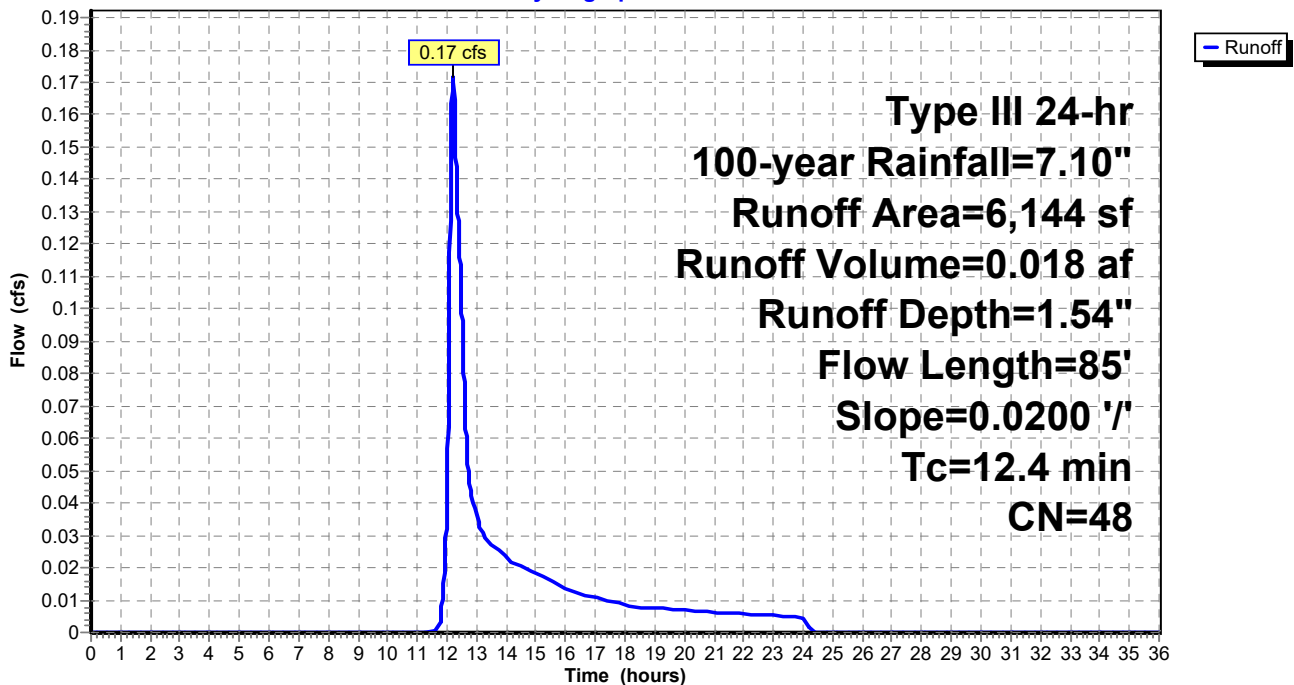
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-year Rainfall=7.10"

Area (sf)	CN	Description
1,584	98	Paved parking, HSG A
4,560	30	Woods, Good, HSG A
6,144	48	Weighted Average
4,560		74.22% Pervious Area
1,584		25.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
0.8	35	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
12.4	85	Total			

Subcatchment 1S: Area 1

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Summary for Subcatchment 2S: Area 2

Runoff = 0.01 cfs @ 13.70 hrs, Volume= 0.004 af, Depth= 0.23"

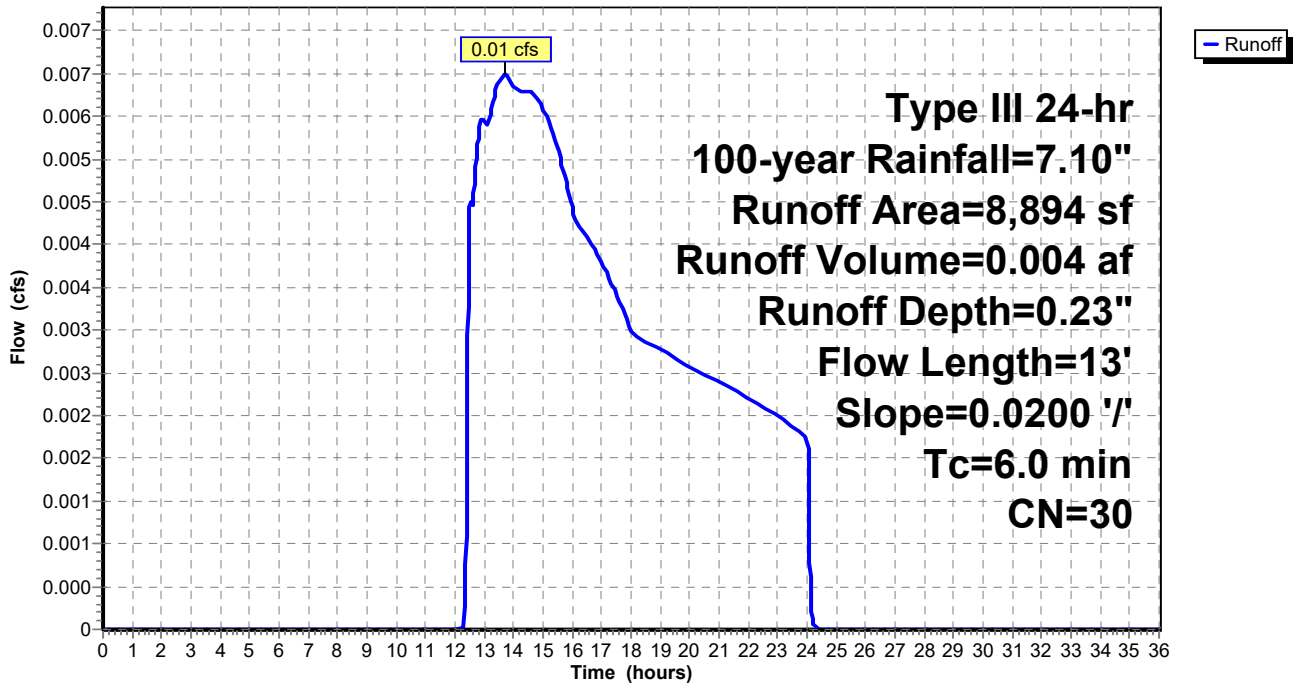
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-year Rainfall=7.10"

Area (sf)	CN	Description
8,894	30	Woods, Good, HSG A
8,894		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	13	0.0200	0.05		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
2.0					Direct Entry,
6.0	13	Total			

Subcatchment 2S: Area 2

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Summary for Subcatchment 3S: Area 3

Runoff = 0.05 cfs @ 13.76 hrs, Volume= 0.032 af, Depth= 0.23"

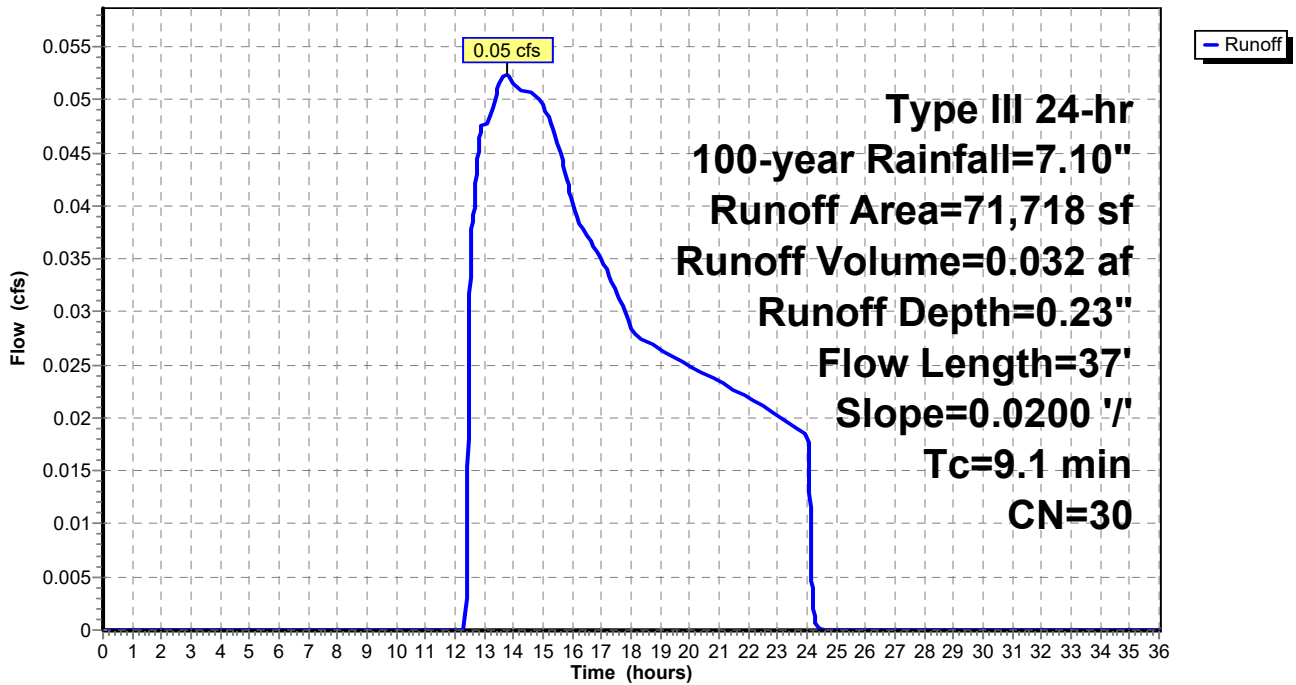
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-year Rainfall=7.10"

Area (sf)	CN	Description
71,718	30	Woods, Good, HSG A
71,718		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	37	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"

Subcatchment 3S: Area 3

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Summary for Subcatchment 4S: Area 4

Runoff = 3.01 cfs @ 12.37 hrs, Volume= 0.535 af, Depth= 0.73"

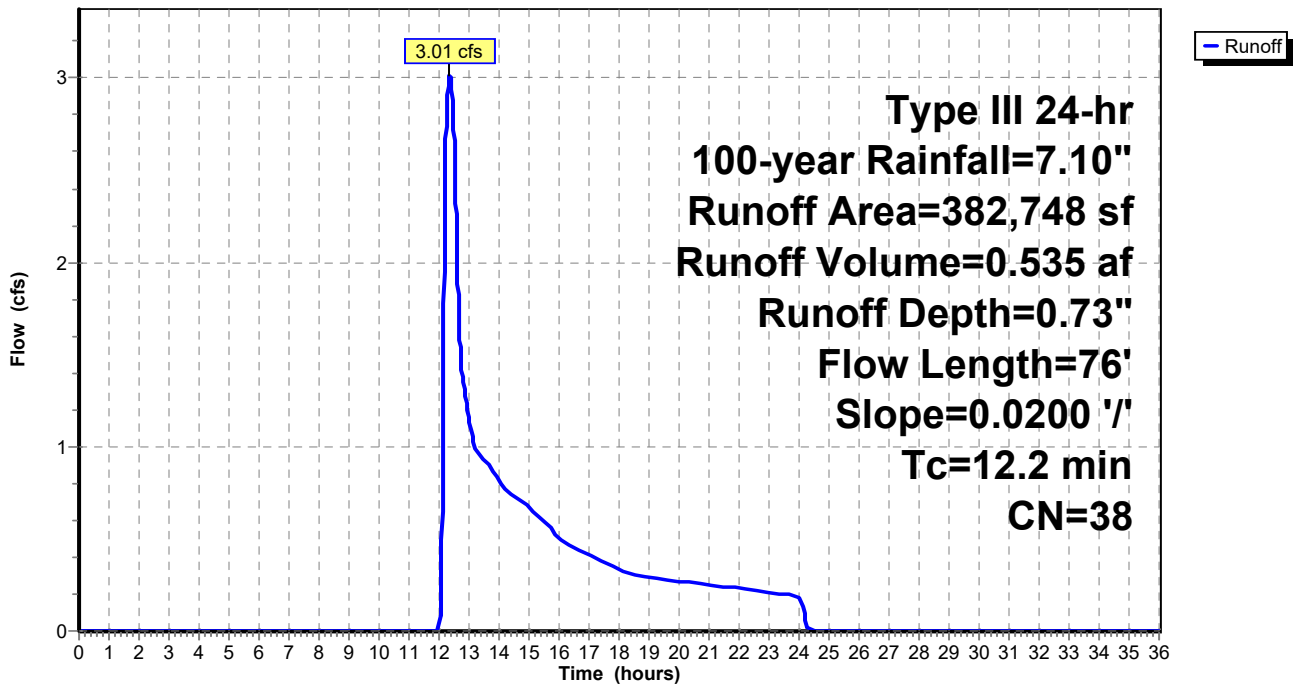
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-year Rainfall=7.10"

Area (sf)	CN	Description
12,975	98	Paved parking, HSG A
75,000	57	1/3 acre lots, 30% imp, HSG A
294,773	30	Woods, Good, HSG A
382,748	38	Weighted Average
347,273		90.73% Pervious Area
35,475		9.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0200	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.60"
0.6	26	0.0200	0.71		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
12.2	76	Total			

Subcatchment 4S: Area 4

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Summary for Subcatchment 5S: Area 5

Runoff = 13.27 cfs @ 12.11 hrs, Volume= 1.006 af, Depth= 2.87"

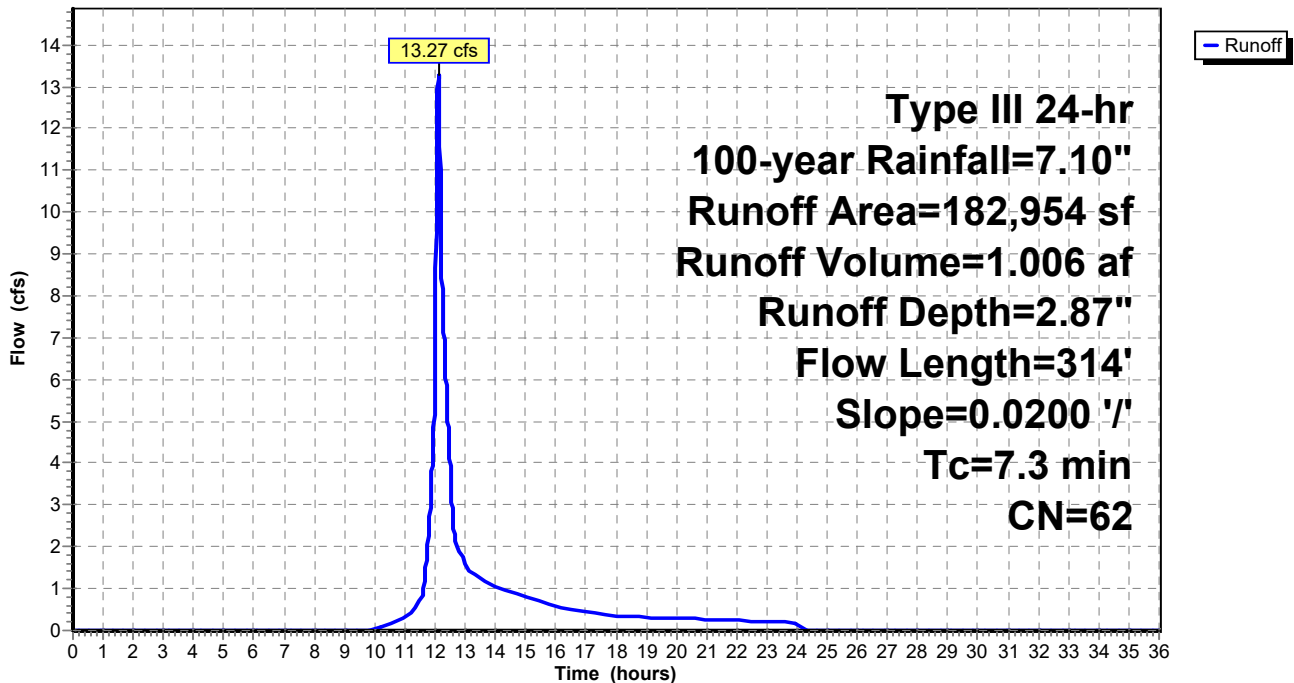
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-year Rainfall=7.10"

Area (sf)	CN	Description
23,422	98	Paved parking, HSG A
159,532	57	1/3 acre lots, 30% imp, HSG A
182,954	62	Weighted Average
111,672		61.04% Pervious Area
71,282		38.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0200	0.16		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.60"
1.3	175	0.0200	2.28		Shallow Concentrated Flow, B-C Unpaved Kv= 16.1 fps
0.7	89	0.0200	2.28		Shallow Concentrated Flow, C-D Unpaved Kv= 16.1 fps
7.3	314	Total			

Subcatchment 5S: Area 5

Hydrograph



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Summary for Subcatchment 6S: Area 6

Runoff = 10.13 cfs @ 12.11 hrs, Volume= 0.760 af, Depth= 2.98"

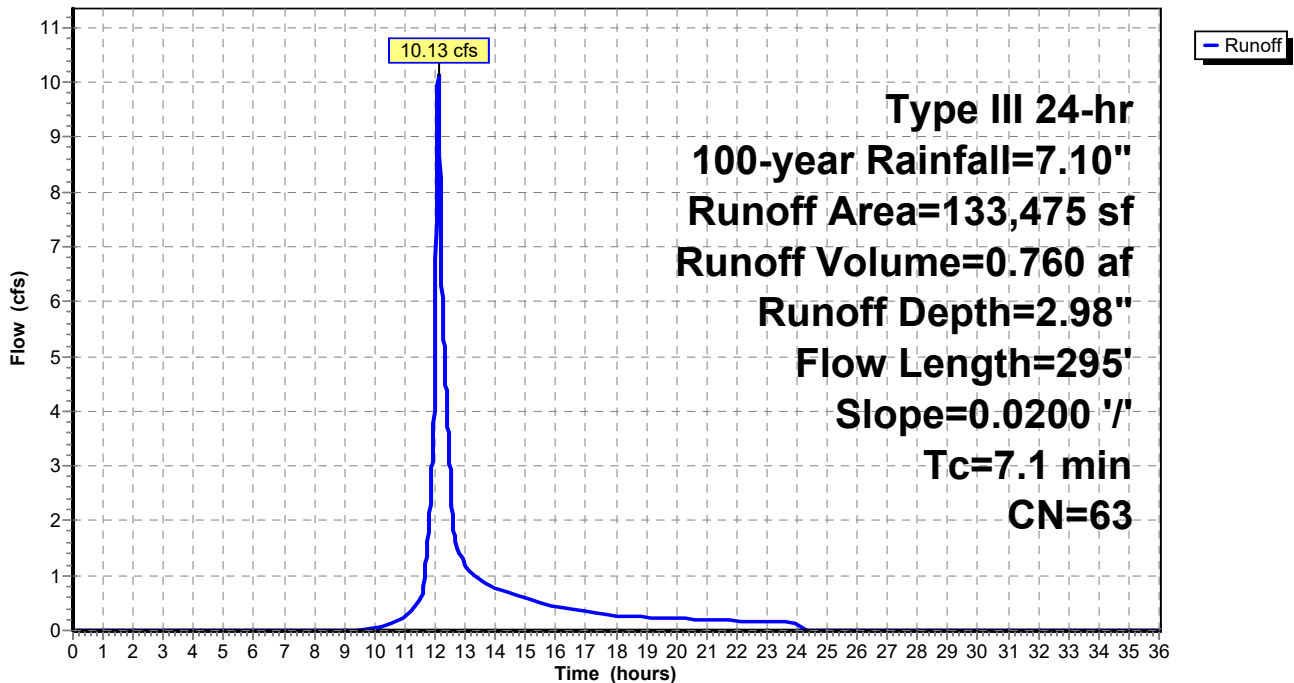
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-year Rainfall=7.10"

Area (sf)	CN	Description
18,300	98	Paved parking, HSG A
115,175	57	1/3 acre lots, 30% imp, HSG A
133,475	63	Weighted Average
80,623		60.40% Pervious Area
52,853		39.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0200	0.16		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.60"
1.8	245	0.0200	2.28		Shallow Concentrated Flow, B-C Unpaved Kv= 16.1 fps
7.1	295	Total			

Subcatchment 6S: Area 6

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Type III 24-hr 100-year Rainfall=7.10"

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Summary for Reach 1R: Off-site - Route 130

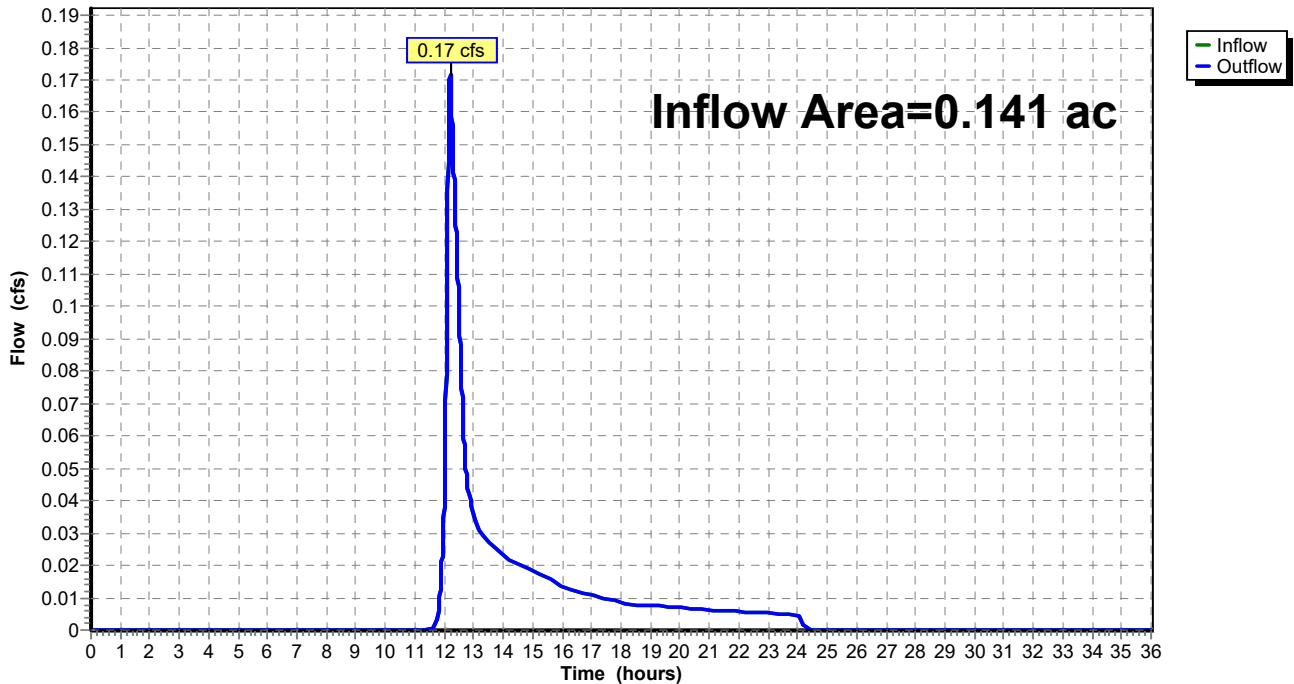
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.141 ac, 25.78% Impervious, Inflow Depth = 1.54" for 100-year event
Inflow = 0.17 cfs @ 12.20 hrs, Volume= 0.018 af
Outflow = 0.17 cfs @ 12.20 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 1R: Off-site - Route 130

Hydrograph



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532 Main Street (Route 130) - Mashpee, MA

Type III 24-hr 100-year Rainfall=7.10"

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Summary for Reach 2R: Off-site North

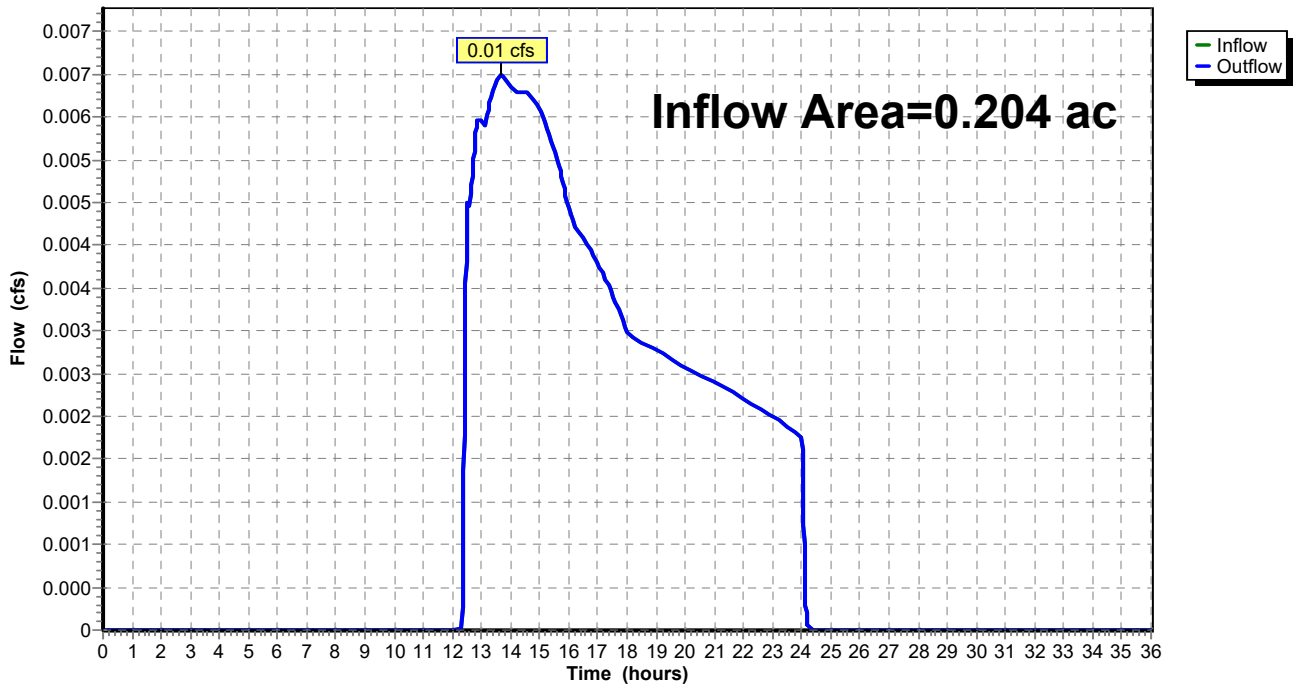
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.204 ac, 0.00% Impervious, Inflow Depth = 0.23" for 100-year event
Inflow = 0.01 cfs @ 13.70 hrs, Volume= 0.004 af
Outflow = 0.01 cfs @ 13.70 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 2R: Off-site North

Hydrograph



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Type III 24-hr 100-year Rainfall=7.10"

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Summary for Reach 3R: Off-site South

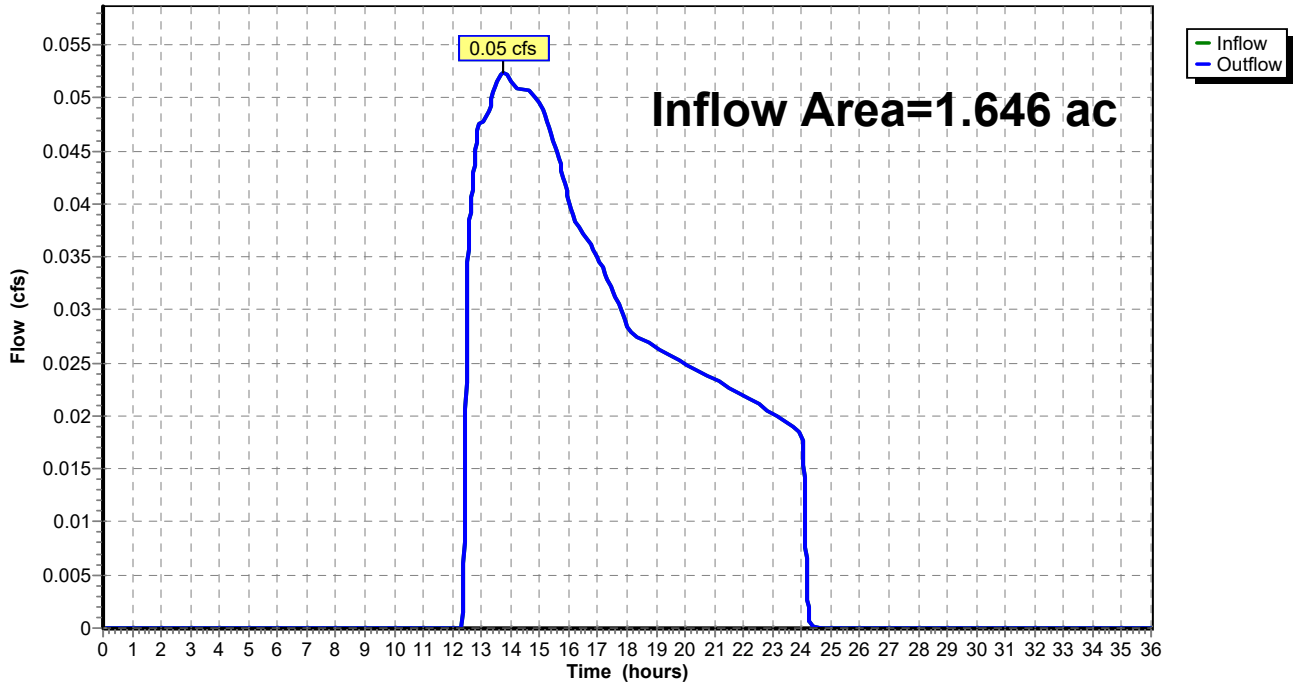
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.646 ac, 0.00% Impervious, Inflow Depth = 0.23" for 100-year event
Inflow = 0.05 cfs @ 13.76 hrs, Volume= 0.032 af
Outflow = 0.05 cfs @ 13.76 hrs, Volume= 0.032 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Reach 3R: Off-site South

Hydrograph



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Summary for Pond 4P: Infiltration Basin #3

Inflow Area = 8.787 ac, 9.27% Impervious, Inflow Depth = 0.73" for 100-year event
 Inflow = 3.01 cfs @ 12.37 hrs, Volume= 0.535 af
 Outflow = 0.88 cfs @ 13.74 hrs, Volume= 0.535 af, Atten= 71%, Lag= 82.7 min
 Discarded = 0.88 cfs @ 13.74 hrs, Volume= 0.535 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 101.16' @ 13.74 hrs Surf.Area= 4,345 sf Storage= 4,681 cf

Plug-Flow detention time= 58.4 min calculated for 0.535 af (100% of inflow)
 Center-of-Mass det. time= 58.4 min (999.5 - 941.1)

Volume	Invert	Avail.Storage	Storage Description			
#1	99.60'	9,006 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
99.60	1,878	255.2	0	0	1,878	
100.00	2,348	266.5	843	843	2,359	
101.00	4,060	304.2	3,165	4,009	4,094	
102.00	5,998	341.9	4,998	9,006	6,059	

Device	Routing	Invert	Outlet Devices
#1	Discarded	99.60'	8.270 in/hr Exfiltration over Horizontal area Conductivity to Groundwater Elevation = 80.00'

Discarded OutFlow Max=0.88 cfs @ 13.74 hrs HW=101.16' (Free Discharge)
 ↑1=Exfiltration (Controls 0.88 cfs)

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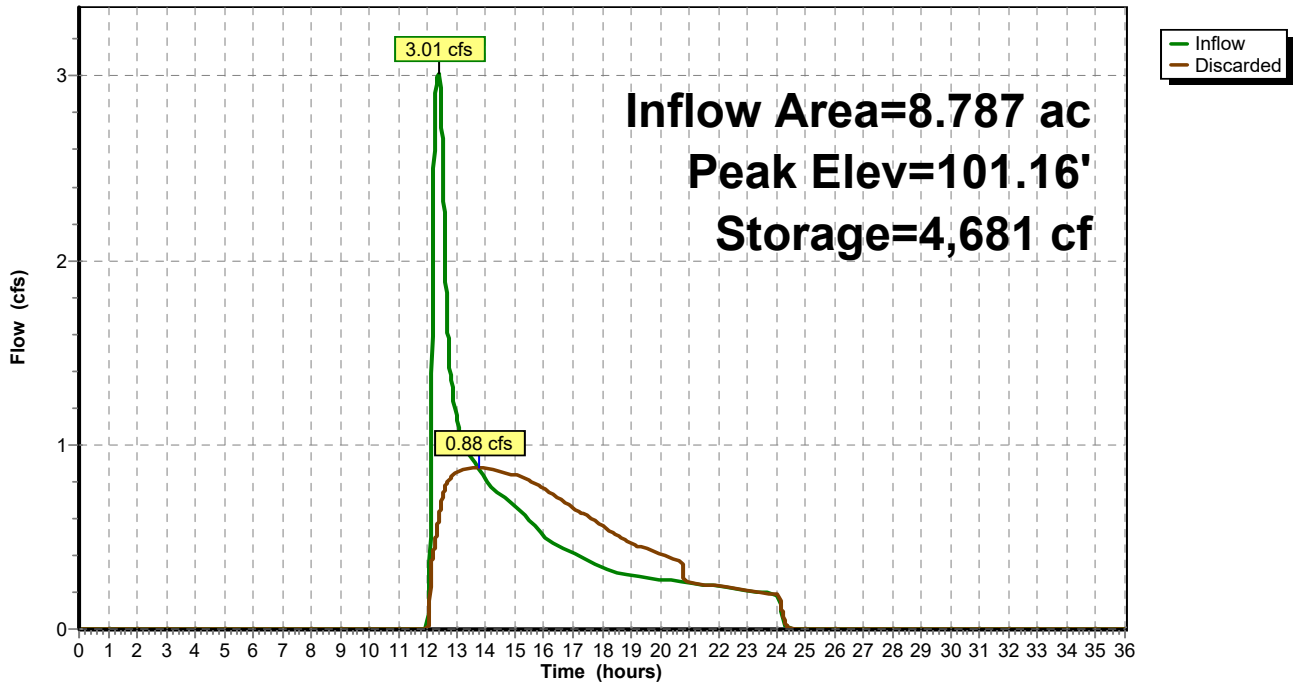
Type III 24-hr 100-year Rainfall=7.10"

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Pond 4P: Infiltration Basin #3

Hydrograph



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Summary for Pond 5P: Infiltration Basin #2

Inflow Area = 4.200 ac, 38.96% Impervious, Inflow Depth = 2.87" for 100-year event
 Inflow = 13.27 cfs @ 12.11 hrs, Volume= 1.006 af
 Outflow = 2.03 cfs @ 12.74 hrs, Volume= 1.006 af, Atten= 85%, Lag= 38.0 min
 Discarded = 2.03 cfs @ 12.74 hrs, Volume= 1.006 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 102.59' @ 12.74 hrs Surf.Area= 9,878 sf Storage= 14,682 cf

Plug-Flow detention time= 66.8 min calculated for 1.006 af (100% of inflow)
 Center-of-Mass det. time= 66.8 min (916.0 - 849.2)

Volume	Invert	Avail.Storage	Storage Description			
#1	100.70'	31,116 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
100.70	5,821	323.5	0	0	5,821	
101.00	6,413	334.8	1,834	1,834	6,421	
102.00	8,535	372.5	7,449	9,283	8,572	
103.00	10,883	410.2	9,685	18,968	10,953	
104.00	13,458	447.9	12,148	31,116	13,563	

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.70'	8.270 in/hr Exfiltration over Horizontal area Conductivity to Groundwater Elevation = 80.00'

Discarded OutFlow Max=2.03 cfs @ 12.74 hrs HW=102.59' (Free Discharge)
 ↑1=Exfiltration (Controls 2.03 cfs)

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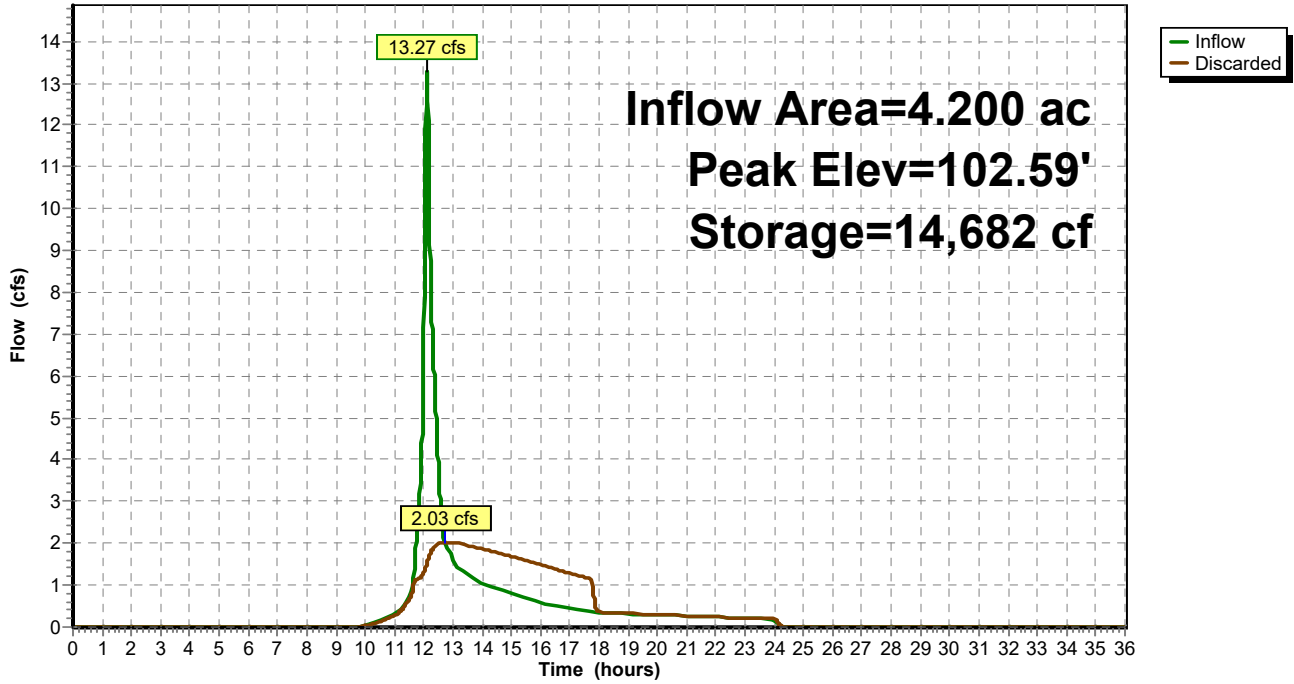
Type III 24-hr 100-year Rainfall=7.10"

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Pond 5P: Infiltration Basin #2

Hydrograph



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Summary for Pond 6P: Infiltration Basin #1

Inflow Area = 3.064 ac, 39.60% Impervious, Inflow Depth = 2.98" for 100-year event
 Inflow = 10.13 cfs @ 12.11 hrs, Volume= 0.760 af
 Outflow = 1.51 cfs @ 12.74 hrs, Volume= 0.760 af, Atten= 85%, Lag= 38.2 min
 Discarded = 1.51 cfs @ 12.74 hrs, Volume= 0.760 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 103.61' @ 12.74 hrs Surf.Area= 7,309 sf Storage= 12,299 cf

Plug-Flow detention time= 92.7 min calculated for 0.760 af (100% of inflow)
 Center-of-Mass det. time= 92.7 min (939.5 - 846.8)

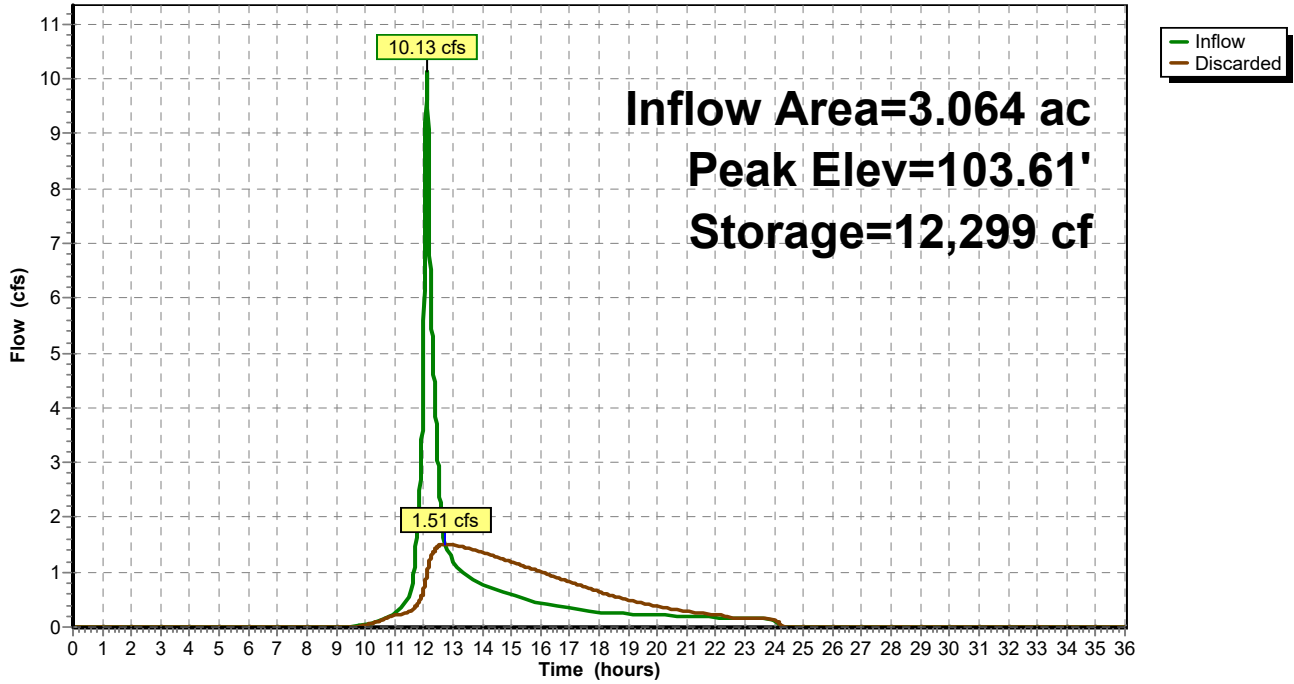
Volume	Invert	Avail.Storage	Storage Description		
#1	100.50'	24,860 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
100.50	1,068	258.2	0	0	1,068
101.00	1,881	283.5	728	728	2,167
102.00	3,733	334.0	2,755	3,482	4,668
103.00	5,885	380.3	4,768	8,251	7,324
104.00	8,280	418.0	7,049	15,299	9,752
105.00	10,901	455.7	9,561	24,860	12,409

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.50'	8.270 in/hr Exfiltration over Horizontal area Conductivity to Groundwater Elevation = 80.00'

Discarded OutFlow Max=1.51 cfs @ 12.74 hrs HW=103.61' (Free Discharge)
 ↑1=Exfiltration (Controls 1.51 cfs)

Pond 6P: Infiltration Basin #1

Hydrograph



SECTION 7.0

ADDITIONAL DRAINAGE CALCULATIONS

7.01 TSS REMOVAL CALCULATIONS

TSS Removal Calculation Worksheet

Location: 532 Main Street (Route 130), Mashpee, MA
 Project: Leamar Road Subdivision
 Prepared By: T. MacDonald
 Date: 2/9/2022



A	B	C	D	E
BMP	TSS Removal Rate	Starting TSS Load*	Amount Removed (BxC)	Remaining Load (C-D)
Deep Sump and Hooded Catchbasins	0.25	1.00	0.25	0.75
Stormceptor Water Quality Unit	0.80	0.75	0.60	0.15
Infiltration Basin	0.80	0.15	0.12	0.03

TSS Removal = 0.97

****100% of proposed impervious areas follow this treatment train**

*Equals remaining load from previous BMP (E)

7.02 GROUNDWATER RECHARGE VOLUME CALCULATIONS

Required Recharge Volume

$Rv = F \times \text{Impervious Area}$

Where:

$Rv = \text{Recharge Volume}$

$F = \text{Target Depth Factor associated with each Hydrologic Soil Group}$

($F = 0.60\text{-inch}$ for Soil Type A)

Impervious Area = Proposed Pavement area on-site

$$Rv = \left(\frac{0.60 \text{ in}}{12 \text{ in/ft}} \right) (1.292 \text{ ac}) \left(43,560 \frac{\text{sf}}{\text{ac}} \right) = 2,814 \text{ cf}$$

$Rv = 2,814 \text{ cf}$ (required recharge volume)

Structural Storage Provided:

- Infiltration Basin #1 = 12,314 cubic feet provided.
- Infiltration Basin #2 = 14,715 cubic feet provided.
- Infiltration Basin #3 = 4,751 cubic feet provided.
- Total = 31,780 cubic feet provided.

Refer to the HydroCAD calculations for more information.

Drawdown Time

The following formula must be used to demonstrate that each proposed infiltration BMP will drain within 72 hours:

$$Time_{drawdown} = \frac{R_v}{(K)(Bottom\ Area)}$$

R_v = Storage Volume (Required Recharge Volume)

K = Saturated Hydraulic Conductivity For "Static" and "Simple Dynamic" Methods, use Rawls Rate

Bottom Area = Bottom Area of Recharge Structure

Infiltration Basin #1

$$Time_{drawdown} = \frac{915\ ft^3}{(8.27\ in/hr)(1\ ft/12\ in)(1,068\ ft^2)}$$

$$Time_{drawdown} = 1.24\ hours$$

Infiltration Basin #2

$$Time_{drawdown} = \frac{1,172\ ft^3}{(8.27\ in/hr)(1\ ft/12\ in)(5,821\ ft^2)}$$

$$Time_{drawdown} = 0.29\ hours$$

Infiltration Basin #3

$$Time_{drawdown} = \frac{649\ ft^3}{(8.27\ in/hr)(1\ ft/12\ in)(1,878\ ft^2)}$$

$$Time_{drawdown} = 0.50\ hours$$

7.03 STORMCEPTOR SIZING CALCULATIONS

Detailed Stormceptor Sizing Report – WQU-1

Project Information & Location			
Project Name	Subdivision (Leamar Drive)	Project Number	49400
City	Mashpee	State/ Province	Massachusetts
Country	United States of America	Date	2/4/2022
Designer Information		EOR Information (optional)	
Name	Todd MacDonald	Name	
Company	BSC Group	Company	
Phone #	617-896-4409	Phone #	
Email	TMacDonald@BSCGroup.com	Email	

Stormwater Treatment Recommendation

The recommended Stormceptor Model(s) which achieve or exceed the user defined water quality objective for each site within the project are listed in the below Sizing Summary table.

Site Name	WQU-1
Recommended Stormceptor Model	STC 450i
Target TSS Removal (%)	80.0
TSS Removal (%) Provided	84
PSD	Fine Distribution
Rainfall Station	HYANNIS

The recommended Stormceptor model achieves the water quality objectives based on the selected inputs, historical rainfall records and selected particle size distribution.

Stormceptor Sizing Summary	
Stormceptor Model	% TSS Removal Provided
STC 450i	84
STC 900	90
STC 1200	90
STC 1800	90
STC 2400	93
STC 3600	93
STC 4800	95
STC 6000	95
STC 7200	96
STC 11000	97
STC 13000	97
STC 16000	98

Stormceptor

The Stormceptor oil and sediment separator is sized to treat stormwater runoff by removing pollutants through gravity separation and flotation. Stormceptor’s patented design generates positive TSS removal for each rainfall event, including large storms. Significant levels of pollutants such as heavy metals, free oils and nutrients are prevented from entering natural water resources and the re-suspension of previously captured sediment (scour) does not occur. Stormceptor provides a high level of TSS removal for small frequent storm events that represent the majority of annual rainfall volume and pollutant load. Positive treatment continues for large infrequent events, however, such events have little impact on the average annual TSS removal as they represent a small percentage of the total runoff volume and pollutant load.

Design Methodology

Stormceptor is sized using PCSWMM for Stormceptor, a continuous simulation model based on US EPA SWMM. The program calculates hydrology using local historical rainfall data and specified site parameters. With US EPA SWMM’s precision, every Stormceptor unit is designed to achieve a defined water quality objective. The TSS removal data presented follows US EPA guidelines to reduce the average annual TSS load. The Stormceptor’s unit process for TSS removal is settling. The settling model calculates TSS removal by analyzing:

- Site parameters
- Continuous historical rainfall data, including duration, distribution, peaks & inter-event dry periods
- Particle size distribution, and associated settling velocities (Stokes Law, corrected for drag)
- TSS load
- Detention time of the system

Hydrology Analysis

PCSWMM for Stormceptor calculates annual hydrology with the US EPA SWMM and local continuous historical rainfall data. Performance calculations of Stormceptor are based on the average annual removal of TSS for the selected site parameters. The Stormceptor is engineered to capture sediment particles by treating the required average annual runoff volume, ensuring positive removal efficiency is maintained during each rainfall event, and preventing negative removal efficiency (scour). Smaller recurring storms account for the majority of rainfall events and average annual runoff volume, as observed in the historical rainfall data analyses presented in this section.

Rainfall Station

State/Province	Massachusetts	Total Number of Rainfall Events	1268
Rainfall Station Name	HYANNIS	Total Rainfall (in)	531.6
Station ID #	3821	Average Annual Rainfall (in)	33.2
Coordinates	41°24'0"N, 70°10'47"W	Total Evaporation (in)	30.1
Elevation (ft)	50	Total Infiltration (in)	10.5
Years of Rainfall Data	14	Total Rainfall that is Runoff (in)	491.0

Notes

- Stormceptor performance estimates are based on simulations using PCSWMM for Stormceptor, which uses the EPA Rainfall and Runoff modules.
- Design estimates listed are only representative of specific project requirements based on total suspended solids (TSS) removal defined by the selected PSD, and based on stable site conditions only, after construction is completed.
- For submerged applications or sites specific to spill control, please contact your local Stormceptor representative for further design assistance.

Drainage Area	
Total Area (acres)	0.42
Imperviousness %	98.0

Water Quality Objective	
TSS Removal (%)	80.0
Runoff Volume Capture (%)	
Oil Spill Capture Volume (Gal)	
Peak Conveyed Flow Rate (CFS)	
Water Quality Flow Rate (CFS)	

Up Stream Storage	
Storage (ac-ft)	Discharge (cfs)
0.000	0.000

Up Stream Flow Diversion	
Max. Flow to Stormceptor (cfs)	

Design Details	
Stormceptor Inlet Invert Elev (ft)	102.70
Stormceptor Outlet Invert Elev (ft)	102.60
Stormceptor Rim Elev (ft)	107.00
Normal Water Level Elevation (ft)	
Pipe Diameter (in)	12
Pipe Material	HDPE - plastic
Multiple Inlets (Y/N)	No
Grate Inlet (Y/N)	No

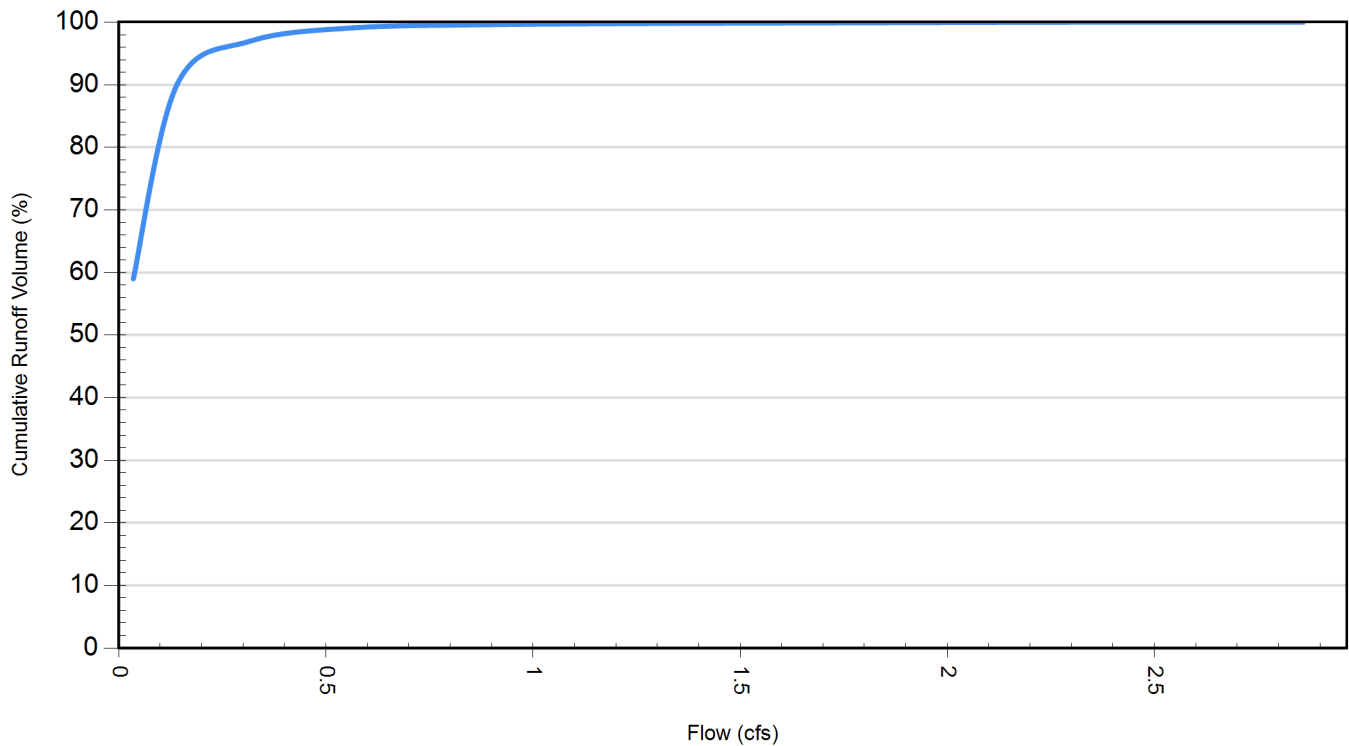
Particle Size Distribution (PSD)		
Removing the smallest fraction of particulates from runoff ensures the majority of pollutants, such as metals, hydrocarbons and nutrients are captured. The table below identifies the Particle Size Distribution (PSD) that was selected to define TSS removal for the Stormceptor design.		
Fine Distribution		
Particle Diameter (microns)	Distribution %	Specific Gravity
20.0	20.0	1.30
60.0	20.0	1.80
150.0	20.0	2.20
400.0	20.0	2.65
2000.0	20.0	2.65

Site Name		WQU-1	
Site Details			
Drainage Area		Infiltration Parameters	
Total Area (acres)	0.42	Horton's equation is used to estimate infiltration	
Imperviousness %	98.0	Max. Infiltration Rate (in/hr)	2.44
Surface Characteristics		Min. Infiltration Rate (in/hr)	0.4
Width (ft)	271.00	Decay Rate (1/sec)	0.00055
Slope %	2	Regeneration Rate (1/sec)	0.01
Impervious Depression Storage (in)	0.02	Evaporation	
Pervious Depression Storage (in)	0.2	Daily Evaporation Rate (in/day)	0.1
Impervious Manning's n	0.015	Dry Weather Flow	
Pervious Manning's n	0.25	Dry Weather Flow (cfs)	0
Maintenance Frequency		Winter Months	
Maintenance Frequency (months) >	12	Winter Infiltration	0
TSS Loading Parameters			
TSS Loading Function			
Buildup/Wash-off Parameters		TSS Availability Parameters	
Target Event Mean Conc. (EMC) mg/L		Availability Constant A	
Exponential Buildup Power		Availability Factor B	
Exponential Washoff Exponent		Availability Exponent C	
		Min. Particle Size Affected by Availability (micron)	

Cumulative Runoff Volume by Runoff Rate			
Runoff Rate (cfs)	Runoff Volume (ft³)	Volume Over (ft³)	Cumulative Runoff Volume (%)
0.035	444116	309073	59.0
0.141	678872	74328	90.1
0.318	730860	22351	97.0
0.565	746185	7025	99.1
0.883	750566	2644	99.6
1.271	752028	1183	99.8
1.730	752494	717	99.9
2.260	752970	240	100.0
2.860	753210	0	100.0

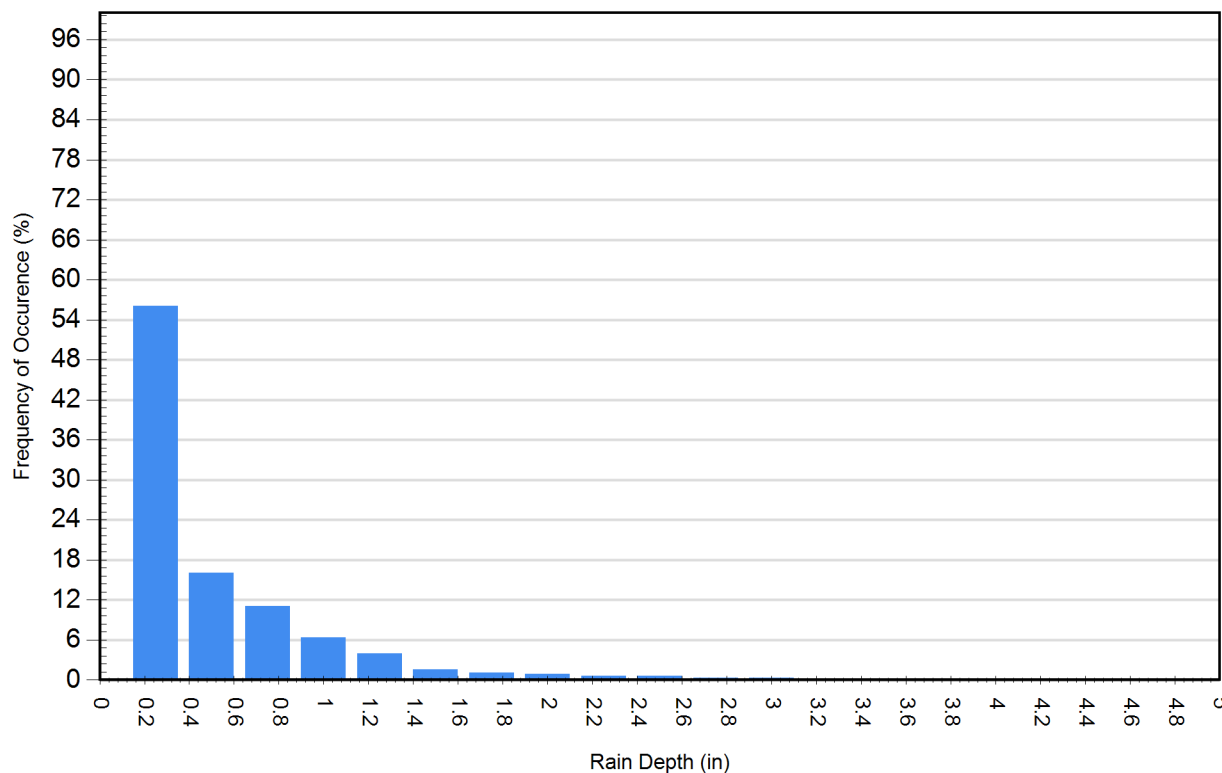
Cumulative Runoff Volume by Runoff Rate

For area: 0.42(ac), imperviousness: 98.0%, rainfall station: HYANNIS



Rainfall Event Analysis				
Rainfall Depth (in)	No. of Events	Percentage of Total Events (%)	Total Volume (in)	Percentage of Annual Volume (%)
0.25	711	56.1	71	13.4
0.50	204	16.1	74	14.0
0.75	141	11.1	88	16.5
1.00	81	6.4	72	13.5
1.25	51	4.0	57	10.7
1.50	20	1.6	28	5.2
1.75	14	1.1	23	4.3
2.00	12	0.9	22	4.2
2.25	7	0.6	15	2.8
2.50	7	0.6	17	3.2
2.75	4	0.3	11	2.0
3.00	4	0.3	12	2.2
3.25	3	0.2	9	1.8
3.50	2	0.2	7	1.3
3.75	2	0.2	7	1.3
4.00	3	0.2	12	2.2
4.25	2	0.2	8	1.6
4.50	0	0.0	0	0.0
4.75	0	0.0	0	0.0

Frequency of Occurrence by Rainfall Depths



For Stormceptor Specifications and Drawings Please Visit:
<https://www.conteches.com/technical-guides/search?filter=1WBC005EYX>

Detailed Stormceptor Sizing Report – WQU-2

Project Information & Location			
Project Name	Subdivision (Leamar Drive)	Project Number	49400
City	Mashpee	State/ Province	Massachusetts
Country	United States of America	Date	2/4/2022
Designer Information		EOR Information (optional)	
Name	Todd MacDonald	Name	
Company	BSC Group	Company	
Phone #	617-896-4409	Phone #	
Email	TMacDonald@BSCGroup.com	Email	

Stormwater Treatment Recommendation

The recommended Stormceptor Model(s) which achieve or exceed the user defined water quality objective for each site within the project are listed in the below Sizing Summary table.

Site Name	WQU-2
Recommended Stormceptor Model	STC 450i
Target TSS Removal (%)	80.0
TSS Removal (%) Provided	82
PSD	Fine Distribution
Rainfall Station	HYANNIS

The recommended Stormceptor model achieves the water quality objectives based on the selected inputs, historical rainfall records and selected particle size distribution.

Stormceptor Sizing Summary	
Stormceptor Model	% TSS Removal Provided
STC 450i	82
STC 900	88
STC 1200	88
STC 1800	89
STC 2400	91
STC 3600	92
STC 4800	94
STC 6000	94
STC 7200	95
STC 11000	97
STC 13000	97
STC 16000	97

Stormceptor

The Stormceptor oil and sediment separator is sized to treat stormwater runoff by removing pollutants through gravity separation and flotation. Stormceptor’s patented design generates positive TSS removal for each rainfall event, including large storms. Significant levels of pollutants such as heavy metals, free oils and nutrients are prevented from entering natural water resources and the re-suspension of previously captured sediment (scour) does not occur. Stormceptor provides a high level of TSS removal for small frequent storm events that represent the majority of annual rainfall volume and pollutant load. Positive treatment continues for large infrequent events, however, such events have little impact on the average annual TSS removal as they represent a small percentage of the total runoff volume and pollutant load.

Design Methodology

Stormceptor is sized using PCSWMM for Stormceptor, a continuous simulation model based on US EPA SWMM. The program calculates hydrology using local historical rainfall data and specified site parameters. With US EPA SWMM’s precision, every Stormceptor unit is designed to achieve a defined water quality objective. The TSS removal data presented follows US EPA guidelines to reduce the average annual TSS load. The Stormceptor’s unit process for TSS removal is settling. The settling model calculates TSS removal by analyzing:

- Site parameters
- Continuous historical rainfall data, including duration, distribution, peaks & inter-event dry periods
- Particle size distribution, and associated settling velocities (Stokes Law, corrected for drag)
- TSS load
- Detention time of the system

Hydrology Analysis

PCSWMM for Stormceptor calculates annual hydrology with the US EPA SWMM and local continuous historical rainfall data. Performance calculations of Stormceptor are based on the average annual removal of TSS for the selected site parameters. The Stormceptor is engineered to capture sediment particles by treating the required average annual runoff volume, ensuring positive removal efficiency is maintained during each rainfall event, and preventing negative removal efficiency (scour). Smaller recurring storms account for the majority of rainfall events and average annual runoff volume, as observed in the historical rainfall data analyses presented in this section.

Rainfall Station

State/Province	Massachusetts	Total Number of Rainfall Events	1268
Rainfall Station Name	HYANNIS	Total Rainfall (in)	531.6
Station ID #	3821	Average Annual Rainfall (in)	33.2
Coordinates	41°24'0"N, 70°10'47"W	Total Evaporation (in)	30.4
Elevation (ft)	50	Total Infiltration (in)	10.5
Years of Rainfall Data	14	Total Rainfall that is Runoff (in)	490.7

Notes

- Stormceptor performance estimates are based on simulations using PCSWMM for Stormceptor, which uses the EPA Rainfall and Runoff modules.
- Design estimates listed are only representative of specific project requirements based on total suspended solids (TSS) removal defined by the selected PSD, and based on stable site conditions only, after construction is completed.
- For submerged applications or sites specific to spill control, please contact your local Stormceptor representative for further design assistance.

Drainage Area	
Total Area (acres)	0.53
Imperviousness %	98.0

Up Stream Storage	
Storage (ac-ft)	Discharge (cfs)
0.000	0.000

Water Quality Objective	
TSS Removal (%)	80.0
Runoff Volume Capture (%)	
Oil Spill Capture Volume (Gal)	
Peak Conveyed Flow Rate (CFS)	
Water Quality Flow Rate (CFS)	

Up Stream Flow Diversion	
Max. Flow to Stormceptor (cfs)	

Design Details	
Stormceptor Inlet Invert Elev (ft)	101.30
Stormceptor Outlet Invert Elev (ft)	101.20
Stormceptor Rim Elev (ft)	106.05
Normal Water Level Elevation (ft)	
Pipe Diameter (in)	12
Pipe Material	HDPE - plastic
Multiple Inlets (Y/N)	No
Grate Inlet (Y/N)	No

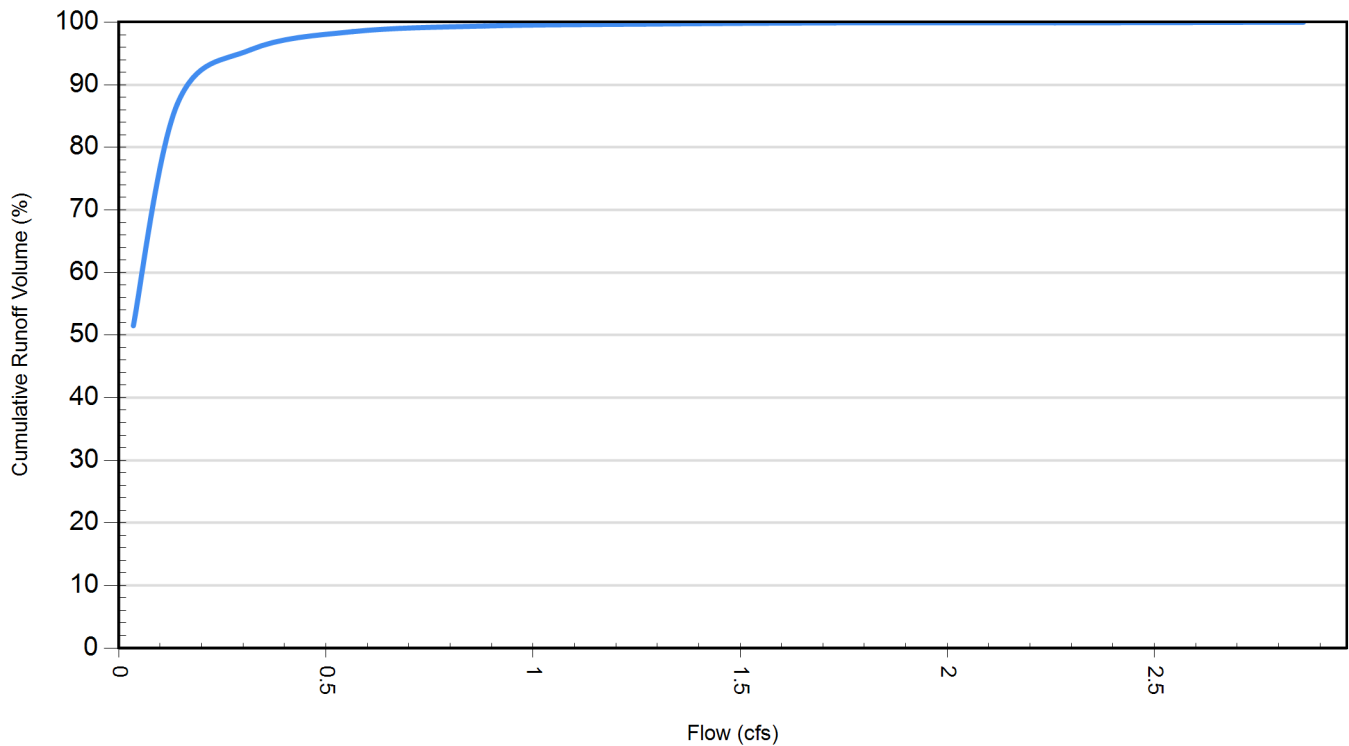
Particle Size Distribution (PSD)		
Removing the smallest fraction of particulates from runoff ensures the majority of pollutants, such as metals, hydrocarbons and nutrients are captured. The table below identifies the Particle Size Distribution (PSD) that was selected to define TSS removal for the Stormceptor design.		
Fine Distribution		
Particle Diameter (microns)	Distribution %	Specific Gravity
20.0	20.0	1.30
60.0	20.0	1.80
150.0	20.0	2.20
400.0	20.0	2.65
2000.0	20.0	2.65

Site Name		WQU-2	
Site Details			
Drainage Area		Infiltration Parameters	
Total Area (acres)	0.53	Horton's equation is used to estimate infiltration	
Imperviousness %	98.0	Max. Infiltration Rate (in/hr)	2.44
Surface Characteristics		Min. Infiltration Rate (in/hr)	0.4
Width (ft)	304.00	Decay Rate (1/sec)	0.00055
Slope %	2	Regeneration Rate (1/sec)	0.01
Impervious Depression Storage (in)	0.02	Evaporation	
Pervious Depression Storage (in)	0.2	Daily Evaporation Rate (in/day)	0.1
Impervious Manning's n	0.015	Dry Weather Flow	
Pervious Manning's n	0.25	Dry Weather Flow (cfs)	0
Maintenance Frequency		Winter Months	
Maintenance Frequency (months) >	12	Winter Infiltration	0
TSS Loading Parameters			
TSS Loading Function			
Buildup/Wash-off Parameters		TSS Availability Parameters	
Target Event Mean Conc. (EMC) mg/L		Availability Constant A	
Exponential Buildup Power		Availability Factor B	
Exponential Washoff Exponent		Availability Exponent C	
		Min. Particle Size Affected by Availability (micron)	

Cumulative Runoff Volume by Runoff Rate			
Runoff Rate (cfs)	Runoff Volume (ft³)	Volume Over (ft³)	Cumulative Runoff Volume (%)
0.035	488754	460985	51.5
0.141	825213	124533	86.9
0.318	908264	41486	95.6
0.565	935550	14201	98.5
0.883	944186	5565	99.4
1.271	947346	2404	99.7
1.730	948440	1311	99.9
2.260	948917	834	99.9
2.860	949457	294	100.0

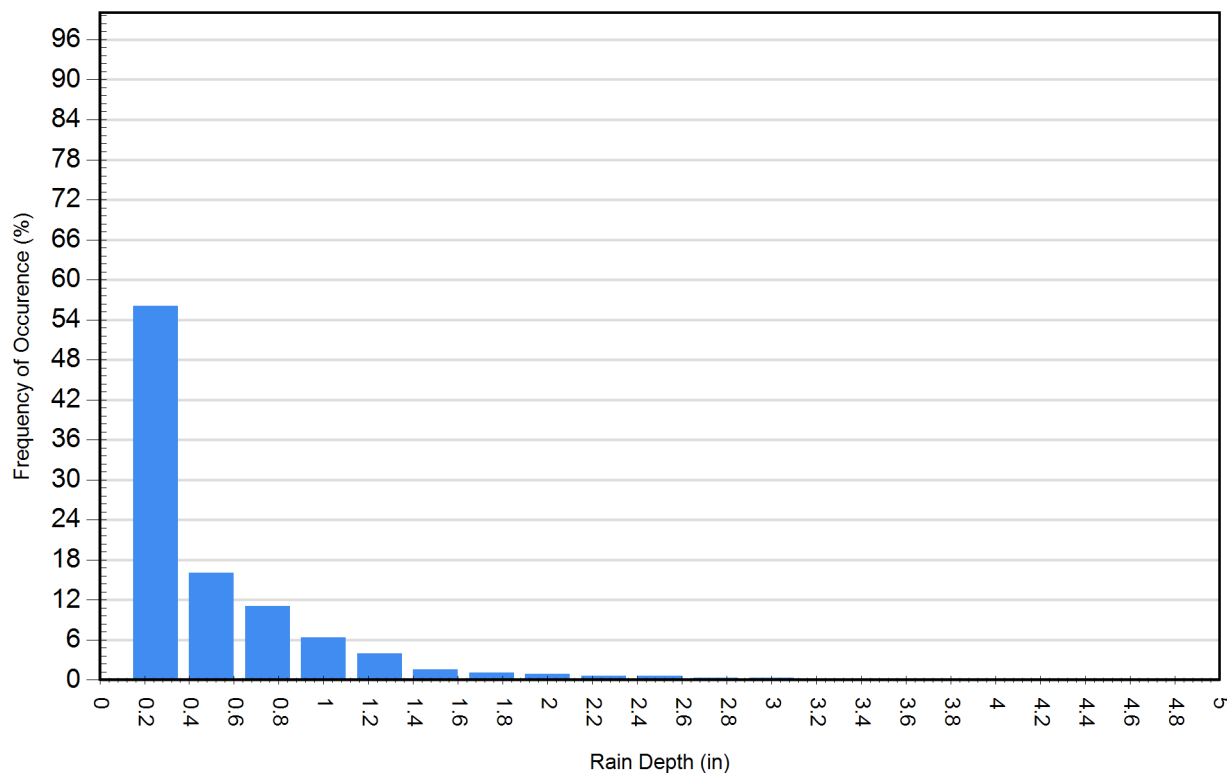
Cumulative Runoff Volume by Runoff Rate

For area: 0.53(ac), imperviousness: 98.0%, rainfall station: HYANNIS



Rainfall Event Analysis				
Rainfall Depth (in)	No. of Events	Percentage of Total Events (%)	Total Volume (in)	Percentage of Annual Volume (%)
0.25	711	56.1	71	13.4
0.50	204	16.1	74	14.0
0.75	141	11.1	88	16.5
1.00	81	6.4	72	13.5
1.25	51	4.0	57	10.7
1.50	20	1.6	28	5.2
1.75	14	1.1	23	4.3
2.00	12	0.9	22	4.2
2.25	7	0.6	15	2.8
2.50	7	0.6	17	3.2
2.75	4	0.3	11	2.0
3.00	4	0.3	12	2.2
3.25	3	0.2	9	1.8
3.50	2	0.2	7	1.3
3.75	2	0.2	7	1.3
4.00	3	0.2	12	2.2
4.25	2	0.2	8	1.6
4.50	0	0.0	0	0.0
4.75	0	0.0	0	0.0

Frequency of Occurrence by Rainfall Depths



For Stormceptor Specifications and Drawings Please Visit:
<https://www.conteches.com/technical-guides/search?filter=1WBC005EYX>

Detailed Stormceptor Sizing Report – WQU-3

Project Information & Location			
Project Name	Subdivision (Leamar Drive)	Project Number	49400
City	Mashpee	State/ Province	Massachusetts
Country	United States of America	Date	2/4/2022
Designer Information		EOR Information (optional)	
Name	Todd MacDonald	Name	
Company	BSC Group	Company	
Phone #	617-896-4409	Phone #	
Email	TMacDonald@BSCGroup.com	Email	

Stormwater Treatment Recommendation

The recommended Stormceptor Model(s) which achieve or exceed the user defined water quality objective for each site within the project are listed in the below Sizing Summary table.

Site Name	WQU-3
Recommended Stormceptor Model	STC 450i
Target TSS Removal (%)	80.0
TSS Removal (%) Provided	84
PSD	Fine Distribution
Rainfall Station	HYANNIS

The recommended Stormceptor model achieves the water quality objectives based on the selected inputs, historical rainfall records and selected particle size distribution.

Stormceptor Sizing Summary	
Stormceptor Model	% TSS Removal Provided
STC 450i	84
STC 900	90
STC 1200	90
STC 1800	90
STC 2400	93
STC 3600	93
STC 4800	95
STC 6000	95
STC 7200	96
STC 11000	97
STC 13000	97
STC 16000	98

Stormceptor

The Stormceptor oil and sediment separator is sized to treat stormwater runoff by removing pollutants through gravity separation and flotation. Stormceptor’s patented design generates positive TSS removal for each rainfall event, including large storms. Significant levels of pollutants such as heavy metals, free oils and nutrients are prevented from entering natural water resources and the re-suspension of previously captured sediment (scour) does not occur. Stormceptor provides a high level of TSS removal for small frequent storm events that represent the majority of annual rainfall volume and pollutant load. Positive treatment continues for large infrequent events, however, such events have little impact on the average annual TSS removal as they represent a small percentage of the total runoff volume and pollutant load.

Design Methodology

Stormceptor is sized using PCSWMM for Stormceptor, a continuous simulation model based on US EPA SWMM. The program calculates hydrology using local historical rainfall data and specified site parameters. With US EPA SWMM’s precision, every Stormceptor unit is designed to achieve a defined water quality objective. The TSS removal data presented follows US EPA guidelines to reduce the average annual TSS load. The Stormceptor’s unit process for TSS removal is settling. The settling model calculates TSS removal by analyzing:

- Site parameters
- Continuous historical rainfall data, including duration, distribution, peaks & inter-event dry periods
- Particle size distribution, and associated settling velocities (Stokes Law, corrected for drag)
- TSS load
- Detention time of the system

Hydrology Analysis

PCSWMM for Stormceptor calculates annual hydrology with the US EPA SWMM and local continuous historical rainfall data. Performance calculations of Stormceptor are based on the average annual removal of TSS for the selected site parameters. The Stormceptor is engineered to capture sediment particles by treating the required average annual runoff volume, ensuring positive removal efficiency is maintained during each rainfall event, and preventing negative removal efficiency (scour). Smaller recurring storms account for the majority of rainfall events and average annual runoff volume, as observed in the historical rainfall data analyses presented in this section.

Rainfall Station

State/Province	Massachusetts	Total Number of Rainfall Events	1268
Rainfall Station Name	HYANNIS	Total Rainfall (in)	531.6
Station ID #	3821	Average Annual Rainfall (in)	33.2
Coordinates	41°24'0"N, 70°10'47"W	Total Evaporation (in)	30.1
Elevation (ft)	50	Total Infiltration (in)	10.5
Years of Rainfall Data	14	Total Rainfall that is Runoff (in)	491.0

Notes

- Stormceptor performance estimates are based on simulations using PCSWMM for Stormceptor, which uses the EPA Rainfall and Runoff modules.
- Design estimates listed are only representative of specific project requirements based on total suspended solids (TSS) removal defined by the selected PSD, and based on stable site conditions only, after construction is completed.
- For submerged applications or sites specific to spill control, please contact your local Stormceptor representative for further design assistance.

Drainage Area	
Total Area (acres)	0.42
Imperviousness %	98.0

Water Quality Objective	
TSS Removal (%)	80.0
Runoff Volume Capture (%)	
Oil Spill Capture Volume (Gal)	
Peak Conveyed Flow Rate (CFS)	
Water Quality Flow Rate (CFS)	

Up Stream Storage	
Storage (ac-ft)	Discharge (cfs)
0.000	0.000

Up Stream Flow Diversion	
Max. Flow to Stormceptor (cfs)	

Design Details	
Stormceptor Inlet Invert Elev (ft)	100.18
Stormceptor Outlet Invert Elev (ft)	100.08
Stormceptor Rim Elev (ft)	105.30
Normal Water Level Elevation (ft)	
Pipe Diameter (in)	12
Pipe Material	HDPE - plastic
Multiple Inlets (Y/N)	No
Grate Inlet (Y/N)	No

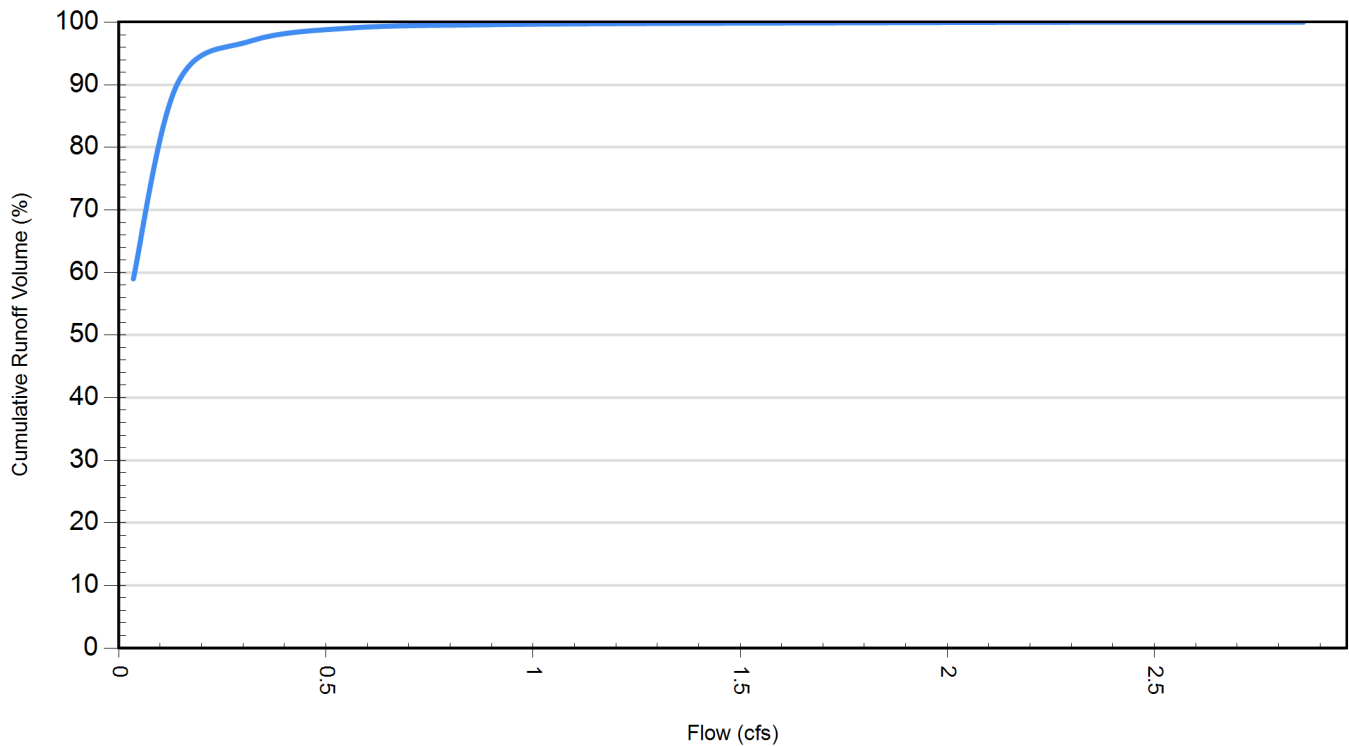
Particle Size Distribution (PSD)		
Removing the smallest fraction of particulates from runoff ensures the majority of pollutants, such as metals, hydrocarbons and nutrients are captured. The table below identifies the Particle Size Distribution (PSD) that was selected to define TSS removal for the Stormceptor design.		
Fine Distribution		
Particle Diameter (microns)	Distribution %	Specific Gravity
20.0	20.0	1.30
60.0	20.0	1.80
150.0	20.0	2.20
400.0	20.0	2.65
2000.0	20.0	2.65

Site Name		WQU-3	
Site Details			
Drainage Area		Infiltration Parameters	
Total Area (acres)	0.42	Horton's equation is used to estimate infiltration	
Imperviousness %	98.0	Max. Infiltration Rate (in/hr)	2.44
Surface Characteristics		Min. Infiltration Rate (in/hr)	0.4
Width (ft)	271.00	Decay Rate (1/sec)	0.00055
Slope %	2	Regeneration Rate (1/sec)	0.01
Impervious Depression Storage (in)	0.02	Evaporation	
Pervious Depression Storage (in)	0.2	Daily Evaporation Rate (in/day)	0.1
Impervious Manning's n	0.015	Dry Weather Flow	
Pervious Manning's n	0.25	Dry Weather Flow (cfs)	0
Maintenance Frequency		Winter Months	
Maintenance Frequency (months) >	12	Winter Infiltration	0
TSS Loading Parameters			
TSS Loading Function			
Buildup/Wash-off Parameters		TSS Availability Parameters	
Target Event Mean Conc. (EMC) mg/L		Availability Constant A	
Exponential Buildup Power		Availability Factor B	
Exponential Washoff Exponent		Availability Exponent C	
		Min. Particle Size Affected by Availability (micron)	

Cumulative Runoff Volume by Runoff Rate			
Runoff Rate (cfs)	Runoff Volume (ft³)	Volume Over (ft³)	Cumulative Runoff Volume (%)
0.035	444116	309073	59.0
0.141	678872	74328	90.1
0.318	730860	22351	97.0
0.565	746185	7025	99.1
0.883	750566	2644	99.6
1.271	752028	1183	99.8
1.730	752494	717	99.9
2.260	752970	240	100.0
2.860	753210	0	100.0

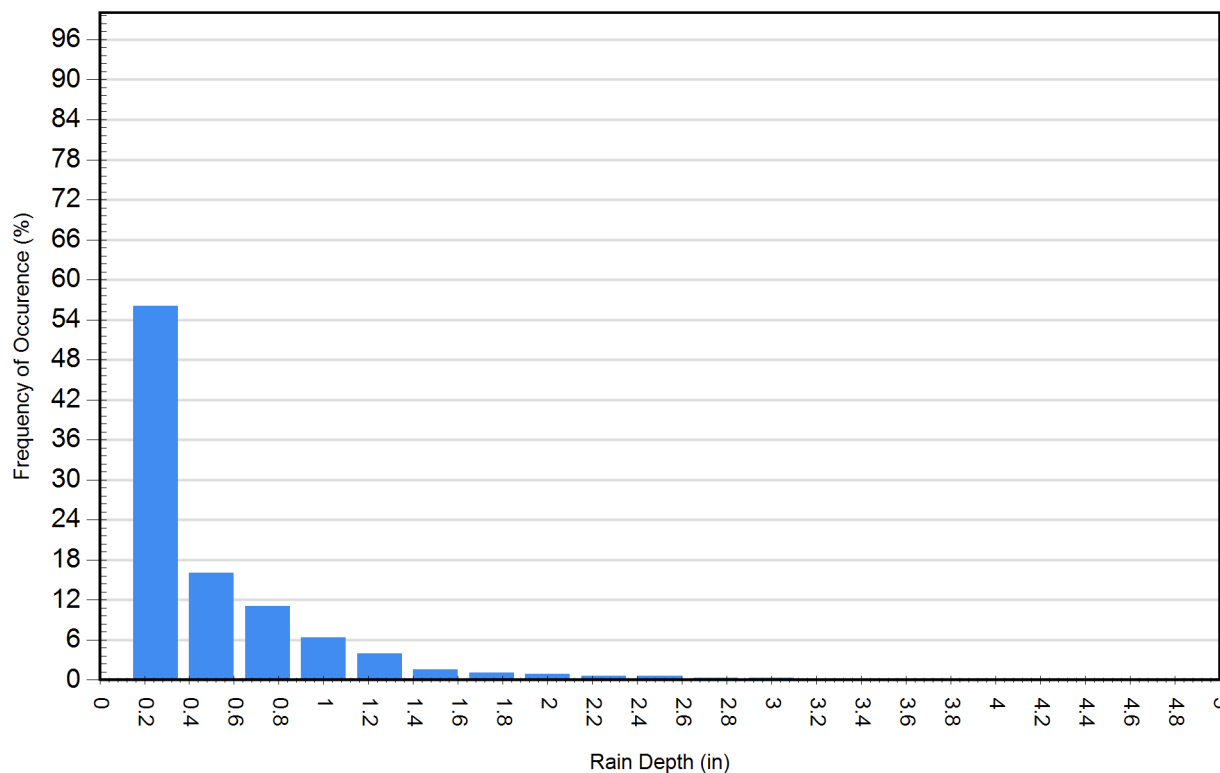
Cumulative Runoff Volume by Runoff Rate

For area: 0.42(ac), imperviousness: 98.0%, rainfall station: HYANNIS



Rainfall Event Analysis				
Rainfall Depth (in)	No. of Events	Percentage of Total Events (%)	Total Volume (in)	Percentage of Annual Volume (%)
0.25	711	56.1	71	13.4
0.50	204	16.1	74	14.0
0.75	141	11.1	88	16.5
1.00	81	6.4	72	13.5
1.25	51	4.0	57	10.7
1.50	20	1.6	28	5.2
1.75	14	1.1	23	4.3
2.00	12	0.9	22	4.2
2.25	7	0.6	15	2.8
2.50	7	0.6	17	3.2
2.75	4	0.3	11	2.0
3.00	4	0.3	12	2.2
3.25	3	0.2	9	1.8
3.50	2	0.2	7	1.3
3.75	2	0.2	7	1.3
4.00	3	0.2	12	2.2
4.25	2	0.2	8	1.6
4.50	0	0.0	0	0.0
4.75	0	0.0	0	0.0

Frequency of Occurrence by Rainfall Depths



For Stormceptor Specifications and Drawings Please Visit:
<https://www.conteches.com/technical-guides/search?filter=1WBC005EYX>

7.04 WATER QUALITY VOLUME CALCULATIONS

Water Quality Volume Calculation

$$V_{WQ} = (D_{WQ}/12 \text{ inches/foot}) * (A_{IMP} \text{ square feet})$$

V_{WQ} = Required Water Quality Volume (in cubic feet)

D_{WQ} = Water Quality Depth: **1.0-inch** used (rapid infiltration rate, greater than 2.4 inches per hour)

A_{IMP} = Total Impervious Area (in acres) used for driveways, parking, etc.

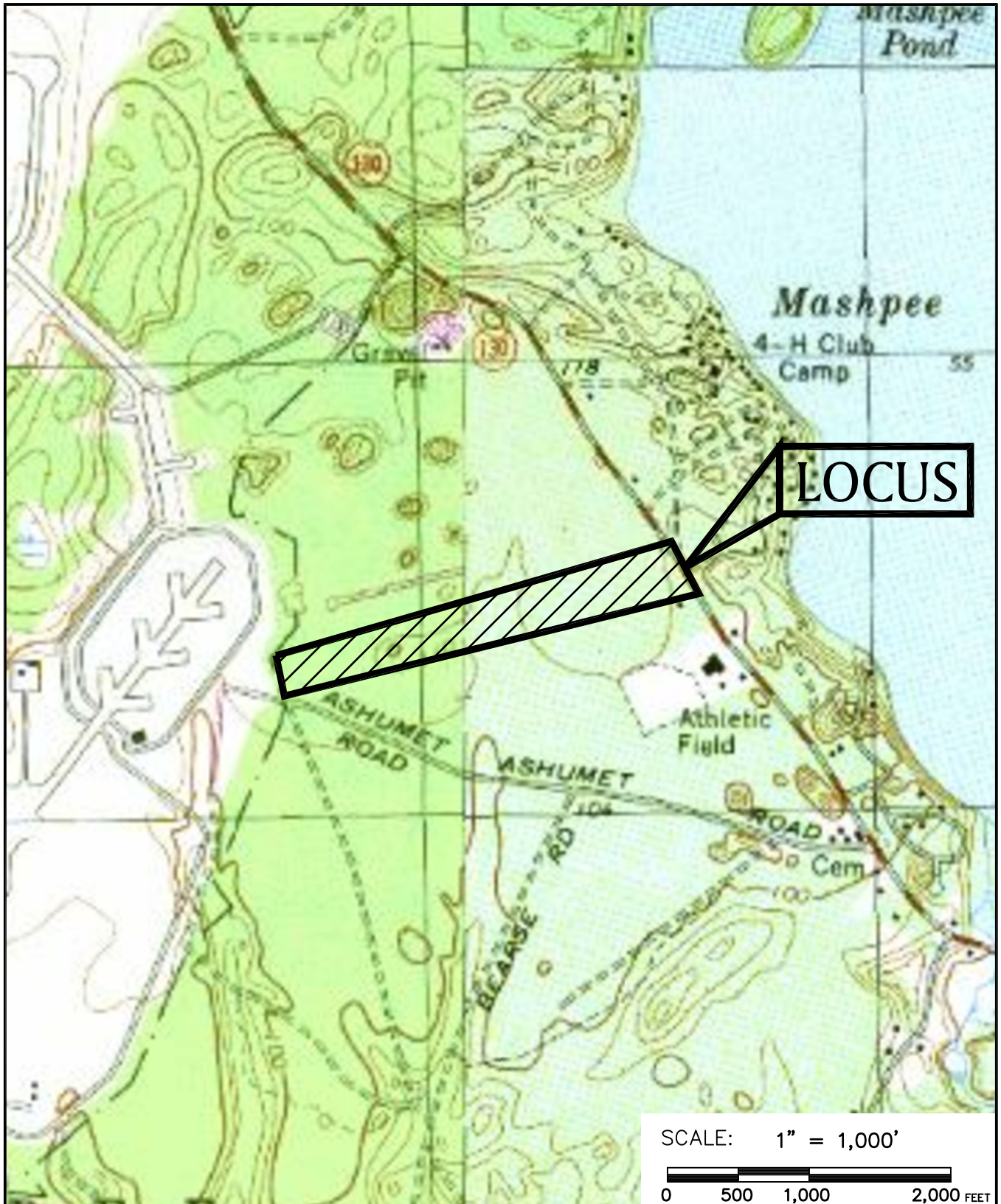
Infiltration Basins #1-#3

$$A_{IMP} = 1.292 \text{ ac}$$

$$V_{WQ} = (1 \text{ inches}/12 \text{ inches/foot}) * (1.292 \text{ ac} * 43,560 \text{ square feet/ac})$$

$V_{WQ} = 4,690$ cubic feet (required volume), provided volume = $31,780$ cubic feet (refer to HydroCAD)

APPENDIX A
USGS LOCUS MAP



PREPARED FOR:
MARCELLO MALLEGNI
 80 AIRPORT ROAD
 HYANNIS, MA 02601

USGS LOCUS MAP
 Source:
LEAMAR DRIVE
532 MAIN STREET
(ROUTE 130)
MASHPEE, MA

BSC GROUP
 349 Main Street - Route 28
 West Yarmouth, Massachusetts
 02673
 508 778 8919

Job No.: 5-0474.00 Date: 2/9/2022
 Scale: 1"=1,000' Revised: _____
 Dwg. No.: _____ Figure: _____

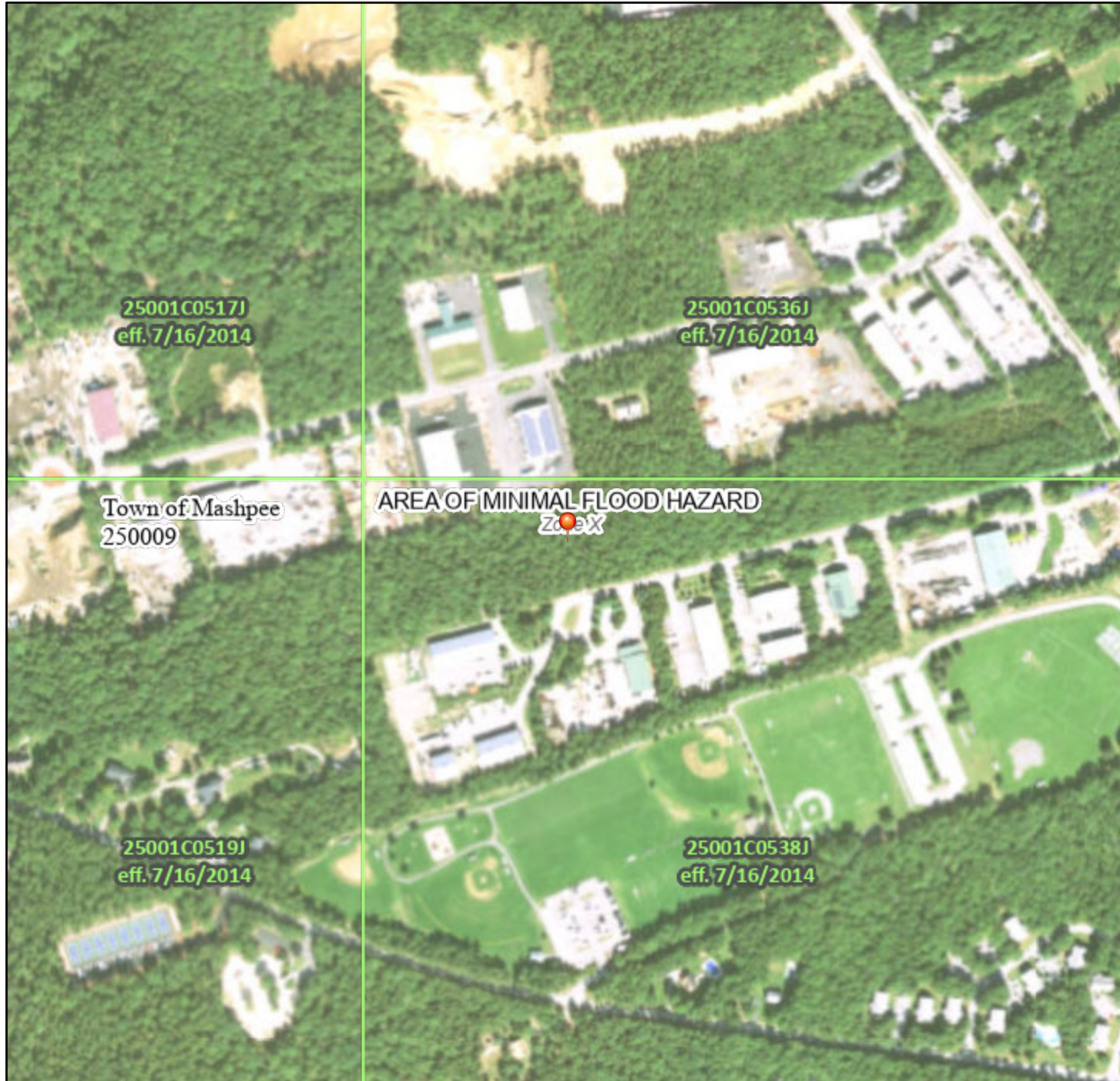
APPENDIX B

FEMA MAP

National Flood Hazard Layer FIRMMette



70°30'12"W 41°39'34"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

- | | | |
|------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SPECIAL FLOOD HAZARD AREAS | | Without Base Flood Elevation (BFE)
<i>Zone A, V, A99</i> |
| | | With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i> |
| | | Regulatory Floodway |
| OTHER AREAS OF FLOOD HAZARD | | 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i> |
| | | Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i> |
| | | Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i> |
| | | Area with Flood Risk due to Levee <i>Zone D</i> |
| OTHER AREAS | | NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i> |
| | | Effective LOMRs |
| GENERAL STRUCTURES | | Area of Undetermined Flood Hazard <i>Zone D</i> |
| | | Channel, Culvert, or Storm Sewer |
| | | Levee, Dike, or Floodwall |
| OTHER FEATURES | | 20.2 Cross Sections with 1% Annual Chance |
| | | 17.5 Water Surface Elevation |
| | | Coastal Transect |
| | | Base Flood Elevation Line (BFE) |
| | | Limit of Study |
| | | Jurisdiction Boundary |
| MAP PANELS | | Digital Data Available |
| | | No Digital Data Available |
| | | Unmapped |



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **2/9/2022 at 4:27 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

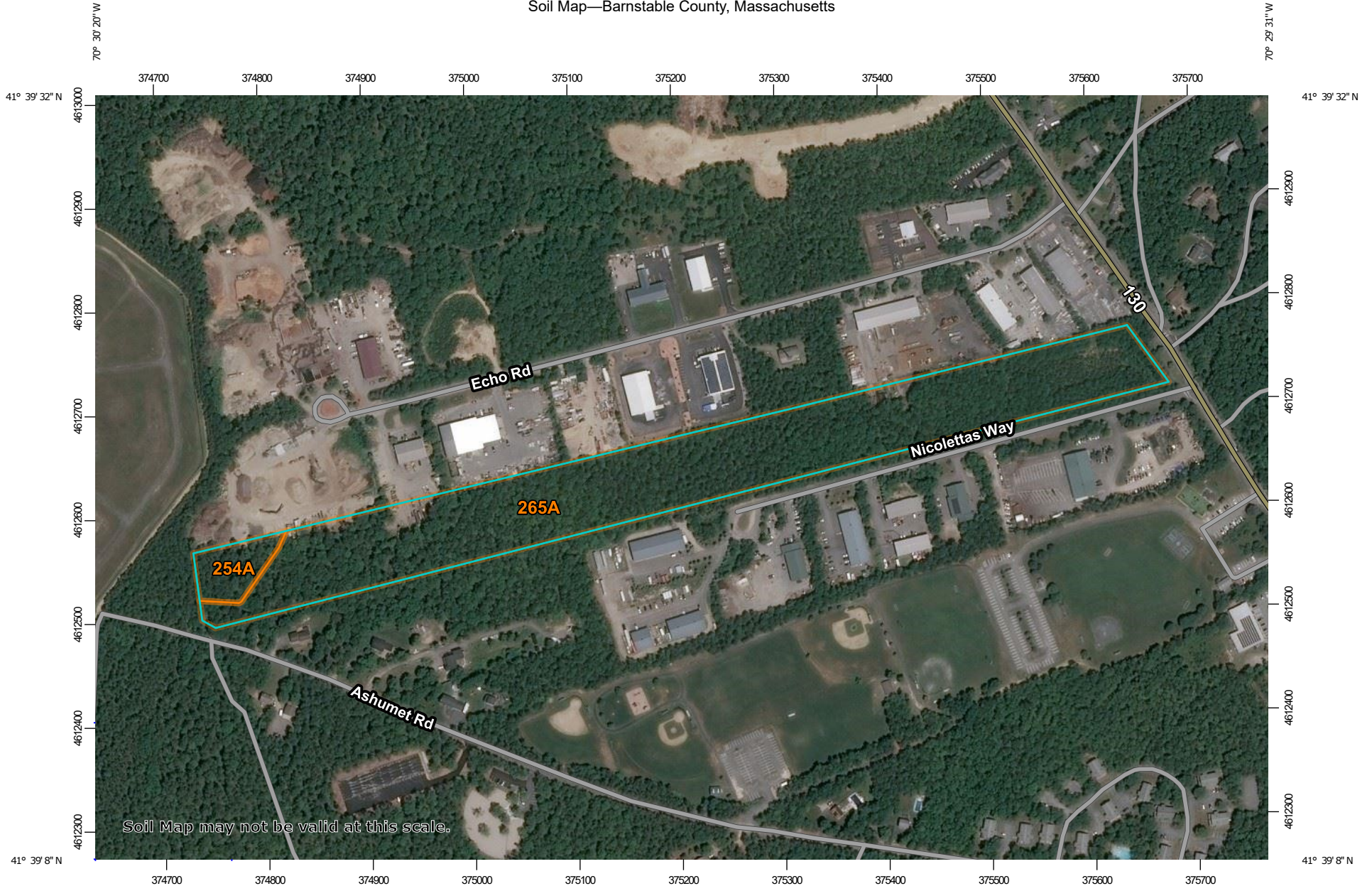


70°29'34"W 41°39'8"N

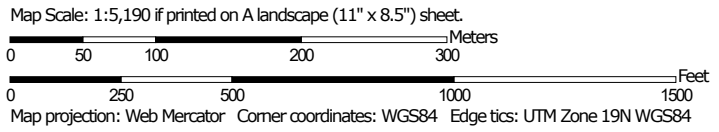
APPENDIX C

WEB SOIL SURVEY

Soil Map—Barnstable County, Massachusetts



Soil Map may not be valid at this scale.





MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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

Soil Survey Area: Barnstable County, Massachusetts

Survey Area Data: Version 18, Sep 1, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 10, 2018—Nov 17, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
254A	Merrimac fine sandy loam, 0 to 3 percent slopes	0.9	5.7%
265A	Enfield silt loam, 0 to 3 percent slopes	15.1	94.3%
Totals for Area of Interest		16.0	100.0%

APPENDIX D
SOIL TEST PIT LOGS



Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review *(minimum of two holes required at every proposed primary and reserve disposal area)*

Deep Observation Hole Number: TP-1 8/6/21 8 AM Clear 80 F
Hole # Date Time Weather Latitude Longitude:

1. Land Use Wooded Area Small Pines Few surface boulders 0-3
(e.g., woodland, agricultural field, vacant lot, etc.) Vegetation Surface Stones (e.g., cobbles, stones, boulders, etc.) Slope (%)

Description of Location: Wooded area

2. Soil Parent Material: Coarse-silty over sandy or sandy-skeletal, mixed, mesic Typic Dystrachrepts outwash plains Summit
Landform Position on Landscape (SU, SH, BS, FS, TS)

3. Distances from: Open Water Body 2,500 feet Drainage Way N/A feet Wetlands 2,500 feet
 Property Line 50 feet Drinking Water Well N/A feet Other _____ feet

4. Unsuitable Materials Present: Yes No If Yes: Disturbed Soil Fill Material Weathered/Fractured Rock Bedrock

5. Groundwater Observed: Yes No If yes: _____ Depth Weeping from Pit _____ Depth Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-6	A/O	SL	10YR 2/1	-	-	-	0-1	0-1	Granular	Friable	
6-18	B	LS	10YR 7/6	-	-	-	0-3	0-3	Massive	Friable	
18-37	C1	LS	10YR 7/4	-	-	-	0-3	0-3	Massive	Friable	
37-120	C2	MS	2.5Y 8/2	-	-	-	8-12	2-5	SG	Loose	
											No GW Observed

Additional Notes:



Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review *(minimum of two holes required at every proposed primary and reserve disposal area)*

Deep Observation Hole Number: TP-2 8/6/21 8 AM Clear 80 F
Hole # Date Time Weather Latitude Longitude:

1. Land Use: Wooded Area Small Pines Few surface boulders 0-3
(e.g., woodland, agricultural field, vacant lot, etc.) Vegetation Surface Stones (e.g., cobbles, stones, boulders, etc.) Slope (%)

Description of Location: Wooded area
Coarse-silty over sandy or sandy-skeletal, mixed, mesic Typic Dystrochrepts

2. Soil Parent Material: outwash plains Summit
Landform Position on Landscape (SU, SH, BS, FS, TS)

3. Distances from: Open Water Body 2,500 feet Drainage Way N/A feet Wetlands 2,500 feet
 Property Line 50 feet Drinking Water Well N/A feet Other _____ feet

4. Unsuitable Materials Present: Yes No If Yes: Disturbed Soil Fill Material Weathered/Fractured Rock Bedrock

5. Groundwater Observed: Yes No If yes: _____ Depth Weeping from Pit _____ Depth Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-4	A/O	SL	10YR 2/1	-	-	-	0-1	0-1	Granular	Friable	
4-15	B	LS	10YR 7/6	-	-	-	0-3	0-3	Massive	Friable	
15-32	C1	LS	10YR 7/4	-	-	-	0-3	0-3	Massive	Friable	
32-120	C2	MS	2.5Y 8/2	-	-	-	8-12	2-5	SG	Loose	
											No GW Observed

Additional Notes:



Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review *(minimum of two holes required at every proposed primary and reserve disposal area)*

Deep Observation Hole Number: TP-3 8/6/21 9 AM Clear 80 F
Hole # Date Time Weather Latitude Longitude:

1. Land Use Wooded Area Small Pines Few surface boulders 0-3
(e.g., woodland, agricultural field, vacant lot, etc.) Vegetation Surface Stones (e.g., cobbles, stones, boulders, etc.) Slope (%)
 Description of Location: Wooded area

2. Soil Parent Material: Coarse-silty over sandy or sandy-skeletal, mixed, mesic Typic Dystrachrepts outwash plains Summit
Landform Position on Landscape (SU, SH, BS, FS, TS)

3. Distances from: Open Water Body 1,900 feet Drainage Way N/A feet Wetlands 1,900 feet
 Property Line 50 feet Drinking Water Well N/A feet Other _____ feet

4. Unsuitable Materials Present: Yes No If Yes: Disturbed Soil Fill Material Weathered/Fractured Rock Bedrock

5. Groundwater Observed: Yes No If yes: _____ Depth Weeping from Pit _____ Depth Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-6	A/O	SL	10YR 2/1	-	-	-	0-1	0-1	Granular	Friable	
6-15	B	LS	10YR 7/6	-	-	-	0-3	0-3	Massive	Friable	
15-38	C1	LS	10YR 7/4	-	-	-	0-3	0-3	Massive	Friable	
38-120	C2	MS	2.5Y 8/2	-	-	-	8-12	2-5	SG	Loose	
											No GW Observed

Additional Notes:



Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review *(minimum of two holes required at every proposed primary and reserve disposal area)*

Deep Observation Hole Number: TP-4 8/6/21 9 AM Clear 80 F
Hole # Date Time Weather Latitude Longitude:

1. Land Use: Wooded Area Small Pines Few surface boulders 0-3
(e.g., woodland, agricultural field, vacant lot, etc.) Vegetation Surface Stones (e.g., cobbles, stones, boulders, etc.) Slope (%)

Description of Location: Wooded area

2. Soil Parent Material: Coarse-silty over sandy or sandy-skeletal, mixed, mesic Typic Dystrachrepts outwash plains Summit
Landform Position on Landscape (SU, SH, BS, FS, TS)

3. Distances from: Open Water Body 1,900 feet Drainage Way N/A feet Wetlands 1,900 feet
 Property Line 50 feet Drinking Water Well N/A feet Other _____ feet

4. Unsuitable Materials Present: Yes No If Yes: Disturbed Soil Fill Material Weathered/Fractured Rock Bedrock

5. Groundwater Observed: Yes No If yes: _____ Depth Weeping from Pit _____ Depth Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-8	A/O	SL	10YR 2/1	-	-	-	0-1	0-1	Granular	Friable	
8-17	B	LS	10YR 7/6	-	-	-	0-3	0-3	Massive	Friable	
17-38	C1	LS	10YR 7/4	-	-	-	0-3	0-3	Massive	Friable	
38-120	C2	MS	2.5Y 8/2	-	-	-	8-12	2-5	SG	Loose	
											No GW Observed

Additional Notes:



Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review *(minimum of two holes required at every proposed primary and reserve disposal area)*

Deep Observation Hole Number: tp-5 8/6/21 10 AM Clear 80 F
Hole # Date Time Weather Latitude Longitude:

1. Land Use Wooded Area Small Pines Few surface boulders 0-3
(e.g., woodland, agricultural field, vacant lot, etc.) Vegetation Surface Stones (e.g., cobbles, stones, boulders, etc.) Slope (%)

Description of Location: Wooded area

2. Soil Parent Material: Coarse-silty over sandy or sandy-skeletal, mixed, mesic Typic Dystrachrepts outwash plains Summit
Landform Position on Landscape (SU, SH, BS, FS, TS)

3. Distances from: Open Water Body 750 feet Drainage Way N/A feet Wetlands 750 feet
 Property Line 50 feet Drinking Water Well N/A feet Other _____ feet

4. Unsuitable Materials Present: Yes No If Yes: Disturbed Soil Fill Material Weathered/Fractured Rock Bedrock

5. Groundwater Observed: Yes No If yes: _____ Depth Weeping from Pit _____ Depth Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-5	A/O	SL	10YR 2/1	-	-	-	0-1	0-1	Granular	Friable	
5-9	B	LS	10YR 7/6	-	-	-	0-3	0-3	Massive	Friable	
9-32	C1	LS	10R 7/4	-	-	-	0-3	0-3	Massive	Friable	
32-120	C2	MS	2.5Y 8/2	-	-	-	8-12	2-5	SG	Loose	
											NO GW Observed

Additional Notes:



Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

D. Determination of High Groundwater Elevation

- | | | |
|---------------------------------------------------------------------------------------------------|-------------------|-------------------|
| 1. Method Used: | Obs. Hole # _____ | Obs. Hole # _____ |
| <input type="checkbox"/> Depth observed standing water in observation hole | _____ inches | _____ inches |
| <input type="checkbox"/> Depth weeping from side of observation hole | _____ inches | _____ inches |
| <input type="checkbox"/> Depth to soil redoximorphic features (mottles) | _____ inches | _____ inches |
| <input type="checkbox"/> Depth to adjusted seasonal high groundwater (S_h) (USGS methodology) | _____ inches | _____ inches |

Index Well Number _____

Reading Date _____

$$S_h = S_c - [S_r \times (OW_c - OW_{max}) / OW_r]$$

Obs. Hole/Well# _____ S_c _____ S_r _____ OW_c _____ OW_{max} _____ OW_r _____ S_h _____

2. Estimated Depth to High Groundwater: >120 inches

No GW Observed in any test hole

E. Depth of Pervious Material

1. Depth of Naturally Occurring Pervious Material

a. Does at least four feet of naturally occurring pervious material exist in all areas observed throughout the area proposed for the soil absorption system?

Yes No

b. If yes, at what depth was it observed (exclude A and O Horizons)?

Upper boundary: _____ inches Lower boundary: _____ inches

c. If no, at what depth was impervious material observed?

Upper boundary: _____ inches Lower boundary: _____ inches



Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

F. Certification

I certify that I am currently approved by the Department of Environmental Protection pursuant to 310 CMR 15.017 to conduct soil evaluations and that the above analysis has been performed by me consistent with the required training, expertise and experience described in 310 CMR 15.017. I further certify that the results of my soil evaluation, as indicated in the attached Soil Evaluation Form, are accurate and in accordance with 310 CMR 15.100 through 15.107.

Signature of Soil Evaluator

Todd MacDonald / SE# 14157

Typed or Printed Name of Soil Evaluator / License #

N/A

Name of Approving Authority Witness

8/6/2021

Date

6/30/2023

Expiration Date of License

N/A

Approving Authority

Note: In accordance with 310 CMR 15.018(2) this form must be submitted to the approving authority within 60 days of the date of field testing, and to the designer and the property owner with [Percolation Test Form 12](#).

Field Diagrams: Use this area for field diagrams:

See site plan for test pit locations.



PESCE ENGINEERING & ASSOCIATES, INC.

**43 Porter Lane
West Dennis, MA 02670**
Phone: 508-333-7630
epesce@comcast.net

March 28, 2022

Mashpee Planning Board
Attn: Mr. Evan Lehrer, Town Planner
Mashpee Town Hall
16 Great Neck Road North
Mashpee, MA 02649

RE: Engineering Review of the **Proposed Definitive Subdivision (Leamar Drive)**
Located at 532 Main Street (Rt. 130), Mashpee, MA

Dear Mr. Lehrer & Members of the Planning Board:

Pesce Engineering & Associates, Inc. is pleased to provide you this engineering review of the subject definitive subdivision to be located at 532 Main Street (Rt. 130), Mashpee, MA. We have evaluated the plans for consistency with the Town's Zoning Bylaw, the Subdivision Rules & Regulations (SR&R), and conformance with the Massachusetts Stormwater Management Regulations.

In addition to a site visit on March 15th, we have reviewed the following information to prepare this letter report:

- Site Development Plans entitled "Definitive Subdivision Plan Leamar Drive, 532 Main Street (Route 130), Mashpee, Massachusetts," prepared by the BSC Group, 8 Sheets, dated August 27, 2021, and revised February 11, 2022.
- Stormwater Report for Definitive Subdivision, 532 Main Street Route 130), Mashpee, MA 02571, prepared by the BSC Group, dated February 2022.

This project calls for the proposed construction of a new 9-lot subdivision with a subdivision road consisting of a 50' wide right of way, a 24' wide travel lane (paved), and approximately 2,035 ft. in length, including the cul-de-sac. The existing parcel is an 18.04 (+/-) acre generally rectangular strip of land between Echo Road and Nicoletta's Way, located mostly in the Commercial-3 (C3) and Light Industrial (LI) Zoning Districts, with a small portion of Lot 1 on the west side of the site located in the Residential-5 (R5) Zoning District. Note that Lot 1 is a larger lot than the other 8 lots, comprising 8.16 acres.

This parcel is also partially located within a DEP-designated Zone II of a public drinking water supply well. Additionally, it is located within the Ground Water Protection Overlay District (partially), and the Light Industrial Overlay District (partially). The project site is entirely upland area, and is not located within the 100-yr. floodplain. The proposed lots will be serviced by the municipal water system and on-site Title 5 septic systems.

The following are our review comments:

Site Plan, Layout & Utilities

We have the following site plan, layout and utilities comments:

1. We recommend that the Mashpee Fire Dept. review these plans (and provide comments to the Pl. Bd. if they haven't already) regarding the adequacy of emergency vehicle access, and the proposed number of fire hydrants and their locations.
2. From our site visit we noted that trees and brush on the north side of the intersection of the subdivision road with Main Street will need be cleared and trimmed back, in order to provide adequate safe sight distance. We recommend that a note regarding this be added to the plans.
3. We have the following water system design comments:
 - a. We recommend that the water line be added to the roadway profiles.
 - b. On the plans, the water line appears to terminate near DMH-5 before the cul-de-sac. We recommend that this design be revised to show the water main continuing through to the west side of the cul-de-sac (to service this large lot), and possibly ending with another fire hydrant to allow for periodic flushing.
 - c. We recommend that the applicant's engineer discuss with the Mashpee Water District the possibility of connecting to the water main on either Echo Road or Nicoletta's Way. We note that hydrant at the end of Nicoletta's Way is located near the lot line between Lots 2 & 3 at the south end of these lots.

This will allow the water main to be "looped" to provide at least 2 benefits: 1) Improved water quality by looping/connecting the water mains, and 2) Providing an alternate water source for the subdivision in the event of a water main break or other problem.
4. We recommend the construction details shown on sheet 7 of 8 for the "Typical Roadway Pavement Section", "Modified Cape Cod Berm", and "Hot Mix Asphalt Pavement Sections" show the required design thickness of the compacted gravel borrow base.
5. We recommend that a detail for the proposed street light and lamp post be added to the plans. This street light should be downward facing, and have grill guards or shields to provide a 90-degree vertical cut off in order to be "Dark Sky" compliant.

Stormwater Management

This project proposes to mitigate post-development runoff via the use of a new stormwater management system. The runoff from the subdivision road will be collected into several pairs of deep-sump catch basins (with outlet hoods), piped to drain manholes, which discharge to Stormceptor® treatment units to remove additional Total Suspended Solids (TSS) required in a Zone II (Mass. Stormwater Handbook, Standard #6, treatment before infiltration for stormwater discharges within a Zone II), which is then piped to 3 stormwater infiltration basins. These infiltration basins have been sized to accommodate the road runoff from the 100-yr. storm event.

We have the following stormwater management comments:

1. We recommend that the applicant's engineer consider using the design rainfall data based on the NOAA Atlas 14, Volume 10, Version 3 precipitation data. This database is now widely used by many municipalities, as this database reflects precipitation estimates that reflect the latest climate change statistics (for example the 24-hr., 100-yr. storm event for Mashpee, MA is 7.51 inches vs. the 7.10 inches used in the design).
2. The proposed contours for the infiltration basins on the plans need to be labeled for clarity during construction.
3. There is an existing culvert and concrete headwall for a drainage pipe crossing Rt. 130 at the northern end of the site. We recommend that the Erosion & Sediment Control Plan (sheet 5 of 8) show appropriate erosion controls at this inlet for the construction period.
4. We have the following comments regarding the Long-Term Pollution Prevention & Operation and Maintenance Plan (Section 5.0):
 - a. Add page numbers for ease in referencing in the future.
 - b. The "Maintenance Responsibility" section mentions the "Applicant." We recommend that this be changed to "Owner/Applicant/Homeowners Association" in case there is a transfer of ownership in the future, or if a homeowner's association is created.
 - c. Add a line for a name, date, and signature by the Owner/Applicant/Homeowners Association. This will ensure that the owner/applicant/HOA is aware of and understands the recommended maintenance and inspections that will be required in the future.
 - d. The list of emergency contacts is currently blank. We recommend that this list be populated, and a revised Long-Term Pollution Prevention & Operation and Maintenance Plan be provided to the Board prior to the start of construction (at the Board's discretion, this may be added as a Condition in the Decision).

Thank you for this opportunity to assist the Planning Board in their review of this project, and as always, please call or e-mail me if you have any questions or comments.

Sincerely,

PESCE ENGINEERING & ASSOCIATES, INC.



Edward L. Pesce., P.E., LEED® AP
Principal

cc: Kieran J. Healy, PLS, CFM, BSC Group

**Town of Mashpee
Mashpee High School
500 Old Barnstable Road
Mashpee, MA 02649
Special Town Meeting
Monday, May 2, 2022**

Barnstable, ss:

Greetings to the Constables of the Town,

In the name of the Commonwealth of Massachusetts, you are hereby directed to notify and summon the inhabitants of the Town of Mashpee who are qualified to vote in the elections to meet at the Mashpee High School on Monday, the 2nd day of May 2022 at 7:00 p.m. for the following purposes:

To act on the articles contained in the following Warrant:

Article 1

To see if the Town will vote to appropriate and transfer a sum of money, not to exceed \$300,000, from revenue available for appropriation to the Snow & Ice Account, or take any other action relating thereto.

Submitted by the Department of Public Works

Explanation: This article is necessary to fund a deficit in the Snow & Ice Account.

**The Board of Selectmen recommends approval of Article 1 by a vote of 5-0
The Finance Committee will make a recommendation of Article 1 at Town Meeting**

Article 2

To see if the Town will vote to appropriate and transfer the sum of \$1,065.92 from revenue available for appropriation to pay the previous fiscal year’s compensation and unpaid bills as follows:

Jennifer Berry	Retroactive Payment	\$ 240.64
Robin Desrosiers	Retroactive Payment	\$ 235.84
Scott Halligan	Retroactive Payment	\$ 252.96
Theresa Lambert	Retroactive Payment	\$ 240.64
WB Mason	Unpaid Bill	\$ 95.84

or take any other action relating thereto.

Submitted by the Finance Director

Explanation: This article is necessary to pay bills received after the end of a previous fiscal year.

**The Board of Selectmen recommends approval of Article 2 by a vote of 5-0
The Finance Committee recommends approval of Article 2 by a vote of 7-0**

Article 3

To see if the Town will vote pursuant to G.L. c. 40, §47 to establish and adopt a new Town Seal in accordance with the recommendation of the Board of Selectmen as follows:



or take any other action relating thereto.

Submitted by the Board of Selectmen

Explanation: This article will approve a new Town Seal to replace the current one.

The Board of Selectmen recommends approval of Article 3 by a vote of 5-0

The Finance Committee recommends approval of Article 3 by a vote of 7-0

Article 4

To see if the Town will vote to appropriate and transfer the sum of \$1,974,712 from revenue available for appropriation, to be deposited into the Capital Stabilization Fund, or take any other action relating thereto.

Submitted by the Board of Selectmen

Explanation: This article will set aside funds into the Capital Stabilization account for future capital expenditures in an effort to ensure the Town will maintain its assets at a level adequate to protect the Town's capital investment and to minimize future maintenance and replacement costs.

The Board of Selectmen recommends approval of Article 4 by a vote of 5-0

The Finance Committee recommends approval of Article 4 by a vote of 7-0

Article 5

To see if the Town will vote to appropriate and transfer the sum of \$369,215 from revenue available for appropriation to the Natural Resources Capital Account for the customization of facilities for the Department of Natural Resources, or take any other action relating thereto.

Submitted by the Board of Selectmen

Explanation: The Capital Improvement Program Committee voted unanimously to recommend that the Town use revenue available for appropriation (“Free Cash”) to complete the customization of the purchased condominium units for the Department of Natural Resources and further, to be voted at the May Special Town Meeting for the funds to become available during Fiscal Year 2022.

FISCAL YEAR 2023 CAPITAL IMPROVEMENT PROGRAM	
PLANNING & CONSTRUCTION	
DNR Facility	\$ 369,215

The Board of Selectmen recommends approval of Article 5 by a vote of 5-0
The Finance Committee recommends approval of Article 5 by a vote of 7-0

Article 6

To see if the Town will vote to appropriate and transfer the sum of \$1,260,950 from revenue available for appropriation to the Department of Public Works Capital Account for the Mashpee Middle-High School Field Improvements, or take any other action relating thereto.

Submitted by the Board of Selectmen

Explanation: The Capital Improvement Program Committee voted unanimously to recommend that the Town use revenue available for appropriation (“Free Cash”) to improve the athletic fields at Mashpee Middle-High School, specifically replacement of the grass field in the stadium with synthetic turf and reconstruction of the track and further, to be voted at the May Special Town Meeting for the funds to become available during Fiscal Year 2022. The full cost of this project is \$2,970,350 with the balance of the funding, \$1,709,400 appearing as an article submitted by the Community Preservation Committee (CPC).

FISCAL YEAR 2023 CAPITAL IMPROVEMENT PROGRAM	
PLANNING & CONSTRUCTION	
MMHS Field Improvements	\$ 1,260,950

The Board of Selectmen recommends approval of Article 6 by a vote of 5-0
The Finance Committee recommends approval of Article 6 by a vote of 6-0

Article 7

To see if the Town will vote to appropriate and transfer the sum of \$57,900 from revenue available for appropriation to the Department of Public Works Capital Account for the purchase of a Compact Track Loader contingent upon the award of the Shared Streets and Spaces Grant, or take any other action relating thereto.

Submitted by the Board of Selectmen

Explanation: The Capital Improvement Program Committee voted unanimously to recommend that the Town use revenue available for appropriation (“Free Cash”) to purchase a compact track loader to be used for snow removal to allow for a faster response for plowing the pedestrian bicycle facilities after a storm. The purchase is contingent upon the Town receiving approval of a Shared Streets and Spaces grant.

FISCAL YEAR 2023 CAPITAL IMPROVEMENT PROGRAM	
DPW	
Compact Track Loader with V-plow attachment	\$ 57,900

The Board of Selectmen recommends approval of Article 7 by a vote of 5-0

The Finance Committee recommends approval of Article 7 by a vote of 7-0

Article 8

To see if the Town will vote to appropriate and transfer the sum of \$25,000 from revenue available for appropriation to pay for costs associated with the preparation and possible implementation of the Residential Tax Exemption for the FY 2023 tax year, or take any other action relating thereto.

Submitted by the Finance Director

Explanation: This article will provide funding for costs associated with preparation for possible implementation of the residential tax exemption for FY 2023. These costs include software updates, printing, mailing and consultant fees, if necessary.

The Board of Selectmen recommends approval of Article 8 by a vote of 5-0

The Finance Committee recommends approval of Article 8 by a vote of 4-2

Article 9

To see if the Town will appropriate and transfer pursuant to the provisions of M.G.L. Chapter 44B, §6 to reserve from the Community Preservation Fund Budgeted for Appropriation Reserve, the following amounts:

\$28,692.00	10% Open Space/Recreation Purposes
\$28,692.00	10% Historic Purposes
\$28,692.00	10% Affordable Housing Purposes

or take any other action relating thereto.

Submitted by the Community Preservation Committee

Explanation: This is a “clean-up” article to meet the requirement of reserving funds from the CPA FY 2022 Trust Fund distribution. The amount of FY 2022 state reimbursement received by the Town of Mashpee was \$286,926 higher than the initial estimate. We are required to set aside 10% of those excess funds and deposit them into each of the CPA reserves. Funding shall derive from the Community Preservation Budgeted for Appropriation Reserve.

The Community Preservation Committee recommends approval of Article 9 by a vote of 7-0.

The Board of Selectmen recommends approval of Article 9 by a vote of 5-0

The Finance Committee recommends approval of Article 9 by a vote of 7-0

Article 10

To see if the Town will vote to appropriate and transfer from the Community Preservation Fund 10% Affordable Housing Reserve in accordance with the provisions of M.G.L., Chapter 44B, §5, the sum of \$50,000 for the purpose of funding the Housing Production Plan, including necessary costs and expenses related thereto, as recommended by the Community Preservation Committee, or take any other action relating thereto.

Submitted by the Community Preservation Committee

Explanation: The goal of this project is to update the Town's Housing Production Plan (HPP) in consideration of the demographic shifts over the past 10 years, changes in population, and added housing stock since 2010. This includes visioning work associated to the update of the Local Comprehensive Plan (LCP) that has not been modified since 1998.

The HPP provides framework to meet the 10% mandate of housing eligible for inclusion on the State's Subsidized Housing Inventory. An approved Plan also leverages state grant funds.

The total cost of this project is \$50,000. Grant funds would be sought as an offset. Unused funding would be returned to the coffers of the CPA. The update of the Plan is expected to begin in the summer of 2022 with completion in approximately 6 months thereafter.

The Community Preservation Committee recommends approval of Article 10 by a vote of 8-0.

The Board of Selectmen recommends approval of Article 10 by a vote of 5-0

The Finance Committee recommends approval of Article 10 by a vote of 6-0

Article 11

To see if the Town will vote to appropriate and transfer from the Community Preservation Fund 10% Historic Reserve in accordance with the provisions of M.G.L., Chapter 44B, §5, the sum of \$19,680 for the purpose of funding the HVAC Unit for the Mashpee One-Room Schoolhouse including necessary costs and expenses related thereto, as recommended by the Community Preservation Committee, or take any other action relating thereto.

Submitted by the Community Preservation Committee

Explanation: The goal of this project is to provide extended access to the One-Room Schoolhouse and to protect, preserve and enhance the property of historical significance. The One-Room Schoolhouse is listed on the National Register and as a Historical Place by the Massachusetts Historical Commission. The schoolhouse is also located in the Mashpee Historic District.

A split HVAC system would control the air quality and temperature of the historic 1831 building. The unit is proposed to blend into the wood beams on the back of the wall with piping to be contained in a false ceiling to maintain the buildings historic appearance. For energy efficiency the heat and air system would operate only when the schoolhouse is in use. With approval the project would be completed in July 2022.

The Community Preservation Committee recommends approval of Article 11 by a vote of 7-0-1.

The Board of Selectmen recommends approval of Article 11 by a vote of 5-0

The Finance Committee recommends approval of Article 11 by a vote of 7-0

Article 12

To see if the Town will vote to appropriate and transfer from the Community Preservation Fund 10% Historic Reserve in accordance with the provisions of M.G.L., Chapter 44B, §5, the sum of \$86,000 for the purpose of funding the Mashpee War Monument Project, including necessary costs and expenses related thereto, as recommended by the Community Preservation Committee, or take any other action relating thereto.

Submitted by the Community Preservation Committee

Explanation: The goal of this project remains the same. To honor, recognize and pay tribute to all Veterans from Mashpee to ensure their service and sacrifice to our country is made visible and never forgotten. With CPA funding construction of the monument would begin in the spring of 2022 with completion in early summer and a Town-wide dedication and celebration in the fall of 2022.

The additional funding request would be added to available CPA funding to purchase a solid granite monument shaped in the design of a wave with the Veterans names, conflict and dedication along with medallions depicting the military branches and new Town Seal. Work includes delivery and installation, an electrical and landscape budget as well as project contingency. This will be an everlasting memorial dedicated to honor Mashpee Veterans.

The Community Preservation Committee recommends approval of Article 12 by a vote of 9-0.

The Board of Selectmen recommends approval of Article 12 by a vote of 5-0

The Finance Committee recommends approval of Article 12 by a vote of 7-0

Article 13

To see if the Town will vote to appropriate and transfer from the Community Preservation Fund 10% Historic Reserve in accordance with the provisions of M.G.L., Chapter 44B, §5, the sum of \$42,438 for the purpose of funding the Restoration of Lakewood Cemetery Project, including necessary costs and expenses related thereto, as recommended by the Community Preservation Committee, or take any other action relating thereto.

Submitted by the Community Preservation Committee

Explanation: The goal of this project is to ensure the Town-owned cemetery is protected, preserved and restored as necessary to provide dignity and honor. The cemetery is the final resting place of Ezra Jones, a Civil War Veteran. Most of the deceased are English and early settlers dating back to 1805.

The project includes survey work, tree work, stump grinding, fencing, landscaping and gravestone cleaning and repair. With landscape improvements and the cleaning and restoration of the gravestones, the ancient cemetery would be eligible to serve on the National Register of Historic Places.

The Community Preservation Committee recommends approval of Article 13 by a vote of 9-0.

The Board of Selectmen recommends approval of Article 13 by a vote of 5-0

The Finance Committee recommends approval of Article 13 by a vote of 7-0

Article 14

To see if the Town will vote to appropriate and transfer from the Community Preservation Fund 10% Open Space/Recreation Reserve in accordance with the provisions of M.G.L., Chapter 44B, §5, the sum of \$18,086 for the purpose of funding the Mashpee Community Garden Expansion Project, including necessary costs and expenses related thereto, as recommended by the Community Preservation Committee, or take any other action relating thereto.

Submitted by the Community Preservation Committee

Explanation: The goal of this project is to support the garden expansion by an additional 14 garden plots to meet the gardening demand. CPA funding would support garden bed construction, pathways, additional fencing, expanded irrigation and water service areas to include the construction of demonstration gardens and historic and gardening information. The project would provide continued beautification of Town-owned recreational land and promote Mashpee as a Green Community.

The Community Preservation Committee recommends approval of Article 14 by a vote of 9-0.

The Board of Selectmen recommends approval of Article 14 by a vote of 5-0

The Finance Committee recommends approval of Article 14 by a vote of 7-0

Article 15

To see if the Town will vote to appropriate and transfer from the Community Preservation Fund 10% Affordable Housing Reserve in accordance with the provisions of M.G.L., Chapter 44B, §5, the sum of \$168,084 for the purpose of funding the Homeyer Village Roof Replacement Project, including necessary costs and expenses related thereto, as recommended by the Community Preservation Committee, or take any other action relating thereto.

Submitted by the Community Preservation Committee

Explanation: The goal of this project is to preserve affordable housing for the senior population residing at the Frank J. Homeyer Village. A new roof is required to preserve and maintain the integrity of the facility. The asphalt roof shingles and other system components are original to the 1990 building. Conditions include worn, brittle, curling and missing roof shingles.

CPA funding at the state-aided senior development would leverage Department of Housing & Community Development (DHCD) funding as well as High Leverage Asset Preservation (HILAP) grant funds for additional capital repairs.

The Community Preservation Committee recommends approval of Article 15 by a vote of 9-0.

The Board of Selectmen recommends approval of Article 15 by a vote of 5-0

The Finance Committee recommends approval of Article 15 by a vote of 7-0

Article 16

To see if the Town will vote to appropriate and transfer from the Community Preservation Fund 10% Affordable Housing Reserve in accordance with the provisions of M.G.L., Chapter 44B, §5, the sum of \$264,893 for the purpose of funding the Breezy Way Roofs, Siding & Windows Project, including necessary costs and expenses related thereto, as recommended by the Community Preservation Committee, or take any other action relating thereto.

Submitted by the Community Preservation Committee

Explanation: The goal of this project is to provide safe, adequate, and affordable housing to low-income seniors, and families. The Breezy Way units are deemed affordable in perpetuity. Preservation of the facility includes roof replacement, siding and windows, all in disrepair and original to the 1990 building.

All preservation work has been confirmed by the DHCD as an acceptable use of CPA funds. With CPA funding, the Mashpee Housing Authority is eligible to apply for HILAP funds and sustainability funds leveraging multiple grant sources to preserve the buildings for the families residing in this community.

The Community Preservation Committee recommends approval of Article 16 by a vote of 9-0.

The Board of Selectmen recommends approval of Article 16 by a vote of 5-0

The Finance Committee recommends approval of Article 16 by a vote of 7-0

Article 17

To see if the Town will vote to appropriate and transfer from the Community Preservation Fund Uncommitted Fund Balance in accordance with the provisions of M.G.L., Chapter 44B, §5, the sum of \$1,709,400 for the purpose of funding the Multi-Purpose Track & Field Stadium Renovation Project including necessary costs and expenses related thereto, as recommended by the Community Preservation Committee, or take any other action relating thereto.

Submitted by the Community Preservation Committee

Explanation: The goal of this project is to sustain the current athletic program at the Mashpee Middle/High School (MMHS) by replacing the track and multi-purpose field in the stadium original to the school's construction in 1996.

Complete reconstruction is necessary. Over the past 25 years the track has been resurfaced. The surface is now defective and it is deteriorating extending into the base and sub-base of the track creating un-safe conditions.

A total of 25 teams, more than 4,500 students use the facility during the fall and spring seasons and it is also used by all MMHS students as part of the gym curriculum. The facility is used and is available for the public during non-school hours. It is expected the field would be available for Mashpee youth sport leagues and/or Recreation Department programs during non-school hours, and would be available for rental by other organizations, subject to scheduled usages.

The total projected cost is \$2,970,350. The total CPA request is \$1,709,400. CPA funding would support general contracting, site preparation/demolition, concrete, track, fencing, walkways/access, site amenities, utilities, site improvements, stadium lighting (LED conversion) and contingency in the amount of 20% due to uncertain economic conditions. Work proposed under the CPA conforms to the mandates of the Community Preservation Act. Improvements to the field will not be CPA funded and that component of the work is included in the Capital Improvement Program (CIP) plan presented as a separate article.

With approvals the project would go to bid in early spring with construction to commence in the Summer of 2022. It is anticipated the majority of work would be completed prior to the onset of the new school year.

The Community Preservation Committee recommends approval of Article 17 by a vote of 8-1.

The Board of Selectmen recommends approval of Article 17 by a vote of 5-0

The Finance Committee recommends approval of Article 17 by a vote of 6-0

Article 18

To see if the Town will vote to rescind the authority to issue the following un-issued balances of authorized bonds or notes pursuant to the votes adopted under the following articles to the extent not previously exercised, or take any other action relating thereto.

				Submitted by the Town Treasurer
Town Meeting	Article #	Balance	Purpose	
October 15, 2018	22	\$ 210,953.75	Pimlico Heights Road Project	
May 6, 2019	29	\$ 108,030.00	Leather Leaf Road Project	
May 6, 2019	18	\$ 599,277.00	Chapter 90/ 2020	

Explanation: This article is for the purpose of rescinding loans authorized for capital projects that have been completed. This will enable the Town Accountant to remove the un-issued balances.

The Board of Selectmen recommends approval of Article 18 by a vote of 5-0

The Finance Committee recommends approval of Article 18 by a vote of 7-0

Article 19

To see if the Town will vote to transfer a sum of money, not to exceed \$80,000 from revenue available for appropriation to fund a groundwater infiltration test to quantify the amount of treated wastewater effluent that may safely and responsibly be discharged the Town’s wastewater treatment facility, or take any other action relating thereto.

Submitted by the Sewer Commission

Explanation: The Town has a groundwater discharge permit that limits effluent disposal to 120,000 gallons per day, an amount sufficient for the wastewater being collected and treated under Phase 1 of the Clean Water Plan but well under the future needs of the town. A new hydraulic study will be used to determine the amount of highly treated effluent that may be discharged at the site without having impacts on surrounding developments and adjacent water resources.

The Board of Selectmen recommends approval of Article 19 by a vote of 5-0

The Finance Committee recommends approval of Article 19 by a vote of 7-0

Article 20

To see if the Town will vote to appropriate and transfer the sum of \$450,000 from revenue available for appropriation to fund Santuit Pond Resiliency Projects: stormwater improvements and nutrient inactivation, or take any other action relating thereto.

Submitted by the Department of Natural Resources

Explanation: This article is necessary to continue efforts to address nutrient pollution and enhance resilience in Santuit Pond. These funds would provide local match to leverage additional grant funding available through the Massachusetts Municipal Vulnerability Program (MVP) for the design and construction of stormwater improvements within the Santuit Pond watershed. These funds will also be used to study the feasibility towards implementation of an Aluminum Sulfate nutrient inactivation treatment within the pond to treat excess phosphorus and symptoms of eutrophication i.e. excess harmful cyanobacteria blooms. Aluminum Sulfate was previously determined to be a method of choice in the AECOM Santuit Pond Diagnostic Study est. 2010 to reduce the internal load of phosphorus within the Pond.

The Board of Selectmen recommends approval of Article 20 by a vote of 5-0

The Finance Committee recommends approval of Article 20 by a vote of 7-0

Article 21

To see if the Town will vote to appropriate and transfer the sum of **\$253,500** from revenue available for appropriation to cover costs associated with identified priority restoration projects in the Town of Mashpee, including improvements to fish passage on Johns Pond and Mashpee Pond, improvements to storm water runoff treatment at Mashpee Neck Rd for water quality, and replacement of the culvert at Red Brook.

Explanation: The Cape Cod Water Resources Restoration Project (CCWRRP) is a partnership of federal, state and local agencies as well as all 15 Cape Cod Towns and the USDA's Natural Resource Conservation Service (NRCS) started in 2010. The collective goal of this partnership was to identify priority restoration projects throughout Cape Cod in the interest of improving diadromous fish passage, restoration of salt marsh systems and remediation of storm water runoff to improve water quality and protect shellfish beds. An estimated \$30 million dollars is available for funding on 76 identified restoration sites throughout the Cape. The Town is require to provide a 25% match of estimated construction costs plus monies for permitting for these funded projects, including the following:

Johns Pond Spillway and Fish Ladder: The existing fish ladder and spillway experience substantial and consistent sediment and debris loading from the pond, impacting fish passage and requiring frequent maintenance including annual dredging with heavy machinery. The upstream and downstream channel embankments are severely degraded, resulting in constant erosion and filling in of the stream channel. Design improvements to reduce sediment loading and rebuild/regrade up and downstream embankments to address erosion issues. **Total estimated construction cost: \$330,000. Town Match = \$89,000**

Mashpee Pond Outlet: Similar to the issues at the Johns Pond fish ladder, the Mashpee River outlet experiences frequent sediment loading from Mashpee Pond. The immediate downstream embankments are being filled in with sediment, requiring annual dredging and frequent maintenance. The downstream embankments are being undercut and eroded. A previous bank erosion control effort from the mid-90s has deteriorated along this stretch of the upper Mashpee River, resulting in a widening of the river, which when combined with sediment loading, creates shallow areas of stream bed, causing issues for fish passage. Design improvements to address sediment loading into the water control outlet structure and fortification/rebuilding of riverbanks to prevent erosion and increase channel depth for fish passage. **Total estimated construction cost: \$278,000. Town Match = \$75,000**

Mashpee Neck Storm Water Improvements: CCWRRP funded installation of drainage improvements on Mashpee Neck Road in 2011/2012 to address water quality issues in Shoestring Bay that was impacting shellfish beds. Subsequent testing has found that additional improvements are needed immediately adjacent to the Town's boat ramp (Edward A. Baker Boat Ramp at Pirate's Cove) to capture and provide additional treatment of the storm water. **Total estimated construction cost: \$104,000. Town Match = \$28,000**

This article is also requesting funding for design for the replacement of the Red Brook Road Culvert. The culvert includes a water control structure for the adjacent abandoned cranberry bog. This structure is classified as a significant hazard dam by the MA Office of Dam Safety and inspection has found it to be in poor condition. The dam is owned jointly by the Towns of Mashpee and Falmouth and the towns are currently working with the MA Division of Ecological Restoration on conceptual design plans for replacement of the culvert. The design would include improvements to water quality, provision of fish passage, and elimination of flooding on Red Brook Road. Funding is needed for final design and permitting. These costs would be split with the Town of Falmouth. The towns will be applying for grants to assist with design and construction; if successful, these funds could be used instead as any required local match. **Total estimated design cost: \$123,000. Town Share = \$61,500**

Submitted by the Conservation Commission

The Board of Selectmen recommends approval of Article 21 by a vote of 5-0

The Finance Committee recommends approval of Article 21 by a vote of 7-0

Article 22

To see if the Town will vote to appropriate and transfer the sum of **\$35,000** from revenue available for appropriation for the planning, permitting, treatment and eradication of invasive milfoil on Johns Pond and Santuit Pond, or take any other action relating thereto.

Submitted by the Conservation Commission

Explanation:

Johns Pond- Milfoil is a well-documented invasive aquatic weed that can spread rapidly and out-compete native species, resulting in loss of native aquatic habitat and adversely impacting recreational opportunities. In the summer of 2021, invasive milfoil was detected by residents on Johns Pond and reported to the Conservation Department and Department of Natural Resources. Subsequent to this, the town appropriated emergency funding to engage a contractor and secured wetland permits to conduct a pond-wide survey and treatment of milfoil using a state approved aquatic herbicide. A total of 8 acres of Johns Pond was identified for milfoil infestation and subsequently treated. A summary report and post treatment survey on the pond revealed that most, if not all of the milfoil has been successfully eradicated; however, as is the case when dealing with invasive species, a follow up survey for the next growing season is recommended to ensure complete eradication. The contractor hired to conduct this work (*Water and Wetlands LLC*) recommends budgeting approximately \$5,500 to cover the costs of a follow up pond-wide survey in the late spring/early summer of 2022 to check for any remaining areas of milfoil infestation. This estimate also includes potential treatment of any detected areas. I recommend an additional \$1,000 for any contingencies, bringing the total amount of requested funding to **\$6,500**. Ideally, no detections will be found and funding for treatment will not be needed; however, until a follow up survey is conducted, this is an unknown.

Santuit Pond: In the late fall of 2021, The Department of Natural Resources discovered invasive milfoil infestation in Santuit Pond. Preliminary observations using GPS tracking indicate roughly 6+ acres of pond area that are currently infested with milfoil. Funding will be needed to pay a qualified contractor to conduct a full pond-wide survey and subsequent treatment of milfoil based on survey results. Using the costs of milfoil surveying, permitting and eradication on Johns Pond as a reference, funding in the amount of **\$28,500** is requested to cover all estimated costs for eradication of invasive milfoil (including permitting, surveying, treatment(s) and contingency costs)

The Board of Selectmen recommends approval of Article 22 by a vote of 5-0

The Finance Committee recommends approval of Article 22 by a vote of 7-0

THIS CONCLUDES THE BUSINESS OF THE SPECIAL TOWN MEETING

And you are hereby directed to serve this Warrant by posting up attested copies thereof, one at the Town Hall, one at the Post Office, and one each on the bulletin boards, thirty days at least before said meeting.

Hereof fail not and make return of this Warrant with your doings thereon to the Town Clerk at the time and place of said meeting.

Given under our hands this 21st day of March in the year two thousand and twenty two.

Per Order of,
Board of Selectmen

Carol A. Sherman, Chair

David W. Weeden, Vice Chair

Andrew R. Gottlieb, Clerk

John J. Cotton

Thomas F. O'Hara

**Town of Mashpee
Mashpee High School
500 Old Barnstable Road
Mashpee, MA 02649
Annual Town Meeting
Monday, May 2, 2022**

Barnstable, ss:

Greetings to the Constables of the Town,

In the name of the Commonwealth of Massachusetts, you are hereby directed to notify and summon the inhabitants of the Town of Mashpee who are qualified to vote in the elections to meet at the Mashpee High School on Monday, the 2nd day of May 2022 at 7:00 p.m. for the following purposes:

To act on the articles contained in the following Warrant:

Article 1

To see if the Town will vote to accept the reports of the Town officers, or take any other action relating thereto.

Submitted by the Board of Selectmen

Explanation: The 2021 Annual Town Report in which the reports of Town officers are presented is available at the Town Meeting and at the Town Hall.

The Board of Selectmen recommends approval of Article 1 by a vote of 5-0

The Finance Committee recommends approval of Article 1 by a vote of 6-0

Article 2

To see if the Town will vote to fix the salaries of the following elected officers as provided in Chapter 41, Section 108, of the Massachusetts General Laws for the period of July 1, 2022 to June 30, 2023, and further, to see if the Town will vote to appropriate, raise, and/or transfer a sum of money to defray the Town's expenses for the ensuing fiscal year, according to the following line item budget, with the maximum amount to be appropriated as shown in the column entitled "FY 2023 Department Request" (see Omnibus Budget), or take any other action relating thereto.

Submitted by the Board of Selectmen

Explanation: This article seeks to fund the annual operating budgets for the various Town Departments.

The Board of Selectmen recommends approval of Article 2 by a vote of 5-0

The Finance Committee recommends approval of Article 2 by a vote of 6-0

DEPARTMENT		FY 2022 BUDGET	FY 2023 DEPARTMENT REQUEST	FY 2023 FINANCE COMMITTEE RECOMMEND	FY 2023 TOWN MGR RECOMMEND
MODERATOR					
SALARY	1	200	200	200	200
TOTAL		200	200	200	200
SELECTMEN					
SALARY-ELECTED	2	15,500	15,500	15,500	15,500
SALARY/WAGE	3	411,950	459,755	436,055	436,055
EXPENSE	4	38,500	38,500	38,500	38,500
LEG/ENG/CONSULTING	5	385,000	385,000	385,000	385,000
TOTAL		850,950	898,755	875,055	875,055
FINANCE COMMITTEE					
RESERVE FUND	6	87,700	100,000	100,000	100,000
EXPENSE	7	70,000	75,000	75,000	75,000
TOTAL		157,700	175,000	175,000	175,000
TOWN ACCOUNTANT					
SALARY/WAGE	8	300,236	328,535	304,765	304,765
EXPENSE	9	2,675	3,175	3,175	3,175
TOTAL		302,911	331,710	307,940	307,940
ASSESSORS					
SALARY-APPOINTED	10	3,000	3,000	3,000	3,000
SALARY/WAGE	11	310,995	291,528	266,788	266,788
EXPENSE	12	6,400	6,000	6,000	6,000
TOTAL		320,395	300,528	275,788	275,788
TREASURER/TAX COLLECTOR					
SALARY/WAGE	13	264,972	274,760	274,760	274,760
EXPENSE	14	48,900	47,400	47,400	47,400
DEBT SERVICE	15	2,500	2,500	2,500	2,500
FORECLOSURE	16	12,000	12,000	12,000	12,000
TOTAL		328,372	336,660	336,660	336,660
HUMAN RESOURCES					
SALARY/WAGE	17	387,660	436,813	436,813	436,813
EXPENSE	18	113,519	112,837	100,637	100,637
TOTAL		501,179	549,650	537,450	537,450

DEPARTMENT		FY 2022 BUDGET	FY 2023 DEPARTMENT REQUEST	FY 2023 FINANCE COMMITTEE RECOMMEND	FY 2023 TOWN MGR RECOMMEND
INFORMATION TECHNOLOGY					
SALARY/WAGE	19	374,048	389,985	389,985	389,985
EXPENSE	20	314,328	329,882	321,756	321,756
EQUIPMENT REPLACEMENT	21	27,000	27,000	27,000	27,000
TOTAL		715,376	746,867	738,741	738,741
TOWN CLERK					
SALARY-ELECTED	22	93,355	98,890	98,890	98,890
SALARY/WAGE	23	105,251	108,890	108,890	108,890
EXPENSE	24	9,175	8,875	8,875	8,875
TOTAL		207,781	216,655	216,655	216,655
ELECTIONS & REGISTRATIONS					
SALARY/WAGE	25	63,095	66,486	66,486	66,486
EXPENSE	26	23,000	27,200	27,200	27,200
TOTAL		86,095	93,686	93,686	93,686
CONSERVATION					
SALARY/WAGE	27	228,350	220,561	220,561	220,561
EXPENSE	28	5,336	5,824	5,824	5,824
HERRING EXPENSE	29	500	500	500	500
TOTAL		234,186	226,885	226,885	226,885
NATURAL RESOURCES					
SALARY/WAGE	30	508,932	643,420	643,420	643,420
EXPENSE	31	132,840	195,960	189,710	189,710
PROPAGATION	32	135,000	240,650	240,650	240,650
TOTAL		776,772	1,080,030	1,073,780	1,073,780
PLANNING BOARD					
EXPENSE	33	1,125	11,125	11,125	11,125
TOTAL		1,125	11,125	11,125	11,125
PLANNING DEPARTMENT					
SALARY/WAGE	34	142,730	152,930	152,930	152,930
EXPENSE	35	4,125	4,125	4,125	4,125
TOTAL		146,855	157,055	157,055	157,055
TOWN HALL					
EXPENSE	36	282,000	282,000	282,000	282,000
TOTAL		282,000	282,000	282,000	282,000

DEPARTMENT			FY 2022 BUDGET	FY 2023 DEPARTMENT REQUEST	FY 2023 FINANCE COMMITTEE RECOMMEND	FY 2023 TOWN MGR RECOMMEND
POLICE						
SALARY/WAGE	37		4,404,421	4,610,509	4,610,509	4,610,509
EXPENSE	38		317,681	317,681	317,681	317,681
DISPATCHERS SALARY/WAGE	39		548,095	571,660	571,660	571,660
TOTAL			5,270,197	5,499,850	5,499,850	5,499,850
FIRE						
SALARY/WAGE	40		4,158,990	4,347,867	4,347,867	4,347,867
EXPENSE	41		507,723	521,018	514,693	514,693
TOTAL			4,666,713	4,868,885	4,862,560	4,862,560
BUILDING INSPECTOR						
SALARY/WAGE	42		332,993	350,826	341,776	341,776
EXPENSE	43		29,375	32,070	32,070	32,070
TOTAL			362,368	382,896	373,846	373,846
TREE WARDEN						
EXPENSE	44		-	-	-	-
TOTAL			-	-	-	-
SCHOOL						
BUDGET	45		23,299,435	24,003,261	23,402,261	23,402,261
TOTAL			23,299,435	24,003,261	23,402,261	23,402,261
DPW						
SALARY/WAGE	46		2,756,526	2,827,614	2,827,614	2,827,614
EXPENSE	47		965,420	1,098,985	1,098,985	1,098,985
BUILDINGS & GROUNDS	48		1,300,311	1,440,481	1,440,481	1,440,481
TOTAL			5,022,257	5,367,080	5,367,080	5,367,080
SNOW & ICE						
EXPENSE	49		116,570	116,570	116,570	116,570
TOTAL			116,570	116,570	116,570	116,570
STREET LIGHTING						
EXPENSE	50		22,000	22,000	22,000	22,000
TOTAL			22,000	22,000	22,000	22,000
TRANSFER STATION						
EXPENSE	51		1,078,249	1,120,062	1,120,062	1,120,062
TOTAL			1,078,249	1,120,062	1,120,062	1,120,062

DEPARTMENT			FY 2022 BUDGET	FY 2023 DEPARTMENT REQUEST	FY 2023 FINANCE COMMITTEE RECOMMEND	FY 2023 TOWN MGR RECOMMEND
WASTEWATER						
SALARY	52		111,265	119,139	119,139	119,139
EXPENSE	53		-	13,450	13,450	13,450
TOTAL			111,265	132,589	132,589	132,589
CEMETERY						
EXPENSE	54		15,000	15,000	15,000	15,000
TOTAL			15,000	15,000	15,000	15,000
HEALTH						
SALARY-APPOINTED	55		3,000	3,000	3,000	3,000
SALARY/WAGE	56		321,105	309,339	309,339	309,339
EXPENSE	57		63,040	63,540	63,540	63,540
TOTAL			387,145	375,879	375,879	375,879
COUNCIL ON AGING						
SALARY/WAGE	58		264,680	278,845	270,485	270,485
EXPENSE	59		43,627	45,973	45,973	45,973
TOTAL			308,307	324,818	316,458	316,458
VETERANS						
EXPENSE	60		121,000	110,000	110,000	110,000
MEMBERSHIP	61		41,500	45,650	45,650	45,650
TOTAL			162,500	155,650	155,650	155,650
HUMAN SERVICES						
SALARY/WAGE	62		85,601	91,228	91,228	91,228
EXPENSE	63		51,910	51,910	51,910	51,910
TOTAL			137,511	143,138	143,138	143,138
LIBRARY						
SALARY/WAGE	64		529,898	554,725	554,725	554,725
EXPENSE	65		193,467	208,624	208,624	208,624
TOTAL			723,365	763,349	763,349	763,349
RECREATION						
SALARY/WAGE	66		296,871	317,433	317,433	317,433
EXPENSE	67		32,125	30,875	30,875	30,875
TOTAL			328,996	348,308	348,308	348,308

DEPARTMENT		FY 2022 BUDGET	FY 2023 DEPARTMENT REQUEST	FY 2023 FINANCE COMMITTEE RECOMMEND	FY 2023 TOWN MGR RECOMMEND
HISTORICAL					
TEMP WAGE	68	9,000	10,000	10,000	10,000
EXPENSE	69	6,830	6,830	6,830	6,830
TOTAL		15,830	16,830	16,830	16,830
CULTURAL COUNCIL					
EXPENSE	70	90	90	90	90
TOTAL		90	90	90	90
PRINCIPAL INSIDE 2 1/2	71	1,173,797	978,800	978,800	978,800
PRINCIPAL OUTSIDE 2 1/2	72	805,000	795,000	795,000	795,000
INTEREST INSIDE 2 1/2	73	209,138	170,040	170,040	170,040
INTEREST OUTSIDE 2 1/2	74	261,125	232,975	232,975	232,975
Principal & Interest					
TEMP BORROW INSIDE 2 1/2	75	117,280	22,875	22,875	22,875
Principal & Interest					
TEMP BORROW OUTSIDE 2 1/2	76	13,970	31,000	31,000	31,000
RETIREMENT EXPENSE	77	3,704,763	4,062,220	4,062,220	4,062,220
UNEMPLOYMENT	78	40,000	40,000	40,000	40,000
MEDICAL INSURANCE	79	7,543,742	8,731,590	8,251,590	8,251,590
GROUP INSURANCE	80	15,845	15,845	15,845	15,845
MEDICARE	81	485,155	533,671	533,671	533,671
TOWN INSURANCE	82	946,520	1,057,815	1,057,815	1,057,815
TOTAL		62,256,030	65,734,892	64,531,371	64,531,371

Article 3

To see if the Town will vote to appropriate and transfer the sum of \$1,385,740 from available funds to various department Capital Accounts, as specified in the chart accompanying this Article, or take any other action relating thereto.

Submitted by the Board of Selectmen

FISCAL YEAR 2023 CAPITAL IMPROVEMENT PROGRAM		
REQUESTS BY DEPARTMENT	FY 2023 CIP COMMITTEE RECOMMENDATIONS	FY 2023 TOWN MANAGER RECOMMENDATIONS
<i>DPW</i>		
Replace 2014 Ford F550	\$ 110,000	\$ 110,000
Replace 2017 John Deere Tractor	\$ 63,500	\$ 63,500
Replace 2002 Evaco Trailer	\$ 35,000	\$ 35,000
Replace 1997 CAT ITG Loader (Year 1 of 3)	\$ 80,000	\$ 80,000
Total DPW	\$ 288,500	\$ 288,500
<i>FIRE</i>		
Purchase 2 Vehicles (Chief 371/Inspector 373)	\$ 130,000	\$ 130,000
Replace SCBA Compressor & Fill Station	\$ 85,000	\$ 85,000
Total Fire	\$ 215,000	\$ 215,000
<i>INFORMATION TECHNOLOGY</i>		
VMWare Server - Town Hall	\$ 50,000	\$ 50,000
Total Information Technology	\$ 50,000	\$ 50,000
<i>NATURAL RESOURCES</i>		
Replace Trucks	\$ 90,200	\$ 90,200
Water Quality Sonde Replacements (3 @\$30,000)	\$ 90,000	\$ 90,000
Total Natural Resources	\$ 180,200	\$ 180,200
<i>PLANNING & CONSTRUCTION</i>		
Flooring Replacement	\$ 89,640	\$ 89,640
MMHS Gymnasium Upgrades	\$ 75,000	\$ 75,000
Quashnet Gymnasium Upgrades	\$ 155,000	\$ 155,000
Total Planning & Construction	\$ 319,640	\$ 319,640
<i>POLICE</i>		
10 Police Vehicles (Year 3 of 3)	\$ 156,000	\$ 156,000
4 Police Vehicles (Year 2 of 3)	\$ 56,000	\$ 56,000
Total Police	\$ 212,000	\$ 212,000

FISCAL YEAR 2023 CAPITAL IMPROVEMENT PROGRAM (CONTINUED)		
REQUESTS BY DEPARTMENT	FY 2023 CIP COMMITTEE RECOMMENDATIONS	FY 2023 TOWN MANAGER RECOMMENDATIONS
SCHOOL		
Kitchen Equipment Upgrades	\$ 25,000	\$ 25,000
Chromebook Leases	\$ 45,000	\$ 45,000
Interactive Board Systems in Classrooms	\$ 25,000	\$ 25,000
IPAD Replacement	\$ 25,400	\$ 25,400
Total School	\$ 120,400	\$ 120,400
TOTAL ALL DEPARTMENTS		
	\$ 1,385,740	\$ 1,385,740

Explanation: This article is to appropriate and transfer \$1,385,740 from the Capital Stabilization Fund for the FY 2023 capital budget. This article requires a 2/3rd vote.

The Board of Selectmen recommends approval of Article 3 by a vote of 5-0

The Finance Committee recommends approval of Article 3 by a vote of 6-0

Article 4

To see if the Town will vote to approve the annual regional school district budget for the Cape Cod Regional Technical High School District for the fiscal year beginning July 1, 2022, in the amount of \$16,127,000 and further, to see if the Town will vote to raise and appropriate the sum of \$1,011,446 to meet its share of the cost of operation and maintenance of the Cape Cod Regional Technical High School District for the fiscal year beginning July 1, 2022, or take any other action relating thereto.

Submitted by the Board of Selectmen

Explanation: Mashpee's share of the Cape Cod Regional Technical High School budget is \$1,011,446. There are currently 44 students from Mashpee at the Cape Cod Regional Technical High School, an increase of 4 students is projected for fiscal year 2023.

The Board of Selectmen recommends approval of Article 4 by a vote of 5-0

The Finance Committee recommends approval of Article 4 by a vote of 6-0

Article 5

To see if the Town will vote to approve the regional school district debt assessment for the Cape Cod Regional Technical High School District Building Project for the fiscal year beginning July 1, 2022, in the amount of \$6,081,325, and further, to see if the Town will vote to raise and appropriate the sum of \$473,869 to meet its share of the cost of debt for the Cape Cod Regional Technical High School District Building Project for the fiscal year beginning July 1, 2022, or take any other action relating thereto.

Submitted by the Board of Selectmen

Explanation: Mashpee's share of the Cape Cod Regional Technical High School debt for the Cape Cod Regional Technical High School Building Project for Fiscal Year 2023 is \$473,869.

The Board of Selectmen recommends approval of Article 5 by a vote of 5-0

The Finance Committee recommends approval of Article 5 by a vote of 6-0

Article 6

To see if the Town will vote to appropriate and transfer the sum of \$250,000 from revenue available for appropriation to the Other Postemployment Benefits Irrevocable Trust Fund, or take any other action relating thereto.

Submitted by the Board of Selectmen

Explanation: This article will add funds to the OPEB Irrevocable Trust Fund which was established in FY 2013 to assist the Town with meeting its potential post-employment benefits obligation.

The Board of Selectmen recommends approval of Article 6 by a vote of 5-0

The Finance Committee recommends approval of Article 6 by a vote of 6-0

Article 7

To see if the Town will vote to amend Article XVI, §174-91 of the Zoning Bylaws by substituting the term “Select Board” for “Board of Selectmen”, and further, by deleting the terms “Board of Selectmen” and “Selectmen” in every other instance in which they appear in the Zoning Bylaw and inserting in their place the words “Select Board”, or take any other action relating thereto.

Submitted by the Board of Selectmen

Explanation: This is a “housekeeping” article that would delete all references to “Board of Selectmen” or “Selectmen” in the Zoning Bylaw and replace said references with “Select Board”, consistent with Town Meeting’s approval of such an amendment to the General Bylaws pursuant to its vote under Article 1 of the October 18, 2021 Town Meeting.

The Board of Selectmen recommends approval of Article 7 by a vote of 5-0

The Finance Committee recommends approval of Article 7 by a vote of 6-0

Article 8

To see if the Town will vote to authorize the Board of Selectmen and the Conservation Commission to convey 2,940 square feet of land under the care and custody of the Town of Mashpee Conservation Commission, which land is a portion of a parcel identified as Mashpee Assessor’s Parcel 30-19-0 and referenced at the Barnstable County Registry of Deeds at Book 3435, Page 86, and to accept the conveyance of 2,940 square feet of land from Jacques Fresco and Rosalie Fresco, which land is a portion of a lot identified as 3 Santuit Lane, Mashpee Assessor’s Parcel 30-20-0 and referenced at the Barnstable County Registry of Deeds in Book 2879, Page 172, and to accept such land into the care and custody of the Mashpee Conservation Commission, for purposes of curing an encroachment upon Town-owned land, all as shown on a plan of land on file at the Office of the Town Clerk, and further to authorize the Board of Selectmen and the Conservation Commission to file a petition with the General Court under Article 97 of the Declaration of Rights for the purposes of this article, or take any other action relating thereto.

SEE MAP IN APPENDIX A

Submitted by the Board of Selectmen and the Conservation Commission

Explanation: This Article will remedy an encroachment on Town owned land at 3 Santuit Lane by a land swap between the owners and the Town.

The Board of Selectmen recommends approval of Article 8 by a vote of 5-0

The Finance Committee recommends approval of Article 8 by a vote of 6-0

Article 9

To see if the Town will vote to authorize the total expenditures for the following revolving funds pursuant to G.L. Ch. 44 Section 53E ½ for the fiscal year beginning July 1, 2022 to be expended in accordance with the Bylaw establishing said revolving funds, heretofore approved, or take any other action relating thereto.

FUND	FY 2023 AUTHORIZATION
RECREATION	\$580,000
LIBRARY	\$20,000
SENIOR CENTER	\$15,000
HISTORICAL COMMISSION	\$2,500

Submitted by the Finance Director

Explanation: This article establishes the FY 2023 expenditure limits for departmental revolving funds.

The Board of Selectmen recommends approval of Article 9 by a vote of 5-0

The Finance Committee recommends approval of Article 9 by a vote of 6-0

Article 10

To see if the Town will vote to appropriate and transfer the sum of \$250,000 from revenue available for appropriation, to be deposited into special injury leave indemnity fund, (Injured on Duty Fund), in accordance with the provisions of General Law Chapter 41, Section 111F for the purposes of funding injury leave compensation or medical bills incurred under said law, or take any other action relating thereto.

Submitted by the Finance Director

Explanation: This article would deposit \$250,000 into the special injury leave indemnity fund (Injured on Duty Fund).

The Board of Selectmen recommends approval of Article 10 by a vote of 5-0

The Finance Committee recommends approval of Article 10 by a vote of 6-0

Article 11

To see if the Town will vote to appropriate \$522,112 to establish a budget for the PEG Access and Cable Related fund for fiscal year 2023, with said appropriation to be funded through the current balance of the fund, or take any other action relating thereto.

Submitted by the Finance Director

Explanation: The Department of Revenue now requires the Town to vote a yearly budget based on estimated expenditures from the fund for the next fiscal year. The total budget voted may not exceed the current balance within the fund.

The Board of Selectmen recommends approval of Article 11 by a vote of 5-0

The Finance Committee recommends approval of Article 11 by a vote of 5-0-1 (abstention)

Article 12

To see if the Town will vote to appropriate and transfer the sum of \$14,712.00 from the Ambulance Receipts Account to the Fire Department Expense Account, or take any other action related thereto.

Submitted by the Fire Department

Explanation: This article is to use Ambulance Receipts funds for the purchase of three (3) ProCare Stair Chairs (1 for each ambulance) used to move patients from their home to an ambulance.

The Board of Selectmen recommends approval of Article 12 by a vote of 5-0

The Finance Committee recommends approval of Article 12 by a vote of 6-0

Article 13

To see if the Town will vote to authorize the creation of four (4) additional positions within the Fire Department for full-time firefighters, contingent upon the receipt of the Federal Staffing for Adequate Fire and Emergency Response (SAFER) Grant, with said positions to be classified under the Mashpee Permanent Firefighters Association Local 2519, effective July 1, 2022, and further to authorize the Town Manager and/or Select Board to file any applications and/or take whatever other action may be necessary to secure said federal SAFER grant funds, or take any other action relating thereto.

Submitted by the Fire Department

Explanation: This article would authorize the creation of employment positions for and the hiring of four (4) additional Firefighters funded for three years by the Federal Staffing for Adequate Fire and Emergency Response Grants (SAFER) Grant. The SAFER Grant program was created to provide funding directly to fire departments to help them increase or maintain the number of trained, "front line" firefighters available in their communities. These positions will only be created if the Federal SAFER Grant is approved. The increase in staff would ensure that the Town is meeting applicable NFPA staffing and deployment standards. The Town of Mashpee would be responsible for all salaries and expenses after three years or upon the expiration of the Federal SAFER Grant funds.

The Board of Selectmen recommends approval of Article 13 by a vote of 5-0

The Finance Committee recommends approval of Article 13 by a vote of 6-0

Article 14

To see if the Town will vote to raise, borrow or transfer from available funds and appropriate a sum of money, not to exceed \$750,000, to provide for road improvement projects under the Chapter 90 program, or take any other action relating thereto.

Submitted by the Department of Public Works

Explanation: This article authorizes use of funds which will be 100% reimbursed by the Commonwealth of Massachusetts. The budget approved each fiscal year by the Legislature and Governor establishes the total funding available for Chapter 90 local transportation aid for that year. These funds are then apportioned to the 351 Massachusetts towns and cities. The funding authorized by this article is the maximum anticipated Town's share of the FY22 Chapter 90 program.

The Board of Selectmen recommends approval of Article 14 by a vote of 5-0

The Finance Committee recommends approval of Article 14 by a vote of 6-0

Article 15

To see if the Town will vote to appropriate the sum of \$446,205, for the operation of the Kids Klub Enterprise Fund for Fiscal Year 2023; said sum to be raised from \$446,205 in receipts of the Enterprise, or take any other action relating thereto.

Submitted by the Recreation Department

<u>Estimated Revenues</u>	
Registration Fees	\$ 3,500
Tuition	\$ 442,430
<u>Investment Income</u>	<u>\$ 275</u>
<u>Total Budgeted Revenue</u>	<u>\$ 446,205</u>
<u>Estimated Expenses</u>	
Salary (full-time; incl. long.)	\$ 290,256
Salary (part-time)	\$ 49,500
Benefits (Health, Life, Medicare)	\$ 52,400
<u>Building Expenses</u>	<u>\$ 54,049</u>
<u>Total Budgeted Expenses</u>	<u>\$ 446,205</u>
<u>Net Profit/Loss</u>	<u>\$0</u>

Explanation: The proposed Recreation Enterprise budget for fiscal year 2023 will authorize the Recreation Department to operate a toddler/pre-school program as a self-sufficient, self-funded operation. All costs related to this program are projected are to be offset by the revenues of the program. Any monies in excess of the expenses are to remain in the account.

The Board of Selectmen recommends approval of Article 15 by a vote of 5-0

The Finance Committee recommends approval of Article 15 by a vote of 6-0

Article 16

To see if the Town will vote to appropriate and transfer from the FY 2023 Community Preservation Fund Estimated Revenues, the sum of \$40,000 to the Community Preservation Committee Administrative and Operating Expense Account, pursuant to the provisions of M.G.L., Chapter 44B, §5, including any necessary costs related thereto, as recommended by the Community Preservation Committee or take any other action relating thereto.

Submitted by the Community Preservation Committee

Explanation: To provide annual funding in FY 2023 for the administrative and operational costs of the Community Preservation Committee which includes project costs associated with and incidental to the Community Preservation Committee. Under the CPA Act, up to 5% of the annual CPA funds may be spent on the operation and administrative costs of the Community Preservation Committee. Funding supports legal and professional fees, technical reviews, appraisal costs, signage, annual Community Preservation Coalition dues, administrative wages, office supplies and similar costs associated with and incidental to the development of a CPA project.

The Community Preservation Committee recommends approval of Article 16 by a vote of 7-0.

The Board of Selectmen recommends approval of Article 16 by a vote of 5-0

The Finance Committee recommends approval of Article 16 by a vote of 6-0

Article 17

To see if the Town will vote to continue participation in the Community Septic Management Program and the Massachusetts Clean Water Trust for the purpose of making loans to residents of the Town for repairing and/or upgrading residential septic systems pursuant to agreements between the Board of Health and residential property owners, including all costs incidental and related thereto, or to take any other action relative thereto.

Submitted by the Board of Health

Explanation: The Commonwealth of Massachusetts, through the Massachusetts Clean Water Trust, has provided approximately \$660,000.00 at 0% interest to the Town of Mashpee to assist homeowners in complying with failed Title V systems since 1998. The loans are available to homeowners at 5% interest, to cover any ongoing costs of the program. Loans must be secured by a betterment assessed by the Town on the property being improved by the loan. The repayment of the loans to the town with the 5% interest is being repaid through previously issued property betterments. In order for the town to be able to re-loan funds to future additional septic projects, the town must annually reauthorize/re-approve participation in the Community Septic Management Program. Failure to reauthorize participation in the Program will restrict the town from re-lending funds to homeowners with failed septic systems. The repaid monies will be held in an account with the principal amount repaid to the Massachusetts Clean Water Trust as scheduled.

The Board of Selectmen recommends approval of Article 17 by a vote of 5-0

The Finance Committee recommends approval of Article 17 by a vote of 6-0

Article 18

To see if the Town will vote to amend the general bylaws as follows:

General Bylaws, Chapter 147, Article III

§147-6 Deposit of Snow on Town Ways and Property; Violations and Enforcement.

No person other than an employee in the service of the Town or an employee in the service of an independent contractor acting for the Town shall pile, push, plow, or otherwise deposit snow or ice on to a Town way, private way open to public use designated by the Select Board for purposes of G.L. c. 40, §6C, bikeways, parks, parking areas or other Town owned property so as to impede the flow of vehicular or pedestrian traffic on such ways or interfere with the public use of such property. Whoever violates this section shall be punished by a fine of two hundred dollars for each offense. The provisions of this Chapter shall be enforced by the Mashpee Police Department, the Director of Public Works, or his/her designee. The provisions of MGL C. 40, §21D, providing for noncriminal disposition of violations shall be applicable and the person taking cognizance of any violation hereof may issue to the offender a written notice as provided for in said §21D as an alternative to District Court criminal proceedings or other available enforcement remedies, or take any other action relating thereto.

Submitted by the Department of Public Works

Explanation: This Article would amend the town's general bylaws to prevent contractors from plowing snow from private property onto Town roads, particularly from commercial parking lots.

The Board of Selectmen recommends approval of Article 18 by a vote of 5-0

The Finance Committee recommends approval of Article 18 by a vote of 6-0

Article 19

To see if the Town will vote to appropriate and transfer the sum of \$195,000 from the Waterways Improvement Fund to the Engineering/Permitting/Dredging and Associated Expense Account or take any other action relating thereto.

Submitted by the Waterways Commission

Explanation: This Article will provide funds for various Waterways projects.

The Board of Selectmen recommends approval of Article 19 by a vote of 5-0

The Finance Committee recommends approval of Article 19 by a vote of 6-0

Article 20

To see if the Town will vote to authorize and empower the Board of Selectmen to prepare a plan laying out and defining Christopher Lane and to accomplish said purpose and for expenses related thereto, the Town vote to appropriate and transfer from revenue available for appropriation \$5,000 to the Christopher Lane Roadways Account, or take any other action relating thereto.

SEE MAP IN APPENDIX A

Submitted by Petition

Explanation: This Article authorizes the Town to layout and define Christopher Lane and to appropriate funding for this purpose.

The Board of Selectmen recommends approval of Article 20 by a vote of 5-0

The Finance Committee recommends approval of Article 20 by a vote of 6-0

Article 21

To see if the Town will vote to accept the layouts as public ways of Oldham Circle, as shown on plans entitled "Oldham Circle, Road Taking Plan," in Mashpee, MA (Barnstable County), dated December 20, 2020 and prepared by Cape & Islands Engineering, Inc., which layouts shall have been filed in the Office of the Town Clerk not later than seven days prior to the date of vote hereunder, and to authorize the Board of Selectmen to acquire by gift, purchase, or eminent domain taking any land necessary for the purposes of such ways as so laid out, and to appropriate the sum of \$ 387,906.75 to the "Oldham Circle" Roadways Account, and to raise said appropriation, the Treasurer, with the approval of the Board of Selectmen, be authorized to borrow at one time, or from time to time, under and pursuant to Chapter 44 Section 7 or 8, or any other enabling authority for such purchase or taking and layout, including costs of constructing such ways, legal, financing, and other costs incidental and related thereto, and further authorize the Board of Selectmen to assess betterments to the owners of the land abutting the ways. Any premium received by the Town upon the sale of any bonds or notes approved by this vote, less any such premium applied to the payment of the costs of issuance of such bonds or notes, may be applied to the payment of costs approved by this vote in accordance with Chapter 44, Section 20 of the General Laws, thereby reducing the amount authorized to be borrowed to pay such costs by a like amount, or take any other action relating thereto.

SEE MAP IN APPENDIX A

Submitted by Petition

Explanation: This article authorizes the Town to complete the private to public road conversion process for Oldham Circle.

The Board of Selectmen recommends approval of Article 21 by a vote of 5-0

The Finance Committee recommends approval of Article 21 by a vote of 6-0

Article 22

To see if the Town will vote to affirm that the center of community activity in Mashpee is located around the region of the confluent of Main Street (Route 130) and Great Neck Road North, wherein are located Mashpee's Community Park, Veterans' Garden, Mashpee Town Hall, Mashpee Archives, Mashpee's Community Garden, Mashpee's Historic District, Mashpee's 1831 One-Room Schoolhouse, Mashpee's Wampanoag Museum, the Mashpee River Herring Run and local businesses, or take any other action relating thereto.

Submitted by Petition

Explanation: Recent building booms in Town have created confusion in the municipality as to the location of the Town Center. At least one recent map erroneously named a privately owned shopping center as the "Town Center." This has created uncertainty for many residents and visitors. This affirmation clarifies the situation.

The Board of Selectmen recommends approval of Article 22 by a vote of 5-0

The Finance Committee recommends approval of Article 22 by a vote of 5-1

Article 23

To see if the Town will vote to instruct the Mashpee Select Board to replace no later than three months from the date of this vote the current shoulder patch worn on Mashpee Police uniforms with the newly adopted Town Seal.

Submitted by Petition

Explanation: The uniform of Mashpee police officers inappropriately features an identifying shoulder patch with a symbol of a privately owned business, thus favoring one business at the expense of others, The Town Seal, created by the dedicated work of a team specially appointed town committee, is the correct signifier.

The Board of Selectmen makes no recommendation of Article 23 by a vote of 5-0

The Finance Committee makes no recommendation on Article 23 by a vote of 3-3

Article 24

To see if the Town will vote to authorize the Selectmen to acquire, by purchase, gift, eminent domain, or otherwise for conservation, open space and passive recreational purposes, for the general public, consistent with the provisions of Mass. Gen. Laws, Ch. 40, §8C, and Article 97 of the Amendments to the Constitution of the Commonwealth of Massachusetts, the parcels of land totaling 32 acres, more or less, identified on the 2021 Mashpee Assessors' Map as Map 68 Blocks 5 and 6, Map 75 Block 1, that portion of Map 74 Block 16 lying east of a line running from that point on the south side of the layout of State Route 28 lying directly opposite the southernmost corner of Map 67 Block 9 to the northernmost corner of Map 74 Block 17, that portion of Map 75, Block 10 lying southeast of Map 68 Block 5 and Map 75 Block 1, and the remainder of Trout Pond, by completing the following steps by October 1, 2023:

1. Contact the property owner(s) to discuss and negotiate the acquisition, purchase and/or acceptance of the land by the Town, and if the Town and the property owner(s) cannot reach a mutual agreement, to proceed with an eminent domain taking per MGL Chapter 79; and

2. Prepare an update of the Town's current Open Space Conservation & Recreation Plan for submission to and approval by the Commonwealth of Massachusetts Division of Conservation Services and Secretary of Energy and Environmental Affairs to re-qualify the Town for approval and receipt of State LAND and PARC grants and grants from the Federal Land & Water Conservation Fund; and
3. Complete all the steps, including appraisals, necessary to apply for, accept and expend any funds which may be provided by the Town, the Commonwealth, the United States Government, or other public or private source to defray a portion or all of the costs of acquiring or purchasing said property, including but not limited to, funding under the Community Preservation Act, General Laws, Ch. 44B, and/or the Self-Help Act, General Laws, Ch. 132A, Section 11, and/or the Federal Land & Water Conservation Fund, P.L. 88-568, 78 Stat 897; and
4. Include and place on the Spring Annual Town Meeting Warrant in 2023 an Article to see if the Town will:
 - a. authorize the Board of Selectmen to raise and appropriate, transfer from available funds, and/or borrow a sum to fund the foregoing acquisition or purchase and all costs incidental or related thereto; provided, however, that the sum is listed and does not exceed the appraised market value of the said parcels as determined by appraisal(s) done in compliance with the Uniform Standards of Professional Appraisal Practice and approved by any State or Federal agencies from whom grants are to be sought; and
 - b. authorize the Board of Selectmen and Conservation Commission to apply for grants under the State's LAND program and/or the Federal Land & Water Conservation Fund, or any other funding source, and enter into all agreements and execute any and all instruments as may be necessary on behalf of the municipality to affect this purchase and to obtain reimbursement funding for any funds expended to purchase said lands;
 - c. authorize the Board of Selectmen to grant to a governmental agency or non-profit organization, for no consideration, a perpetual Conservation Restriction, pursuant to the provisions of General Laws, ch. 184, §31 through §33, limiting the use of the property to the purpose for which it was acquired, to be recorded at the time of closing or within a reasonable amount of time thereafter; and
 - d. authorize the Conservation Commission to assume the care, custody, control and management of the property,

or to take any other action relating thereto.

Submitted by Petition

Explanation: This article authorizes the Selectmen to acquire, by purchase, gift, eminent domain, or otherwise for conservation, open space and recreation the Trout Pond area, a Town treasure. Pre-contact artifacts have been found here. Endangered and threatened species rely on this area. Forestalling development here will help the beleaguered Mashpee River.

The Board of Selectmen makes no recommendation of Article 24 by a vote of 4-1

The Finance Committee does not recommend approval of Article 24 by a vote of 6-0

Article 25

To see if the Town will vote to instruct the Town Select Board to begin each meeting with an acknowledgement of land, which affirms that the present Town of Mashpee is established upon land long occupied by the Mashpee Wampanoag people for at least the past 10,000 years.

Submitted by Petition

Explanation: An acknowledgement of land is a formal statement that recognizes and respects various Indigenous Peoples as traditional stewards of the land. Land acknowledgements have already been adopted by hundreds of municipalities around the world. The precise wording of the sentence can be determined by the five-member Mashpee Select Board.

The Board of Selectmen makes no recommendation of Article 25 by a vote of 5-0
The Finance Committee makes no recommendation of Article 25 by a vote of 7-0

Article 26

To see if the Town will vote to instruct the Select Board to address immediately the growing burden of onerous property tax increases on the Town's low- and moderate-income property owners. This action should be completed in ample time in order to report to the citizenry prior to the next public hearing on the Town's tax classifications.

Submitted by Petition

Explanation: Valuation of homes in Town have risen immensely in recent years. Those increases have in turn brought about large increases in property taxes. The Town's less financially fortunate property owners are feeling the financial squeeze. Other towns, facing the same problem, have found a variety of solutions. The Mashpee Select Board should set to work immediately to find solutions to this problem.

The Board of Selectmen recommends approval of Article 26 by a vote of 5-0
The Finance Committee does not recommend approval of Article 26 by a vote of 6-0

Article 27

To see if the Town will vote to amend the Town of Mashpee General By-laws Chapter 127, §127.2, §127.3, §127.4, §127.5, by striking said sections in their entirety, or take any other action relating thereto.

Submitted by Petition

Explanation: This petition would reverse the impending ban on the sale of single use water bottles throughout the Town of Mashpee which is set to go into effect on September 30, 2022.

The Board of Selectmen does not recommend approval of Article 27 by a vote of 3-2
The Finance Committee recommends approval of Article 27 by a vote of 4-2

Article 28

To see if the Town will vote to establish a 10% limit on the amount by which the Town of Mashpee (the "Town") can increase residential real estate tax in a single tax year (as compared to real estate tax in the prior tax year) on any property owned, directly or indirectly, by one or more individuals aged 65 years or older. This 10% annual limit would be suspended for any tax year in which new permitted construction has been completed. Upon approval, this 10% annual limit will be in effect starting in the 2023 tax year (using the 2022 tax year as the basis by which to measure the 10% maximum increase). Once the Town determines that at least one owner of a particular parcel of residential real estate is eligible for this 10% annual limit, this limit shall continue to apply until the property is sold or otherwise transferred or until the death of the eligible owner(s), whichever occurs sooner. , or take any other action relating thereto.

Submitted by Petition

Explanation: Dramatic increases in sale prices have pushed residential real estate tax assessments in Mashpee to record levels. Many vulnerable senior citizens have been subject to devastating real estate tax increases of 20% to 50%. A 10% annual tax cap protects those seniors and allows them to stay in their homes.

**The Board of Selectmen does not recommend approval of Article 28 by a vote of 4-0-1 (abstention)
The Finance Committee does not recommend approval of Article 28 by a vote of 6-0**

Article 29

To see if the Town will vote to amend §174-3 of the Mashpee Zoning By-Law, Terms Defined as follows:

Photovoltaic System (also referred to as Photovoltaic Installation): An active solar energy system that converts solar energy directly into electricity.

Rated Nameplate Capacity: The maximum rated output of electric power production of a photovoltaic system in watts of Direct Current (DC).

Solar Collector: A device, structure or a part of a device or structure for the primary purpose of harvesting solar energy for use in a solar energy system.

Solar Energy: Radiant energy received from the sun that can be collected in the form of heat or light by a solar collector.

Solar Energy System: A device or structural design feather for the collection, storage and distribution of solar energy for space heating or cooling, electricity generation or water heating.

Solar Energy System, Active: A solar energy system that collects and transforms solar energy into another form of energy or transfers heat from a solar collector to another medium, via mechanical, electrical or chemical means.

Solar Energy System, Grid-Intertie: A photovoltaic system or other active solar energy system designed to generate electricity that is connected to an electric circuit served by an electric utility.

Solar Energy System, Ground-Mounted: An active solar energy system that is structurally mounted to the ground and is not roof-mounted; may be of any size (small-, medium- or large-scale).

Solar Energy System, Large Scale: An active solar energy system that occupies more than 40,000 square feet of surface area (equivalent to a rated nameplate capacity of about 250kW DC or greater).

Solar Energy System, Medium Scale: An active solar energy system that occupies more than 1,750 but less than 40,000 square feet of surface area (equivalent to a rated nameplate capacity of about 10-150 kW DC).

Solar Energy System, Off-Grid: A photovoltaic system or other active solar energy system designed to generate electricity in which the circuits energized by the solar energy system are not electrically connected in any way to electric circuits that are served by an electric utility.

Solar Energy System, Passive: A solar energy system that captures solar light or heat without transforming it to another form of energy or transferring the energy via a heat exchanger.

Solar Energy System, Roof-Mounted: An active solar energy system that is structurally mounted to the roof of a building or structure; may be of any size (small-, medium- or large-scale).

Solar Energy System, Small-Scale: An active solar energy system that occupies 1,750 square feet of surface area or less (equivalent to a rated nameplate capacity of about 15 kW DC or less).

Submitted by the Petition

Explanation: This amendment serves to define terms that are used in the new proposed Solar Energy Systems Overlay District.

**The Board of Selectmen will make a recommendation at Town Meeting of Article 29 by a vote of 5-0
The Finance Committee will make a recommendation at Town Meeting of Article 29 by a vote of 6-1**

Article 30

To see if the Town will vote to amend §174-4, Enumeration of Districts by adding:

SOLAR ENERGY SYSTEMS OVERLAY DISTRICT

Submitted by Petition

Explanation: This article would create and establish a Solar Energy System Overlay District as enumerated in proposed Section 174-45.7.

**The Board of Selectmen will make a recommendation at Town Meeting of Article 30 by a vote of 5-0
The Finance Committee will make a recommendation at Town Meeting of Article 30 by a vote of 6-1**

Article 31

To see if the Town will vote to amend §174-5, Establishment of Zoning Map by adding §174-5 (H) as follows:

The Solar Energy Systems Overlay District shall include all of the parcels of land described as follows:

All of the land as shown on Town of Mashpee Assessor Fiscal Year 2022 Tax Maps: 72-117; 72-113; 72-112; 72-111; 72-110; 72-118; 79-80; 79-79; 79-71; 79-72; 79-73; 79-74; 79-75; 79-76; 79-77 and 79-78.

All are located in the R-5 and C-2 Zoning District.

Submitted by Petition

Explanation: This article is intended to define by reference to the Mashpee Assessor Fiscal Year 2022 tax maps, the land within the Solar Energy Systems Overlay District that should be attached to this zoning map.

**The Board of Selectmen will make a recommendation at Town Meeting of Article 31 by a vote of 5-0
The Finance Committee will make a recommendation at Town Meeting of Article 31 by a vote of 6-1**

Article 32

To see if the Town will vote to amend §174-25 (H)(12) of the Mashpee Zoning By Law "Table of Use Regulations by adding "SP" under Zoning Districts R-5 and C-2

TYPE OF USE	RESIDENTIAL		COMMERCIAL			INDUSTRIAL
	R-3	R-5	C-1	C-2	C-3	I-1
Medium-scale and Large-scale Ground mounted Solar Energy Systems, provided that neighboring properties are effectively protected from any significant adverse impacts from glare, that any such systems are properly fenced or otherwise secured, and that no hazardous materials are stored in quantities greater than permitted by other sections of this By-Law, subject to approval by the Plan Review Committee and Design Review Committee. (Allowed by SP under 174-45.7 only in the Solar Energy System Overlay District).		SP		SP		PR

Submitted by Petition

Explanation: This article would allow the development of medium and large scale solar energy systems in the residential (R-5) and commercial (C-2) zoning districts with a Special Permit from the Planning Board provided they are within the Solar Energy Systems Overlay District.

**The Board of Selectmen will make a recommendation at Town Meeting of Article 32 by a vote of 5-0
The Finance Committee will make a recommendation at Town Meeting of Article 32 by a vote of 6-1**

Article 33

To see if the Town will vote to amend Article VII Land Space Requirement, Section 174-31, Land Space Requirement Table by adding footnote "25" to "maximum of lot coverage (percent)." Footnote 25 would read as follows:

Structures erected solely for the purpose of roof-mounted solar energy systems in permitted parking lots/areas shall not contribute to a parcel's lot coverage maximum but shall comply with all setback criteria of the applicable zoning district. For medium and large scale solar energy systems requiring a special permit from the Planning Board, pursuant to Sec.174-25(H)12 Solar Energy Systems Overlay District, the Planning Board may, at its sole discretion, approve in its decision a solar energy system whose lot coverage exceeds 20% in consideration of site specific conditions.

Submitted by Petition

Explanation: Rationale and support for zoning change to enhance the density of solar projects in Mashpee: In 2018 the Commonwealth of Massachusetts put forth a new solar initiative called the Smart program. This groundbreaking concept will help Massachusetts be a leader in solar energy. Given the high cost of land in Mashpee, it is essential to achieve enough density to make a solar project meaningful. The proposed footnote to the By-Law will give the planning board sufficient tools and oversight to achieve an appropriate balance between solar project density and the needs of the community.

The Board of Selectmen will make a recommendation at Town Meeting of Article 33 by a vote of 5-0
The Finance Committee will make a recommendation at Town Meeting of Article 33 by a vote of 6-1

Article 34

To see if the Town will vote to establish within the Town of Mashpee a Solar Energy System Overlay District by adding a new Section 174-45.7 as follows:

SOLAR ENERGY SYSTEMS OVERLAY DISTRICT

A. Purpose and Intent

1. This section promotes the creation of new small, medium and large-scale, ground-mounted solar energy systems overlay district, in the areas which are delineated on a map dated January 25, 2021 and entitled "Solar Energy Systems Overlay District, ROUTE 151, ALGONQUIN AVENUE AND OLD BARNSTABLE ROAD, Mashpee, Massachusetts," (attached hereto) and which shall be considered as superimposed over other districts established by the zoning by-laws of the Town. This map, as it may be amended from time to time, is on file with the office of the Town Clerk and with any explanatory material therein, is hereby made a part of this chapter, by providing standards for the placement, design, construction, operation, monitoring, modification and removal of such installations that address public safety, minimize impacts on scenic, natural and historic resources and for providing adequate financial assurance for the eventual decommissioning of such installations. This Overlay District Ordinance is adopted pursuant to the Commonwealth of Massachusetts green Communities Act and Massachusetts General Laws Chapter 40A Section 3.

2. Uses, other than Solar Energy Systems, otherwise not permitted in the portions of a zoning district superimposed by this district shall not be permitted in this district.

3. The Solar Energy Systems Overlay District shall include all of the land within the lines described in subsection B, which are in the R-5 and C-2 zoning districts. Medium and large scale solar energy systems located in the industrial zoning district (I-1) are exempt from the requirements of this chapter and require approval only from the Plan Review Committee pursuant to the applicable dimensional criteria of the zoning district.

B. Bounds

1. Including all of the land within the following described lines:

Property Description: The land in the Town of Mashpee, Barnstable County, Massachusetts beginning at the Northeast corner of the premises at Route 151; thence South 05°54'17" West, a distance of 203.10'; thence South 82°22'02" East, a distance of 107.07'; thence South 08°34'16" West, a distance of 154.18'; thence South 84°05'40" East, a distance of 272.51'; thence South 09°46'40" West, a distance of 1,026.79' by Algonquin Avenue; thence North 77°51'29" West, a distance of 320.36' by Old Barnstable Road; thence South 89°31'13" West, a distance of 731.65' by Old Barnstable Road; thence North 73°24'07" West, a distance of 125.90' by Old Barnstable Road; thence North 66°44'57" West, a distance of 568.90' by Old Barnstable Road; thence Northerly along centerline old brick yard road West, a distance of 1,080'+/-; thence North 83°31'22" West, a distance of 27.59' +/- to ditch; thence Northerly along ditch West a distance of 175'+/-; thence North 85°34'30" East a distance of 5'+/-; thence North 24°26'35" West, a distance of 150.11' to Old Barnstable Road; thence With a curve turning to the left with an arc length of 76.29' by Route 151 with a radius of 4,189.42' to a concrete bound; thence South 09°02'50" East, a distance of 159.61'; thence South 10°46'40" East a distance of 42.72'; thence South 04°15'30" East, a distance of 206.16'; thence South 76°43'49" East, a distance of 300.57'; thence North 09°46'40" East, a distance of 433.00' to Route 151; thence South 84°05'40" East, a distance of 63.18' by Route 151; thence With a curve turning to the left with an arc length of 37.30' with a radius of 25.00'; thence South 09°46'40" West, a distance of 154.04'; thence South 80°13'20" East, a distance of 199.99'; thence North 09°46'36" East, a distance of 190.94' to Route 151; thence South 84°05'40" East, a distance of 405.08' along Route 151, which is the point of beginning and having an area of 39.674 acres.

Meaning and intending to include all of the land as shown on Town of Mashpee Assessor Fiscal Year 2021 Tax Maps:72-117; 72-113; 72-112; 72-111; 72-110; 72-118; 79-80; 79-79; 79-71; 79-72; 79-73; 79-74; 79-75; 79-76; 79-77 and 79-78.

C. Permitted Uses

Within the Solar Energy Systems Overlay District, the following uses are permitted provided all necessary permits, orders and approvals required by local, state and federal law are obtained.

1. Any medium or large scale solar energy system shall be allowed in the Solar Energy Overlay District only after the issuance of a Special Permit by the Planning Board. In issuing such Special Permit, the Board shall ensure that neighboring properties are effectively protected from any significant adverse impacts from glare that any such systems are properly fenced or otherwise secured and that no hazardous materials are stored in quantities greater than permitted by other sections of this by-law, subject to approval by the Plan Review Committee and Design Review Committee.
2. The Solar Energy System's owner or operator shall maintain the facility in good condition. Maintenance shall include, but not be limited to, painting, structural repairs and integrity of security measures. Site access shall be maintained to a level acceptable to the local Fire Chief and Emergency Management Director. The owner or operator shall be responsible for the cost of maintaining the ground-mounted solar energy system and any access road(s).

D. Dimensional Criteria

Small, Medium and Large Scale Solar Energy Systems

1. Small, Medium and Large Scale Solar Energy Systems may be accessory to another principal structure or use provided that they satisfy the dimensional criteria and performance standards contained in this section.
2. Ground-mounted solar energy systems shall be set back a distance of at least 100 feet from a public or private way. The Planning Board may reduce the minimum setback distance as appropriate based on site-specific considerations.
3. Ground-mounted solar energy systems shall be set back a distance of at least 125 feet from any inhabited residence, and 100 feet from any property in residential use. For the purposes of this section, a residence is defined as a primary living structure and not accessory structures. The Planning Board may reduce the minimum setback distance as appropriate based on site-specific considerations.
4. Ground-mounted solar energy systems shall be set back a distance of at least 50 feet from any commercial property or use and 25 feet from any industrial property or use notwithstanding the provisions of paragraph 2 above (relative to medium and large scale solar energy systems). The Planning Board may reduce the minimum setback distance as appropriate based on site-specific considerations.
5. Ground-mounted solar energy systems shall be set back a distance of at least 50 feet from abutting conservation land and any property not included in the Ground-mounted solar array application. The Planning Board may reduce the minimum setback distance as appropriate based on site specific considerations.
6. Fixed tilt Ground-mounted solar energy systems shall have a maximum height of 15 feet above grade. In the case of single or dual axis tracking Ground-mounted solar energy systems, the Planning Board may increase the maximum height as appropriate based on site-specific considerations.

7. Inverters, energy storage systems, and transmission system substations shall be set back a distance of at least 200 feet from any residence. The Planning Board may reduce the minimum setback distance as appropriate based on site-specific conditions.

E. Special Permits Rules and Application Requirements

A Solar Energy System Special Permit shall not be granted unless each of the following requirements, in addition to the requirements in §174-24 C Special Permit use, are satisfied:

1. A properly completed and executed application form and application fee.
2. Any requested waivers. To this end, as part of its Special Permit decision, the Planning Board may, at its sole discretion, establish a lot coverage maximum that exceeds 20% in consideration of site specific conditions.
3. Name, address, phone number and signature of the project proponent, as well as all co-proponents or property owners, if any.
4. Names, contact information and signatures of any agents representing the project proponent.
5. Name, address and contact information for proposed system installer.
6. Documentation of actual or prospective access and control of the project site sufficient to allow for construction and operation of the proposed solar energy system.
7. Proposed hours of operation and construction activity.
8. Blueprints or drawings of the solar energy system signed by a Massachusetts' licensed Registered Professional Engineer showing the proposed layout of the system and any potential shading from nearby structures.
9. Utility Notification: Evidence that the utility company that operates the electrical grid where a grid-intertie solar energy system is to be located has been informed of the system owner or operator's intent to install an interconnected facility and acknowledges receipt of such notification, and a copy of an Interconnection Application filed with the utility including a one or three line electrical diagram detailing the solar electric installation, associated components, and electrical interconnection methods, with all Massachusetts Electrical Code (527 CMR§ 12.00) compliant disconnects and overcurrent devices. Off-grid solar energy systems shall be exempt from this requirement.
10. Documentation of the major system components to be used, including the electric generating components, battery or other electric storage systems, transmission systems, mounting system, inverter, etc.
11. Preliminary Operation and Maintenance Plan for the solar energy system, which shall include measures for maintaining safe access to the installation, storm water management, vegetation controls, and general procedures for operational maintenance of the installation.

12. **Abandonment and Decommissioning Plan:** Any ground-mounted solar energy system which has reached the end of its useful life or has been abandoned (i.e., when it fails to operate for more than one year without the written consent of the Planning Board) shall be removed. The owner or operator shall physically remove the installation within 150 days of abandonment or the proposed date of decommissioning. The owner or operator shall notify the Planning Board by certified mail of the proposed date of discontinued operations and plans for removal. The Abandonment and Decommissioning Plan shall include a detailed description of how all of the following will be addressed:

- (a) Physical removal of all structures; equipment, building, security barriers and transmission lines from the site, including any materials used to limit vegetation.
- (b) Disposal of all solid and hazardous waste in accordance with local, state and federal waste disposal regulations.
- (c) Stabilization or re-vegetation of the site as necessary to minimize erosion. The Planning Board may allow landscaping or below-grade foundations left *in situ* in order to minimize erosion and disturbance of the site.
- (d) Description of financial surety for decommissioning: Proponents of ground-mounted solar energy systems shall provide a form of surety, either through escrow account, bond or other form of surety approved by the Planning Board to cover the cost of removal in the event the Town must remove the installation and remediate the landscape, in an amount and form determined to be commercially reasonable by the Planning Board, but in no event to exceed more than 125 percent of the cost of removal and compliance with the additional requirements set forth herein, as determined by the project proponent and the Town. Such surety will not be required for municipal or state-owned facilities. The project proponent shall submit a fully inclusive estimate of the costs associated with removal, prepared by a qualified engineer. The amount shall include a mechanism for calculating increased removal costs due to inflation.
- (e) It shall be a condition of any special permit that all legal documents required to enable the Town to exercise its rights and responsibilities under the plan to decommission the site, enter the property and physically remove the installation shall be provided prior to the issuance of a building permit.

F. Required Performance Standards: Small, Medium and Large Scale Solar Energy Systems

- 1. **Visual Impact Mitigation:** The site plan for a ground-mounted solar energy system shall be designated to screen the array to the maximum extent practicable year round from adjacent properties in residential use and from all roadways.
- 2. All required setbacks shall be left in their undisturbed natural vegetated condition for the duration of the solar energy system's installation. In situations where the naturally vegetated condition within required setback is not wooded and does not provide adequate screening of the solar array, the Planning Board may require additional intervention including, but not limited to:
 - (a) A landscaping plan showing sufficient trees and understory vegetation, of a type common in natural areas of Mashpee, to replicate a naturally wooded area and to constitute a visual barrier between the proposed array and neighboring properties and roadways.
 - (b) Berms along property lines and roadways with suitable plantings to provide adequate screening to neighboring properties and roadways.

3. **Lighting:** Lighting of ground-mounted solar energy systems shall be limited to that required for safety and operational purposes, and shall be reasonably shielded from abutting properties. Lighting shall be directed downward and shall incorporate full cut-off fixtures to reduce light pollution.
4. **Signage:** Signs on ground-mounted solar energy systems shall comply with all applicable regulations of this by-law and/or any Town sign by-law. A sign shall be required to identify the owner, operator and interconnected utility and provide a 24-hour emergency contact phone number. Ground-mounted solar energy systems shall not be used for displaying any advertising signage.
5. **Utility Connections:** Within setback distances and except where soil conditions, location, property shape, and topography of the site or requirements of the utility provider prevent it, all utility connections from grid-intertie solar energy systems shall be placed underground. Electrical transformers for utility interconnections may be above ground if required by the utility provider.
6. **Vegetation Management:** All land associated with the ground-mounted solar energy system shall be covered and grown in natural vegetation. The height of vegetation must be managed by regular mowing or grazing so as to minimize the amount and height of combustible material available in case of fire. Herbicides, pesticides, or chemical fertilizers shall not be used to manage vegetation. To the greatest extent practicable, a diversity of plant species shall be used, with preference give to species that are native to New England. Use of plants identified by the most recent copy of the "Massachusetts Prohibited Plant List" maintained by the Massachusetts department of Agricultural Resources is prohibited. Management of all vegetated areas shall be maintained throughout the duration of the solar energy system's installation through mechanical means without the use of chemical herbicides.
7. **Noise Generation:** Noise generated by ground-mounted solar energy systems and associated equipment and machinery shall conform to applicable state and local noise regulations, including the DEP's Division of Air Quality Noise Regulations, 310 CMR 7.10.
8. **Fencing:** Fencing around solar arrays shall provide a minimum 6" clearance between the fence bottom and the ground to allow passage of small wildlife. The Planning Board shall require resident style fencing where necessary to screen the solar energy systems year round from adjacent residences.
9. **Land Clearing and Soil Erosion:** Clearing of natural vegetation and topsoil shall be limited to what is necessary for the construction, operation and maintenance of the ground-mounted solar energy system. No topsoil removed during construction shall be exported from the site.
10. **Erosion Control and Stormwater:** Erosion Control and Stormwater Management notation shall be included to show that adequate provisions against erosion and adverse impacts of runoff are appropriately mitigated.
11. **Emergency Services:** The ground-mounted solar energy system owner or operator shall provide a copy of the project summary, electrical schematic, and site plan to the Mashpee Fire Department and any other neighboring Fire Department upon request. Upon request the owner or operator shall cooperate with local emergency services in developing an emergency response plan. All means of shutting down the solar energy system shall be clearly marked. The owner or operator shall identify a responsible person for public inquiries throughout the life of the installation.

Explanation: This section promotes the creation of new Solar Energy Systems Overlay District for small, medium and large-scale, ground-mounted solar energy systems on land with the Overlay District currently zoned R-5 and C-2 by providing standards for the placement, design, construction, operation, monitoring, modification and removal of such installations that address public safety, minimize impacts on scenic, natural and historic resources and for providing adequate financial assurance for the eventual decommissioning of such installation.

The Board of Selectmen will make a recommendation at Town Meeting of Article 34 by a vote of 5-0
The Finance Committee will make a recommendation at Town Meeting of Article 34 by a vote of 6-1

Article 35

To see if the Town will vote to amend the Zoning By-law as follows:

Add a new sub-Section to any Solar Energy System Overlay District zoning bylaw by adding to the Required Performance Standards for Small, Medium and Large Scale Solar Energy Systems the following:

174-45.7 SOLAR ENERGY SYSTEMS OVERLAY DISTRICT

Section F. Required Performance Standards: Small, Medium and Large Scale Solar Energy Systems

12. Open Space Requirement. A Solar Energy System which encompasses a minimum land area of seven acres, which may be in one or more parcels, and shall consist of one acre of allowed developed area for each half acre of upland (i.e. excluding water bodies or wetlands as defined under MGL C. 131, §40) permanently set aside as undeveloped open space and deeded to the Town of Mashpee in the care and custody of its Conservation Commission (provided that said land is not subject to any previous conservation restriction or other prohibition on its development), or to a nonprofit organization, the principal purpose of which is the conservation of open space, in either case subject to a formal conservation restriction to be held by the Town of Mashpee. The developer's declaration of his choice of the open space preservation methods described above, which may be different for individual such parcels, shall be included in his application for a Special Permit to develop a Solar Energy System, along with maps and plans describing the open space areas. Any water bodies or wetlands, as defined under MGL C. 131, §40, which lie within the boundaries of the Solar Energy System shall also be permanently set aside and deeded to one of the entities identified above under the terms described. When delineating the upland to be set aside as undeveloped open space, any land which is forested shall be prioritized as open space. Before final approval of the Solar Energy System Special Permit, the developer shall also file with the Planning Board a copy of the conservation restrictions necessary to secure the permanent legal existence of the open space and a copy of any proposed deed for transfer in fee to the Town or to a nonprofit organization. Approval of the Solar Energy System shall require approval by the Planning Board of said conservation restrictions after consultation with Town Counsel. As required by law, any such restrictions may also require approval by the Commonwealth of Massachusetts. Any open space required to meet the provisions of this Section shall be surveyed, properly bounded on the ground by concrete monuments and shown on a plan recorded at the Barnstable County Registry of Deeds or Land Court Registry. Said plan shall be recorded and said boundary monuments shall be set within six (6) months of the approval of the Solar Energy System Special Permit. Any transfer of the fee title to property to the Town or a nonprofit organization shall be recorded, along with the required conservation or agricultural restrictions, within one (1) year of the approval of the Solar Energy System Special Permit. Said transfer shall be completed before the issuance of any building permit for development within said phase.

13. Setbacks from water bodies and wetlands. The developed area within a Solar Energy System development may not lie within three hundred (300) feet of any water body or stream or within one hundred (100) feet of any wetland as defined under MGL C. 131, §40.
or take any other action related thereto.

Submitted by Petition

Explanation: This article would amend the Zoning By-law to require that any Solar Energy Systems developments of seven acres or more provide open space (one half acre open space per one acre developed) as well as setbacks from water bodies (300') and wetlands (100') in order to preserve the Town's environment.

The Board of Selectmen will make a recommendation at Town Meeting of Article 35 by a vote of 5-0
The Finance Committee will make a recommendation at Town Meeting of Article 35 by a vote of 7-0

THIS CONCLUDES THE BUSINESS OF THE ANNUAL TOWN MEETING

And you are hereby directed to serve this Warrant by posting up attested copies thereof, one at the Town Hall, one at the Post Office, and one each on the bulletin boards, thirty days at least before said meeting.

Hereof fail not and make return of this Warrant with your doings thereon to the Town Clerk at the time and place of said meeting.

Given under our hands this 21st day of March in the year two thousand and twenty two.

Per Order of,
Board of Selectmen

Carol A. Sherman, Chair

David W. Weeden, Vice Chair

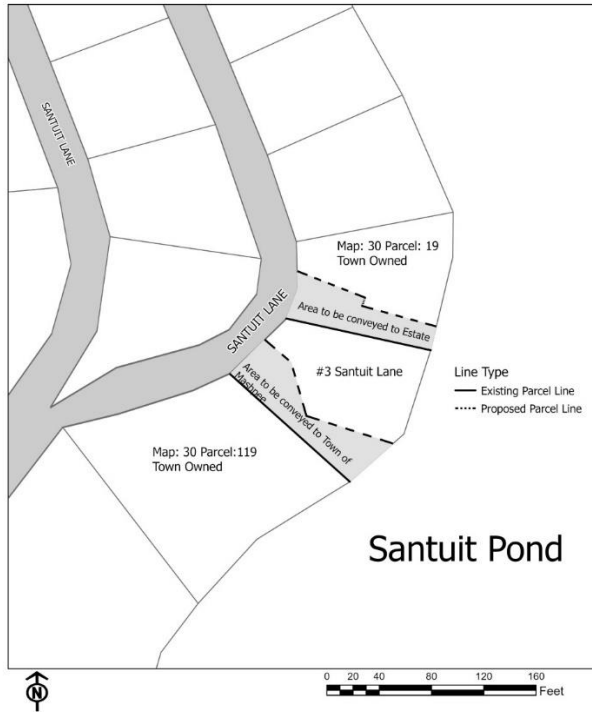
Andrew R. Gottlieb, Clerk

John J. Cotton

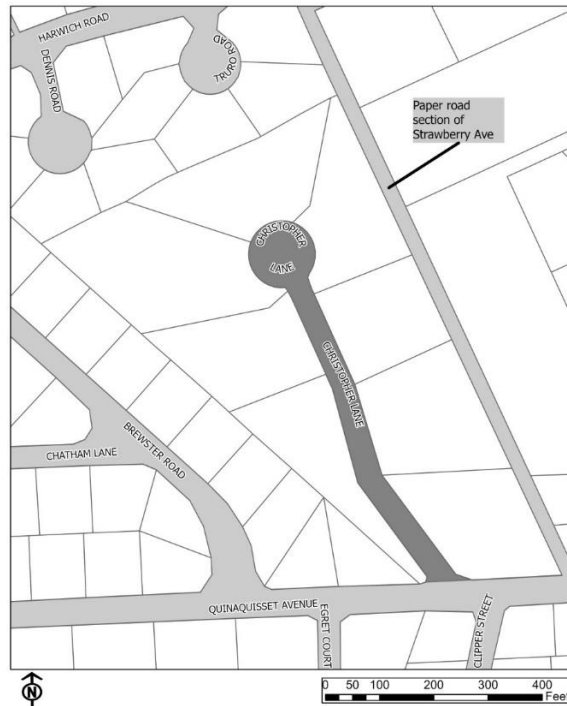
Thomas F. O'Hara

“APPENDIX A”

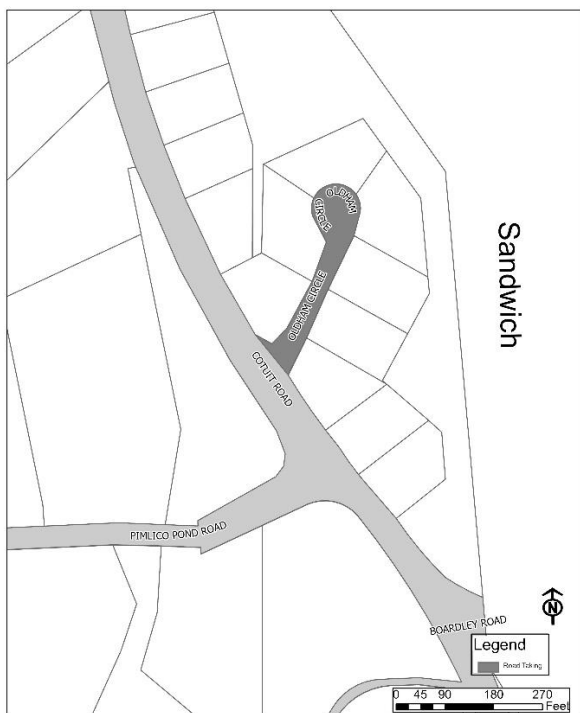
Annual Town Meeting – Article 8
Santuit Lane Land Swap

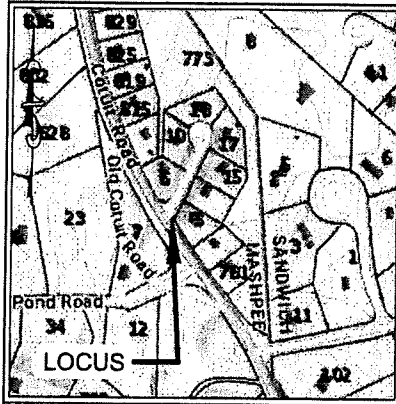


Annual Town Meeting – Article 20
Christopher Lane Road Taking



Annual Town Meeting – Article 21
Oldham Circle Road Taking





LOCUS MAP NOT TO SCALE

PLAN EASEMENT TAKING FOR ROADWAY PURPOSES UNDER ORDER OF TAKING ADOPTED ON (DATE) _____

SELECTMEN OF MASHPEE

VOTED UNDER ARTICLE _____ OF THE _____ TOWN MEETING

I, _____, CLERK OF THE TOWN OF MASHPEE, HEREBY CERTIFY THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE TOWN OF MASHPEE PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND THAT NO APPEAL WAS RECEIVED DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDING OF SAID NOTICE.

MASHPEE TOWN CLERK _____ DATE _____

PLANNING BOARD APPROVAL UNDER THE SUBDIVISION CONTROL LAW NOT REQUIRED

DATE APPROVED _____ DATE SIGNED _____

MASHPEE PLANNING BOARD

NO DETERMINATION AS TO COMPLIANCE WITH ZONING REQUIREMENTS HAS BEEN MADE OR INTENDED BY THIS ENDORSEMENT UNDER MGL CHAPTER 41, SECTION 81L.

GENERAL NOTES

THE INTENT OF THIS PLAN IS TO DELINEATE THE EASEMENT TAKING FOR ROADWAY PURPOSES TO BENEFIT THE TOWN OF MASHPEE WITHIN AND ALONG OLDHAM CIRCLE, MASHPEE, MA.

THE PROPERTY LINE INFORMATION SHOWN IS BASED ON CURRENT AVAILABLE PLAN INFORMATION.

LOCATIONS ARE BASED ON AN "ON THE GROUND" INSTRUMENT SURVEY. COORDINATE SYSTEM USED IS THE MA-MAINLAND COORDINATE SYSTEM, DATUM: NAD 83, UNITS: U.S. SURVEY FEET.

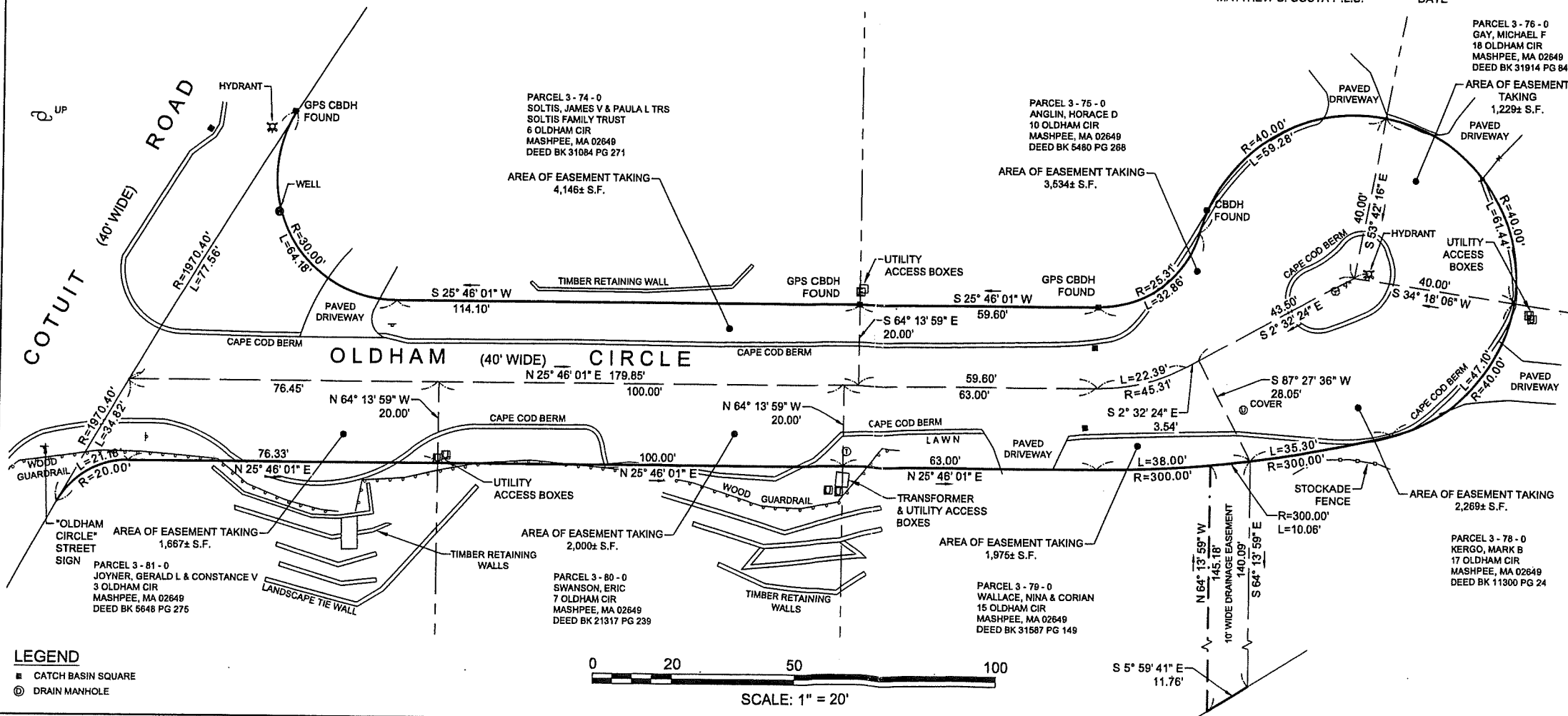
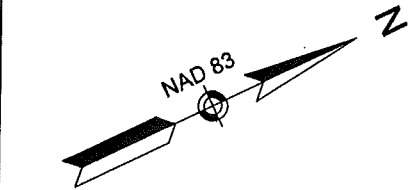
FOR REGISTRY USE ONLY

I HEREBY CERTIFY THAT THIS PLAN DOES CONFORM WITH THE REQUIREMENTS FOR RECORDING OF PLANS IN THE REGISTRY OF DEEDS.

MATTHEW C. COSTA P.L.S. _____ DATE _____

I CERTIFY THAT THIS PLAN AND SURVEY CONFORMS TO THE ETHICAL, PROCEDURAL AND TECHNICAL STANDARDS FOR THE PRACTICE OF LAND SURVEYING IN THE COMMONWEALTH OF MASSACHUSETTS.

MATTHEW C. COSTA P.L.S. _____ DATE _____



- LEGEND**
- CATCH BASIN SQUARE
 - ⊙ DRAIN MANHOLE

CAPE & ISLANDS ENGINEERING
 800 PALMOUTH ROAD SUITE 301C
 MASHPEE, MA 02649
 508.477.7272 PHONE
 508.477.9072 FAX
 www.CapeEng.com

Drawn By: JVB
 Checked By: MC

By	Date	Rev	Description
JVB	5/16/2021	1	ADD EXIST. RET. WALLS

Prepared For: TOWN OF MASHPEE
 Project: 16 GREAT NECK ROAD NORTH MASHPEE, MA 02649
 Drawing Title: OLDHAM CIRCLE IN MASHPEE, MA 02649 ROAD TAKING PLAN
 Date: DECEMBER 20, 2020

1



Town of Barnstable
Planning & Development Department
www.townofbarnstable.us/planninganddevelopment



Elizabeth Jenkins
Director

March 24, 2022

Department of Housing and Community Development
100 Cambridge Street, Suite 300 - Boston, MA 02114

Cape Cod Commission
P.O. Box 226 - 3225 Main Street (Route 6A) - Barnstable, MA 02630

Town of Sandwich, Planning Board
16 Jan Sebastien Drive - Sandwich, MA 02563

✓ Town of Mashpee, Planning Board
16 Great Neck Road - Mashpee, MA 02649

Town of Yarmouth, Planning Board
1146 Route 28 - Yarmouth, MA 02664

Town of Barnstable, Zoning Board of Appeals
367 Main Street- Hyannis, MA 02601

Reference: Town of Barnstable Planning Board
Proposed Zoning Amendment – TC Item No. 2022-145

AMENDING THE CODE OF THE TOWN OF BARNSTABLE, PART I GENERAL ORDINANCES, CHAPTER 240 ZONING BY AMENDING ARTICLE VII SIGN REGULATIONS

The Barnstable Planning Board, acting under Chapter 40A, Section 5 of the General Laws of the Commonwealth of Massachusetts, will hold a public hearing on Monday, April 11, 2022, at 7:00 p.m. The purpose of this public hearing is to take comment on a proposal to amend the Code of the Town of Barnstable, Part I General Ordinances, Chapter 240 zoning by amending Article VII Sign Regulations.

The proposal is to amend the Code of the Town of Barnstable, Part I General Ordinances, Chapter 240 zoning by amending Article VII Sign Regulations. The proposed amendment is a companion to Item 2022-144 which comprehensively updates the zoning regulations within the area designated as the Downtown Hyannis Growth Incentive Zone and proposes to create seven new zoning districts. The purpose of the proposed zoning amendment is to update the signage regulations in Article VII of the Zoning Code to reflect the proposed new zoning district names. The allowable size, number, and height of signs in most cases is not proposed to be altered. For the consolidated Hyannis Gateway and Gateway Medical Districts, proposed as Highway Commercial, the more generous signage allowance was incorporated. For the new Downtown Village District, provisions of the former districts were combined and redrafted with the intent of allowing appropriate signage for the wide variety of business and commercial properties, but respecting the smaller scale of many of the lots.

A copy of the full zoning text amendments are available for review in the following manner:

- On the project page on the Planning & Development Department's website:
<https://www.townofbarnstable.us/departments/planninganddevelopment/Projects/Downtown-Hyannis-Zoning-Revision.asp>
- On Planning Board's webpage via the link under Meeting Materials:
<https://www.townofbarnstable.us/boardscommittees/PlanningBoard/default.asp?brd=Planning+Board&brdid=19&year=2022>
- At the Town Clerk's Office or Planning & Development Department Offices, Barnstable Town Hall, 367 Main Street, Hyannis
- Copies of the proposed amendments can also be obtained by calling 508-862-4791 or emailing Kaitlyn.maldonado@town.barnstable.ma.us.

Members of the public may participate in the Public Hearing through remote access via the Zoom link or telephone number and Meeting ID provided below.

Alternative public access to this meeting shall be provided in the following manner:

1. The meeting will be televised via Channel 18 and may be viewed via the Channel 18 website at <http://streaming85.townofbarnstable.us/CablecastPublicSite/>
2. Real-time access to the Planning Board meeting is available utilizing the Zoom link or telephone number and Meeting ID provided below:

Link: <https://zoom.us/j/91059395056>

Phone: 888 475 4499 US Toll-free Meeting ID: 910 5939 5056

3. Applicants, their representatives and individuals required or entitled to appear before the Barnstable Planning Board may appear remotely, and may participate through accessing the link or telephone number provided above. Documentary exhibits and/or visual presentations should be submitted in advance of the meeting to Kaitlyn.maldonado@town.barnstable.ma.us, so that they may be displayed for remote public access viewing.

Attach: Notice Amendment Summary
Copy: Planning Board File Zoning Amendment
Planning Board Chair

BARNSTABLE TOWN COUNCIL

ITEM# 2022-145
INTRO: 3/03/2022

2022-145 AMENDING THE CODE OF THE TOWN OF BARNSTABLE, PART I GENERAL ORDINANCES, CHAPTER 240 ZONING BY AMENDING ARTICLE VII SIGN REGULATIONS

ORDERED: That the Code of the Town of Barnstable, Part I General Ordinances, Chapter 240 Zoning, Article VII Sign Regulations be amended as follows:

SECTION 1

By amending Article VII, Section 240-64 as follows:

A. By striking the words “Signs in Medical Services District” from the section heading and inserting “**Signs in Downtown Hospital District**” in their place.

B. In subsection A, by striking the words “in a professional residential zone”, so that the revised Section shall read:

“§ 240-64 **Signs in Downtown Hospital District.**

A. One sign giving the name of the occupant or other identification of a permitted use may be permitted. Such signs shall be no more than 12 square feet in area and shall not extend more than eight feet above the ground.

C. Any illuminated sign must comply with the provisions of § 240-63 herein.”

SECTION 2

By amending Article VII, Section 240-65 by adding the word “and” after “S&D,” in the section heading and striking “and GM”, so that the revised section heading shall read:

“§ 240-65 **Signs in B, UB, HB, HO, S&D, and SD-1 Districts.**”

SECTION 3

By amending Article VII, Section 240-67 by striking “OM, HG, TD” from the section heading and inserting “HC, TC” in their place, so that the revised section heading shall read:

“§240-67 **Signs in CVD, HC, TC, VB-A, WBVBD and MMV Districts.**”

SECTION 4

By amending Article VII, Section 240-68 by striking “HD” from the section heading and inserting “HH” in its place, so that the revised section heading shall read:

“§ 240-68 **Signs in MB-A1, MB-A2, MB-B and HH Districts.**”

SECTION 5

- A. By amending Article VII, Section 240-71 by striking "HVB" from the section heading and inserting "DMS" in its place, so that the revised section heading shall read:

"§ 240-71 Signs DMS District."

- B. By amending Article VII, Section 240-71, Subsection A by inserting after the words "eight feet" the phrase ", except that the Building Commissioner may allow signs up to 14 feet in height on buildings if he finds that such height is necessary for the façade and is compatible with the appearance, scale and character of the area", so that the revised Subsection shall read:

"The maximum allowable height of all signs on buildings shall be 12 feet, and the maximum height of a freestanding sign shall be eight feet, except that the Building Commissioner may allow signs up to 14 feet in height on buildings if he finds that such height is necessary for the façade and is compatible with the appearance, scale and character of the area."

- C. By amending Article VII, Section 240-71, Subsection D by striking the words "HVB Business" and inserting in their place "DMS" so that the revised Subsection shall read:

"Temporary street banners may be permitted in the DMS District only, for the purpose of informing the general public of community events and activities, with approval of the Town Manager. Street banners shall be hung in prescribed locations, securely fastened to buildings, maintain a minimum height of 16 feet above the street, be constructed of durable materials, used solely for community events in the district, and remain in place for no more than three weeks prior to the event and be removed within one week after the event."

SECTION 6

By amending Article VII by adding the following new Section 240-71.1:

"§ 240-71.1 Signs in Downtown Village (DV) District.

- A. Each business establishment may be allowed a maximum of two signs. The allowed signage types are: wall signs; projecting signs, which may be double sided and considered a single sign; and signage as part of a freestanding sign serving businesses on the lot.
- B. One freestanding sign may be allowed on a lot. A freestanding sign may contain signage for multiple businesses on the lot.
- C. The area of all signs for each individual business establishment shall not exceed 10% of the area of the building facade that contains the establishment's primary customer entrance or 32 square feet, whichever is the lesser amount.
- D. The total area of a wall sign shall not exceed 24 square feet.

BARNSTABLE TOWN COUNCIL

ITEM# 2022-145
INTRO: 03/03/2022

SUMMARY

TO: Town Council
FROM: Mark S. Ells, Town Manager
THROUGH: Elizabeth Jenkins, Director, Planning & Development Department
DATE: March 03, 2022
SUBJECT: Amending the Code of the Town of Barnstable, Part I General Ordinances, Chapter 240 Zoning, Article VII Sign Regulations to amend regulations to be consistent with proposed new district regulations

RATIONALE: This item is a companion to Item 2022-144 which comprehensively updates the zoning regulations within the area designated as the Downtown Hyannis Growth Incentive Zone. The zoning amendments proposed create seven new zoning districts. This item updates the signage regulations in Article VII of the Zoning Code to reflect the proposed new district names. The allowable size, number, and height of signs in most cases is not proposed to be altered. For the consolidated Hyannis Gateway and Gateway Medical Districts, proposed as Highway Commercial, the more generous signage allow was incorporated. For the new Downtown Village District, provisions of the former districts were combined and redrafted with the intent of allowing appropriate signage for the wide variety of business and commercial properties, but respecting the smaller scale of many of the lots.

FISCAL IMPACT: There is no significant fiscal impact of the proposed zoning amendment.

TOWN MANAGER RECOMMENDATION: Mark S. Ells, Town Manager, recommends the proposed zoning amendment.

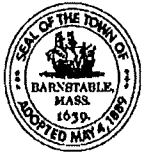
STAFF SUPPORT: Elizabeth Jenkins, Director of Planning & Development; Kate Maldonado, Assistant Director of Planning & Development; Gloria McPherson, Planning & Economic Development Coordinator; Karen Nober, Town Attorney; Kate Connolly, Assistant Town Attorney

- E. The total area of a projecting sign shall not exceed 15 square feet.
- F. The maximum height of any freestanding sign shall not exceed 8 feet in height and 12 square feet in area, except that the Building Commissioner may allow signs to be up to 24 square feet in area if the sign will include more than one business establishment and it is determined that the additional area will be in keeping with the scale of the building and will not detract from the appearance or safety of the area and will not obscure existing signs that conform to these regulations and have a Town permit.
- G. Any illuminated sign must comply with the provisions of § 240-63 herein.”

SPONSOR:

DATE	ACTION TAKEN
_____	_____
_____	_____
_____	_____

- _____ Read Item
- _____ Motion to Open Public Hearing
- _____ Rationale
- _____ Public Hearing
- _____ Close Public Hearing
- _____ Council Discussion
- _____ Vote



Town of Barnstable
Planning & Development Department
www.townofbarnstable.us/planninganddevelopment



Elizabeth Jenkins
Director

March 24, 2022

Department of Housing and Community Development
100 Cambridge Street, Suite 300 - Boston, MA 02114

Cape Cod Commission
P.O. Box 226 - 3225 Main Street (Route 6A) - Barnstable, MA 02630

Town of Sandwich, Planning Board
16 Jan Sebastien Drive - Sandwich, MA 02563

✓ Town of Mashpee, Planning Board
16 Great Neck Road - Mashpee, MA 02649

Town of Yarmouth, Planning Board
1146 Route 28 - Yarmouth, MA 02664

Town of Barnstable, Zoning Board of Appeals
367 Main Street- Hyannis, MA 02601

Reference: Town of Barnstable Planning Board
Proposed Zoning Amendment – TC Item No. 2022-146

AMENDING THE CODE OF THE TOWN OF BARNSTABLE, PART I GENERAL ORDINANCES, CHAPTER 240 ZONING BY MOVING AND RENUMBERING SECTION 240-122.1 REGISTERED RECREATIONAL MARIJUANA CULTIVATORS, RESEARCH FACILITIES, AND TESTING LABORATORIES INTO A NEW OVERLAY ZONING DISTRICT AND REPEALING SECTIONS 240-129 AND 240-129.1 EXPIRED TEMPORARY MORATORIUM FOR MARIJUANA USES

The Barnstable Planning Board, acting under Chapter 40A, Section 5 of the General Laws of the Commonwealth of Massachusetts, will hold a public hearing on Monday, April 11, 2022, at 7:00 p.m.

The purpose of this public hearing is to take comment on a proposal to amend the Code of the Town of Barnstable, Part I General Ordinances, Chapter 240 Zoning by moving and renumbering Section 240-122.1 Registered Recreational Marijuana Cultivators, Research Facilities, and Testing Laboratories into a new overlay zoning district and repealing Sections 240-129 and 240-129.1 expired temporary moratoria for marijuana uses.

The proposed zoning amendment is a corollary amendment to the proposed new Downtown Hyannis Zoning. Adult use registered recreational marijuana cultivators, research facilities, and testing laboratories are currently allowed within the Medical Services (MS) Zoning District and the Gateway Medical (GM) Zoning District. The new Downtown Hyannis Zoning will create a total of seven zoning districts, where there are currently eight, and the boundaries of the MS and GM Zoning Districts will change with the redrawing of the zoning district lines. The purpose of the proposed zoning amendment is to maintain the current location of the allowed recreational marijuana uses within a new overlay district that will be concurrent with the extent of the existing MS

and GM zoning districts. There are no changes proposed to the current allowed location of recreational marijuana uses and there are no changes proposed to the recreational marijuana use regulations themselves.

The proposed zoning amendment will also repeal Sections 240-129 and 240-129.1 expired temporary moratoria for registered recreational and medical marijuana uses.

A copy of the full zoning text amendments and zoning map amendment are available for review in the following manner:

- On the project page on the Planning & Development Department's website:
<https://www.townofbarnstable.us/departments/planninganddevelopment/Projects/Downtown-Hyannis-Zoning-Revision.asp>
- On Planning Board's webpage via the link under Meeting Materials:
<https://www.townofbarnstable.us/boardscommittees/PlanningBoard/default.asp?brd=Planning+Board&brdid=19&year=2022>
- At the Town Clerk's Office or Planning & Development Department Offices, Barnstable Town Hall, 367 Main Street, Hyannis
- Copies of the proposed amendments can also be obtained by calling 508-862-4791 or emailing Kaitlyn.maldonado@town.barnstable.ma.us.

Members of the public may participate in the Public Hearing through remote access via the Zoom link or telephone number and Meeting ID provided below.

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Link: <https://zoom.us/j/91059395056>

Phone: 888 475 4499 US Toll-free Meeting ID: 910 5939 5056

3. Applicants, their representatives and individuals required or entitled to appear before the Barnstable Planning Board may appear remotely, and may participate through accessing the link or telephone number provided above. Documentary exhibits and/or visual presentations should be submitted in advance of the meeting to Kaitlyn.maldonado@town.barnstable.ma.us, so that they may be displayed for remote public access viewing.

Attach: Notice Amendment Summary
Mapping
Copy: Planning Board File Zoning Amendment
Planning Board Chair

BARNSTABLE TOWN COUNCIL

22 MAR '22 PM4:18
BARNSTABLE TOWN CLERK

ITEM# 2022-146
INTRO: 03/03/2022

2022-146 AMENDING THE CODE OF THE TOWN OF BARNSTABLE, PART I GENERAL ORDINANCES, CHAPTER 240 ZONING BY MOVING AND RENUMBERING SECTION 240-122.1 REGISTERED RECREATIONAL MARIJUANA CULTIVATORS, RESEARCH FACILITIES, AND TESTING LABORATORIES INTO A NEW OVERLAY ZONING DISTRICT AND REPEALING SECTIONS 240-129 AND 240-129.1 EXPIRED TEMPORARY MORATORIAM FOR MARIJUANA USES

ORDERED: That the Code of the Town of Barnstable, Part I General Ordinances, Chapter 240 Zoning be amended as follows:

SECTION 1

By amending the Zoning Map of Barnstable, Mass., dated September 1, 1998, as previously amended, as referenced in Article II, Section 240-6, to add a Registered Recreational Marijuana Cultivators, Research Facilities, and Testing Laboratories Overlay District, as shown on maps dated January 21, 2022, prepared by the Town of Barnstable Geographical Information System Unit, and entitled:

- Proposed Amendment to the Town Zoning Map Creating the Registered Recreational Marijuana Cultivators, Research Facilities, and Testing Laboratories Overlay District
- Proposed Amendment to the Hyannis Zoning Map Creating the Registered Recreational Marijuana Cultivators, Research Facilities, and Testing Laboratories Overlay District

SECTION 2

By amending Article II, Section 240-5, Establishment of districts, by inserting "Registered Recreational Marijuana Cultivators, Research Facilities, and Testing Laboratories Overlay District" immediately below the "Medical Marijuana Overlay District" as it appears under the heading "Overlay Districts".

SECTION 3

- A. By striking the words "Article XII. Registered Recreational Marijuana Cultivators, Research Facilities and Testing Laboratories" and inserting "Article XII. (Reserved)" in their place.
- B. By moving Section 240-122.1, Registered recreational marijuana cultivators, research facilities and testing laboratories, in its entirety from Article XII to Article III and inserting and renumbering said section as Section 240-31..

SECTION 4

By amending said Article III, Chapter 240-31 as follows:

- A. In Subsection A(1), striking out “MS Medical Services District and the GM Gateway Medical District” and substituting in its place “Registered Recreational Marijuana Cultivators, Research Facilities and Testing Laboratories Overlay District”, so that revised Section 240-31 A(1) shall read:

“Purpose. To provide for the location of registered recreational marijuana cultivators, research facilities and independent testing laboratories, as defined herein, in accordance with Chapter 55 of the Acts of 2017 and M.G.L. c.94G, the Humanitarian Medical Use of marijuana Act. M.G.L. c.94C, App. § 1-1, et. seq., as amended by Chapter 55 of the Acts of 2017, M.G.L. c.94I, to be enacted pursuant to Chapter 55 of the Acts of 2017, and Cannabis Control Commission Regulations 935 CMR 500.00 governing Adult Use of marijuana, in locations within the Registered Recreational Marijuana Cultivators, Research Facilities and Testing Laboratories Overlay District suitable for lawful marijuana cultivation, research and Independent Testing and to minimize adverse impacts of marijuana cultivation, research facilities and independent testing laboratories on adjacent properties, residential neighborhoods, historic sites, schools and other locations where minors congregate by regulating the siting, design, placement, security, modification and removal of marijuana cultivators, research facilities and independent testing laboratories.”

- B. By amending Subsection A(3) by striking out “MS Medical Services District and the GM Gateway Medical District” and substituting in its place “Registered Recreational Marijuana Cultivators, Research Facilities and Testing Laboratories Overlay District”.
- C. By further amending Subsection A(3) by striking out the words “and § 240-24.1.2E”, so that revised Section 240-31 A(3) shall read:

“Use. Within the Registered Recreational Marijuana Cultivators, Research Facilities, and Testing Laboratories Overlay District, a licensed marijuana cultivator, research facility or independent testing laboratory may be permitted as a conditional use, provided a special permit is first obtained from the Planning Board. All special permits granted under this article shall be subject to the provisions of § 240-125C herein and subject to all additional standards and conditions of this article.”

- D. In Subsection A(4), striking out “MS Medical Services District and the GM Gateway Medical District” and substituting in its place “Registered Recreational Marijuana Cultivators, Research Facilities and Testing Laboratories Overlay District”, so that revised Section 240-31 A(4) shall read:

“Prohibition of all other non-medical marijuana establishments. Except for licensed marijuana cultivators, research facilities and independent testing laboratories permitted as a conditional use in the Registered Recreational Marijuana Cultivators, Research Facilities, and Testing Laboratories Overlay District, subject to all the requirements of this article, all other types of non-medical "marijuana establishments" as defined in M.G.L. c.94G § 1, including marijuana product manufacturers, marijuana retailers or

any other types of licensed related businesses are prohibited.”

E. In Subsection G, striking out “Article XII, § 240-122.1,” and substituting in its place “Article III, § 240-31” so that revised Section 240-31 G shall read:

“Severability. The provisions of Article III, § 240-31, are severable. If any provision shall be held to be invalid or unconstitutional by any court of competent jurisdiction, the remaining provisions shall continue in full force and effect.”

SECTION 4

By deleting Article XIV, Section 240-129 in its entirety.

SECTION 5

By deleting Article XIV, Section 240-129.1 in its entirety.

SPONSOR:

DATE

ACTION TAKEN

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

- _____ Read Item
- _____ Motion to Open Public Hearing
- _____ Rationale
- _____ Public Hearing
- _____ Close Public Hearing
- _____ Council Discussion
- _____ Vote

BARNSTABLE TOWN COUNCIL

ITEM# 2022-146
INTRO: 03/03/2022

SUMMARY

TO: Town Council
FROM: Mark S. Ells, Town Manager
THROUGH: Elizabeth S. Jenkins, Planning & Development Director
DATE: March 03, 2022
SUBJECT: Amending the Code of the Town of Barnstable, Part I General Ordinances, Chapter 240 Zoning by moving and renumbering section 240-122.1 Registered Recreational Marijuana Cultivators, Research Facilities, and Testing Laboratories into a new overlay Zoning District and repealing sections 240-129 and 240-129.1 expired temporary moratorium for Marijuana uses

RATIONALE: This proposed zoning ordinance amendment is a corollary amendment to the proposed new Downtown Hyannis Zoning.

Adult use registered recreational marijuana cultivators, research facilities, and testing laboratories are currently allowed within the Medical Services (MS) Zoning District and the Gateway Medical (GM) Zoning District. The new Downtown Hyannis Zoning will create a total of seven zoning districts, where there are currently eight, and the boundaries of the MS and GM Zoning Districts will be changed with the redrawing of the zoning district lines.

In order to maintain the current configuration and extent of the allowed recreational marijuana uses, we have created an overlay district that mirrors the current MS and GM zoning districts. By doing so, every lot that currently allows for recreational marijuana uses will continue to do so, and every lot that currently does not allow for recreational marijuana uses will continue to not allow them.

There are no changes proposed to the current allowed location of recreational marijuana uses; there are no changes proposed to the recreational marijuana use regulations themselves.

There is also a corollary zoning map amendment, which shows the new "Registered Recreational Marijuana Cultivators, Research Facilities, and Testing Laboratories Overlay Zoning District."

This amendment also repeals two expired temporary zoning moratoria on marijuana uses. Section 240-129 was a temporary moratorium on medical marijuana treatment centers. This moratorium expired on January 1, 2014. Section 240-129.1 was a temporary moratorium on recreational marijuana establishments and marijuana retailers. This moratorium expired on December 31, 2018.

Collectively, these amendments clean up and consolidate all provisions related to recreational

adult-use marijuana and medical marijuana and make them consistent with the proposed new Downtown Hyannis Zoning without changing any of the current regulatory provisions.

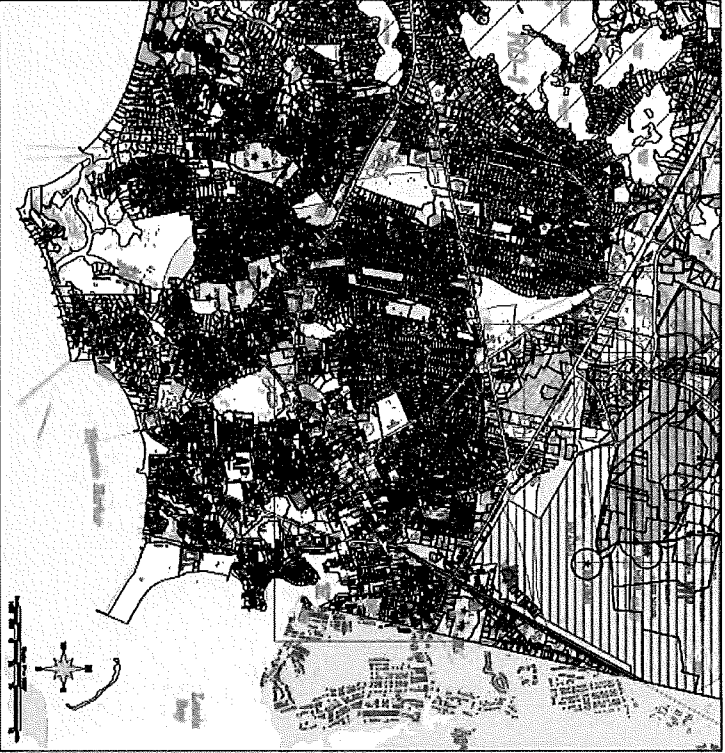
STAFF ASSISTANCE: Gloria McPherson, Planning & Economic Development Coordinator;
Kate Connolly, Assistant Town Attorney



PROPOSED AMENDMENT to the HYANNIS ZONING MAP Creating the Registered Recreational Marijuana Cultivators, Research Facilities, and Testing Laboratories Overlay District

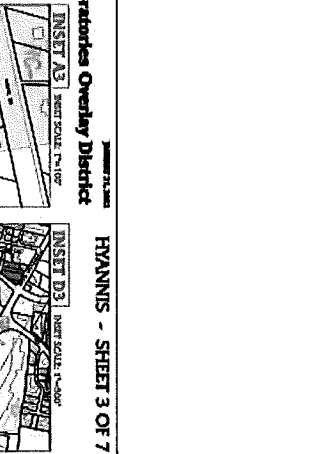
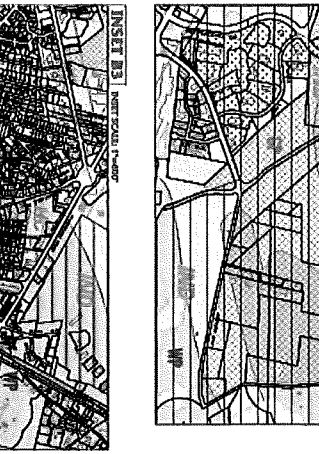
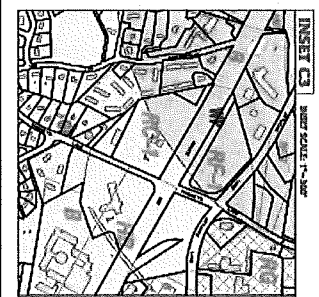
January 21, 2024

HYANNIS - SHEET 3 OF 7



Map Legend

	State Route		Registered Recreational Marijuana Cultivators, Research Facilities, and Testing Laboratories Overlay District
	Town of Hyannis		R-1 Zoning District
	R-2 Zoning District		R-3 Zoning District
	R-4 Zoning District		R-5 Zoning District
	R-6 Zoning District		R-7 Zoning District
	R-8 Zoning District		R-9 Zoning District
	R-10 Zoning District		R-11 Zoning District
	R-12 Zoning District		R-13 Zoning District
	R-14 Zoning District		R-15 Zoning District
	R-16 Zoning District		R-17 Zoning District
	R-18 Zoning District		R-19 Zoning District
	R-20 Zoning District		R-21 Zoning District
	R-22 Zoning District		R-23 Zoning District
	R-24 Zoning District		R-25 Zoning District
	R-26 Zoning District		R-27 Zoning District
	R-28 Zoning District		R-29 Zoning District
	R-30 Zoning District		R-31 Zoning District
	R-32 Zoning District		R-33 Zoning District
	R-34 Zoning District		R-35 Zoning District
	R-36 Zoning District		R-37 Zoning District
	R-38 Zoning District		R-39 Zoning District
	R-40 Zoning District		R-41 Zoning District
	R-42 Zoning District		R-43 Zoning District
	R-44 Zoning District		R-45 Zoning District
	R-46 Zoning District		R-47 Zoning District
	R-48 Zoning District		R-49 Zoning District
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	R-68 Zoning District		R-69 Zoning District
	R-70 Zoning District		R-71 Zoning District
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	R-74 Zoning District		R-75 Zoning District
	R-76 Zoning District		R-77 Zoning District
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	R-90 Zoning District		R-91 Zoning District
	R-92 Zoning District		R-93 Zoning District
	R-94 Zoning District		R-95 Zoning District
	R-96 Zoning District		R-97 Zoning District
	R-98 Zoning District		R-99 Zoning District
	R-100 Zoning District		R-101 Zoning District





Town of Barnstable
Planning & Development Department
www.townofbarnstable.us/planninganddevelopment



Elizabeth Jenkins
Director

March 24, 2022

Department of Housing and Community Development
100 Cambridge Street, Suite 300 - Boston, MA 02114

Cape Cod Commission
P.O. Box 226 - 3225 Main Street (Route 6A) - Barnstable, MA 02630

Town of Sandwich, Planning Board
16 Jan Sebastien Drive - Sandwich, MA 02563

✓ Town of Mashpee, Planning Board
16 Great Neck Road - Mashpee, MA 02649

Town of Yarmouth, Planning Board
1146 Route 28 - Yarmouth, MA 02664

Town of Barnstable, Zoning Board of Appeals
367 Main Street- Hyannis, MA 02601

Reference: Town of Barnstable Planning Board
Proposed Zoning Amendment – TC Item No. 2022-144

AMENDING THE CODE OF THE TOWN OF BARNSTABLE, PART I GENERAL ORDINANCES, CHAPTER 240 ZONING BY REPEALING THE ZONING DISTRICTS KNOWN AS THE “HYANNIS VILLAGE ZONING DISTRICTS” AND REPLACING THEM WITH REVISED AND UPDATED DISTRICTS COLLECTIVELY KNOWN AS THE “DOWNTOWN HYANNIS ZONING DISTRICTS”

The Barnstable Planning Board, acting under Chapter 40A, Section 5 of the General Laws of the Commonwealth of Massachusetts, will hold a public hearing on Monday, April 11, 2022, at 7:00 p.m. The purpose of this public hearing is to take comment on a proposal to amend the Code of the Town of Barnstable, Part I General Ordinances, Chapter 240 zoning by repealing the zoning districts known as the “Hyannis Village Zoning Districts” and replacing them with revised and updated districts collectively known as the “Downtown Hyannis Zoning Districts”.

The proposal is to amend the Code of the Town of Barnstable, Part I General Ordinances, Chapter 240 zoning by repealing the zoning districts known as the “Hyannis Village Zoning Districts” and replacing them with revised and updated districts collectively known as the “Downtown Hyannis Zoning Districts”.

Section 1 repeals the districts collectively known as the “Hyannis Village Zoning Districts” and replaces them with seven new districts collectively known as the “Downtown Hyannis Zoning Districts” as shown on map dated January 21, 2022, and available at Town Hall and on the website, as noted below.

Section 2 amends Section 240-5 by deleting the eight “Hyannis Village Zoning Districts” and inserting in its place the seven “Downtown Hyannis Zoning Districts”. The “Hyannis Parking Overlay District” is also deleted.

Section 3 amends Article III District Regulations to repeal Sections 240-24.1 through 240-24.1.13 and replaces them with new sections 240-24.1.1 through 240-24.1.13.

The following new sections are proposed to be incorporated with the proposed zoning amendment:

- Downtown Hyannis Zoning Districts, Title & General Provisions to establish the name, title, applicability and permitting authority for the proposed Downtown Hyannis Zoning Districts.
- Definitions to provide defined words, phrases and terms applicable for real property within the Downtown Hyannis Zoning Districts.
- Standards for all Districts to establish building standards, use provisions, parking standards and minimum required accessory parking spaces and site standards applicable to all seven Downtown Hyannis Zoning Districts.
- Standards for each of the seven proposed zoning districts including Downtown Main Street District (DMS), Downtown Village District (DV), Downtown Neighborhood District (DN), Downtown Hospital District (DH), Hyannis Harbor District (HH), Transportation Center District (TC), and Highway Commercial District (HC) to provide detailed provisions for each zoning district including the intent of each district and standards for lots, buildings, uses and sites customized for each specific district.
- Tables to provide a summary table of dimensional standards for all of the seven proposed zoning districts and standards for frontage types and building components.

The purpose of the proposed zoning amendment includes but is not limited to updating the zoning in Downtown Hyannis is to address housing goals, including increasing housing supply and diversity in areas with infrastructure and community activity and away from open spaces and areas with critical natural resource value; improve the urban fabric of downtown Hyannis in a manner consistent with its historic and maritime character and existing development patterns; improving the ease of use of the zoning ordinance for the public and for businesses and developers; and encouraging housing production and mixed use development at human-scale density, and create predictable outcomes in urban form.

A copy of the full zoning text amendments and zoning map amendments are available for review in the following manner:

- On the project page on the Planning & Development Department’s website:
<https://www.townofbarnstable.us/departments/planninganddevelopment/Projects/Downtown-Hyannis-Zoning-Revision.asp>
- On Planning Board’s webpage via the link under Meeting Materials:
<https://www.townofbarnstable.us/boardscommittees/PlanningBoard/default.asp?brd=Planning+Board&brdid=19&year=2022>
- At the Town Clerk’s Office or Planning & Development Department Offices, Barnstable Town Hall, 367 Main Street, Hyannis
- Copies of the proposed amendments can also be obtained by calling 508-862-4791 or emailing Kaitlyn.maldonado@town.barnstable.ma.us.

Members of the public may participate in the Public Hearing through remote access via the Zoom link or telephone number and Meeting ID provided below.

Alternative public access to this meeting shall be provided in the following manner:

1. The meeting will be televised via Channel 18 and may be viewed via the Channel 18 website at <http://streaming85.townofbarnstable.us/CablecastPublicSite/>

2. Real-time access to the Planning Board meeting is available utilizing the Zoom link or telephone number and Meeting ID provided below:

Link: <https://zoom.us/j/91059395056>









Phone: 888 475 4499 US Toll-free Meeting ID: 910 5939 5056

3. Applicants, their representatives and individuals required or entitled to appear before the Barnstable Planning Board may appear remotely, and may participate through accessing the link or telephone number provided above. Documentary exhibits and/or visual presentations should be submitted in advance of the meeting to Kaitlyn.maldonado@town.barnstable.ma.us, so that they may be displayed for remote public access viewing.

Attach: Notice Amendment Summary
Mapping
Copy: Planning Board File Zoning Amendment
Planning Board Chair



Downtown Hyannis Zoning Districts

-  DMS - Downtown Main Street
-  DV - Downtown Village
-  DN - Downtown Neighborhood
-  DH - Downtown Hospital
-  HH - Hyannis Harbor
-  TC - Transportation Center
-  HC - Highway Commercial
-  GIZ Boundary

January 21, 2022

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BARNSTABLE TOWN CLERK

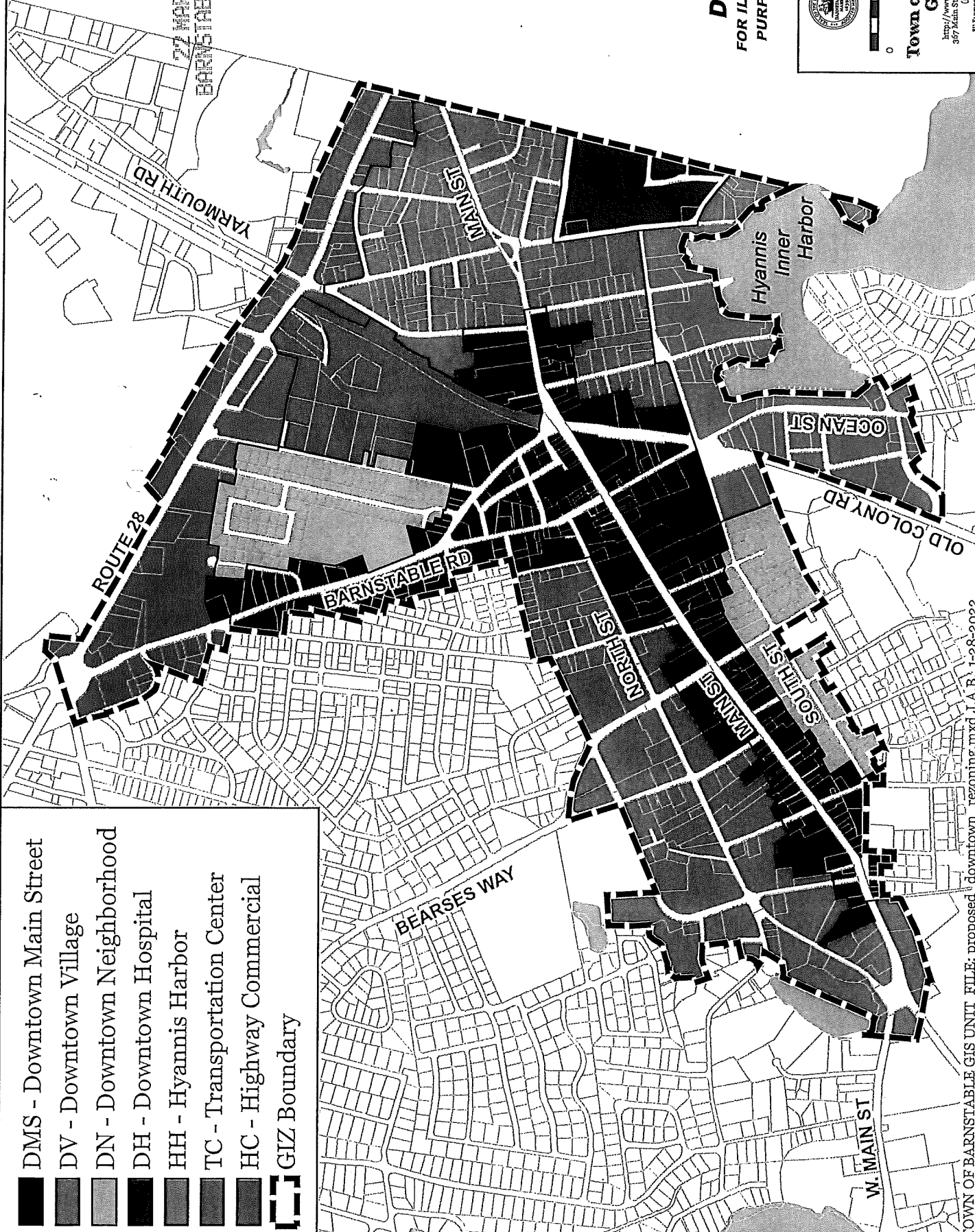
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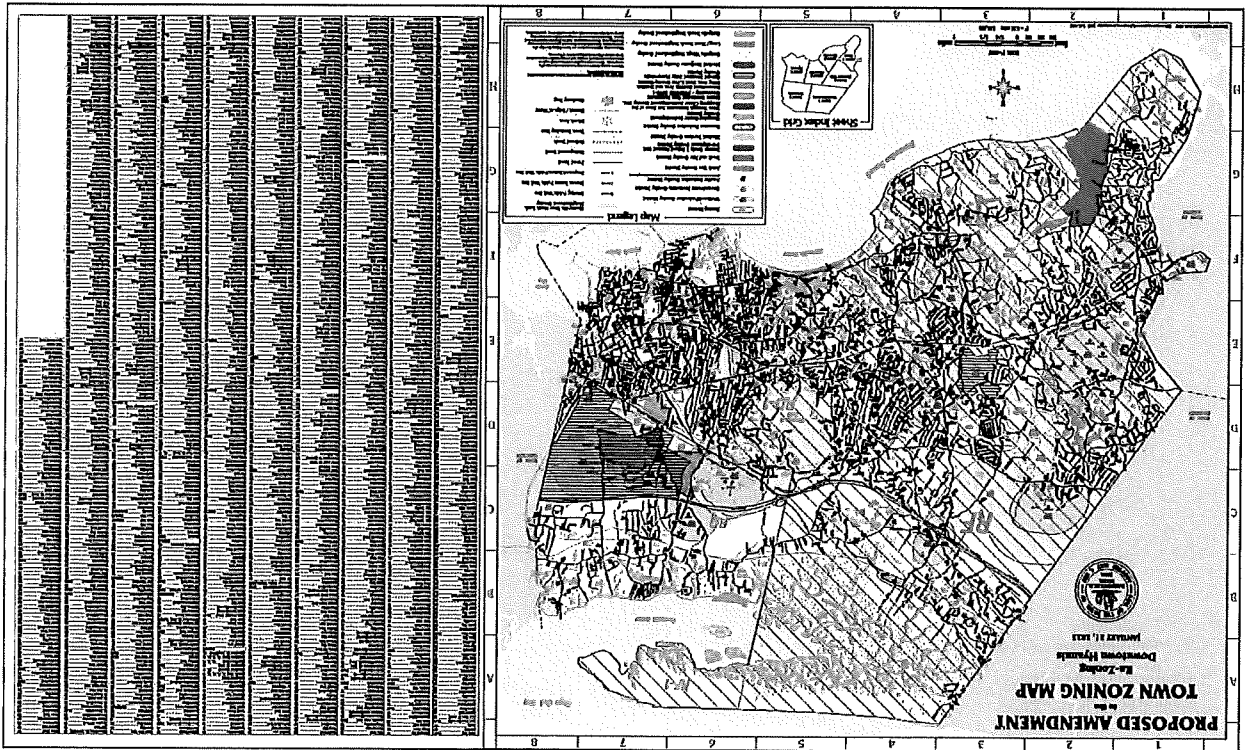
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**Town of Barnstable
GIS Unit**

<http://www.town.barnstable.ma.us>
397 Main St
Barnstable, MA 02531
Phone: 508-833-4644
Fax: 508-833-4644



TOWN OF BARNSTABLE GIS UNIT FILE: proposed_downtown_rezoning.mxd J.A.B. 1-28-2022



BARNSTABLE TOWN COUNCIL

**ITEM# 2022-144
INTRO: 03/03/2022**

2022-144 AMENDING THE CODE OF THE TOWN OF BARNSTABLE, PART I GENERAL ORDINANCES, CHAPTER 240 ZONING BY REPEALING THE ZONING DISTRICTS KNOWN AS THE “HYANNIS VILLAGE ZONING DISTRICTS” AND REPLACING THEM WITH REVISED AND UPDATED DISTRICTS COLLECTIVELY KNOWN AS THE “DOWNTOWN HYANNIS ZONING DISTRICTS”

ORDERED: That the Code of the Town of Barnstable, Part I General Ordinances, Chapter 240 Zoning be amended as follows:

SECTION 1: By amending the Zoning Map of Barnstable, Mass. Dated September 1, 1998, as previously amended, as referenced in Article II, Section 240-6, to repeal the districts collectively known as the “Hyannis Village Zoning Districts” and replace them with seven (7) new districts collectively known as the “Downtown Hyannis Zoning Districts”, as shown on maps dated January 21, 2022, prepared by the Town of Barnstable Geographical Information System Unit, and entitled:

- Proposed Amendment to the Hyannis Zoning Map Re-Zoning Downtown Hyannis
- Proposed Amendment to the Town Zoning Map Re-Zoning Downtown Hyannis

SECTION 2

A. By amending Article II, Section 240-5, Establishment of districts, by deleting:

“Hyannis Village Zoning Districts”

- HVB Hyannis Village Business District
- MS Medical Services District
- SF Single Family Residential District
- OM Office/Multi-Family Residential District
- HD Harbor District
- HG Hyannis Gateway District
- TD Transportation Hub District
- GM Gateway Medical District”

and inserting in its place:

“Downtown Hyannis Zoning Districts”

- DMS Downtown Main Street
- DV Downtown Village
- DN Downtown Neighborhood

HH	Hyannis Harbor
TC	Transportation Center
HC	Highway Commercial
DH	Downtown Hospital”

B. By further amending said Section 240-5 by deleting “Hyannis Parking Overlay District” as it appears under the heading “Overlay Districts”.

SECTION 3

By amending Article III District Regulations to repeal Sections 240-24.1 through 240-24.1.13 and replace them with the following new Sections 240-24.1.1 through 240-24.1.13:

“§240-24.1.1 Downtown Hyannis Zoning Districts”

§240-24.1.2 Title

These districts shall be collectively known as the "Downtown Hyannis Zoning Districts."

§240-24.1.3 General Provisions

A. Applicability

1. Where the provisions of Sections 240-24.1.1 through 240-24.1.13 conflict with those found elsewhere in the Barnstable Zoning Ordinance, the provisions of this Section shall apply.
2. The provisions of the Barnstable Zoning Ordinance § 240-6.C (3) shall not apply within the Downtown Hyannis Zoning Districts.

B. Development Review

1. The Planning Board is the Special Permit Granting Authority (SPGA) for all development within the Downtown Hyannis Zoning Districts.
2. Development within the Downtown Hyannis Zoning Districts, excluding single-family residences, must comply with Article IX, §240-103, site development standards, and the Design and Infrastructure Plan.
 - (a) The Planning Board shall establish a Design and Infrastructure Plan (DIP) which shall be adopted after a public hearing.
3. The use of land or occupancy of floor space is permitted as specified by §240-24.1.5.B Use Provisions.

C. Compliance

1. Any modification to an existing structure that results in greater conformance to this Ordinance is permitted.
2. Any modification to an existing structure that increases an existing nonconformity or creates a new nonconformity is prohibited.

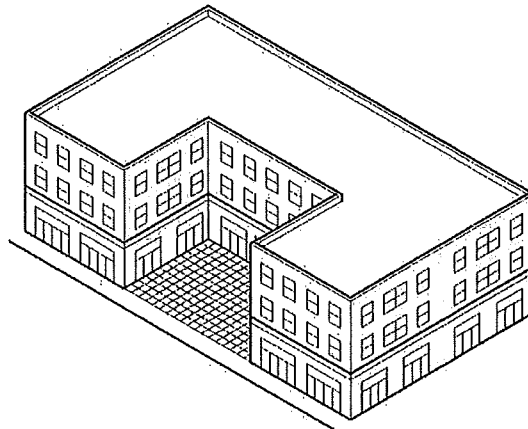
§240-24.1.4 Definitions

A. General

1. The following defined words, phrases, and terms are applicable for real property within the Downtown Hyannis Zoning Districts.

Accessory Parking	Motor vehicle parking spaces that are incidental but supportive of (a) principal building(s).
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Building Component	A structural projection from the main massing or roof of a building that increases habitable square footage or enhances the usefulness of floor area.
Commercial Parking	A surface parking lot or structured parking facility providing short- or long-term parking service for a fee.
Commercial Service	The provision of various services, entertainment, or recreational opportunities to individuals, groups, or businesses including animal care, assembly & entertainment, banking & financial services, building & home repair, business support, day care & education, maintenance & repair of consumer goods, personal services, gyms & health clubs, and recreational services.
Cultural Services	The provision of social or cultural services to individuals or groups including membership based social organizations and the production, manufacture, publishing, rehearsal, performance, broadcast, selling, or teaching of the arts.
Development	The platting of any lot, construction of any structure, or establishment of any parking lot that did not exist prior to the adoption of the Downtown Hyannis Zoning Districts.
Façade.	Any exterior wall of a principal building oriented toward a front lot line.
Fenestration	The openings in the façade of a building, including windows and doors.
Food & Beverage Services	The provision of food or beverages for on- or off-site sale or consumption.
Forecourt	An open space between the forward projecting wings of a building.



Frontage Area	The area of a lot between the façade of a principal building and any front lot line(s), projected to the side lines of the lot.
Frontage Type	A distinct combination of façade and frontage area design features.
Health Care Clinic	The provision of health care services to patients or clients excluding inpatient or overnight care.
Hospital	A facility for the care and treatment of patients as licensed by the Massachusetts Department of Public Health under MGL c. 111, §51.
Lot Coverage	The ratio or percentage of a lot that is covered by principal buildings, outbuildings, accessory structures, and impervious paved surfaces including driveways, parking lots and sidewalks.
Modification	The alteration or structural change of an existing structure and any change to the parking capacity of an existing parking lot.
Office	The administrative, professional, or clerical operations of a business and the provision of outpatient health services to patients or clients by appointment.
Outbuilding	A free-standing, fully enclosed structure for an accessory use or for activities customary to the principal use of land or a principal building.
Principal Building	The primary building on a lot.

Principal Entrance	The addressed entrance to a building or commercial space.
Recreational Facility	The provision of public recreational services including bowling and billiards, and video arcades.
Research & Development	The analysis, testing, and development of ideas and technology including computer software, information technology, communications systems, transportation, and multi-media technology where the construction of prototypes may be an ancillary activity.
Residential	The provision of living accommodations.
Retail Sales	The sale, lease, or rental of new or used goods to the ultimate consumer.
Shrub, Large	A multi-stemmed, woody plant with an expected mature height of six (6) feet.
Shrub, Medium	A multi-stemmed, woody plant with an expected mature height of four (4) feet.
Shrub, Small	A multi-stemmed, woody plant with an expected mature height of two (2) feet.
Story	The portion of a building located between the surface of a habitable floor and the surface of the habitable floor or roof next above.
Story, Ground	The lowest story of a building with a finished floor at or above the finished ground level next to a building at the facade.
Story, Upper	Any story above the ground story of a building.
Through Lot	A lot fronting on two (2) or more improved ways, excluding a corner lot.
Tree, Canopy	A deciduous tree with an expected mature height of thirty (30) feet or more.
Tree, Evergreen	An evergreen tree (conifer) with an expected mature height of twenty (20) feet or more.
Tree, Understory	A deciduous tree with an expected mature height of twenty (20) feet or more.
Visitor Accommodations	The provision of temporary lodging in guest rooms or guest units for a fee.

§240-24.1.9 Standards for all Districts

B. Building Standards

1. Frontage types.

- (a) Buildings must have at least one (1) frontage type except if otherwise specified. Buildings on corner lots must have two (2) frontage types, one (1) for each frontage.
- (b) Frontage types are permitted as specified by Table 11.
- (c) Multiple frontage types may exist for buildings that have more than one (1) principal entrance.

2. Buildings must have at least one (1) principal entrance located on the façade.

- (a) Multi-story buildings with ground floor commercial space(s) must have one (1) principal entrance for each commercial space in addition to any principal entrance(s) necessary for any upper stories.

3. Buildings may not exceed the maximum number of stories as specified for each district.

- (a) Each individual story of a building must comply with the minimum and maximum story height specified for each district.
- (b) Story height is measured vertically from the surface of the finished floor to the surface of the finished floor above. When there is no floor above, story height is measured from the surface of the finished floor to the top of the structural beam or joists above or the top of the wall plate, whichever is more.
- (c) The ground story is always counted as one (1) story, except that a single ground story over eighteen (18) feet in height is counted as two (2) stories.
- (d) Each upper story is counted as one (1) additional story, except that any upper story over sixteen (16) feet is counted as two (2) stories.

- (e) Basements are not counted as one (1) story unless the finished floor of the ground story is five (5) feet or more above the average ground level of the lot.
- (f) Habitable space located directly under a pitched roof is counted as a half (0.5) story.
 - (i) The roof rafters of a half story must intersect the wall plate or top of wall frame of the exterior walls at a height no more than (2) feet above the finished floor of the half story.
- (g) Non-habitable attic space located under a pitched roof is not counted a half story.
- (h) Pitched roofs with a slope greater than 12:12 require a Special Permit.
- 4. Buildings may not exceed the maximum building height specified for each district, as applicable.
 - (a) Building height is measured as the vertical distance from the average finished ground level to the top of the structural beam or joists of the upper most story.
- 5. Non-habitable architectural features including, but not limited to, mechanical & stairwell penthouses; vents or exhausts; solar panels or skylights; belfries, chimneys, cupolas, parapets, spires, and steeples are not included in any building height or story calculations and are permitted on roofs.
- 6. Building components are permitted as specified by Table 12.
- 7. Facades must have fenestration as specified for each district, as applicable.
 - (a) Fenestration is calculated as a percentage of the area of a façade.
 - (b) For buildings with ground story commercial spaces, ground story fenestration is measured between two (2) feet and twelve (12) feet above the finished floor of the ground story.
 - (c) For all other buildings and all other building stories, fenestration is measured independently for each story, corresponding with the top of a finished floor to the top of the finished floor above.
- 8. Fenestration enclosed with glass may be included in the calculation if it meets the following criteria:
 - (a) For ground story fenestration, glazing must have a minimum sixty percent (60%) Visible Light Transmittance (VLT) and no more than fifteen percent (15%) Visible Light Reflectance (VLR) as indicated by the manufacturer.
 - (b) For upper story fenestration, glazing must have a minimum of forty percent (40%) VLT and no more than fifteen percent (15%) VLR as indicated by the manufacturer.

C. Use Provisions

1. General

- (a) The use of real property is permitted as specified by Table 1.
 - (i) Table 1 is organized by broad use categories and specific uses that may be regulated differently than other uses from the same category.
 - (ii) Use categories are intended to include uses with similar functional, product, or physical characteristics; the type and amount of activity; the manner of tenancy; the conduct of customers; how goods or services are sold or delivered; and the likely impacts on surrounding properties.
 - (iii) Where Table 1 identifies a category followed by “except as follows” any use that meets the definition of that use category is permitted by right, while the specific uses identified in the list under that category are either not permitted, are permitted with limitations, or require a special permit despite belonging to the same use category.
 - (iv) Where Table 1 identifies a category followed by “as specified below” the specific uses listed under the category are the only land uses permitted from that use category.
- (b) The Building Commissioner shall classify the actual use of land or structures using the defined use categories specified on Table 1. Also see §240-24.1.4 Definitions.
 - (i) Real property may have one (1) or more principal use(s).
 - (ii) Once classified into a use category, the use of land or structures in the same manner cannot also be classified into another use category.
 - (iii) The use of land or structures in a manner that is inconsistent with a permitted use category or specific use type specified on Table 1 is prohibited.

- (iv) Unless classified as a specific use that is not permitted in a zoning district, an existing nonconforming use may be changed to another nonconforming use that is from the same use category as the existing nonconforming use by Special Permit.
- (v) A nonconforming use may not change to a different nonconforming use that is from a different use category than the existing nonconforming use.

Use Category Specific Use	DMS	DV	DN	HH	TC	HC	DH
Commercial Services (except as follows)	P	P	N	P	P	P	P
Automobile Maintenance & Repair	N	N	N	N	N	N	N
Boat Storage	N	N	N	N	N	N	N
Contractor Services	N	N	N	N	N	N	N
Funeral Services	N	N	N	N	N	N	N
Marina	N	N	N	SP	N	N	N
Commercial Parking	N	N	N	N	P	SP	N
Public Transportation Maintenance	N	N	N	N	SP	N	N
Recreational Facility	SP	SP	N	SP	SP	SP	SP
Self-Storage Facility	N	N	N	N	N	SP	N
Veterinary Services	N	N	N	N	N	P	N
Cultural Services (as specified below)	--	--	--	--	--	--	--
Arts & Culture Establishments	P	P	N	P	P	P	N
Fraternal & Social Organizations	P	P	N	P	P	P	N
Performing Arts & Theaters	P	P	N	P	P	P	N
Artist Live/Work	P	P	P	P	P	N	N
Food & Beverage Services (except as follows)	L	L	N	L	P	P	P
Brewery/Distillery	L	N	N	N	N	N	N
Hospital	N	N	N	N	N	N	P
Office (except as follows)	P	P	L	P	P	P	P
Health Care Clinic	P	P	L	P	N	P	P
Research & Development	P	P	N	P	N	P	P
Residential (as specified below)	--	--	--	--	--	--	--
Multi-Unit Dwelling	L	L	N	L	L	N	N
Two-Unit Dwelling	P	P	L	N	N	N	N
Single Unit Dwelling	N	P	P	N	N	N	N
Retail Sales (except as follows)	L	L	N	L	P	P	P
Boat Sales	N	N	N	SP	N	N	N
Gasoline Sales	N	N	N	N	N	N	N
Motor Vehicle Sales	N	N	N	N	N	N	N
Visitor Accommodations (as specified below)	--	--	--	--	--	--	--
Hotel/Motel	P	N	N	P	N	P	N
Bed & Breakfast	N	P	P	P	N	N	N

P – Permitted By-Right SP – Special Permit
 N – Not Permitted L – Permitted with Limitations (see district)

D. Parking Standards

1. Applicability

- (a) Parking is required based on the intended use of floor area within a building at construction permitting and not for the subsequent establishment, change, or expansion of any permitted use; or the renovation of any existing principal building.

2. General

- (a) Accessory parking must be provided as specified by Table 2 and is calculated as the sum of all required spaces, including any adjustment specified for on-site shared parking.
 - (i) Commercial Parking uses are exempt from Table 2.
- (b) Relief from the parking requirements of Table 2 requires a Special Permit.
- (c) In its discretion to approve or deny a Special Permit authorizing relief from the minimum parking requirements of Table 2, the Planning Board shall consider conditioning the Special Permit upon one or more of the following:
 - (i) Elimination or reduction of existing curb cuts and driveway aprons
 - (ii) Establishment of a shared driveway or cross-access connection between abutting parking lots with a binding easement and joint maintenance agreement defining the responsibilities of abutting property owners sharing access.

3. Location

- (a) Accessory parking spaces must be located on the same lot as the building they support and may be provided within a principal building or outbuilding or as surface parking.
- (b) Motor vehicle parking of any type is prohibited within the frontage area of a lot and any required landscape buffer.
 - (i) Real property in the Highway Commercial (HC) district or in the Downtown Hospital (DH) district is exempt.

Table 2. Minimum Required Accessory Parking Spaces

Use Category	DMS	DV	DN	DH	HH	TC	HC	On Site Shared Parking Adjustment ¹
Commercial Services (per 1,000 sf)	0	4	N/A	4	4	4	4	Subtract 80% of any spaces provided for any Residential uses on the same lot from the total required for all uses
Cultural Services (per 1,000 sf)	0	4	4	4	N/A	4	4	Subtract 20% of any spaces provided for any Residential uses on the same lot from the total required for all uses
Food & Beverage Services (per 1,000 sf)	0	4	N/A	4	4	4	4	--
Hospital (per 3 beds)	N/A	N/A	N/A	1	N/A	N/A	N/A	--
Office (per 1,000 sf)	3	3	3	3	3	3	3	Subtract 80% of any spaces provided for any Residential uses on the same lot from the total required for all uses
Residential or Artist Live/Work (per DU)	1	1	1	N/A	1	1	N/A	--
Retail Sales (per 1,000 sf)	0	4	N/A	4	4	4	4	Subtract 20% of any spaces provided for any Residential uses on the same lot from the total required for all uses
Visitor Accommodations (per room)	1.25	1.25	1.25	N/A	1.25	N/A	1.25	--

¹ Rounded up to the nearest whole number

E. Site Standards

1. Forecourts

- (a) Driveways and passenger drop-offs are permitted in forecourts by Special Permit.
 - (ii) Real property fronting Main Street or in the Downtown Hospital (DH) district is exempt.
- (b) Garage entrances, parking spaces, loading and service areas, exhaust vents, mechanical equipment, and refuse or recycling storage are not permitted in forecourts.

2. Landscaping

- (a) Lot area uncovered by structures or impermeable surfaces must be landscaped.
- (b) New canopy trees must be at least fourteen (14) feet in height or three (3) inches in caliper when planted.
- (c) New understory trees must be at least ten (10) feet in height or one and a half (1.5) inches in caliper when planted.
- (d) New evergreen trees must be at least six (6) feet in height when planted.
- (e) Vegetation must be low water use and low maintenance plant species that are indigenous to Cape Cod. Plant species should be capable of withstanding seasonably wet conditions and provide habitat value for wildlife.
- (f) Landscaped areas must be maintained, irrigated, and fertilized. Vegetation should be organically maintained to every extent practicable.
- (g) Vegetation may not obscure any driveways, vehicular entrances, or roadway intersections.
- (h) Mulch may not be placed in a manner that will wash into catch basins or drainage pipes.
- (i) All Site Plan and Special Permit applications must submit a Landscape Plan(s) signed and stamped by a MA registered Landscape Architect unless waived/exempt by the Building Commissioner.
- (j) The Building Commissioner shall not issue a Certificate of Occupancy until the landscaping has been installed in accordance with the approved plans unless the property owner posts security to the Town of Barnstable for one hundred and fifty percent (150%) of the estimated cost of installation of the landscaping.
- (k) Any fractional value required for plant materials is rounded up to the next whole number.

3. Stormwater Management

- (a) Rain gardens should be used to the maximum extent practicable. Rain gardens are defined as landscaped areas designed to absorb and filter stormwater runoff from impervious surfaces.

4. Signs

- (a) All development shall comply with the applicable signage requirements contained in Article VII, Sign Regulations, at §240-59 through 240-89, inclusive, of the Barnstable Zoning Ordinance. Internally illuminated signs are prohibited in the Downtown Hyannis Zoning Districts.

5. Outdoor Lighting

- (a) All outdoor lighting must be directed only on site.
 - (i) The trespass of light at any lot line may not exceed 0.1 of a footcandle, except that the trespass of light at any lot line abutting a lot in Downtown Neighborhood (DN) district may not exceed 0.05 footcandle.
 - (ii) At driveways, lighting may be up to 0.5 of a footcandle at the front lot line.
 - (iii) Outdoor lighting may not cause glare that impacts motorists, pedestrians, or neighboring premises.
- (b) Light fixtures must have a total cutoff of all light at less than ninety degrees (90°) and a beam cutoff of less than seventy-five degrees (75°). Attached building or wall pack lighting should be screened by the building's architectural features or contain a forty-five-degree cutoff shield.
- (c) Electrical service for lighting on posts or poles must be located underground.

6. Fences

- (a) Fences greater than four (4) feet in height in the frontage area and seven (7) feet in height in all other locations at any point along their length require a Special Permit except that where fencing that is higher than seven (7) feet is needed to screen mechanical equipment, the Building Commissioner may allow a greater height as determined through the Site Plan Review process.
- (b) Fences may be no more than fifty percent (50%) open.
- (c) Fence posts and supporting rails must face inward toward the property being fenced and the finished face must be oriented towards the abutting lot.

7. Vehicular Access

- (a) Driveways, vehicular entrances to parking lots or structures, and curb cuts must comply with the minimum or maximum width specified for each district.
- (b) Drive throughs require a Special Permit and are only permitted for the following uses:
 - (i) Banks (a specific use of the Commercial Service use category)
 - (ii) Pharmacies (a specific use of the Retail Sales use category)
- (c) All new curb cuts require a Special Permit.
- (d) The interior width of a curb cut (between the curb stones or flares) may be no wider than the driveway, vehicular entrance, or loading facility it serves, unless a greater width is determined to be appropriate by the Building Commissioner during the Site Plan Review process based upon unique operational requirements of the proposed use.
- (e) A driveway apron may be installed within a sidewalk of an improved way, but the grade, cross slope, and clear width of the pedestrian walkway must be maintained between the driveway apron and the abutting driveway.
- (f) The appearance of the pedestrian walkway (ie. scoring pattern or paving material) must indicate that, although a vehicle may cross to enter a property, the area traversed by a vehicle remains part of the sidewalk.

8. Utilities

- (a) All mechanical equipment must be screened from view from adjacent lots and public rights-of-way and integrated into or compatible with the architectural design of the building.

F. Surface Parking Lot Design Standards

1. Applicability

- (a) This section is applicable to the construction of any new surface parking lot and the expansion or modification of an existing surface parking lot containing twenty-one (21) or more parking spaces that increases the number of parking spaces by five (5) or more.

2. General

- (a) To reduce traffic congestion and increasing convenience for customers, employees, and residents, development is encouraged to provide direct vehicular connections between abutting parking lots so that motor vehicles can move between properties without re-entering the public street.
- (b) To increase walkability and reduce conflicts between pedestrians and motor vehicles, development is encouraged to provide access to rear parking lots via driveways that are shared between abutting properties or multiple properties on the same block face.

3. Surface Parking Lot Landscaping

- (a) One (1) three (3) inch minimum caliper low-water-use, low-maintenance tree must be provided for every five (5) parking spaces and must be located within ten (10) feet of the parking lot. Trees shall be maintained and irrigated as necessary and planted within at least fifty (50) square feet of permeable area. Existing trees located in the interior of parking lots are credited toward this requirement.

- (b) A front landscaped buffer at least ten (10) feet wide must be provided between any parking lot and any lot line abutting an improved way and must include the following features over the span of fifty (50) linear feet:
 - (i) One (1) canopy tree
 - (ii) One (1) understory or evergreen tree
 - (iii) Five (5) medium shrubs and five (5) small shrubs or a fence or wall a maximum of four (4) feet in height.
- (c) A side/rear landscaped buffer at least six (6) feet wide must be provided between any side or rear lot line and any parking lot with five (5) or more parking spaces, excluding any vehicular connections to abutting parking lots and must include the following features over the span of fifty (50) linear feet:
 - (i) Two (2) understory or evergreen trees
 - (ii) Three (3) large shrubs and five (5) small shrubs or a fence or wall at least six (6) feet in height.
- (d) A landscaped buffer at least ten (10) feet wide must be provided between any building and any parking lot with ten (10) or more parking spaces, excluding building entrances, service and loading areas, and utility locations, and must include the following features over the span of fifty (50) linear feet:
 - (i) Two (2) understory or evergreen trees
 - (ii) Four (4) medium shrubs
 - (iii) Six (6) small shrubs
- (e) At least ten percent (10%) of any parking lot with ten (10) or more parking spaces must be landscaped. Lot area required as a landscape buffer is excluded from the calculation of the parking lot area.
- (f) Landscape islands abutting a single row of parking spaces must be at least six (6) feet in width and the same length as the parking spaces. Each island must include one (1) three (3) inch minimum caliper, low-water-use, low-maintenance tree.
- (g) Landscape islands abutting a double row of parking spaces must be at least eight (8) feet in width and the same length as the parking spaces. Each island must include two (2) three (3) inch minimum caliper, low-water-use, low-maintenance trees.

§240-24.1.10 Downtown Main Street District (DMS)

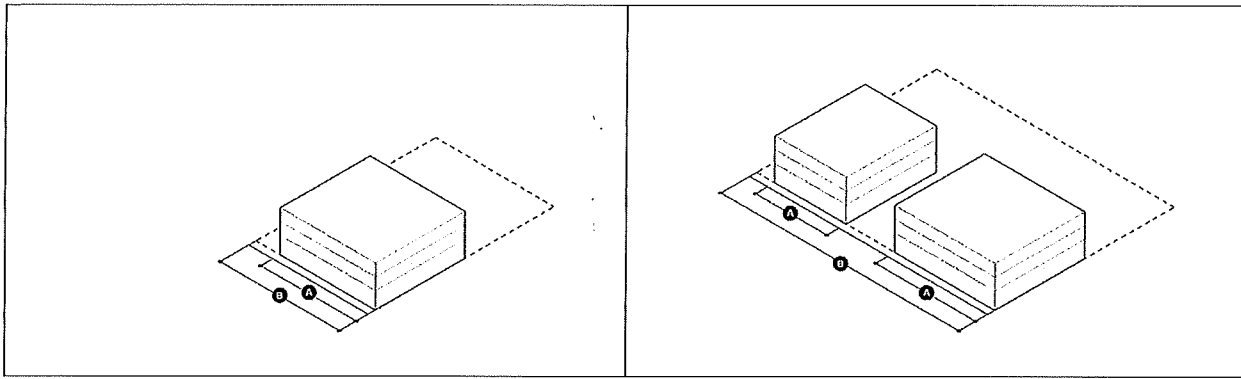
A. Intent

1. The Downtown Main Street District is intended to promote the continuation of a walkable, pedestrian-oriented downtown environment with continuous active streetscape. Development is characterized by mid-rise mixed-use buildings, continuous street walls and variety of materials with parking visually minimized. Land uses are mixed residential and active commercial, including retail, restaurant, office, hospitality, cultural and institutional.

B. Lot Standards

1. Newly platted lots must be dimensioned as specified by Table 3.
2. Building facades must have a minimum width that is equal to a percentage of a lot's width and is specified as the façade build out by Table 3.
 - (a) Façade build out is calculated by dividing the total width of all facades by the lot width and may be cumulatively calculated by multiple buildings.
 - (b) The open space of a forecourt is considered part of the building for the purpose of measuring building width and façade build out.
 - (c) The SPGA may provide relief from the façade build out requirements; the Board must find the issuance of the special permit is consistent with the Design and Infrastructure Plan.

Façade Build Out

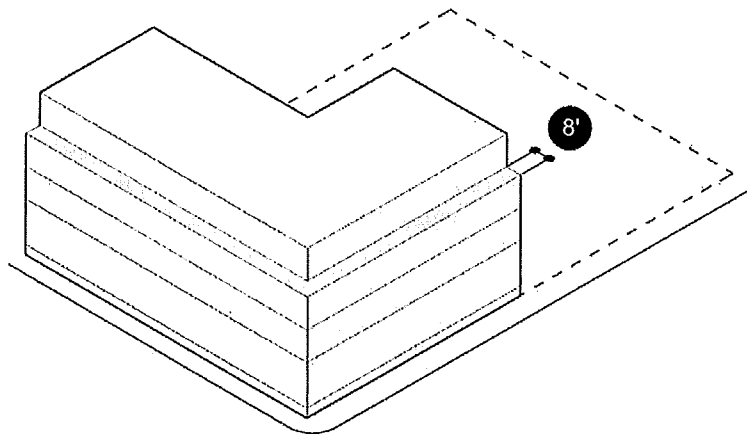


Single Building per Lot = $A \div B$

Multiple Buildings per Lot = $(A+A) \div B$

C. Building Standards

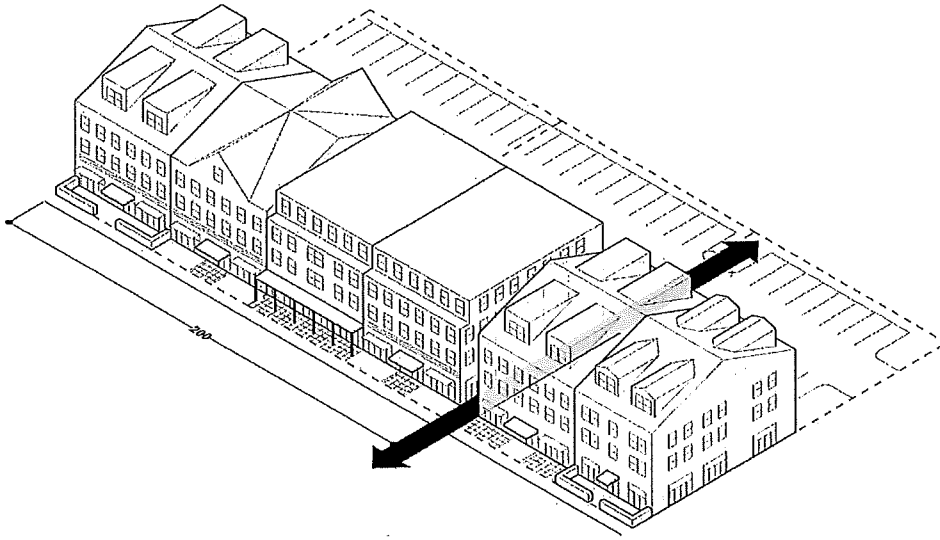
1. Multiple principal buildings are permitted per lot.
2. Principal buildings are permitted as specified by Table 3.
 - (a) Additional principal buildings are exempt from the required maximum front setback.
3. Principal building façade(s) must be built parallel to any primary front lot line, at or between the minimum and maximum front setbacks.
4. Any building contributing toward the frontage buildout for any lot fronting Main Street between Ocean Street and Sea Street must provide ground story commercial space that is at least twenty (20) feet in depth for one hundred percent (100%) of the total width of the building, excluding lobby entrances and other means of egress associated with the use of upper stories.
5. Awnings, canopies, signs, balconies, and non-habitable architectural features of a building may project over the public sidewalk but must provide at least eight (8) feet of clearance and a license from the Town Manager in accordance with Barnstable General Ordinances, Part 1, Chapter 121, § 121-6J is required.
6. The fourth (4th) story of any building must be recessed (“stepped back”) from the façade of the stories below at least eight (8) feet.



7. Mechanical & stairwell penthouses and building systems equipment must be setback from any exterior wall a distance that is equal to their height.
8. Facades may not have any blank wall areas without fenestration or architectural surface relief greater than twenty (20) feet measured both vertically and horizontally for all stories of a building for any facade.
9. Loading and service areas may not be visible from any public sidewalk of Main Street.

D. Design Guidelines

1. The development of any new principal building should include a pedestrian passage connecting the sidewalk at the front of the property to any parking areas to the rear of the building, to every extent practicable, where no such pedestrian passage exists within two hundred (200) linear feet of the building's principal entrance.



2. When provided, pedestrian passages may be designed as an open-air passage between buildings, a covered atrium providing continuous protection from the elements, or as an up to two (2) story passage through a building.

E. Use Provisions

1. Limitations

- (a) Occupation of a single commercial space greater than five thousand (5,000) square feet by any Food & Beverage Service or Retail Sales use requires a Special Permit.
- (b) The maximum number of dwelling units permitted for any Multi-Unit Dwelling residential use is determined by the permitted dimensions of the building and the actual motor-vehicle parking spaces provided on a lot as required by Table 2.

F. Site Standards

1. Driveways, vehicular entrances to parking lots or structures, and curb cuts may be no wider than twenty-four (24) feet.

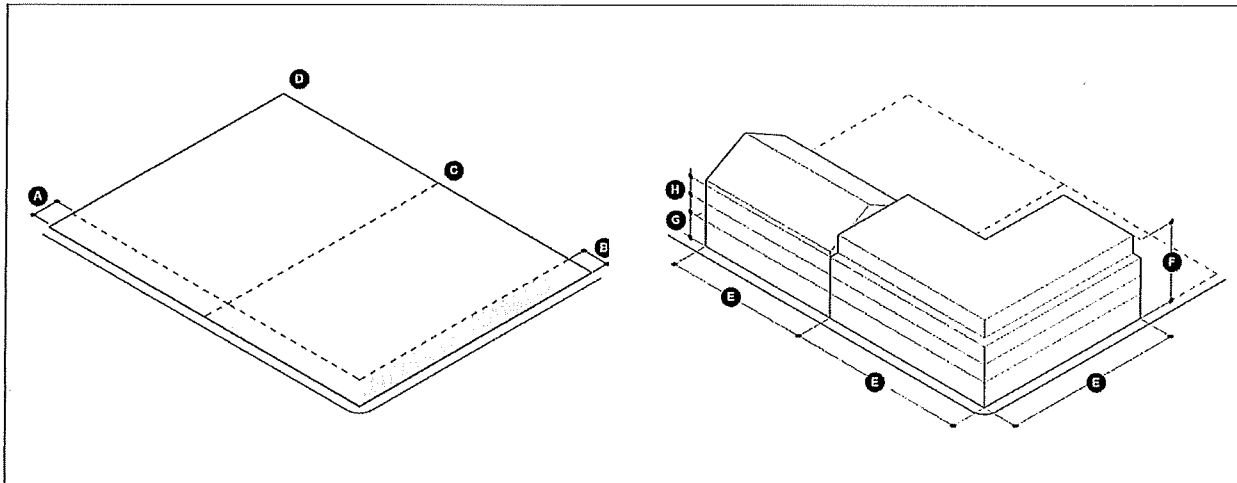
G. Landscape Standards

1. A front landscape area is not required if the front setback is zero. When a setback is greater than zero, those portions of the setback not occupied by pedestrian amenities and public spaces shall be landscaped including one (1) canopy tree to be planted every thirty (30) feet of frontage of the property.
2. A side or rear landscaped area at least six (6) feet wide must be provided along any side or rear lot line abutting a lot in Downtown Neighborhood (DN) district and must include the following features over the span of fifty (50) linear feet:
 - (i) Two (2) understory or evergreen trees
 - (ii) Three (5) medium shrubs and three (3) small shrubs or a fence or wall at least six (6) feet in height.

H. Parking Standards

1. For development on any through lot fronting Main Street, parking access must be provided from the non-Main Street frontage.

Table 3. DMS Dimensional Standards



LOT		BUILDING FORM	
Lot Width	30' min	E - Building Width	180' max
Lot Coverage	100% max	F - Number of Stories	3.5 or 4 max ²
Façade Build Out (min)	--	G - Ground Story Height	--
Primary Frontage	80% min	Commercial	14' min
Secondary Frontage	40% min	Residential	10' min
SETBACKS – PRINCIPAL BUILDINGS		H - Upper Story Height	10' min
A - Primary Front Setback	0' min 15' max	BUILDING FEATURES	
B - Secondary Front Setback	0' min 15' max	Ground Story Fenestration	--
C - Side Setback	0' min	Primary Frontage	60% min
D - Rear Setback	0' min	Secondary Frontage	15% min
		Upper Story Fenestration	15% min
		Blank Wall	20' max
		Commercial Space Depth	20' min

² See 240-24.1.6.C.6 (4th Story Step-back)

§240-24.1.11 Downtown Village District (DV)

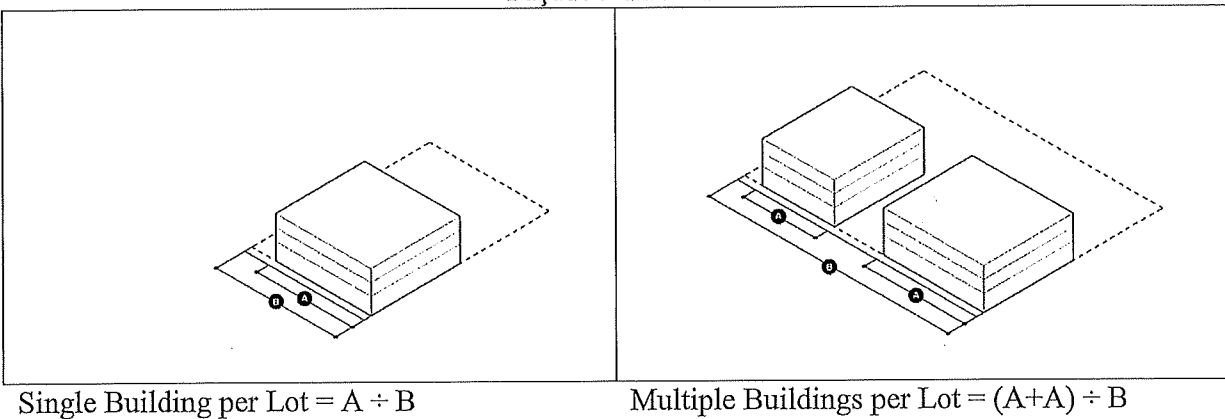
A. Intent

1. The Downtown Village District is intended to promote mixed land uses that support the downtown core and reestablish or preserve traditional neighborhood forms and pedestrian orientation. Development is characterized by mid-rise single-use buildings and detached and semi-detached residential buildings.

B. Lot Standards

1. Newly platted lots must be dimensioned as specified by Table 4.
2. Lot coverage may not exceed the maximum specified by Table 4.
3. Building facades must have a minimum width that is equal to a percentage of a lot's width and is specified as the façade build out on Table 4.
 - (a) Façade build out is calculated by dividing the total width of all facades at or forward of the maximum front setback by the lot width and may be cumulatively calculated by multiple buildings.
 - (b) The open space of a forecourt is considered part of the building for the purpose of measuring building width and façade build out.
 - (c) The SPGA may provide relief from the façade build out requirements; the Board must find the issuance of the special permit is consistent with the Design and Infrastructure Plan.

Façade Build Out



C. Building Standards

1. Multiple principal buildings are permitted per lot.
2. Principal buildings are permitted as specified by Table 4.
 - (a) Additional principal buildings are exempt from the required maximum front setback.
3. Principal building façade(s) must be built parallel to any primary front lot line, at or between the minimum and maximum front setbacks.
4. The fourth (4th) story of any building must be recessed (“stepped back”) from the façade of the stories below at least eight (8) feet.
5. Mechanical & stairwell penthouses and building systems equipment must be setback from any exterior wall a distance that is equal to their height.

D. Use Provisions

1. Limitations

- (a) Occupation of a single commercial space greater than five thousand (5,000) square feet by any Food & Beverage Service or Retail Sales use requires a Special Permit.
- (b) The maximum number of dwelling units permitted for any Multi-Unit Dwelling residential use is determined by the permitted dimensions of the building and the actual motor-vehicle parking spaces provided on a lot as required by Table 2.

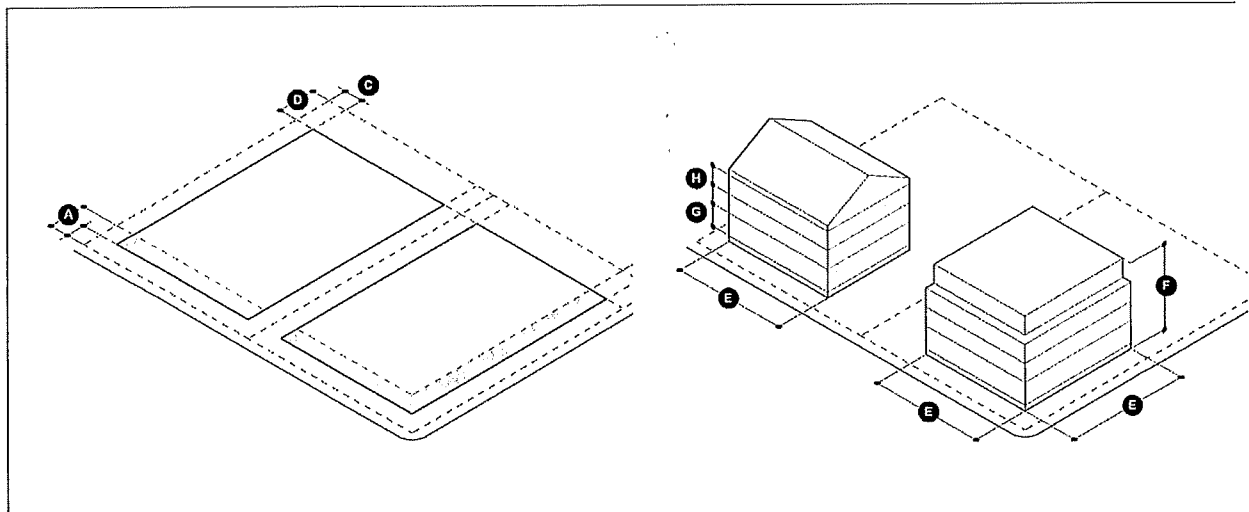
E. Site Standards

- 1. Driveways, vehicular entrances to parking lots or structures, and curb cuts may be no wider than twenty-four (24) feet.

F. Landscape Standards

- 1. A front landscape area is not required if the front setback is zero. When a setback is greater than zero, those portions of the setback not occupied by pedestrian amenities and public spaces shall be landscaped including one (1) canopy tree to be planted every thirty (30) feet of frontage of the property.

Table 4. DV Dimensional Standards



LOT		BUILDING FORM	
Lot Width	30' min	E - Building Width	120' max
Lot Coverage	80% max	F - Number of Stories	3.5 or 4 max ³
Façade Build Out (min)	--	G - Ground Story Height	--
Primary Frontage	80% min	Commercial	14' min
		Residential	10' min
SETBACKS – PRINCIPAL BUILDINGS		H - Upper Story Height	10' min
A - Primary Front Setback	0' min 15' max	BUILDING FEATURES	
B - Secondary Front Setback	0' min 15' max	Ground Story Fenestration	--
C - Side Setback	0' min	Primary Frontage	15% min
D - Rear Setback	0' min	Secondary Frontage	15% min
		Upper Story Fenestration	15% min
		Blank Wall	20' max
		Commercial Space Depth	20' min

³ See 240-24.1.7.C.4 (4th Story Step-back)

§240-24.1.12 Downtown Neighborhood District (DN)

A. Intent

1. The Downtown Neighborhood District is intended to promote the traditional uses and form of the neighborhoods adjacent to downtown that are characterized by a variety of 19th and 20th Century detached and semi-detached residential building types.

B. Lot Standards

1. Newly platted lots must be dimensioned as specified by Table 5.
2. Lot coverage may not exceed the maximum specified by Table 5.

C. Building Standards

1. One (1) principal building and multiple outbuildings are permitted per lot.
2. Principal buildings and outbuildings are permitted as specified by Table 5.
 - (a) The third story in a single-family or two-family dwelling can only occur within habitable attic space.

D. Use Provisions

1. Limitations

- (b) Office and Health Care Clinic uses are permitted only for lots fronting South Street or High School Road.
- (c) Two-Unit dwellings are prohibited for lots fronting only Brookshire Road or King's Way.

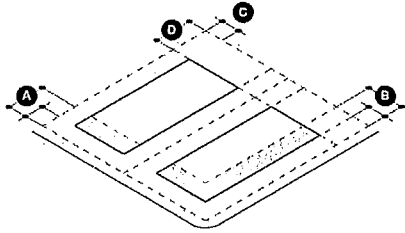
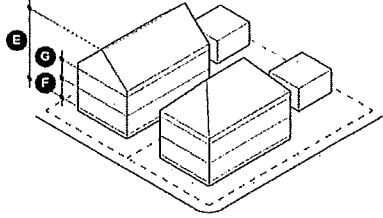
E. Site Development

1. Development on corner lots must comply with the provisions of § 240-41 of the Barnstable Zoning Ordinance.
2. Curb cuts may be no wider than twelve (12) feet.
3. Outdoor lighting must be shielded and provide total cut off of all light at the boundaries of the lot under development.
4. Fences greater than four (4) feet in height in the frontage area and seven (7) feet in height in all other locations at any point along their length require a Special Permit.

F. Landscape Standards

- (i) A perimeter green space of not less than ten (10) feet in width shall be provided, such space to be planted and maintained as green area and to be broken only in a front yard by a driveway.

Table 5. DN Dimensional Standards

			
LOT		BUILDING FORM	
Lot Width	20' min	E - Number of Stories	3 max ⁴
Lot Coverage	50% max	F - Ground Story Height	10' min
SETBACKS – PRINCIPAL BUILDINGS		G - Upper Story Height	10' min
A - Primary Front Setback	10' min 20' max		
B - Secondary Front Setback	10' min 20' max		
C - Side Setback	10' min		
D - Rear Setback	20' min		
SETBACKS - OUTBUILDINGS			
Front Setback	60' min		
Side Setback	3' min		
Rear Setback	3' min		

§240-24.1.13 Downtown Hospital District (DH)

A. Intent

1. The Downtown Hospital District is intended to maintain an area of Hyannis for a large-scale Health Care Services institution and is characterized by moderate to large floor plate, multi-story buildings arranged in a campus-like setting, with clear pedestrian and vehicular connections to downtown and the region.

B. Lot Standards

1. Newly platted lots must be dimensioned as specified by Table 6.

⁴ See 240-24.1.8.C.2(a)

2. Lot coverage may not exceed the maximum specified by Table 6.

C. Building Standards

1. Multiple principal buildings are permitted per lot.
2. Principal buildings are permitted as specified by Table 6.
3. Buildings are exempt from 240-24.1.5.A.1 frontage types and 240-24.1.5.A.3 provisions for calculating building stories. Buildings must comply with the maximum number of stories and maximum building height defined within Table 6.

D. Site Standards

1. Driveways, vehicular entrances to parking lots or structures, and curb cuts may be no wider than twenty-four (24) feet except that wider widths may be allowed by the Building Commissioner during the Site Plan Review process if additional width is needed to provide emergency access.

E. Landscape Standards

1. A front landscaped area at least ten (10) feet wide measured from the lot line toward the interior of the lot must include the following features over the span of fifty (50) linear feet:
 - (i) One (1) canopy tree
 - (ii) One (1) understory or evergreen tree
 - (iii) Four (4) medium shrubs
 - (iv) Six (6) small shrubs

Table 6. DH Dimensional Standards

LOT		BUILDING FORM	
Lot Width	50' min	Number of Stories	6 max
Lot Coverage	100% max	Building Height	85' max
SETBACKS – PRINCIPAL BUILDINGS			
Primary Front Setback	20' min		
Secondary Front Setback	20' min		
Side Setback	10' min		
Rear Setback	10' min		

§240-24.1.14 Hyannis Harbor District (HH)

A. Intent

1. The Hyannis Harbor District is intended to maintain an area near Hyannis Inner Harbor for maritime activities and water-related uses, and is characterized by a mix of commercial, maritime industrial, and residential development and the presence of the commercial ferry services.

B. Lot Standards

1. Newly platted lots must be dimensioned as specified by Table 7.
2. Lot coverage may not exceed the maximum specified by Table 7.

C. Building Standards

1. Multiple principal buildings are permitted per lot.
2. Principal buildings are permitted as specified by Table 7.
 - (a) To support water-dependent uses on the harbor, the maximum building height permitted for existing structures used as a Marina or a Commercial Service use for constructing, selling, renting, or repairing boats is forty-five (45) feet.
3. Mechanical & stairwell penthouses and building systems equipment must be setback from any exterior wall a distance that is equal to their height.

D. Use Provisions

1. Limitations

- (a) The maximum number of dwelling units permitted for any Multi-Unit Dwelling residential use is determined by the permitted dimensions of the building and the actual motor-vehicle parking spaces provided on a lot as required by Table 2.

E. Site Standards

1. Driveways, vehicular entrances to parking lots or structures, and curb cuts may be no wider than twenty-four (24) feet.

F. Landscape Standards

1. A front landscaped area at least ten (10) feet wide measured from the lot line toward the interior of the lot must include the following features over the span of fifty (50) linear feet:
 - (i) One (1) canopy tree
 - (ii) One (1) understory or evergreen tree
 - (iii) Four (4) medium shrubs
 - (iv) Six (6) small shrubs
2. A side or rear landscaped area at least six (6) feet wide must be provided along any side or rear lot line abutting a lot in Downtown Neighborhood (DN) district and must include the following features over the span of fifty (50) linear feet:
 - (i) Two (2) understory or evergreen trees
 - (ii) Five (5) medium shrubs and three (3) small shrubs or a fence or wall at least six (6) feet in height.

Table 7. HH Dimensional Standards

LOT		BUILDING FORM	
Lot Width	20' min	Number of Stories	2.5 max
Lot Coverage	90% max	Building Height	35 ft max ⁵
SETBACKS – PRINCIPAL BUILDINGS			
Primary Front Setback	20' min		
Secondary Front Setback	20' min		
Side Setback	10' min		
Rear Setback	10' min		

⁵ See 240-24.1.10.C.2(a)

§240-24.1.15 Transportation Center District (TC)

A. Intent

1. The Transportation District is intended to accommodate transportation related-uses serving the downtown, harbor and the region and is characterized by functional buildings and parking areas screened and not highly visible from surrounding roadways.

B. Lot Standards

1. Newly platted lots must be dimensioned as specified by Table 8.
2. Lot coverage may not exceed the maximum specified by Table 8.

C. Building Standards

1. Multiple principal buildings are permitted per lot.
2. Principal buildings are permitted as specified by Table 8.
3. Mechanical & stairwell penthouses and building systems equipment must be setback from any exterior wall a distance that is equal to their height.

D. Use Provisions

1. Limitations

- (a) Occupation of a single commercial space greater than five thousand (5,000) square feet by any Food & Beverage Service or Retail Sales use requires a Special Permit.
- (b) The maximum number of dwelling units permitted for any Multi-Unit Dwelling residential use is determined by the permitted dimensions of the building and the actual motor-vehicle parking spaces provided on a lot as required by Table 2.

E. Site Standards

1. Driveways, vehicular entrances to parking lots or structures, and curb cuts may be no wider than twenty-four (24) feet.

F. Landscape Standards

1. A front landscaped area at least ten (10) feet wide measured from the lot line toward the interior of the lot must include the following features over the span of fifty (50) linear feet:
 - (i) One (1) canopy tree
 - (ii) One (1) understory or evergreen tree
 - (iii) Four (4) medium shrubs
 - (iv) Six (6) small shrubs
2. A side or rear landscaped area at least six (6) feet wide must be provided along any side or rear lot line abutting a lot in Downtown Neighborhood (DN) district and must include the following features over the span of fifty (50) linear feet:
 - (i) Two (2) understory or evergreen trees
 - (ii) Three (3) large shrubs and three (3) medium shrubs or a fence or wall at least six (6) feet in height.

Table 8. TC Dimensional Standards

LOT		BUILDING FORM	
Lot Width	50' min	Number of Stories	3 max
Lot Coverage	65% max	Building Height	40 ft max
SETBACKS – PRINCIPAL BUILDINGS			
Primary Front Setback	--		
Lots fronting Route 28	50' min		
All other Lots	20' min		
Secondary Front Setback	20' min		
Side Setback	10' min		
Rear Setback	10' min		

§240-24.1.16 Highway Commercial District (HC)

A. Intent

1. The Highway Commercial District is intended to maintain an area for larger-scale commercial land uses, with private parking appropriately screened, on a regional roadway and promote in the long-term transformation of the area into a cohesive gateway corridor into Hyannis. The area is characterized by detached low- and mid-rise commercial structures.

B. Lot Standards

1. Newly platted lots must be dimensioned as specified by Table 9.
2. Lot coverage may not exceed the maximum specified by Table 9.

C. Building Standards

1. Multiple principal buildings are permitted per lot.
2. Principal buildings are permitted as specified by Table 9.
 - (a) The third story can only occur within habitable attic space.
3. Mechanical & stairwell penthouses and building systems equipment must be setback from any exterior wall a distance that is equal to their height.

D. Site Standards

1. Driveways, vehicular entrances to parking lots or structures, and curb cuts may be no wider than twenty-four (24) feet.

E. Landscape Standards

1. A front landscaped area at least ten (10) feet wide measured from the lot line toward the interior of the lot must include the following features over the span of fifty (50) linear feet:
 - (i) One (1) canopy tree
 - (ii) One (1) understory or evergreen tree
 - (iii) Four (4) large shrubs
 - (iv) Two (2) small shrubs
1. A side or rear landscaped area at least six (6) feet wide must be provided along any side or rear lot line abutting a lot in Downtown Neighborhood (DN) district and must include the following features over the span of fifty (50) linear feet:
 - (i) Two (2) canopy trees
 - (ii) Three (3) large shrubs and three (3) medium shrubs or a fence or wall at least six (6) feet in height.

F. Parking Standards

1. To reduce traffic congestion and increase convenience for customers, employees, and residents, development is encouraged to provide direct vehicular connections between abutting parking lots so that motor vehicles can move between properties without re-entering the public street.
2. To increase walkability and reduce conflicts between pedestrians and motor vehicles, development is encouraged to:
 - (a) Provide only the minimum number of driveways or vehicular entrances to parking lots necessary to accommodate the number of parking spaces provided
 - (b) Share driveways between abutting properties or multiple properties fronting the same street
 - (c) Relocate any existing frontage area parking spaces to the side or rear of buildings.
3. Establishment of a new curb cut on Route 28 or Barnstable Road must consult the Director of Public Works regarding access prior to applying for a state highway access

permit from the Massachusetts Department of Transportation and work with the Town and other authorizing agencies on a transportation access plan prior to site plan approval.

4. New construction, modification of an existing principal building, and the establishment, change, or expansion of any use of real property abutting Engine House Road must provide vehicular access only from the Engine House Road frontage.
5. Parking is highly discouraged within the frontage area and should be limited to a single row of parking stalls and associated drive aisle where necessary.

Table 9. HC Dimensional Standards

LOT		BUILDING FORM	
Lot Width	50' min	Number of Stories (max)	3 max ⁶
Lot Coverage	80% max	Building Height	40 ft max
SETBACKS – PRINCIPAL BUILDINGS			
Primary Front Setback	60' max		
Lots fronting Route 28	20' min		
Secondary Front Setback	20' min		
Side Setback	10' min		
Rear Setback	10' min		

⁶See 240-24.1.12.C.2(a)

§240-24.1.17 Tables

Table 10. Dimensional Standards Summary Table

	DMS	DV	DN	DH	HH	TC	HC
A. Lot							
Lot Width	30' min	30' min	20' min	50' min	20' min	50' min	50' min
Lot Coverage	100% max	80% max	50% max	100% max	90% max	65% max	80% max
Façade Build Out	--	--	--	--	--	--	--
Primary Frontage	80% min	80% min	--	--	--	--	--
Secondary Frontage	40% min		--	--	--	--	--
B. Setbacks – Principal Building							
Primary Front Setback	0' min 15' max	0' min 15' max	10' min 20' max	20' min	20' min	20' min	60' max
Lots fronting Route 28	--	--	--	--	--	50' min	20' min
Secondary Front Setback	0' min 15' max	0' min 15' max	10' min 20' max	20' min	20' min	20' min	20' min
Side Setback	0' min	0' min	10' min	10' min	10' min	10' min	10' min
Rear Setback	0' min	0' min	20' min	10' min	10' min	10' min	10' min
C. Setbacks - Outbuilding							
Primary Front Setback	--	--	60' min	--	--	--	--
Secondary Front Setback	--	--	--	--	--	--	--
Side Setback	--	--	3' min	--	--	--	--
Rear Setback	--	--	3' min	--	--	--	--
D. Building Form							
Building Width	180' max	120' max	--	--	--	--	--
Number of Stories	--	--	--	--	--	--	--
Principal Building	3.5 or 4 max ⁷	3.5 or 4 max ⁸	3 max ⁹	6 max	2.5 max	3 max	3 max ¹⁰
Outbuilding	--	--	--	--	--	--	--
Ground Story Height	--	--	10' min	--	--	--	--
Commercial	14' min	14' min	--	--	--	--	--
Residential	10' min	10' min	--	--	--	--	--
Upper Story Height	10' min	10' min	10' min	--	--	--	--
Building Height	--	--	--	85' max	35' max ¹¹	40' max	40' max
E. Building Features							
Ground Story Fenestration	--	--	--	--	--	--	--
Primary Frontage	60% min	15% min	--	--	--	--	--
Secondary Frontage	15% min	15% min	--	--	--	--	--
Upper Story Fenestration	15% min	15% min	--	--	--	--	--
Blank Wall	20' max	20' max	--	--	--	--	--
Commercial Space Depth	20' min	20' min					

⁷ See 240-24.1.6.C.6 (4th Story Step-back)

⁸ See 240-24.1.7.C.4 (4th Story Step-back)

⁹ See 240-24.1.8.C.2(a)

¹⁰ See 240-24.1.12.C.2(a)

¹¹ See 240-24.1.10.C.2(a)

Table 11. Frontage Types

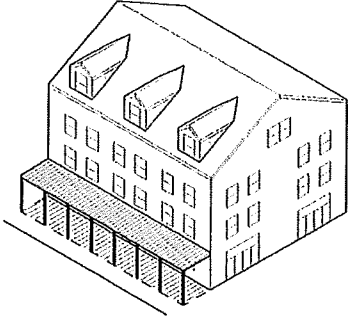
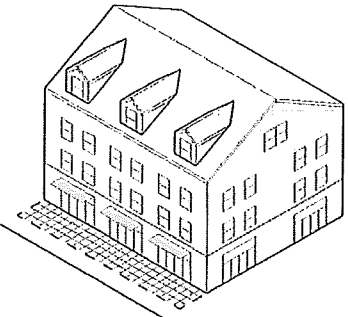
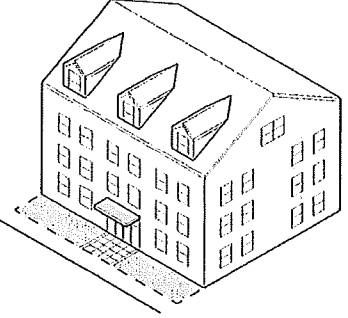
P – Permitted N – Not Permitted	DMS	DV	DN	DH	HH	TC	HC
<p>Gallery</p>  <p>A frontage type consisting of a storefront(s) and an attached colonnade with a roof, open pergola, or balcony overhanging a paved sidewalk. A gallery may wrap around the corner of a building to create a veranda-like gallery.</p>	P	P	N	N/A	P	P	P
<p>Storefront</p>  <p>A frontage type consisting of an assembly of commercial entry doors and display windows providing access and light to a commercial space and a place to display goods, services, and signs.</p>	P	P	N	N/A	P	P	P
<p>Common Lobby</p>  <p>A frontage type consisting of an assembly of entry doors and windows providing access and light to the lobby of a building. A common lobby may be combined with an entry plaza or front garden frontage type.</p>	P	P	N	N/A	P	P	P

Table 11. Frontage Types

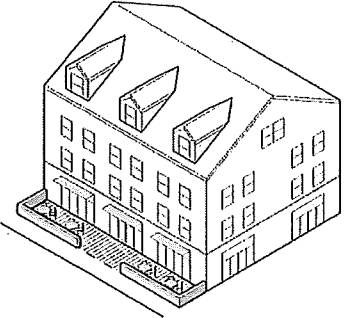
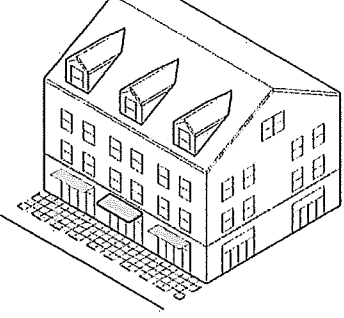
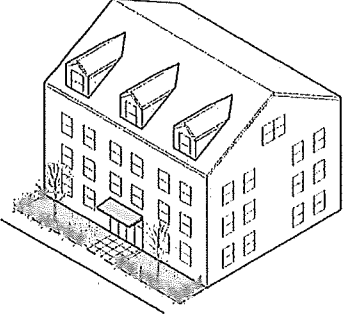
P – Permitted N – Not Permitted	DMS	DV	DN	DH	HH	TC	HC
<p>Dining Patio</p>  <p>A frontage type consisting of a storefront(s) and outdoor café seating in the frontage area.</p>	P	P	N	N/A	P	P	P
<p>Entry Plaza</p>  <p>A frontage type consisting of a storefront(s) and a highly paved frontage area. An entry plaza may be combined with a common lobby frontage type.</p>	P	P	N	N/A	P	P	P
<p>Front Garden</p>  <p>A frontage type consisting of a highly landscaped frontage area. A front garden may be combined with a common lobby, dooryard or stoop, or porch frontage type.</p>	N	P	P	N/A	N	N	N

Table 11. Frontage Types

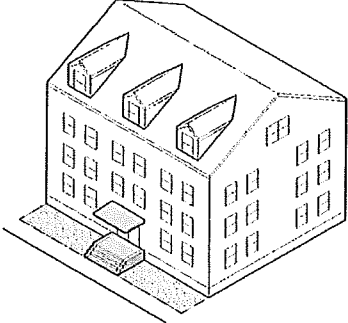
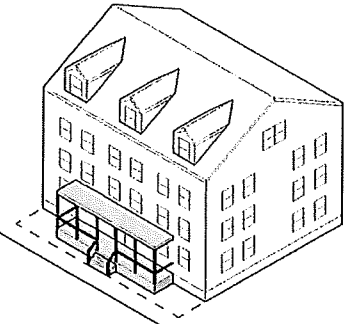
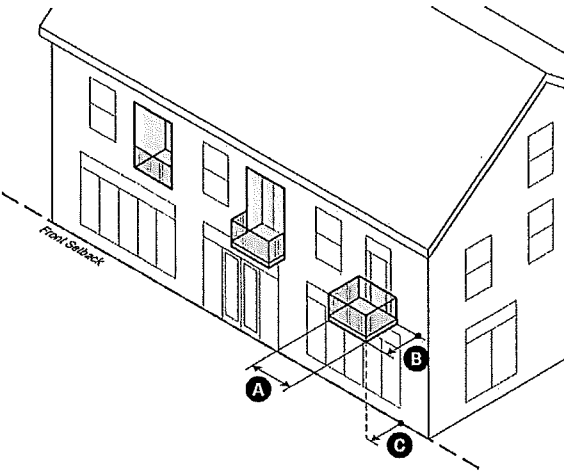
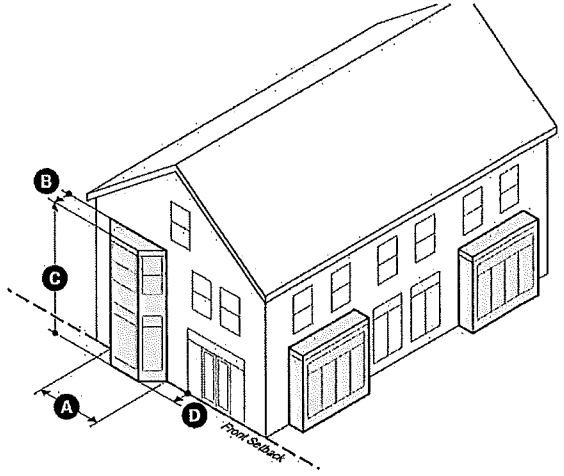
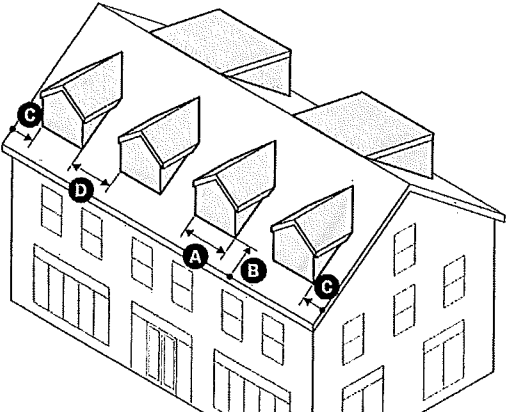
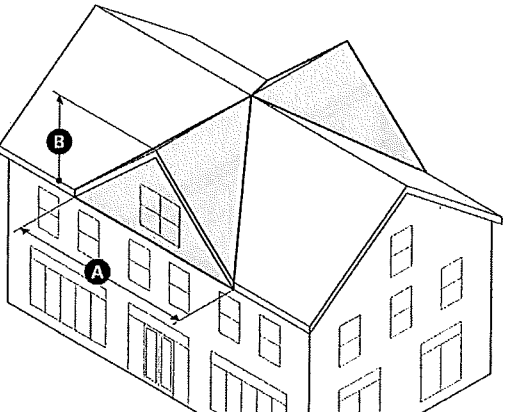
P – Permitted N – Not Permitted	DMS	DV	DN	DH	HH	TC	HC
<p>Dooryard or Stoop</p>  <p>A frontage type consisting of a zero-step entrance or a set of stairs with a landing that provides access to the entrance of a building. A dooryard or stoop may be combined with a front garden frontage type.</p>	N	P	P	N/A	N	N	N
<p>Porch</p>  <p>A frontage type consisting of a raised platform with a roof supported by columns, piers, or posts; an area for seating; and an optional set of stairs with a landing that provides access to the entrance of a building. A porch may be combined with a front garden frontage type.</p>	N	P	P	N/A	N	N	N

Table 12. Building Components

A. Balcony			B. Bay or Oriel Window		
					
A	Width (min)	5 ft	A	Single Bay Width (max)	16 ft
B	Depth (min)	4 ft		Cumulative Bay Width (max)	50% of the width of the exterior wall from which the bays project
	Area (min)	20 sf	B	Projection (max)	3 ft
C	Front Setback Encroachment (max)	5 ft	C	Stories (max)	Same as the principal building
			D	Front Setback Encroachment (max)	3 ft
<p>Design Standards:</p> <p>Balconies may attach to any exterior wall of a principal building.</p> <p>Balconies may be recessed, projecting, a combination of the two, or terraced as part of the roof of a permitted building component.</p>			<p>Design Standards:</p> <p>Bays may attach to any exterior wall of a principal building.</p> <p>A bay window may have a flat roof.</p>		

C. Dormer			D. Cross Gable		
					
A	Cumulative Width of all Dormers (max)	50% of the roof eave	A	Width (max)	50% of the roof eave below
B	Exterior Wall Setback (min)	--	B	Height (min)	Equal to the height of the roof of the attached primary massing
	Roof with Eave	0 ft	Design Standards:		
	Roof without Eave	1 ft			
C	Setback from Gable (min)	3 ft	The roof ridge of a cross gable must be perpendicular to the main roof ridge of the principal building.		
D	Separation from another Dormer (min)	50% of dormer width			
Design Standards: The face wall of a dormer window may not project beyond the exterior wall of the building and may not interrupt the eave of the roof.			The rakes and ridge of the roof of the cross gable must be structurally integrated into the eave and ridge of roof of the attached primary massing.		

E. Projecting Gable		
A	Width (max)	Equal to the shortest side of the attached primary massing
B	Projection (max)	6 ft
C	Height (min)	Height of Building in Stories
D	Front Setback Encroachment (max)	6 ft
<p>Design Standards:</p> <p>A projecting gable may attach only the façade of a principal building.</p> <p>The roof ridge of a projecting gable must be perpendicular to the main roof ridge of the principal building.</p>		

»
SPONSOR: Mark S. Ells, Town Manager

DATE	ACTION TAKEN
_____	_____
_____	_____
_____	_____
_____	_____

Read Item
 Motion to Open Public Hearing

- _____ Rationale
- _____ Public Hearing
- _____ Close Public Hearing
- _____ Council Discussion
- _____ Vote

BARNSTABLE TOWN COUNCIL

ITEM# 2022-144
INTRO: 03/03/2022

SUMMARY

TO: Town Council
FROM: Mark S. Ells, Town Manager
THROUGH: Elizabeth Jenkins, Director, Planning & Development Department
DATE: March 03, 2022
SUBJECT: Amending the Code of the Town of Barnstable, Part I General Ordinances, Chapter 240 Zoning by repealing the Zoning Districts known as the “Hyannis Village Zoning Districts” and replacing them with revised and updated districts collectively known as the “Downtown Hyannis Zoning Districts”

RATIONALE: This item proposes a comprehensive revision of the zoning districts in Downtown Hyannis, replacing the “Hyannis Village Zoning Districts” first adopted in 2005 with seven new districts collectively known as the “Downtown Hyannis Zoning Districts”. The purpose of updating the zoning in Downtown Hyannis is to: address housing goals, including increasing housing supply and diversity in areas with infrastructure and community activity and away from open spaces and areas with critical natural resource value; improve the urban fabric of downtown Hyannis in a manner consistent with its historic and maritime character and existing development patterns; improve the ease of use of the zoning ordinance for the public and for businesses and developers; and to encourage housing production and mixed use development at human-scale density, and create predictable outcomes in urban form.

The subject of these amendments is downtown Hyannis, in an area with the same boundary as the Downtown Hyannis Growth Incentive Zone (GIZ) and the existing “Hyannis Village Zoning Districts”. This area is currently served by public sewer and water. Hyannis is the regional commercial and transportation hub of the Cape. Achieving a greater density of jobs and housing within the GIZ supports the community’s vision of a vibrant, livable, mixed-use, walkable regional center. Compact housing options within buildings that respond to Hyannis’ unique character can support a mix of housing choices for all ages and incomes while encouraging healthier and more sustainable lifestyles.

These proposed amendments are supported by past planning initiatives including the 2010 Local Comprehensive Plan, the 2016 Housing Production Plan (HPP), and the 2018 Growth Incentive Zone Strategic Plan (GIZ). All of these plans encourage new investment in areas with infrastructure and community and business activity, promoting infill and redevelopment over the development of open spaces and sensitive natural resources. The HPP and the GIZ specifically recognize that zoning changes are necessary to achieve housing and revitalizations goals.

Existing Conditions

The GIZ and the current zoning districts provide some opportunity for streamlined permitting and as-of-right multi-family development, but the regulatory structure has not been effective in broadly attracting residential development to the area. In the first 10 years of the initial GIZ designation, only 110 new residential units were built. The residential densities allowed by zoning do not respond to the high costs of land and construction. Requiring a developer to permit projects through a lengthy and unpredictable process only further increases project costs. This dis-incentivizes investment and raises the costs of housing in projects that do move forward.

Additionally, the current conventional methods of zoning do not adequately address most physical characteristics that contribute to the sense of place or sufficiently address the aesthetic character of our community. An examination of the property in the GIZ shows a diversity of lot sizes that range from small residential lots around 4,000 square feet to large commercial lots upwards of 70,000 square feet. This condition makes current multi-family residential standards that use ratio-based zoning metrics (dwelling units/acre) problematic, unaligned with housing goals; unintended consequences result, such as regulatory agreement review for small housing projects.

Background & Study

The focus of this effort is to create a predictable regulatory framework that encourages compact residential development, compatible with traditional development patterns, meeting a range of housing needs. The proposed zoning revisions benefit from input received during the Community Resiliency by Design process. This process studied ways to address the need for additional housing options while also respecting the existing historic and maritime character of downtown Hyannis. This report considered community input on preferred types and styles of building massing, scale, character, and composition and considered the unique land use patterns in Hyannis. It presented a framework for revitalization and increased housing supply that included strategies such as retrofitting existing structures (including top-of-shop housing and conversion of underutilized space), redeveloping underutilized property, and infilling underutilized lots.

This zoning amendment is also supported by the Cape Cod Commission's Form Based Code Framework which advocates for the use of form-based and hybrid zoning to help deliver context-appropriate densities in forms that respect existing historic development patterns.

Summary of Proposed Zoning Ordinance

The proposed zoning is organized into six (6) sections. The 'Title' and 'General Provisions' sections introduce the ordinance and designates the Planning Board as the Special Permit Granting Authority. The 'Definitions' section provides direction on the meaning of terms used to regulate uses, dimensional and building standards, and landscape materials. The section 'Standards for All Districts' includes the use table (establishing permitted, prohibited, and special permit uses); parking standards; and landscaping, lighting, access, and surface parking lot standards. Next are 'Standards for Specific Districts' which include dimensional requirements, building standards, use standards, and site standards specific to each of the seven (7) districts proposed to be established. Finally, in 'Tables' there is a summary dimensional table and standards for frontage types and building components.

Districts

The Downtown Main Street and Downtown Village districts incorporate new "form-based" standards, in addition to regulating land uses.

- The Downtown Main Street (DMS) district seeks to maintain, reinforce, and extend the character and mixed use development pattern of Main Street. Active ground floor commercial use on Main Street between Ocean Street and Sea Street continue to be required. In addition to setback requirements, new form standards include standards to build out a percentage of the lots primary

and secondary frontage, modified fenestration requirements, standards for story height (ground and upper), and roof pitch. Building height in this district is proposed to increase from three (3) stories to three and a half (3.5) stories or four stories, if that story is recessed at least eight (8) feet to limit its visibility.

- The Downtown Village district encompasses areas immediately north and east of the Main Street, formerly zoned “Office/Multi-Family” and “Medical Services”. This district also incorporates the new form-based standards outlined above, ensuring future buildings are pulled up to the street and parking areas are set back, and allows for the same height/number of stories in the DMS; building massing standards (frontage buildout and setbacks) are reduced from the DMS in this transitional district.

A wide range of commercial uses are proposed to be permitted in both the DMS and DV Districts, with the limitation that any one commercial use that exceeds 5,000 square feet requires a special permit.

The remaining five districts remain largely consistent with the provision in the current zoning ordinance.

- The Downtown Neighborhood District (formerly Single Family) maintains the same use requirements, but now permits two-family dwellings on South Street, Ridgewood Street, and Spring Street.
- The Downtown Hospital District consolidates the provisions called out specifically for the regional hospital formerly in the Medical Services District in the current zoning into one district. Development in this district is exempt from a number of site standards in recognition of the specific use and development type.
- The Hyannis Harbor District is limited to parcels south of South Street and maintains most current use and dimensional standards. Multi-family residential use is allowed, and the marine supportive uses continued to be allowed, with the exception of boat storage as a principal use.
- The Transportation District maintains its purpose of supporting regional transportation-related uses. Multi-family use is proposed to be permitted, in support of potential transit-oriented development.
- The Highway Commercial District consolidates the two current districts along Route 28 and includes new dimensional requirements and enhanced landscaping requirements.

In all districts, landscaping and landscape buffer standards are enhanced, with new requirements for number and size of required plant materials to enhance streetscapes and screening between commercial and residential uses.

Parking

The proposed ordinance defines parking requirements for each category of permitted use in each zoning district. Shared parking is encouraged and flexibility in meeting requirements is promoted through the availability of special permit relief. Parking requirements in the DMS only are reduced to zero for retail, service, and food service uses in recognition of the built-out conditions of Main Street and availability of public parking. All other districts maintain traditional parking requirements for all uses. Parking requirements for dwelling units is proposed to be a minimum of one space per unit.

The Downtown Hyannis Parking Study and Hyannis Growth Incentive Zone strategic plan emphasize the importance of encouraging shared parking downtown. When land uses with different parking demands share parking, it allows for more housing at a lower cost, requires less land be dedicated to parking, and reduces impervious surface. The proposed parking requirements for multi-family residential dwellings (one space per unit) are minimums consistent with the Commonwealth’s Housing Choice efforts that seek to encourage new housing production, and, support the viability of top-of-shop and small scale infill development.

Hyannis Parking Overlay District

This proposed amendment repeals the Hyannis Parking Overlay District, an overlay district established to address zoning for commercial parking lots. This zoning ordinance was appealed and struck down in Land Court on procedural grounds. This amendment accomplishes the necessary housekeeping associated with that ruling.

FISCAL IMPACT: There is no significant fiscal impact of the proposed zoning amendment.

TOWN MANAGER RECOMMENDATION: Mark S. Ells, Town Manager, recommends the proposed zoning amendment.

STAFF SUPPORT: Elizabeth Jenkins, Director, Planning & Development; Kate Maldonado, Assistant Director, Planning & Development; Gloria McPherson, Planning & Economic Development Coordinator; Jim Kupfer, Senior Planner; Ryan Bennett, Housing Coordinator; Brian Florence, Building Commissioner; Karen Nober, Town Attorney; Kate Connolly, Assistant Town Attorney



**TOWN OF FALMOUTH
MASSACHUSETTS**

BOARD OF APPEALS

Notice of Decision

Notice is hereby given that the Board of Appeals of the Town of Falmouth has made a decision on a petition by David M. Smoller, 21 Corte Real Avenue, East Falmouth, MA.

(Map 33 Lot 021) under 240-162 of the Zoning By-Law, as amended to **grant** the special permit to allow a home occupation (mobile marine).

Appeals, if any, shall be made pursuant to the Massachusetts General Laws, Chapter 40A, Section 17, and shall be filed within twenty (20) days after **March 25, 2022** which is the date the Decision was filed in the office of the Town Clerk.

Please contact Noreen Stockman at 508-495-7460
or Noreen.stockman@falmouthma.gov if you have any questions or comments
full text of decision available at <http://www.falmouthmass.us>



**TOWN OF FALMOUTH
MASSACHUSETTS**

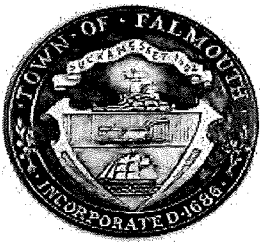
BOARD OF APPEALS

Notice of Decision

Notice is hereby given that the Board of Appeals of the Town of Falmouth has made a decision on a petition by Leslie B. and M. Eileen Shea, Trustees, 40 Alder Lane, North Falmouth, Ma. (Map 13 Lot 212A) under 240-3 C. of the Zoning By-Law, as amended to **grant** the special permit to construct an addition to the second floor.

Appeals, if any, shall be made pursuant to the Massachusetts General Laws, Chapter 40A, Section 17, and shall be filed within twenty (20) days after **March 25, 2022** which is the date the Decision was filed in the office of the Town Clerk.

Please contact Noreen Stockman at 508-495-7460
or Noreen.stockman@falmouthma.gov if you have any questions or comments
full text of decision available at <http://www.falmouthmass.us>



TOWN OF FALMOUTH

ZONING BOARD OF APPEALS

59 TOWN HALL SQUARE, FALMOUTH, MA 02540
508-495-7460 – FAX 508-495-7463

BOARD OF APPEALS NOTICE OF PUBLIC HEARING

Being all persons deemed affected by the Board of Appeals under Section 11 of Chapter 40A of the Massachusetts General Laws you are hereby notified that:

Application # 015-22 David P. and Wendy Cushing, 5 Sullivan Terrace, Framingham, Ma.:

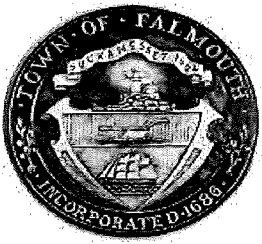
Applied to the Zoning Board of Appeals for a special permit pursuant to section(s) 240-10.2A and 240-11.3A (4) (formerly 240-3 C. and 240-69 E.) of the Code of Falmouth to construct a half story addition to the non-conforming single family dwelling, creating additional living space on subject property known as 90 Nantucket Avenue, Falmouth, Ma.

Map 46B Section 29 Parcel 001 Lot(s) 006

A public hearing will be given on this application, in the Select Board's Meeting Room, Town Hall, on **Thursday, April 7, 2022 at 6:30PM**
You are invited to be present.

By Order of the Board of Appeals,
Chairman, Terrence Hurrie

Plans are available for review prior to the hearing at the Board of Appeals office, Town Hall during the hours of 8:00 AM to 4:00 PM. *Plans are available to review at <https://www.falmouthma.gov/1113/Applications-under-review-by-the-ZBA>



TOWN OF FALMOUTH

ZONING BOARD OF APPEALS

59 TOWN HALL SQUARE, FALMOUTH, MA 02540
508-495-7460 – FAX 508-495-7463

BOARD OF APPEALS

NOTICE OF PUBLIC HEARING

Being all persons deemed affected by the Board of Appeals under Section 11 of Chapter 40A of the Massachusetts General Laws you are hereby notified that:

Application # 013-22 Karen W. Sacchetti, Trustee, P.O.Box 745, East Falmouth, Ma.: Applied to the Zoning Board of Appeals for a special permit pursuant to section(s) 240 – 6.6 B. (formerly 240-23 I.) of the Code of Falmouth to construct an addition and an accessory apartment above the existing garage on subject property known as 461 Central Avenue, East Falmouth, Ma.

Map 40A Section 19 Parcel 002A Lot(s) 001

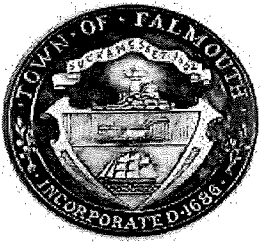
A public hearing will be given on this application, in the Select Board's Meeting Room, Town Hall, on

Thursday, April 7, 2022 at 6:30PM

You are invited to be present.

By Order of the Board of Appeals,
Chairman, Terrence Hurrie

Plans are available for review prior to the hearing at the Board of Appeals office, Town Hall during the hours of 8:00 AM to 4:00 PM. *Plans are available to review at <http://www.falmouthmass.us/1113/Applications-under-review-by-the-ZBA>*



TOWN OF FALMOUTH

ZONING BOARD OF APPEALS

59 TOWN HALL SQUARE, FALMOUTH, MA 02540
508-495-7460 – FAX 508-495-7463

BOARD OF APPEALS NOTICE OF PUBLIC HEARING

Being all persons deemed affected by the Board of Appeals under Section 11 of Chapter 40A of the Massachusetts General Laws you are hereby notified that:

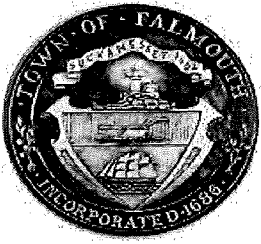
Application # 014-22 Stephen and Christine Sypek, 21 Sunset Lane, Hingham, Ma.: Applied to the Zoning Board of Appeals for a special permit pursuant to section(s) 240.10.2A (formerly 240-3 C.) of the Code of Falmouth to remove existing decks and construct an addition and a new deck on subject property known as 13 Forest Avenue, Falmouth, MA.

Map 46B Section 10 Parcel 003 Lot(s) 010

A public hearing will be given on this application, in the Select Board's Meeting Room, Town Hall, on **Thursday, April 7, 2022 at 6:30PM**
You are invited to be present.

By Order of the Board of Appeals,
Chairman, Terrence Hurrie

Plans are available for review prior to the hearing at the Board of Appeals office, Town Hall during the hours of 8:00 AM to 4:00 PM. *Plans are available to review at <https://www.falmouthma.gov/1113/Applications-under-review-by-the-ZBA>*



TOWN OF FALMOUTH

ZONING BOARD OF APPEALS

59 TOWN HALL SQUARE, FALMOUTH, MA 02540
508-495-7460 – FAX 508-495-7463

BOARD OF APPEALS NOTICE OF PUBLIC HEARING

Being all persons deemed affected by the Board of Appeals under Section 11 of Chapter 40A of the Massachusetts General Laws you are hereby notified that:

Application # 012-22 Buca Corp., P.O. Box 797, North Falmouth, Ma.: Applied to the Zoning Board of Appeals for a modification of special permit #23-88 pursuant to section(s) 240-10.2A (formerly 240-3 C.) of the Code of Falmouth to construct an addition and to allow the installation of an outdoor bar/seating area on subject property known as 7 and 22 Nathan S. Ellis Highway, North Falmouth, Ma.

Map 05 Section 09 Parcel 007 Lot(s) 001 - #22
Map 05 Section 10 Parcel 005A Lot(s) 002 - #7

A public hearing will be given on this application, in the Select Board's Meeting Room, Town Hall, on **Thursday, April 7, 2022 at 6:30PM**
You are invited to be present.

By Order of the Board of Appeals,
Chairman, Terrence Hurrie

Plans are available for review prior to the hearing at the Board of Appeals office, Town Hall during the hours of 8:00 AM to 4:00 PM. *Plans are available to review at <http://www.falmouthmass.us/1113/Applications-under-review-by-the-ZBA> *



**TOWN OF FALMOUTH
MASSACHUSETTS**

BOARD OF APPEALS

Notice of Decision

Notice is hereby given that the Board of Appeals of the Town of Falmouth has made a decision on a petition by Joe Saade, 6 and 10 North Main Street, Falmouth, Ma.

(Map 47A Lot(s) 000,004) **under** 240-51 B(3), 240-68A(8) and 240-203 of the Zoning By-Law, as amended to **grant** the special permit / variance to demolish existing building on #6 Main Street and the installation of a 20' x 68' canopy to cover gas pumps, plus 5 parking spaces to display used cars for sale.

Appeals, if any, shall be made pursuant to the Massachusetts General Laws, Chapter 40A, Section 17, and shall be filed within twenty (20) days after **March 18,2022** which is the date the Decision was filed in the office of the Town Clerk.

Please contact Noreen Stockman at 508-495-7460
or Noreen.stockman@falmouthma.gov if you have any questions or comments
full text of decision available at <http://www.falmouthmass.us>

Town of Sandwich
THE OLDEST TOWN ON CAPE COD



Board of Appeals

16 Jan Sebastian Drive
Sandwich, MA 02563
Phone: 508-833-8001
Fax: 508-833-8006
E-mail: planning@sandwichmass.org

TOWN CLERK
TOWN OF SANDWICH

MAR 23 2022

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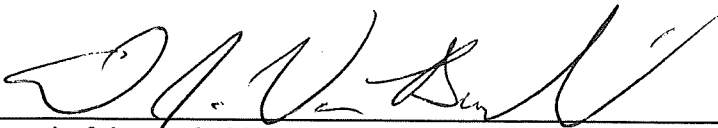
**Appeal of the Decision of Building Commissioner
CERTIFICATE OF DENIAL**

PROPERTY ADDRESS: 150 Colonial Way, Sandwich MA
NAME OF APPLICANT: Michael Swift

On March 22, 2022 the Board of Appeals voted to deny an Appeal of the Decision of the Building Commissioner for 150 Colonial Way, Sandwich, MA, Assessors Map #25 Parcel #109, for the purpose of appealing the Building Commissioner's zoning determination relating to the Telecommunication Special Permit dated February 23, 2000.

The Board of Appeals certifies that this certificate is a true and correct copy of the decision to deny the Appeal of the Decision of the Building Commissioner and that copies of said decision, and of all plans referred to in the decision, have been filed with the Board of Appeals and the Town Clerk.

Any person aggrieved by this decision may appeal to the Superior Court or Land Court as in Section 17 of Chapter 40A, M.G.L. by filing a NOTICE OF ACTION AND COMPLAINT with the Town Clerk within twenty (20) days of the date of filing of this decision.


Board of Appeals Member

3/23/22
Date

PROCEDURAL HISTORY

1. Application for Appeal of the Decision of the Building Commissioner was received on January 27, 2022 for the purpose of overturning a written zoning determination of the Building Commissioner dated January 3, 2022.
2. After proper notice was given, the public hearing was opened February 22, 2022 and closed on March 22, 2022.
3. The application was not accompanied by a site plan.
4. The Board reviewed the application and all other materials submitted prior to the close of the public hearing. The Board received and gave due consideration to the testimony given at the public hearing.
5. The following members attended the public hearing:

Erik Van Buskirk
James Killion
Christopher Neeven*
Robert Jensen
Chase Terrio
Mary Foley*

*Missed one meeting, but listened to the full audio recording and reviewed all materials in the project file, which allows the member to participate in the deliberation of this decision under general law c. 39.

FINDINGS

1. The Board of Appeals finds that this application meets the requirements of Section 8, M.G.L. Chapter 40A.
2. The Board of Appeals finds that the subject property is located in the RDG zoning district.
3. The Board of Appeals finds the Building Commissioner sent certified mail dated February 1, 2022 to the owners of the Telecommunications Tower requesting compliance with the Special Permit dated February 23, 2000.
4. The Board of Appeals finds the owners, Seacoast Inc., have addressed all concerns relating to the special permit.
5. The Board of Appeals accepts the memorandum dated March 17, 2022 from the Building Inspector as evidence of compliance with the Telecommunications Special Permit.

Motion: I, James Killion, move to adopt these findings as the findings of the Board of Appeals.

Second: Christopher Neeven

Vote:	Erik Van Buskirk	Yes
	James Killion	Yes
	Christopher Neeven	Yes
	Robert Jensen	Yes

Chase Terrio	Yes
Mary Foley	Yes

DECISION

After reviewing the application, the plan and other materials submitted and after giving due consideration to testimony given at the public hearing, the Board hereby denies the Appeal of the Decision of the Building Commissioner, for property located at 150 Colonial Way, Sandwich, MA, Assessors Map #25 Parcel #109, for the purpose of appealing the Building Commissioner's zoning determination relating to the Telecommunication Special Permit dated February 23, 2000.

Motion: I, James Killion, move to deny the Appeal of the Decision of the Building Commissioner.

Second: Christopher Neeven

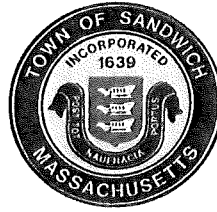
Vote:	Erik Van Buskirk	Yes
	James Killion	Yes
	Christopher Neeven	Yes
	Robert Jensen	Yes
	Chase Terrio	Yes
	Mary Foley	Yes

Town of Sandwich

THE OLDEST TOWN ON CAPE COD

TOWN CLERK
TOWN OF SANDWICH

MAR 23 2022



Board of Appeals

16 Jan Sebastian Drive

Sandwich, MA 02563

Phone: 508-833-8001

Fax: 508-833-8006

E-mail: planning@sandwichmass.org

2 HSBMP M²
RECEIVED & RECORDED **Appeal of the Decision of Building Commissioner**
CERTIFICATE OF DENIAL

PROPERTY ADDRESS: 10, 20, 30, 40 Colonial Way, Sandwich MA

NAME OF APPLICANT: Michael Swift

On March 22, 2022 the Board of Appeals voted to deny an Appeal of the Decision of the Building Commissioner for 10, 20, 30, 40 Colonial Way, Sandwich, MA, Assessors Map #25 Parcels #123, #124, #125, #126 for the purpose of appealing the Building Commissioner's zoning determination relating to the Comprehensive Permit dated December 28, 2006.

The Board of Appeals certifies that this certificate is a true and correct copy of the decision to deny the Appeal of the Decision of the Building Commissioner and that copies of said decision, and of all plans referred to in the decision, have been filed with the Board of Appeals and the Town Clerk.

Any person aggrieved by this decision may appeal to the Superior Court or Land Court as in Section 17 of Chapter 40A, M.G.L. by filing a NOTICE OF ACTION AND COMPLAINT with the Town Clerk within twenty (20) days of the date of filing of this decision.



Board of Appeals Member

3/23/22

Date

PROCEDURAL HISTORY

1. Application for Appeal of the Decision of the Building Commissioner was received on January 26, 2022 for the purpose of overturning a written zoning determination of the Building Commissioner dated January 3, 2022.
2. After proper notice was given, the public hearing was opened on February 22, 2022 and closed March 22, 2022.
3. The application was accompanied by a site plan entitled "Definitive Subdivision Plan for COLONIAL WAY, Sandwich Massachusetts dated February 28, 2007."
4. The Board reviewed the application and all other materials submitted prior to the close of the public hearing. The Board received and gave due consideration to the testimony given at the public hearing.
5. The following members attended the public hearing:

Erik Van Buskirk
James Killion
Christopher Neeven*
Robert Jensen
Chase Terrio
Mary Foley*

*Missed one meeting, but listened to the full audio recording and reviewed all materials in the project file, which allows the member to participate in the deliberation of this decision under general law c. 39.

FINDINGS

1. The Board of Appeals finds that this application meets the requirements of Section 8, M.G.L. Chapter 40A.
2. The Board of Appeals finds that the subject property is located in the R-2 zoning district.
3. The Board of Appeals finds that a Comprehensive Permit for the property was approved on December 28, 2006 for the construction of four (4) single family dwellings, with one unit affordable to households making 80% of the area median income.
4. The Board of Appeals finds that the appeals brought against the board was dismissed March 10, 2015.
5. The Board of Appeals finds that Delphic Associates and Champion Homes has provided a timeline detailing the work they have undertaken since 2011, including an invoice #5867 from Farrell Electric, Inc. for electric conduit work dated May 25, 2017.
6. The Board of Appeals finds that on June 30, 2021 a building permit was issued for 10 Colonial Way.
7. The Board of Appeals finds that after all appeals were dismissed, construction substantially commenced within three years per condition #21.
8. The Board of Appeals finds that the Comprehensive Permit for 43 Chase Road is valid.
9. The developer testified that substantial commencement of the project took place prior to April 9, 2018. This includes engineering site work, installation of the road and associated drainage and underground utilities. The only documentation provided was for the underground utilities.

Motion: I, James Killion, move to adopt these findings as the findings of the Board of Appeals.

Second: Christopher Neeven

Vote:	Erik Van Buskirk	Yes
	James Killion	Yes
	Christopher Neeven	Yes
	Robert Jensen	Yes
	Chase Terrio	Yes
	Mary Foley	Yes

DECISION

After reviewing the application, the plan and other materials submitted and after giving due consideration to testimony given at the public hearing, the Board hereby denies the Appeal of the Decision of the Building Commissioner, for property located at 10, 20, 30, 40 Colonial Way, Sandwich, MA, Assessors Map #25 Parcel #123, #124, #125, #126, for the purpose of appealing the Building Commissioner's zoning determination relating to the Comprehensive Permit dated December 28, 2006.

Motion: I, James Killion, move to deny the Appeal of the Decision of the Building Commissioner.

Second: Robert Jensen

Vote:	Erik Van Buskirk	Yes
	James Killion	Yes
	Christopher Neeven	Yes
	Robert Jensen	Yes
	Chase Terrio	Yes
	Mary Foley	Yes



**Special Permit
Certificate of Approval**

Petition #	22-06	TOWN CLERK
Current Property Owner(s):	Jean, Edward & Jennifer Sullivan	TOWN OF SANDWICH
Applicant:	Jennifer Sullivan	
Property Address:	28 Boardley Road	MAR 23 2022
Map, Parcel	14-334	<u>2 HSO M P MR</u>


RECEIVED & RECORDED

On March 22, 2022 the Board of Appeals voted to approve a special permit from Sections 1330 and 2220 of the Sandwich Zoning By-law for property located at 28 Boardley Road as shown on Assessor's Map 14, Parcel 334, for the purpose of operating a horse riding school.

The Board of Appeals certifies that the decision attached hereto is a true and correct copy of its decision to approve a special permit and that copies of said decision, and of all plans referred to in the decision, have been filed with the Board of Appeals and the Town Clerk.

The Board of Appeals also calls to the attention of the owner or applicant that General Laws, Chapter 40A, Section 11 provides that no special permit, or any extension, modification or renewal thereof, shall take effect until a copy of the decision bearing the certification of the town clerk that twenty days have elapsed after the decision has been filed in the office of the town clerk and no appeal has been filed or that, if such appeal has been filed, that it has been dismissed or denied, is recorded in the registry of deeds for the county and district in which the land is located and indexed in the grantor index under the name of the owner of record or is recorded and noted on the owner's certificate of title. The owner or applicant shall pay the fee for such recording or registering. A copy of that registered decision shall be returned to the Planning & Development office as proof of filing.

Any person aggrieved by this decision may appeal to the Superior Court or Land Court as in Section 17 of Chapter 40A, M.G.L. by filing a NOTICE OF ACTION AND COMPLAINT with the Town Clerk within twenty (20) days of the date of filing of this decision.


Board of Appeals Member

3/23/22
Date

PROCEDURAL HISTORY

1. An application from sections 1330 & 2220 of the Zoning By-Law for property located at 28 Boardley Road was filed on March 1, 2022.
2. After proper notice was given the public hearing was opened on March 22, 2022 and closed on March 22, 2022.
3. The application was accompanied by a site plan dated January 17, 2022 entitled MBLU 14-334 28 Boardly Road.
4. The Board reviewed the application and all other materials submitted prior to the close of the public hearing. The Board received and gave due consideration to the testimony given at the public hearing.
5. The following members attended the public hearing:

Erik Van Buskirk
James Killion
Christopher Neeven
Robert Jensen
Chase Terrio
Mary Foley

FINDINGS

The Zoning Board of Appeals finds that:

1. The Board of Appeals finds that this application meets the requirements of Section 9, M.G.L. Chapter 40A.
2. Subject property is located within the R2 Zoning District.
3. Applicant wishes to operate a horse riding school.
4. Per section 2200 #18 the Board of Health determined that no more than 4 horses may be stabled at the site.
5. Section 1330 requirements:
 - a) The Board of Appeals does not find that there are conditions peculiar to this case but not generally true for similar permitted uses on other sites in the same district;
 - b) The Board of Appeals finds that nuisance, hazard or congestion will not be created;
 - c) The Board of Appeals finds that there will not be substantial harm to the neighborhood;
 - d) The Board of Appeals finds that there is no derogation from the intent of the bylaw such that the districts' objectives will be satisfied.
6. Board finds that 10 parking spaces are available near the proposed stable.
7. Applicant states that the existing stable shall be removed and a new stable shall be constructed.

Motion: I, James Killion, move to adopt these findings as the findings of the Board of Appeals.

Second: Robert Jensen

Vote:	Erik Van Buskirk	Yes
	James Killion	Yes
	Christopher Neeven	Yes
	Robert Jensen	Yes
	Chase Terrio	Yes
	Mary Foley	Yes

CONDITIONS:

At the public hearing, the Board of Appeals considered potential conditions of approval for the special permit. The Board of Appeals voted that the following conditions of approval shall be imposed upon any approval of a special permit and that these conditions are reasonable and that the applicant and its successor-in-interest shall be bound by these conditions:

1. Failure to comply with all the conditions set forth in this decision shall terminate the grant of this special permit.
2. Pursuant to the requirements of Sandwich Protective Zoning By-law Section 1330, the grant of special permit shall expire upon:
 - a) Transfer of ownership, prior to initiation of substantial construction on or occupancy of the site unless such transfer is authorized in this permit, or
 - b) If no substantial construction or occupancy takes place within (3) three years of special permit approval, excluding such time required to pursue or await the determination of an appeal referred to in MGL C 40A, Section 17.
3. The special permit shall not take effect until it is recorded at the Barnstable County Registry of Deeds and a copy of the recorded special permit is provided to the Board of Appeals.

Motion: I, James Killion, move to impose the above conditions of approval upon any approval of the special permit.

Second: Robert Jensen

Vote:	Erik Van Buskirk	Yes
	James Killion	Yes
	Christopher Neeven	Yes
	Robert Jensen	Yes
	Chase Terrio	Yes
	Mary Foley	Yes

DECISION:

After reviewing the application, the plan and other materials submitted and after giving due consideration to testimony given at the public hearing, the Board hereby approves the special permit application for property located at 28 Boardley Road as shown on Assessor's Map 14, Parcel 334, for the purpose of operating a horse riding school.

Motion: I, James Killion, move to approve the special permit application.

Second: Christopher Neeven

Vote:	Erik Van Buskirk	Yes
	James Killion	Yes
	Christopher Neeven	Yes
	Robert Jensen	Yes
	Chase Terrio	Yes
	Mary Foley	Yes

Town of Sandwich
THE OLDEST TOWN ON CAPE COD



Planning Board

16 Jan Sebastian Drive
Sandwich, MA 02563
Phone: 508-833-8001
Fax: 508-833-8006
Email: planning@sandwichmass.org

The Planning Board of the Town of Sandwich hereby gives notice that it will hold a Public Hearing on proposed amendments to the Sandwich Protective Zoning By-Law.

Date and Time : April 5, 2022 at 7 p.m.
Location : Sandwich Town Hall, 130 Main Street, Sandwich, MA

Citizen Petition Proposed Amendments:

- Proposed amendments to Section 8000 Medical Marijuana Overlay District for the purpose of allowing a recreational marijuana facility in the district.

Full text of the proposed Zoning Amendments, along with the current Protective Zoning By-Law and current Zoning Map may be viewed in the following ways:

1. Request a PDF from the Office of Planning & Development at planning@sandwichmass.org
2. Visit the Office of Planning & Development at 16 Jan Sebastian Drive, Sandwich, MA.
3. Call (508) 833-8001 if other accommodations are needed.

Jeffrey R. Picard, Chair
Sandwich Planning Board
Publication: Sandwich Enterprise
Publication Dates: March 18, 2022 and March 25, 2022

TOWN CLERK
TOWN OF SANDWICH

MAR 17 2022

10 H 10 M A M
RECEIVED & RECORDED

Town of Sandwich
THE OLDEST TOWN ON CAPE COD



BOARD of APPEALS

16 Jan Sebastian Drive
Sandwich, MA 02563
Phone: 508 833 8001
Fax: 508 833 8006
E-mail: planning@sandwichmass.org

**TOWN OF SANDWICH
PUBLIC HEARING NOTICE
BOARD OF APPEALS**

The Sandwich Board of Appeals will hold a Public Hearing on the application of Gail and Brendan Brides, Applicants and Property Owners, for a Variance under Section 1321.1 of the Sandwich Protective Zoning By-Law for property located at 16 Widow Coombs Walk, Sandwich, MA Assessor's Map #3, Parcel #24, for the purpose of obtaining a side yard setback variance. The Public Hearing will be held on April 12, 2022 at the Sand Hill School Community Center, 16 Dewey Ave, Sandwich, MA at 6:00 p.m. The public record information can be viewed at the Planning & Development office, 16 Jan Sebastian Drive, Sandwich, MA, Monday-Friday 8:30 a.m. to 4:30 p.m.

Erik Van Buskirk, Chair
Sandwich Board of Appeals
Publication: Sandwich Enterprise
Publication Dates: March 25 and April 1, 2022

Town of Sandwich
THE OLDEST TOWN ON CAPE COD



BOARD of APPEALS

16 Jan Sebastian Drive
Sandwich, MA 02563
Phone: 508 833 8001
Fax: 508 833 8006
E-mail: planning@sandwichmass.org

**TOWN OF SANDWICH
PUBLIC HEARING NOTICE
BOARD OF APPEALS**

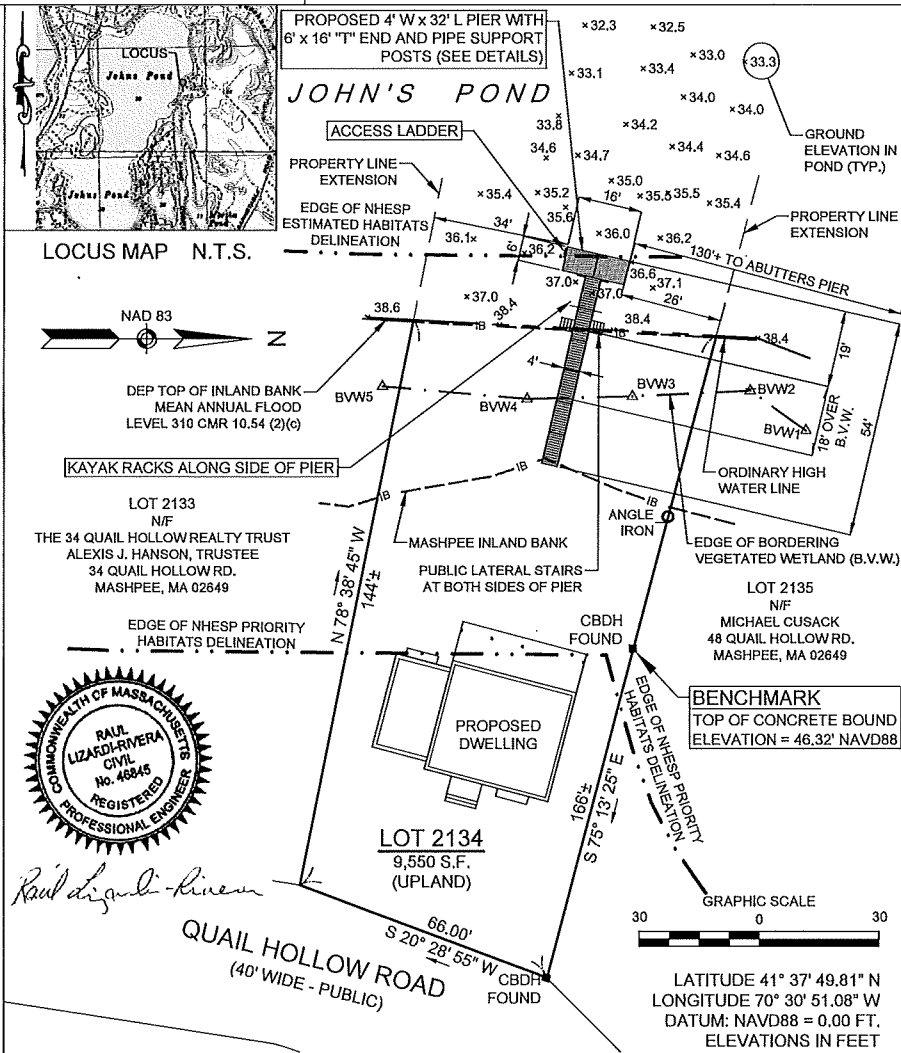
The Sandwich Board of Appeals will hold a Public Hearing on the application of John Paton, Applicant, and Thomas Tsakalos, Property Owner, for a Special Permit under Section 2220 of the Sandwich Protective Zoning By-Law for property located at 331 Cotuit Road, Unit 34, Sandwich, MA Assessor's Map #22, Parcel #185, for the purpose of operating a motor vehicle rental establishment. The Public Hearing will be held on April 12, 2022 at the Sand Hill School Community Center, 16 Dewey Ave, Sandwich, MA at 6:00 p.m. The public record information can be viewed at the Planning & Development office, 16 Jan Sebastian Drive, Sandwich, MA, Monday-Friday 8:30 a.m. to 4:30 p.m.

Erik Van Buskirk, Chair
Sandwich Board of Appeals
Publication: Sandwich Enterprise
Publication Dates: March 25 and April 1, 2022

I HEREBY CERTIFY THAT THIS PLAN DOES CONFORM WITH THE REQUIREMENTS FOR RECORDING OF PLANS IN THE REGISTRY OF DEEDS.

Raul Lizardi-Rivera

RAUL LIZARDI-RIVERA, P.E.



PROPOSED SEASONAL PIER

PARCEL ADDRESS: 38 QUAIL HOLLOW ROAD, MASHPEE, MA 02649

PLAN ACCOMPANYING PETITION OF JOSEPH PENTA TO CONSTRUCT, & MAINTAIN A SEASONAL PIER: 4' W x 54' L WITH 6' W x 16' L "T" END SUPPORTED ON PIPES WITH KAYAK RACKS AND SIDE LATERAL PUBLIC ACCESS STAIRS IN AND OVER THE WATERS OF JOHN'S POND IN MASHPEE, MA 02649

PARCEL ID MAP 58 PARCEL 53

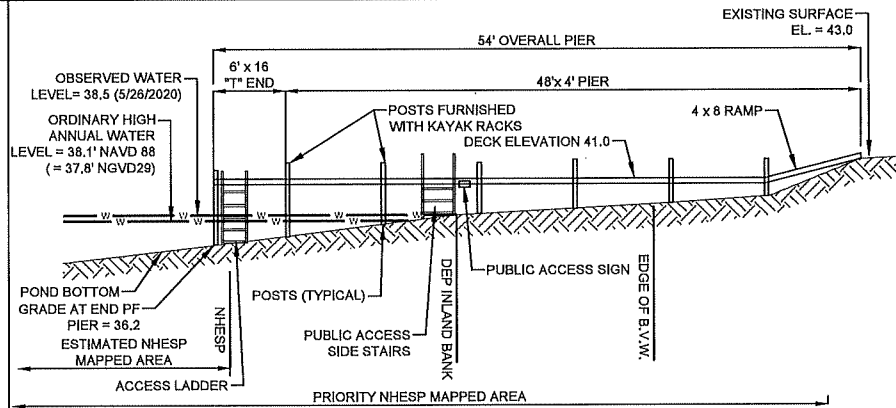
SHEET 1 OF 2

PLAN BY: CAPE & ISLANDS ENGINEERING, INC.
508.477.7272 DATE: SEPTEMBER 17, 2021

I HEREBY CERTIFY THAT THIS PLAN DOES CONFORM WITH THE REQUIREMENTS FOR RECORDING OF PLANS IN THE REGISTRY OF DEEDS.

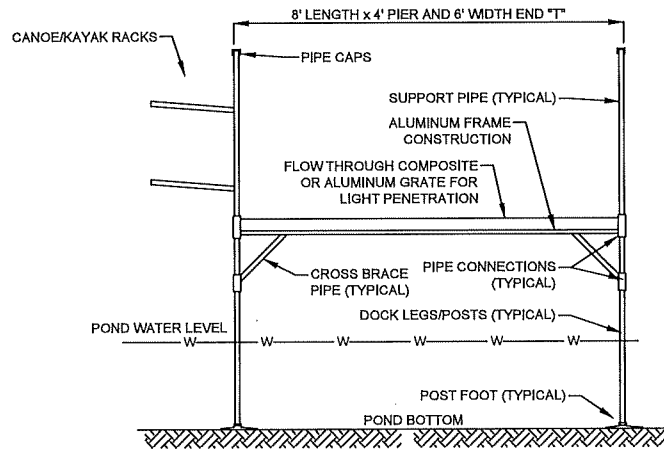
Raul Lizardi-Rivera

RAUL LIZARDI-RIVERA, P.E.



PIER PROFILE

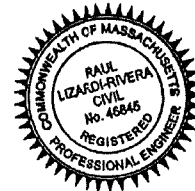
SCALE: 1" = 10'



BENT SECTIONS AS MANUFACTURED BY SHORE MASTER MODEL "INFINITY RS4 OR RS7" OR APPROVED EQUAL

PIER BENT SECTION

NOT TO SCALE



PROPOSED PROFILE

PARCEL ADDRESS: 38 QUAIL HOLLOW ROAD, MASHPEE, MA 02649
 PLAN BY: CAPE & ISLANDS ENGINEERING, INC.
 508.477.7272 DATE: SEPTEMBER 17, 2021

DATUM: NAVD8 = 0.00 FT.
 ELEVATIONS IN FEET

PARCEL ID MAP 58 PARCEL 53 SHEET 2 OF 2






Chapter 91 planning form 3-18-22

Final Audit Report

2022-03-18

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By:	Charlene Antrim (charlene@capeeng.com)
Status:	Signed
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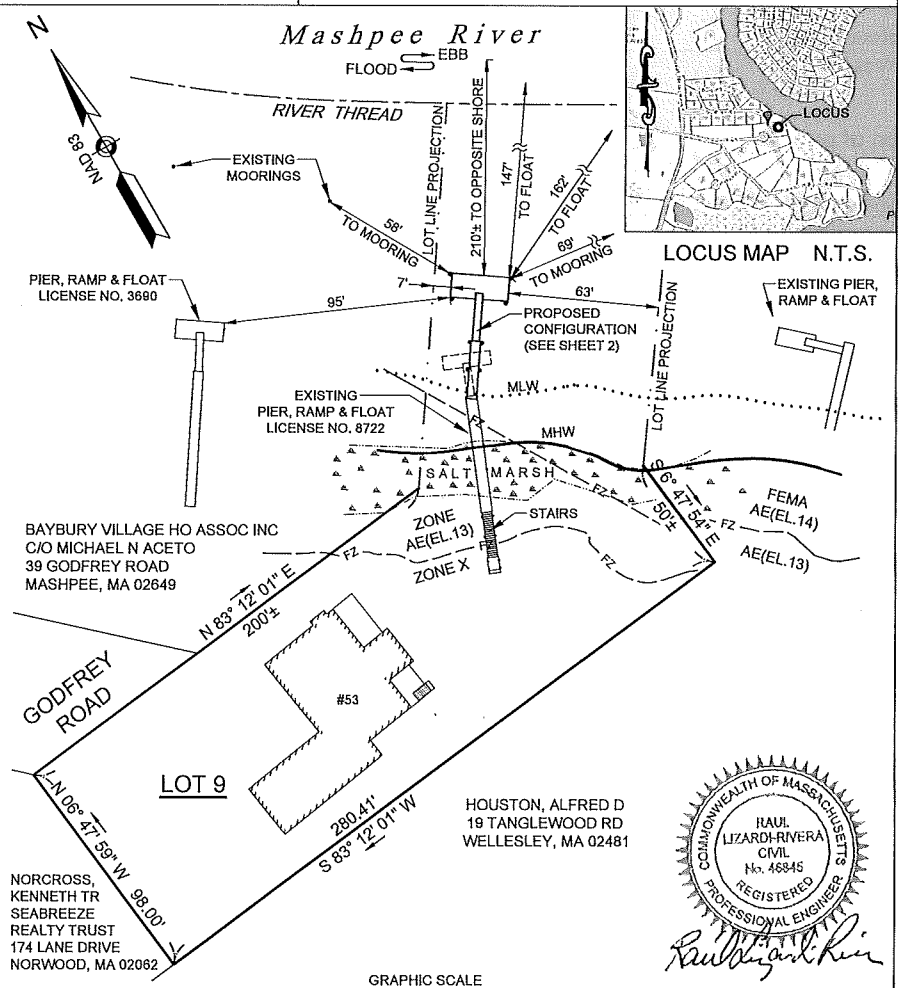
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-  Document created by Charlene Antrim (charlene@capeeng.com)
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2022-03-18 - 5:13:15 PM GMT

I HEREBY CERTIFY THAT THIS PLAN DOES CONFORM WITH THE REQUIREMENTS FOR RECORDING OF PLANS IN THE REGISTRY OF DEEDS.

Raul Lizardi-Rivera

RAUL LIZARDI-RIVERA, P.E.



PARCEL ADDRESS:
53 GODFREY ROAD, MASHPEE, MA

PLAN ACCOMPANYING PETITION OF
CAROLINE R GOODMAN, TRUSTEE OF THE
CAROLINE R GOODMAN TRUST
TO CONSTRUCT & MAINTAIN A PIER, RAMP & FLOAT
IN AND OVER THE WATERS OF MASHPEE RIVER
MASHPEE, MASSACHUSETTS

PLAN BY: CAPE & ISLANDS ENGINEERING, INC.
508.477.7272 DATE: MARCH 4, 2022

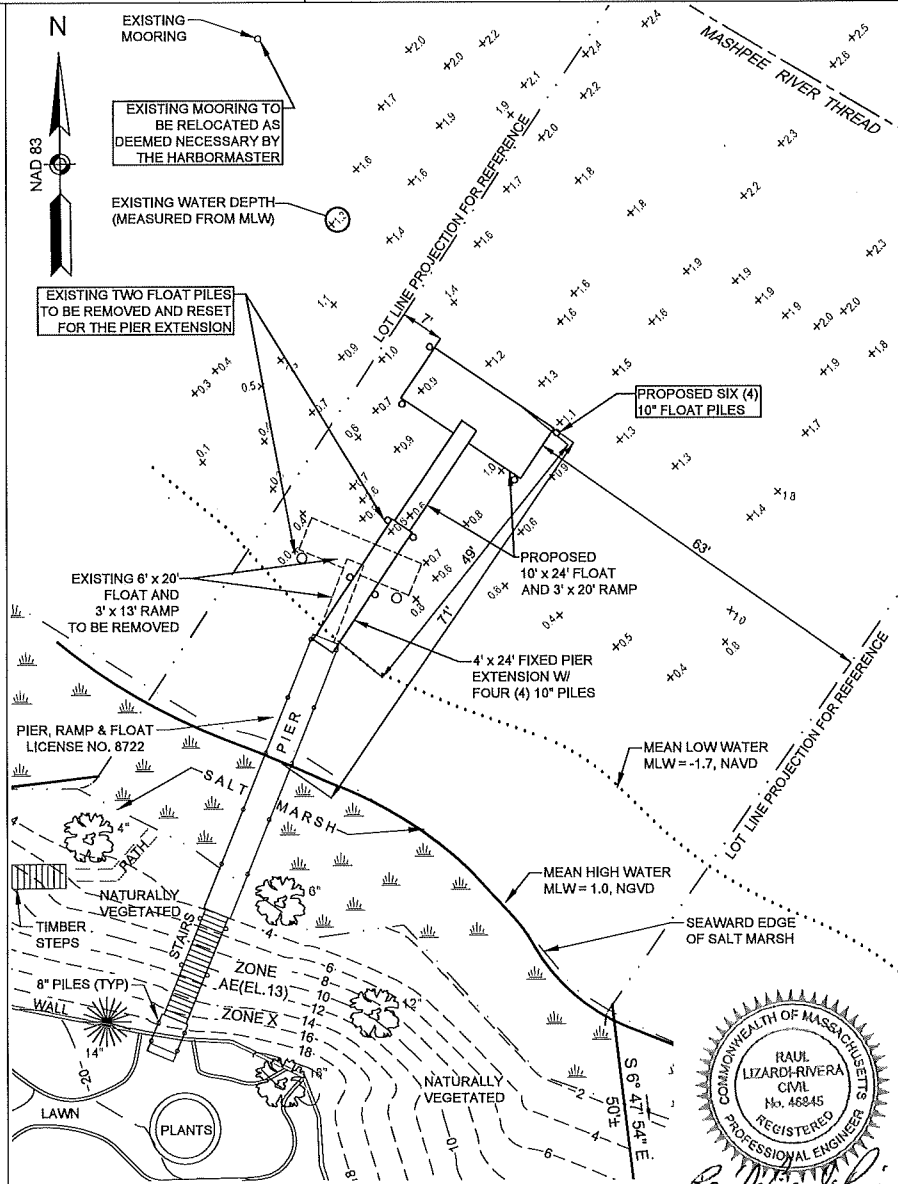
PARCEL ID MAP 96 PARCEL 104J SHEET 1 OF 4

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DATUM: NAVD88 = 0.00 FT.
ELEVATIONS IN FEET

I HEREBY CERTIFY THAT THIS PLAN DOES CONFORM WITH THE REQUIREMENTS FOR RECORDING OF PLANS IN THE REGISTRY OF DEEDS.

Raul Lizardi-Rivera

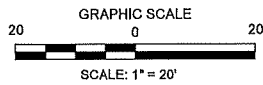
RAUL LIZARDI-RIVERA, P.E.



PLAN VIEW

PARCEL ADDRESS: 53 GODFREY ROAD
MASHPEE, MA

PLAN BY: CAPE & ISLANDS ENGINEERING, INC.
508.477.7272 DATE: MARCH 4, 2022

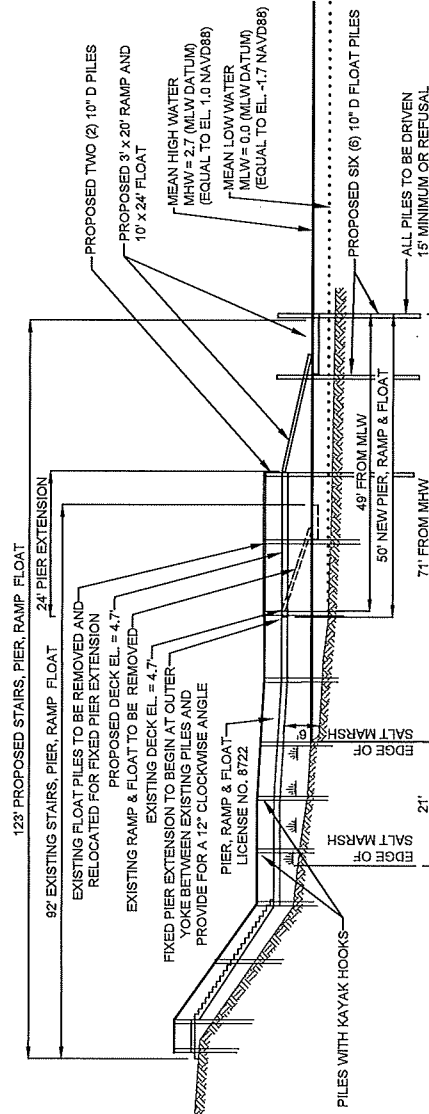


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ELEVATIONS IN FEET

I HEREBY CERTIFY THAT THIS PLAN DOES CONFORM WITH THE REQUIREMENTS FOR RECORDING OF PLANS IN THE REGISTRY OF DEEDS.

Raul Lizardi-Rivera

RAUL LIZARDI-RIVERA, P.E.



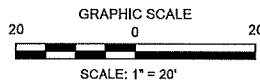
PIER PROFILE



PIER PROFILE

PARCEL ADDRESS: 53 GODFREY ROAD
MASHPEE, MA

PLAN BY: CAPE & ISLANDS ENGINEERING, INC.
508.477.7272 DATE: MARCH 4, 2022



DATUM: M.L.W. = 0.00 FT.
ELEVATIONS IN FEET

PARCEL ID MAP 98 PARCEL 104J SHEET 3 OF 4






Chapter 91 planning form

Final Audit Report

2022-03-18

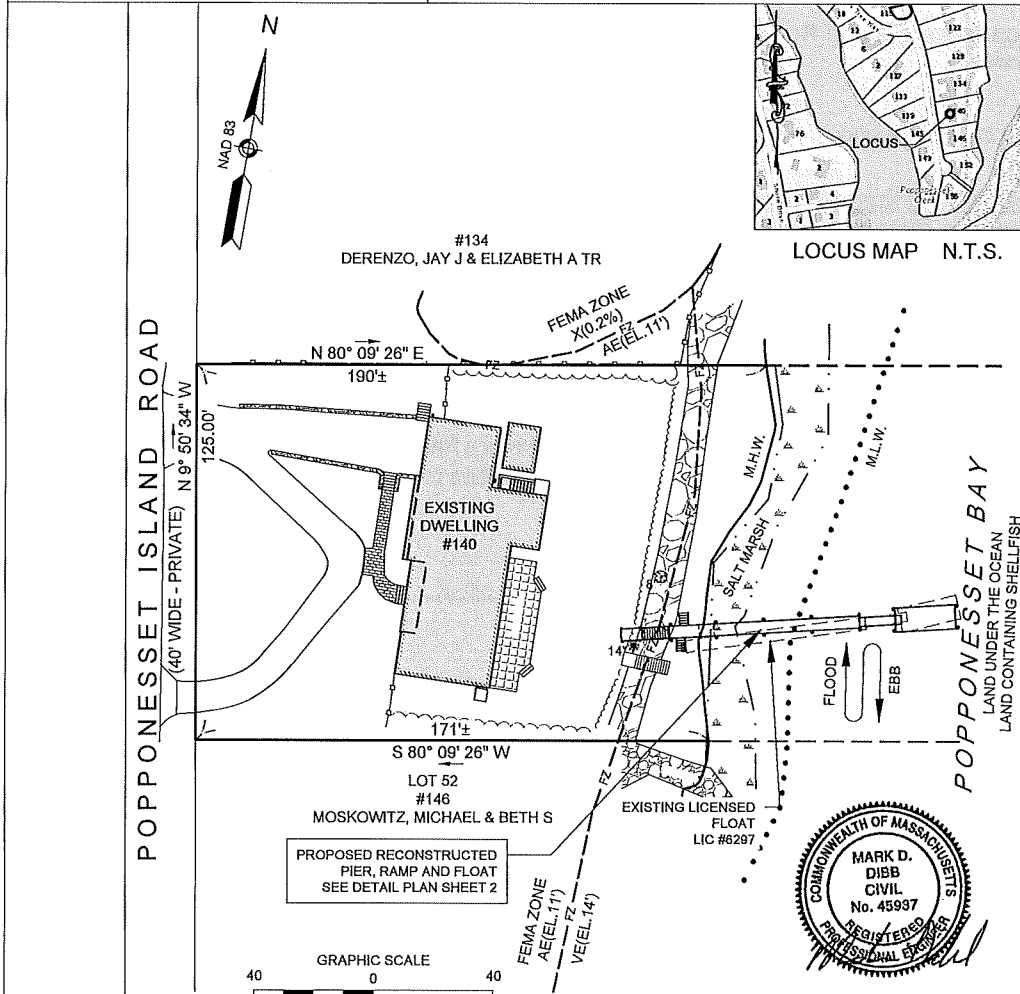
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"Chapter 91 planning form" History

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2022-03-18 - 5:12:12 PM GMT

I HEREBY CERTIFY THAT THIS PLAN DOES CONFORM WITH THE REQUIREMENTS FOR RECORDING OF PLANS IN THE REGISTRY OF DEEDS.

MARK DIBB, P.E.



PROPOSED PIER, RAMP & FLOAT RECONSTRUCTION PLAN

PARCEL ADDRESS: 140 POPPONESSET ISLAND ROAD, MASHPEE, MASSACHUSETTS

PLAN ACCOMPANYING PETITION OF ANGELO P. CATANZARO, TRUSTEE TO RECONSTRUCT, & MAINTAIN A PIER, RAMP AND FLOAT IN AND OVER THE WATERS OF POPPONESSET BAY, MASHPEE, MASSACHUSETTS

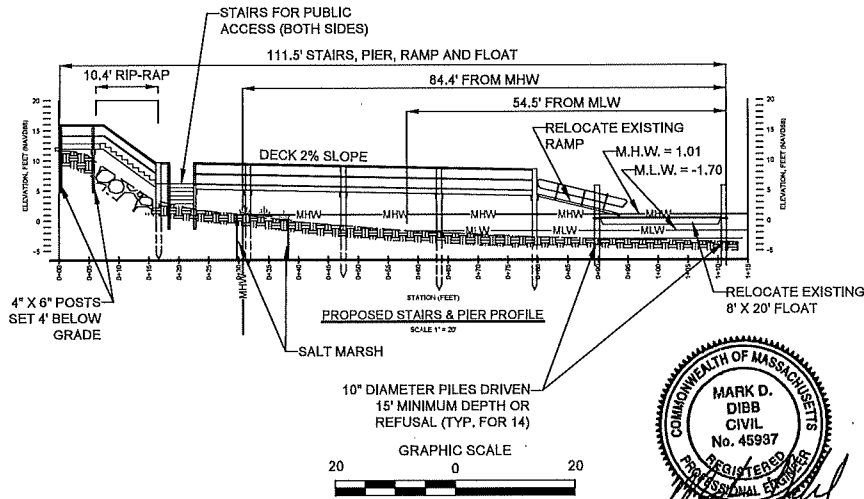
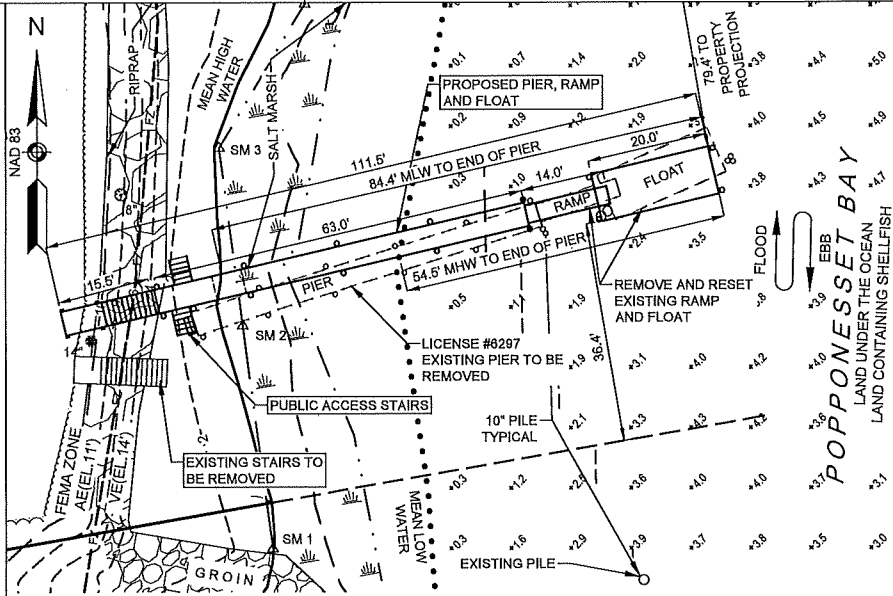
PLAN BY: CAPE & ISLANDS ENGINEERING, INC. 508.477.7272 DATE: MARCH 1, 2022

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 LATITUDE 41° 34' 47.63"
 LONGITUDE 70° 27' 25.33"
 DATUM: NAVD88 = 0.00 FT.
 ELEVATIONS IN FEET

PARCEL ID MAP 112 PARCEL 9 SHEET 1 OF 3

I HEREBY CERTIFY THAT THIS PLAN DOES CONFORM WITH THE REQUIREMENTS FOR RECORDING OF PLANS IN THE REGISTRY OF DEEDS.

MARK DIBB, P.E.



PROPOSED DETAIL PLAN & PROFILE

PARCEL ADDRESS: 140 POPPONSETT ISLAND ROAD, MASHPEE, MA

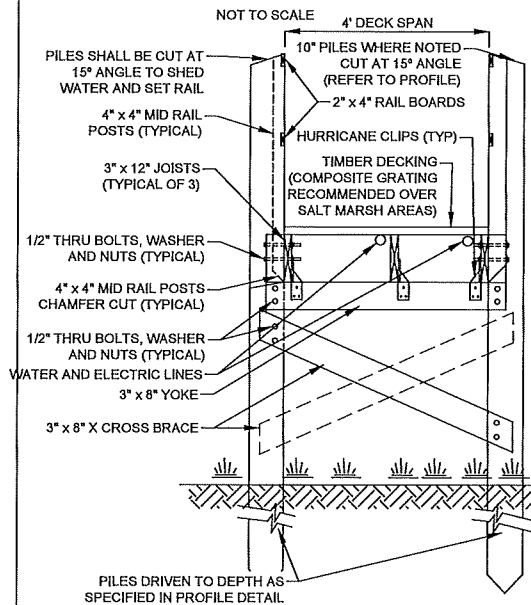
PLAN BY: CAPE & ISLANDS ENGINEERING, INC.
508.477.7272 DATE: MARCH 1, 2022

DATUM: M.L.W. = 0.00 FT.
ELEVATIONS IN FEET

PARCEL ID MAP 112 PARCEL 9 SHEET 2 OF 3

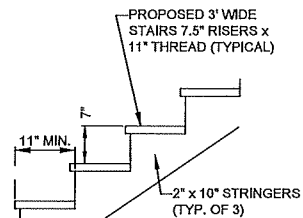
I HEREBY CERTIFY THAT THIS PLAN DOES CONFORM WITH THE REQUIREMENTS FOR RECORDING OF PLANS IN THE REGISTRY OF DEEDS.

MARK DIBB, P.E.



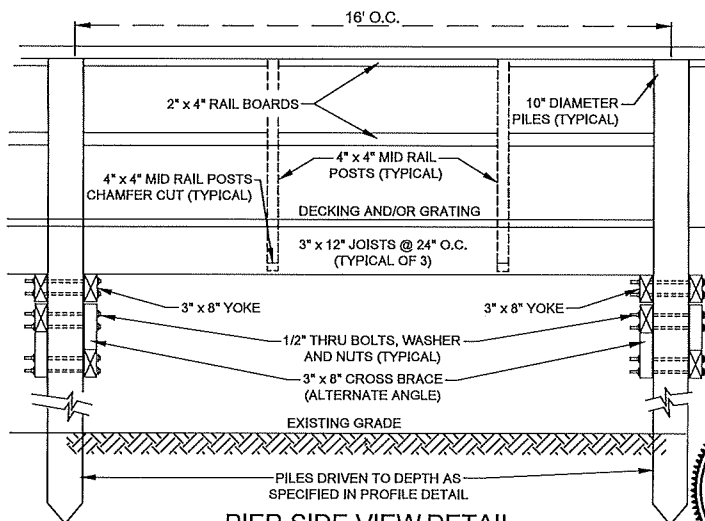
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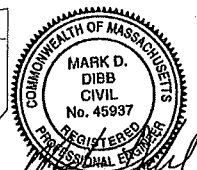
STAIR DETAIL

NOT TO SCALE



PIER SIDE VIEW DETAIL

NOT TO SCALE



PARCEL ADDRESS: 140 POPPONSETT ISLAND ROAD, MASHPEE, MA

DATUM: M.L.W. = 0.00 FT.
ELEVATIONS IN FEET

PLAN BY: CAPE & ISLANDS ENGINEERING, INC.
508.477.7272 DATE: MARCH 1, 2022

PARCEL ID MAP 112 PARCEL 9

SHEET 3 OF 3






Chapter 91 planning form

Final Audit Report

2022-03-18

Created:	2022-03-18
By:	Charlene Antrim (charlene@capeeng.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAAoENPpmCkbK3K8e40_NvxFSJhBoH2Q-Py

"Chapter 91 planning form" History

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-  Agreement completed.
2022-03-18 - 5:11:25 PM GMT



Massachusetts Department of Environmental Protection

eDEP Transaction Copy

Here is the file you requested for your records.

To retain a copy of this file you must save and/or print.

Username: **EBELAIR**

Transaction ID: **1348795**

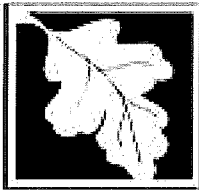
Document: **Groundwater Discharge Monitoring Report Forms**

Size of File: **1027.76K**

Status of Transaction: **Submitted**

Date and Time Created: **3/17/2022:4:31:10 PM**

Note: This file only includes forms that were part of your transaction as of the date and time indicated above. If you need a more current copy of your transaction, return to eDEP and select to "Download a Copy" from the Current Submittals page.

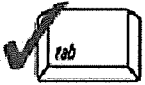


Groundwater Permit
DISCHARGE MONITORING REPORT

668
1. Permit Number
[REDACTED]
2. Tax identification Number
2022 FEB MONTHLY
3. Sampling Month & Frequency

A. Facility Information

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



1. Facility name, address:

SOUTH CAPE VILLAGE

a. Name

672 FALMOUTH ROAD/RTE. 28

b. Street Address

MASHPEE MA 02649

c. City

d. State

e. Zip Code

2. Contact information:

MYLES OSTROFF

a. Name of Facility Contact Person

6174311097 myles@chartweb.com

b. Telephone Number

c. e-mail address

3. Sampling information:

2/9/2022 RI ANALYTICAL

a. Date Sampled (mm/dd/yyyy)

b. Laboratory Name

NICOLE SKYLESON

c. Analysis Performed By (Name)

B. Form Selection

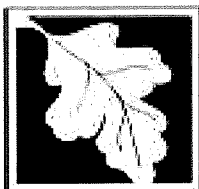
1. Please select Form Type and Sampling Month & Frequency

Discharge Monitoring Report - 2022 Feb Monthly

All forms for submittal have been completed.

2. This is the last selection.

3. Delete the selected form.



Groundwater Permit

DISCHARGE MONITORING REPORT

668

1. Permit Number

2. Tax identification Number

2022 FEB MONTHLY

3. Sampling Month & Frequency

D. Contaminant Analysis Information

- For "0", below detection limit, less than (<) value, or not detected, enter "ND"
- TNTC = too numerous to count. (Fecal results only)
- NS = Not Sampled

1. Parameter/Contaminant	2. Influent	3. Effluent	4. Effluent Method Detection limit
Units			
BOD	110	11	10
MGL			
TSS	120	12	2.0
MGL			
TOTAL SOLIDS	500		
MGL			
AMMONIA-N	10		
MGL			
NITRATE-N		0.78	0.050
MGL			
TOTAL NITROGEN(NO3+NO2+TKN)		3.6	0.50
MGL			
OIL & GREASE		1.6	0.50
MGL			



Groundwater Permit

DAILY LOG SHEET

668
1. Permit Number
[REDACTED]
2. Tax identification Number
2022 FEB DAILY
3. Sampling Month & Frequency

A. Facility Information

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



1. Facility name, address:

SOUTH CAPE VILLAGE

a. Name

672 FALMOUTH ROAD/RTE. 28

b. Street Address

MASHPEE

c. City

MA

d. State

02649

e. Zip Code

2. Contact information:

MYLES OSTROFF

a. Name of Facility Contact Person

6174311097

b. Telephone Number

myles@chartweb.com

c. e-mail address

3. Sampling information:

2/28/2022

a. Date Sampled (mm/dd/yyyy)

WHITEWATER

b. Laboratory Name

JAIME STEWART

c. Analysis Performed By (Name)

B. Form Selection

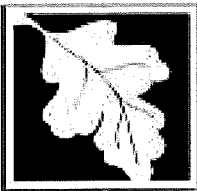
1. Please select Form Type and Sampling Month & Frequency

Daily Log Sheet - 2022 Feb Daily

All forms for submittal have been completed.

2. This is the last selection.

3. Delete the selected form.



Groundwater Permit

DAILY LOG SHEET

668

1. Permit Number

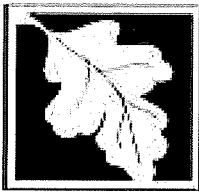
2. Tax identification Number

2022 FEB DAILY

3. Sampling Month & Frequency

C. Daily Readings/Analysis Information

Date	Effluent Flow GPD	Reuse Flow GPD	Irrigation Flow GPD	Turbidity	Influent pH	Effluent pH	Chlorine Residual (mg/l)	UV Intensity (%)
1	11551					7.2		
2	4802					7.1		
3	15160					7.1		
4	3682					7.1		
5	3682							
6	11267							
7	4035					6.9		
8	4587					6.9		
9	18898					6.9		
10	3665					6.9		
11	13367					7.2		
12	13367							
13	3828							
14	4237					7.1		
15	7546					6.9		
16	15850					6.9		
17						7.2		
18	15146					7.2		
19	8735							
20	8735							
21	8735							
22	4109					7.1		
23	4182					7		
24	7524					7.1		
25	12362					7.1		
26	12362							
27	12362							
28	5618					7.1		
29								
30								
31								

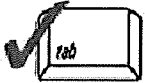


Groundwater Permit
MONITORING WELL DATA REPORT

668
1. Permit Number
[REDACTED]
2. Tax identification Number
2022 FEB MONTHLY
3. Sampling Month & Frequency

A. Facility Information

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



1. Facility name, address:

SOUTH CAPE VILLAGE

a. Name

672 FALMOUTH ROAD/RTE. 28

b. Street Address

MASHPEE MA 02649

c. City

d. State

e. Zip Code

2. Contact information:

MYLES OSTROFF

a. Name of Facility Contact Person

6174311097 myles@chartweb.com

b. Telephone Number

c. e-mail address

3. Sampling information:

2/23/2022 WHITEWATER

a. Date Sampled (mm/dd/yyyy)

b. Laboratory Name

JAIME STEWART

c. Analysis Performed By (Name)

B. Form Selection

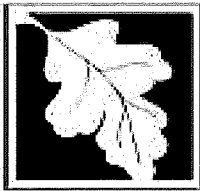
1. Please select Form Type and Sampling Month & Frequency

Monitoring Well Data Report - 2022 Feb Monthly

All forms for submittal have been completed.

2. This is the last selection.

3. Delete the selected form.



Groundwater Permit
MONITORING WELL DATA REPORT

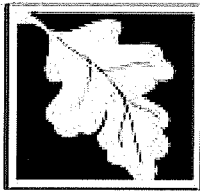
668
1. Permit Number
[REDACTED]
2. Tax identification Number
2022 FEB MONTHLY
3. Sampling Month & Frequency

C. Contaminant Analysis Information

- For "0", below detection limit, less than (<) value, or not detected, enter "ND"
- TNTC = too numerous to count. (Fecal results only)
- NS = Not Sampled
- DRY = Not enough water in well to sample.

<

Parameter/Contaminant	P-1	P-2	P-4	P-6		
Units	Well #: 1	Well #: 2	Well #: 3	Well #: 4	Well #: 5	Well #: 6
PH	6.2	DRY	5.7	6.8		
S.U.						
STATIC WATER LEVEL	18.4	DRY	46.9	50.6		
FEET						
SPECIFIC CONDUCTANCE	1248	DRY	138.8	854		
UMHOS/C						



Groundwater Permit

668

1. Permit Number

2. Tax Identification Number

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

Facility Information

SOUTH CAPE VILLAGE

a. Name

672 FALMOUTH ROAD/RTE. 28

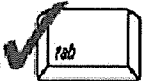
b. Street Address

MASHPEE MA 02649

c. City

d. State

e. Zip Code



Certification

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

ELIZABETH BELAIR

a. Signature

3/17/2022

b. Date (mm/dd/yyyy)

Any person signing a document under 314 CMR 5.14(1) or (2) shall make the following certification

Reporting Package Comments

PLANT MET ALL DISCHARGE PERMIT REQUIREMENTS FOR FEBRUARY 2022. PUMPED 25,500 GALLONS FOR ANOXIC MAINTENANCE AND MECHANICAL BACKWASH PUMP FAIL.

If you are filing electronically and want to attach additional comments, select the check box.