



# Checklist for Stormwater Report

STORMWATER  
REPORT  
FOR  
STOVE  
CENTER  
8/29/23

## 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.<sup>1</sup> This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8<sup>2</sup>
- 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.

<sup>1</sup> 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.

<sup>2</sup> 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



*Daniela Ojala* 8/29/23

Signature and Date

### Checklist

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

- New development
- Redevelopment
- Mix of New Development and Redevelopment



# 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): catch basins with deep sump basins & deep sump mh's to infiltration pits

### 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 Field<sup>1</sup>
- 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.

<sup>1</sup> 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

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## 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.





**STORMWATER NARRATIVE:  
THE STOVE CENTER  
#1220 Route 28A Cataumet, MA © 2020 down cape engineering, inc.**

## **OVERVIEW OF STORMWATER MANAGEMENT SYSTEM/ NARRATIVE INDICATING STORMWATER STANDARDS COMPLIANCE:**

The drainage systems specified for proposed development have been designed in accordance with Town of Bourne Subdivision Rules and Regulations, the State Stormwater Management Guidelines. The project consists of a warehouse storage building and parking added to the rear of a storage with some retail building and storage yard with associated utilities and parking. Full compliance with all Stormwater Standards is met by the design. The proposed use is a retail warehouse type use in a B2 Business zoning district located outside of a Zone II in Cataumet, MA. While outside the zone 2, the site is within the water protection district of the town. The site is not a "Land Use with Higher Potential Pollutant Load" per the State Stormwater Management Guidelines, so infiltration is utilized. The underlying material is sand, hydrologic group A under the guidelines.

During construction, the existing sandy soils and drainage, and the installation of a silt fence near the downgradient border provide full protection of the adjacent wetlands and roadways. The erosion control fence is to be inspected after every rain event and is to be maintained until the site is stabilized and ready for occupancy.

The proposed parking areas drain to deep sump hooded catch basins installed in an off-line configurations, with overflow deep sump manholes, and the design meets the 44% TSS removal prior to infiltration. Roof runoff is infiltrated directly. The systems are designed to contain and infiltrate the design storm event onsite and provide the required Total Suspended Solids (TSS) removal mandated by the State Stormwater Management Guidelines. The parking lot is to be swept free of sand each spring, on or about April 1<sup>st</sup>.

Best Management Practices incorporated in the project are as follows:

- Deep Sump Hooded Catch Basins offline (25% TSS Removal)
- Secondary deep sump manholes (25% TSS Removal)
- Infiltration Trenches/Pit (80% TSS Removal)
- Street Sweeping (10% TSS Removal)

Compliance with the 10 State Stormwater Standards (in order in bold with explanation in lighter font following the numbered Standards) is as follows:

- 1. No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.**  
The project prevents existing stormwater from entering waters of the Commonwealth, and no new outfalls are proposed, so this standard is met and exceeded. The local regulation require a 25 year storm be infiltrated 100% onsite, exceeding the State requirements.
- 2. Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.**  
The sandy soils permit onsite infiltration, as shown by the attached calculations, the proposed drainage system will infiltrate a 25 year storm event onsite per the attached calculations, so this Standard is easily met by the proposal.
- 3. Loss of annual recharge to groundwater shall be eliminated or minimized through the use of infiltration measures including environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.**  
Local Town of Bourne requirements call for all stormwater to be infiltrated onsite for commercial sites, and the proposed development complies with this standard, so the annual recharge is easily met.
- 4. Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This Standard is met when:**

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

A long term pollution prevention plan is attached, in excess of the correct volumes are captured, and pretreatment is provided per the Handbook, so compliance with #4 is assured.
- 5. For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00. The typical retail/warehouse style development is not applicable to higher potential pollutant loads per the Handbook, so this standard is "Not Applicable" for this site. (note that 44% TSS removal pretreatment is provided prior to infiltration).**

**6. Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply, and stormwater discharges near or to any other critical area, require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A "storm water discharge" as defined in 314 CMR 3.04(2)(a)1 or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of a public water supply. The site is not in a Zone 2 to a public well, but no stormwater discharges are proposed, and 44% TSS removal prior to infiltration is provided, hence the project is compliant with the standard.**

**7. A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions. This project is not a redevelopment, and needs to comply with the standards.**

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

**9. A long-term operation and maintenance plan shall be developed and implemented to ensure that stormwater management systems function as designed. The long term O&M plan is attached.**

**10. All illicit discharges to the stormwater management system are prohibited. No illicit discharges are allowed or planned related to this site. Additional documentation will be filed per the stormwater instructions.**

As shown above and in the following calculations, the development project at #1220 Route 28A Cataumet is compliant with the State Stormwater Management Guidelines.

# **STORMWATER OPERATIONS AND MAINTENANCE PLAN:**

**#1220 ROUTE 28A CATAUMET, MA**

DATE: 8-19-23  
Prepared by: down cape engineering, inc.  
939 Route 6a Yarmouthport, MA 02675  
Ph. 1-508-362-4541  
Fax 1-508-362-9880

**STORMWATER OPERATIONS AND MAINTENANCE PLAN:**

**#1220 ROUTE 28A CATAUMET, MA**

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6. Estimated operations and maintenance budget
7. Operations and maintenance Log Form
8. Emergency Spill Contingency Plan

**STORMWATER OPERATIONS AND MAINTENANCE PLAN:**

**#1220 ROUTE 28A CATAUMET, MA**

**OWNER OF STORMWATER SYSTEM AND  
RESPONSIBLE PARTY FOR OPERATIONS AND  
MAINTENANCE:**

**OWNER/RESPONSIBLE PARTY:**

Robert Hanflig  
Stove Center owner  
1-508-563-3280

**STORMWATER OPERATIONS AND MAINTENANCE PLAN:**

**#1220 RROUTE 28A CATAUMET, MA**

**OVERVIEW OF STORMWATER MANAGEMENT SYSTEM:**

The drainage systems currently and previously specified for proposed redevelopment area have been designed in accordance with Town of Bourne Subdivision Rules and Regulations and engineering department guidelines. The system has been designed to fully comply with the Stormwater Stormwater Management Guidelines.

The systems utilizes deep sump hooded catch basins, deep sump hooded manholes leading to stone filled infiltration pits. The proposed use is a typical warehouse building, so is not a “Land Use with Higher Potential Pollutant Load” per the State Stormwater Management Guidelines, so onsite infiltration is utilized. The underlying material is sand, hydrologic group A under the guidelines.

During construction, the natural sandy perimeter of the site, swales and the installation of a silt fence near the downgradient border provide full protection of the resource areas. The erosion control fence is to be inspected after every rain event and is to be maintained until the site is stabilized. See also construction period O&M plan.

The deep sump hooded catch basins installed in an off-line configurations, removing in excess of the 44% TSS removal prior to direct infiltration, The system is designed to contain and infiltrate the design storm event onsite and provide the required Total Suspended Solids (TSS) removal mandated by the State Stormwater Management Guidelines. The parking lot is to be swept free of sand each spring, on or about April 1<sup>st</sup>.

Best Management Practices incorporated in the project are as follows:

- Deep Sump Hooded Catch Basins offline (25% TSS Removal)
- Deep Sump Hooded Manholes (25% TSS Removal)
- Infiltration Trenches/Pit (80% TSS Removal)
- Street Sweeping (10% TSS Removal)

**STORMWATER OPERATIONS AND MAINTENANCE PLAN:**

**#1220 ROUTE 28A CATAUMET, MA**

**SCHEDULE OF INSPECTION AND MAINTENANCE OF  
STORMWATER MANAGEMENT SYSTEM:**

**SCHEDULE OF INSPECTION AND MAINTENANCE:**

The stormwater management system proposed for the site requires regular inspection and maintenance to ensure proper operation and effectiveness.

1. It is recommended that the stormwater system proposed for the site be inspected four times annually, and sediment removed from the catch basins as required. The inspection should involve physical inspection of the catch basins and manholes for sediment buildup and inspecting the trenches and pits for solids carryover. If significant solids are found in the basins (more than 2'), basins shall be mechanically cleaned and the sediment disposed of offsite in compliance with all local, state, and federal regulations. If slow infiltration is noted during storm events, the infiltration trenches or drywells should be repaired or rebuilt as necessary to restore function. If standing water is observed in the bottom of the pits more than 72 hours after a rain event any fines shall be removed and the bottom scarified and stone replaced to increase infiltration as needed to prevent standing water more than 72 hours after a rain event.
2. The parking areas shall be swept free of sand after the last snowfall of each season, generally on or about April 1<sup>st</sup>.



**STORMWATER OPERATIONS AND MAINTENANCE PLAN:**

**#1220 ROUTE 28A CATAUMET, MA**

**SOURCE CONTROL BEST MANAGEMENT PRACTICES:**

1. The pavement should be swept after the last snowfall of the season (sweep on or about April 1<sup>st</sup>) and when necessary to remove accumulated debris, trenches and drywells to be inspected annually.
2. No illicit discharges of any type are allowed into the storm water drainage system or septic system. Personnel should be instructed in proper disposal of any cleaning materials, paints, chemicals, or other potentially harmful substances utilized on or about the property.

**STORMWATER OPERATIONS AND MAINTENANCE PLAN:**

**#1220 ROUTE 28A CATAUMET, MA**

**EMERGENCY SPILL CONTIGENCY PLAN:**

1. The owner of the facility shall have a designated person with overall responsibility for spill response.
2. A summary of this plan shall be posted in a prominent location in the building. The Summary shall identify the phone numbers of regulatory agencies and individuals to be contacted in the event of a spill.
3. In the event of a spill, the following shall be notified:
  - a) Bourne Fire Department  
(for a gasoline or hazardous materials spill)
  - b) Department of Environmental Protection  
Emergency Response 1-508-946-2850
  - c) Bourne Water Department
  - d) Bourne Board of Health
  - e) Bourne Conservation Department
4. Notification of authorities for the cleanup of spills shall be done immediately upon discovery of a spill.

**STORMWATER OPERATIONS AND MAINTENANCE PLAN:**

**#1220 ROUTE 28A CATAUMET, MA**

**ESTIMATED OPERATIONS AND MAINTENANCE  
BUDGET:**

**Inspections: Quarterly inspection of drainage system:  
Visual inspection, probe sediment depth, review for signs of drainage issues, ...Est.  
\$150/visit x 4 = \$600/year.**

**Catch Basin Cleaning: Est. 2 basins/year: \$400.00**

**Street Sweeping: Est. \$400/visit.**

**INSPECTION AND MAINTENANCE LOG FORM- Post Construction**

**Pollution Prevention and Erosion and Sedimentation Control**

**Project Name: The Stove Center #1220 Route 28A Cataumet, MA**

**Owner: Robert Hanflig**

**Phone: 1-508-563-3280**

(sweep lot April 1, inspect drainage catch basins for solids buildup, clean catch basins, dumpster lid check, etc. see O&M plan)

**Date      Description of Inspection or Maintenance      Person      Comments**



**NOTE: DUPLICATE FORM AS REQUIRED FOR PROJECT DURATION**

**CONSTRUCTION PERIOD POLLUTION  
AND EROSION AND SEDIMENTATION  
CONTROL PLAN:**

**The Stove Center  
#1220 Route 28a Cataumet (Bourne), MA**

DATE : 8-29-2023  
Prepared by: down cape engineering, inc.  
939 Route 6a Yarmouthport, MA 02675  
Ph. 1-508-362-4541  
Fax 1-508-362-9880

**CONSTRUCTION PERIOD POLLUTION AND EROSION AND SEDIMENTATION CONTROL PLAN:**

**1220 Route 28a Cataumet (Bourne), MA**

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2. Construction Period Operation and Maintenance Plan
3. Responsible Party for Plan Compliance
4. Erosion and Sedimentation Control Plan Drawings (see separate full size plans)
5. Detail drawings and specifications for erosion control BMP's (see separate sheets)
6. Vegetation Planning (see separate sheets)
7. Site Development Plans (see separate sheets/contract documents)
8. Construction Sequencing Plan
9. Sequencing of Erosion and Sedimentation Controls
10. Schedule of Inspection
11. Schedule of Maintenance
12. Inspection and Maintenance Log Form

**CONSTRUCTION PERIOD POLLUTION AND EROSION AND SEDIMENTATION CONTROL  
PLAN**

**# 1220 Route 28a Cataumet (Bourne), MA**

**RESPONSIBLE PARTY FOR PLAN COMPLIANCE:**

**OWNER/RESPONSIBLE PARTY:**

Robert Hanflig  
The Stove Center  
1220 Rt 28A Cataumet, MA  
Phone: 1-508-563-3280

Note: Responsibility may be transferred to construction contractor using legally binding contract.

**CONSTRUCTION PERIOD POLLUTION AND EROSION AND SEDIMENTATION CONTROL  
PLAN:**

#20-111 The Stove Center- Construction Period Pollution and Erosion Control Plan

**1220 Route 28a Cataumet (Bourne), MA**

**NARRATIVE OF CONSTRUCTION PERIOD POLLUTION  
AND EROSION AND SEDIMENTATION CONTROL PLAN:**

The development proposal for #1220 Rt 28a consists of a typical warehouse building with attendant parking lot, onsite drainage, lighting, and landscape improvements. Erosion control consisting of silt fencing will be utilized to reduce the chance of any storm water pollution resulting from silt washing from the subject property. The subject property is rolling wooded terrain, the underlying base soil material is clean sand, hydrologic group A. New drainage structures are planned to capture, treat, and infiltrate the roof area, and the work on these items and utility installations will generate a potential for construction silt to leave the site. Temporary haybales are to be utilized where required on paved surfaces near the daily construction areas, and silt fencing with coir log backing per the plans is to be installed prior to any other work on the site.

During construction, the natural sandy perimeter of the site and the installation of a silt fence/coir log near the downgradient borders will provide protection of the resource areas. The erosion control fence is to be inspected weekly and after every significant rain event and is to be maintained until the site is stabilized and a certificate of compliance obtained. A dedicated stone construction apron is planned, and any soils tracked onto the pavement will be swept up on a regular basis, especially prior to forecast rain events. Disturbed areas on the site are well under an acre, so a filing with the EPA under the NPDES Construction General Permit is not anticipated.



**CONSTRUCTION PERIOD POLLUTION AND EROSION AND SEDIMENTATION CONTROL PLAN:**

**1220 Route 28a Cataumet (Bourne), MA**

**CONSTRUCTION PERIOD OPERATION AND MAINTENANCE PLAN:**

1. Construction Period Operation and Maintenance shall consist of installation and maintenance of appropriate erosion and sedimentation controls and best management practices such as litter pickup and street sweeping. The Operations and Maintenance will be per the schedule attached to this plan. The sediment barriers will be inspected weekly during the construction process, and after every rain event in excess of one half inch of precipitation. The inspection should involve physical inspection the silt fence for sediment buildup or solids carryover. If significant sediments are found against the silt fence the silt shall be mechanically removed. The crushed stone entrance apron shall be maintained and the paved roadway shall be inspected for vehicle tracking and swept as required to prevent sediment from reaching the street infiltration systems. The gravel area area around the redeveloped building shall be shall be excavated and utilized for stormwater infiltration during the construction process, the structured infiltration system shall not be utilized until the site is paved and stable. If siltation slows the infiltration of the temporary infiltration areas, the bottom of the areas shall be cleaned of silt such that the infiltration capacity is restored. Clean washed stone shall be installed once the site is stable and the roof has been connected to the permanent drywell.

**CONSTRUCTION PERIOD POLLUTION AND EROSION AND SEDIMENTATION CONTROL PLAN:**

**1220 Route 28a Cataumet (Bourne), MA**

**Construction Sequencing Plan:**

Due to the relatively small size of this project, the site will proceed continuously from silt fence installation, stone apron installation, building demolition, grading, retaining wall construction, utility and drainage installation, construction of footings and building, gravel for parking, any paving and then final landscaping work.

The silt fence will not be removed until the site is fully stabilized after construction.

Silt sacks shall be installed and cleaned regularly to protect existing drainage during construction, removed only when final site stabilization is complete.

**SEQUENCING OF EROSION AND SEDIMENTATION CONTROLS:**

The erosion and sedimentation controls will be placed per plan as follows:

2. Filter fabric/silt sacks and silt fencing shall be utilized to protect existing drainage while site is under construction, not to be removed until site stable.
3. Work limit lines shall be staked in the field under the supervision of a Licensed Professional Land Surveyor to ensure accurate placement.
4. The silt fence line shall be installed as shown on the plans.
5. The washed stone construction apron shall be installed if required.
6. The gravel area around the building shall be excavated and utilized for stormwater control during the construction process, gutters and downspouts and drywells shall be added as soon as practicable, the infiltration pits and existing drainage shall remain protected by silt sacks until the site is completely stable.

**CONSTRUCTION PERIOD POLLUTION AND EROSION AND SEDIMENTATION CONTROL PLAN:**

**1220 Route 28a Cataumet (Bourne), MA**

**SCHEDULE OF INSPECTION AND MAINTENANCE OF STORMWATER MANAGEMENT SYSTEM:**

**SCHEDULE OF INSPECTION AND SCHEDULE OF MAINTENANCE:**

The erosion and sediment control plan proposed for the site requires regular inspection and maintenance to ensure proper operation and effectiveness.

1. The sediment barriers should be inspected weekly during the construction process, and after every rain event in excess of one half inch of precipitation.
2. The inspection should involve physical inspection the silt fence for sediment buildup or solids carryover.
3. If significant sediments are found against the silt fence (more than 6" buildup measured from grade) the silt shall be mechanically removed.
4. The washed stone area behind the building shall be inspected, and any significant buildup of silt shall be removed.
5. The roadway shall be inspected for vehicle tracking and swept as required to prevent sediment from reaching the roadway drainage system, the operator shall monitor weather forecasts regularly to ensure timely sweeping prior to large rain events.

**INSPECTION AND MAINTENANCE LOG FORM- Post Construction**

**Pollution Prevention and Erosion and Sedimentation Control**

**Project Name: The Stove Center #1220 Route 28A Cataumet, MA**

**Owner: Robert Hanflig**

**Phone: 1-508-563-3280**

(sweep lot April 1, inspect drainage catch basins for solids buildup, clean catch basins, dumpster lid check, etc. see O&M plan)

**Date      Description of Inspection or Maintenance      Person      Comments**

Date	Description of Inspection or Maintenance	Person	Comments

**NOTE: DUPLICATE FORM AS REQUIRED FOR PROJECT DURATION**

# **LONG TERM POLLUTION PREVENTION PLAN**

**1220 Route 28a Cataumet (Bourne), MA**

DATE: 8-19-20  
Prepared by: down cape engineering, inc.  
939 Route 6a Yarmouthport, MA 02675  
Ph. 1-508-362-4541  
Fax 1-508-362-9880

**LONG TERM POLLUTION PREVENTION PLAN:**

**1220 Route 28a Cataumet (Bourne), MA**

- 1. Street Sweeping of parking lot shall be performed on or about April 1<sup>st</sup> of every year.**
- 2. Dumpster area fence shall be maintained in good condition and unauthorized access to the dumpster prohibited.**
- 3. Dumpster lids shall be properly maintained and replaced if damaged.**
- 4. Ongoing maintenance of stormwater drainage systems shall be per O&M plan.**
- 5. Spill response plan shall be posted per Stormwater O&M plan.**
- 6. Excessive use of fertilizers, herbicides, and pesticides shall be avoided.**
- 7. Illicit discharges to the stormwater management system or waters of the Commonwealth are prohibited, and personnel shall be instructed that no such discharges are allowed.**

**LONG TERM POLLUTION PREVENTION PLAN:**

**RESPONSIBLE PARTY FOR LTPPP COMPLIANCE:**

OWNER/RESPONSIBLE PARTY:

Robert Hanflig  
The Stove Center  
1220 Rt 28A Cataumet, MA  
Phone: 1-508-563-3280

Note: Responsibility may be transferred using legally binding contract.

**POLLUTION PREVENTION  
AND  
EMERGENCY RESPONSE PLAN**

DATE: 8-29-23  
Prepared by: down cape engineering, inc.  
939 Route 6a Yarmouthport, MA 02675  
Ph. 1-508-362-4541  
Fax 1-508-362-9880



## **RESPONSIBLE PARTY FOR PLAN COMPLIANCE:**

### **OWNER:**

Robert Hanflig  
The Stove Center  
1220 Rt 28A Cataumet, MA  
Phone: 1-508-563-3280

### **RESPONSIBLE PARTY:**

Robert Hanflig  
The Stove Center  
1220 Rt 28A Cataumet, MA  
Phone: 1-508-563-3280

Note: Responsibility may only be transferred using a legally binding contract.

**POLLUTION PREVENTION PLAN:**

- 1. Construction Period: During Construction, fueling of vehicles shall be limited to the paved surfaces, and a spill control kit shall be stored onsite during construction. No maintenance of construction vehicles is allowed onsite except for refueling and greasing of fittings.**
- 2. The dumpster area fence shall be maintained in good condition and unauthorized access to the dumpster prohibited. A locking dumpster lid is strongly recommended.**
- 3. Dumpster lids shall be properly maintained and replaced if damaged.**
- 4. Ongoing maintenance of stormwater drainage systems shall be per O&M plan and as outlined in this document.**
- 5. Spill response plan shall be posted per Stormwater O&M plan and this document.**
- 6. Excessive use of fertilizers, herbicides, and pesticides shall be avoided, and no such materials shall be stored on the site.**
- 7. Illicit discharges to the stormwater management system or waters of the Commonwealth are prohibited, and personnel shall be instructed that no such discharges are allowed.**
- 8. All tenants shall be informed in writing, preferably in the lease, that the site is in an Water Resource Protection District, and no hazardous materials greater than household quantities (as defined by MA CMR) are allowed on the property or in the building.**
- 9. The tenant shall be instructed in and made aware of this plan. Following items are also to be noted:**
- 10. Potential Contamination Sources: Household quantities of hazardous materials which may be in the building, fuel and oil from vehicles in the parking lot and loading zone, etc.**
- 11. Since only household quantities are allowed, significant threats are not anticipated, except possibly vehicle fuel leaks or similar uncommon threats.**
- 12. As household quantities to not normally warrant secondary containment, no special containment methods are proposed.**

**13. Note the Emergency Spill Containment Plan items on the next page for additional information, including regular maintenance, education, and inspection.**

## **EMERGENCY SPILL CONTIGENCY PLAN:**

1. The owner of the facility shall have a designated person with overall responsibility for spill response. This person shall be trained in the location and utilization of this plan.
2. A summary or copy of this plan shall be posted in a prominent location in the building. The Summary shall identify the phone numbers of regulatory agencies and individuals to be contacted in the event of a spill.
3. In the event of a spill, the following shall be notified: (emergencies dial 911)
  - a) Bourne Fire Department  
(for a gasoline or hazardous materials spill)
  - b) Department of Environmental Protection  
Emergency Response 1-508-946-2850
  - c) Bourne Water Department
  - d) Bourne Board of Health
  - e) Bourne Conservation Department
4. Notification of authorities for the cleanup of spills shall be done immediately upon discovery of a spill.



down cape engineering, inc.

CIVIL ENGINEERS & LAND SURVEYORS

939 MAIN ST / ROUTE 6A YARMOUTHPORT, MA 02675

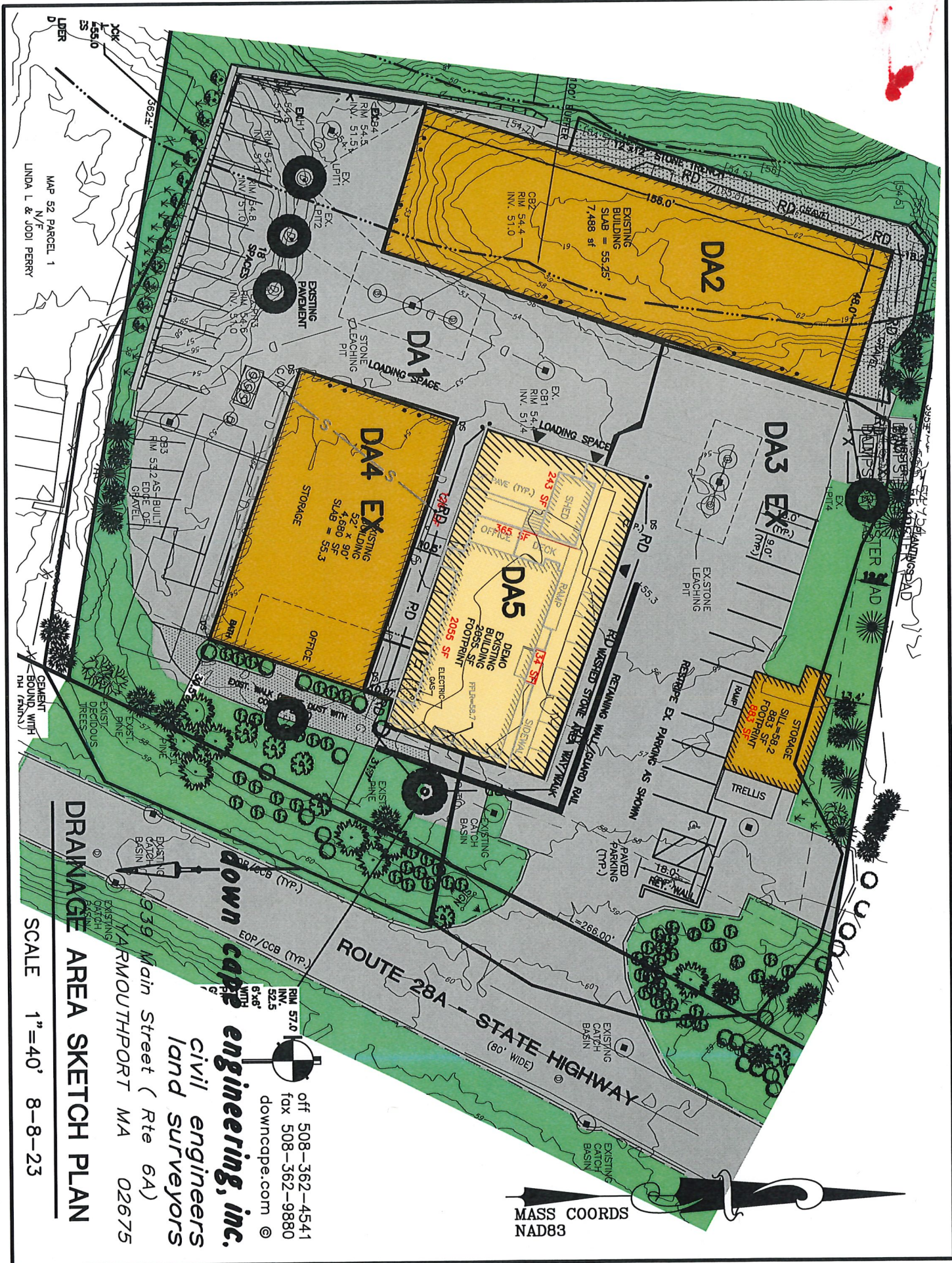
(508) 362-4541 FAX (508) 362-9880

# DRAINAGE CALCULATIONS:

The Stove Center  
1220 Route 28A  
Cataumet, MA

DATE: 8-10-2023

Client/Owner: The Stove Center-Robert Hanflig  
508-563-3280



**DRAINAGE AREA SKETCH PLAN**

SCALE 1"=40' 8-8-23

**downcape engineering, inc.**  
 civil engineers  
 land surveyors

939 Main Street (Rte 6A)  
 YARMOUTHPORT MA 02675

off 508-362-4541  
 fax 508-362-9880  
 downcape.com

MASS COORDS  
 NAD83

MAP 52 PARCEL 1  
 LINDA L & JODI PERRY

# DRAINAGE CALCULATIONS

## DRAINAGE AREA COMPOSITE CURVE NUMBER CALCULATIONS:

DOWN CAPE ENGINEERING

8/29/2020

DRAINAGE AREA: DA1	AREA:	28,855	
AREA OF PAVEMENT:		21,084 SF	0.48 AC.
AREA OF WOODS		5,771 SF	0.13 AC.
AREA OF SIDESLOPES		2,000 SF	0.05 AC.
TOTAL DRAINAGE AREA:		28,855 SF	0.66 AC.
CURVE NUMBER PAVEMENT:	0.95		
CURVE NUMBER SIDESLOPES:	0.45		
CURVE NUMBER WOODS:	0.30		

COMPOSITE CURVE NUMBER: 0.79  
(PVT AREA \* 0.95 + LAWN\* 0.45 + WOODS\*0.30)/ TOTAL AREA

## DRAINAGE INFILTRATION AREA CALCULATIONS: RATIONAL METHOD Q=CIA

DRAINAGE AREA:	28,855 SF
CURVE NUMBER:	0.79 RATIO
RAINFALL INTENSITY:	5.1 IN./HR
GPM/SF RATIO:	0.5 GPM/SF

LEACHING AREA REQUIRED: 2381 SF

USE DEEP SUMP CATCH BASINS AND (3) 1000 GAL. LEACHPITS W/4' STONE  
& EXISTING STONE DRAINAGE PIT = 3,202 SF TOTAL INFILTRATION AREA O.K.

# HANFLIG 1220 Rt 28 Cataumet DRAINAGE CALCULATIONS

DATE: 8-29-23  
DOWN CAPE ENGINEERING

DRAINAGE AREA: DA2

## DRAINAGE AREA COMPOSITE CURVE NUMBER CALCULATIONS:

AREA OF PAVEMENT/DRIVES/BUILDINGS:	7,488 SF	0.17 AC.
AREA OF LAWNS AND WOODS:	0 SF	0.00 AC.
TOTAL DRAINAGE AREA:	7488 SF	0.17 AC.
CURVE NUMBER PVT/BLDGS:	0.95	
CURVE NUMBER LAWN/WOODS:	0.35	

COMPOSITE CURVE NUMBER: 0.95  
(PVT AREA \* 0.95 + GRASS\* 0.35)/ TOTAL AREA)

RATIONAL METHOD DRAINAGE SIZING:  $Q=CIA$ , SF REQ=  $Q*448.8$  GPM/CFS (1/0.7) GPM/SF

DRAINAGE AREA:	7488 SF	
CURVE NUMBER:	0.95 RATIO	
RAINFALL INTENSITY:	5.7 IN./HR	(SEE NOMOGRAPH)
GPM/SF RATIO:	0.7 GPM/SF	(<2MIN/IN PERC RATE)

LEACHING AREA REQUIRED: 597 SF

USE EXISTING 2 LEACHING PITS 6.67'X6' DIA WITH STONE AROUND  
TOTAL SQUARE FOOTAGE OF LEACHING AREA PROVIDED  
= 828 > 597 SF O.K.



# HANFLIG 1220 Rt 28 Cataumet DRAINAGE CALCULATIONS

DATE: 8-29-23  
DOWN CAPE ENGINEERING

DRAINAGE AREA: DA3 EX

## DRAINAGE AREA COMPOSITE CURVE NUMBER CALCULATIONS:

AREA OF PAVEMENT/DRIVES/BUILDINGS:	12,845 SF	0.29 AC.
AREA OF LAWNS AND WOODS:	5505 SF	0.13 AC.
TOTAL DRAINAGE AREA:	18350 SF	0.42 AC.
CURVE NUMBER PVT/BLDGS:	0.95	
CURVE NUMBER LAWN/WOODS:	0.35	

COMPOSITE CURVE NUMBER: 0.77  
(PVT AREA \* 0.95 + GRASS\* 0.35)/ TOTAL AREA)

RATIONAL METHOD DRAINAGE SIZING:  $Q=CIA$ , SF REQ=  $Q*448.8$  GPM/CFS (1/0.7) GPM/SF

DRAINAGE AREA:	18350 SF	
CURVE NUMBER:	0.77 RATIO	
RAINFALL INTENSITY:	5.7 IN./HR	(SEE NOMOGRAPH)
GPM/SF RATIO:	0.7 GPM/SF	(<2MIN/IN PERC RATE)

LEACHING AREA REQUIRED: 1185 SF

USE EXISTING LEACHING PITS 6.67'X6' DIA WITH STONE AROUND  
TOTAL SQUARE FOOTAGE OF LEACHING AREA PROVIDED  
= 1200 SF > 1185 SF O.K.

# HANFLIG 1220 Rt 28 Cataumet DRAINAGE CALCULATIONS

DATE: 8-29-23  
DOWN CAPE ENGINEERING

DRAINAGE AREA: DA4 EX

## DRAINAGE AREA COMPOSITE CURVE NUMBER CALCULATIONS:

AREA OF PAVEMENT/DRIVES/BUILDINGS:	4,680 SF	0.11 AC.
AREA OF LAWNS AND WOODS:	0 SF	0.00 AC.
TOTAL DRAINAGE AREA:	4680 SF	0.11 AC.
CURVE NUMBER PVT/BLDGS:	0.95	
CURVE NUMBER LAWN/WOODS:	0.35	

COMPOSITE CURVE NUMBER: 0.95  
(PVT AREA \* 0.95 + GRASS\* 0.35)/ TOTAL AREA)

RATIONAL METHOD DRAINAGE SIZING:  $Q=CIA$ , SF REQ=  $Q*448.8$  GPM/CFS (1/0.7) GPM/SF

DRAINAGE AREA:	4680 SF	
CURVE NUMBER:	0.95 RATIO	
RAINFALL INTENSITY:	5.7 IN./HR	(SEE NOMOGRAPH)
GPM/SF RATIO:	0.7 GPM/SF	(<2MIN/IN PERC RATE)

LEACHING AREA REQUIRED: 373 SF

USE EXISTING LEACHING PIT 6.67'X6' DIA WITH 4' STONE AROUND  
TOTAL SQUARE FOOTAGE OF LEACHING AREA PROVIDED  
= 418 SF > 385 SF O.K.

# 1220 Route 28, Cataumet DRAINAGE CALCULATIONS

DATE: 8-10-23

DOWN CAPE ENGINEERING

## DRAINAGE AREA COMPOSITE CURVE NUMBER CALCULATIONS:

DRAINAGE AREA: **DA5**

AREA OF PAVEMENT/BUILDINGS:	5,400 SF	0.12 AC.
AREA OF LAWN AND WOODS	0 SF	0.00 AC.
TOTAL DRAINAGE AREA:	<b>5,400 SF</b>	<b>0.12 AC.</b>
CURVE NUMBER PVT/BLDGS:	0.95	
CURVE NUMBER LAWN/WOODS:	0.4	

COMPOSITE CURVE NUMBER: **0.95**  
(PVT AREA \* 0.95 + LAWN\* 0.4)/ TOTAL AREA

## DRAINAGE INFILTRATION AREA CALCULATIONS: RATIONAL METHOD Q=CIA

DRAINAGE AREA:	5400 SF
CURVE NUMBER:	0.95 RATIO
RAINFALL INTENSITY:	5.1 IN./HR
GPM/SF RATIO:	0.7 GPM/SF

LEACHING AREA REQUIRED: **385 SF**

USE PROPOSED LEACHING PIT 6.67'X6' DIA WITH 4' STONE AROUND  
TOTAL SQUARE FOOTAGE OF LEACHING  
=418SF > 385 SF O.K.