

**STORMWATER MANAGEMENT REPORT NARRATIVE**  
**79 Hill Street – Lot 11**  
**July 12, 2023**

**I. Executive Summary**

The applicant, Paul Daniels, is proposing to develop the parcel located at 79 Hill Street (Lot 11). This includes the construction of a new single-family dwelling, driveway and patio as well as a new septic system, utilities and stormwater management system. The proposed project will create approximately 10,217 square feet of new impervious area on the site. The parcel is shown on Assessor's Map 68 as a portion of Lot 14 and is located within the Outlying Residential & Agricultural (IRA) Zoning District.

**II. Existing Site Description**

The development parcel is situated at 79 Hill Street (Lot 11) and has an aggregate land area of 1.95 acres. The property is currently undeveloped and consists of wooded and lawn areas. Soil conditions are sandy loams and fine sandy loams on top of gravelly sandy loams, which were confirmed through soil testing in the vicinity of the proposed septic system. The surface runoff from the project area flows from the northeastern side of the site to the southwestern side of the site. There are no one site wetland resource areas or associated 100' buffer zones.

According to the USDA Soils Conservation Services Soil Resource Report, soils in the area of the proposed work are classified as Paxton fine sandy loam (306B) classified as Hydrologic Soil Group "C", and Woodbridge fine sandy loam (310B) classified as Hydrologic Soil Group "C/D". The site is located within the Topsfield, MA Map of Areas of Severe Soil Limitations and is shown as an area considered to be severe-slow perc. Percolation rates from testing on September 1, 2022 in the area of the proposed septic system measured 27 minutes per inch.

The site is shown to be in a Zone "X" (area determined to be outside the 0.2% chance floodplain) on the FEMA Federal Insurance Rate Maps (FIRM) #25009C0402F, dated July 3, 2012. The parcel is not mapped within a Natural Heritage estimated habitat of rare wildlife, certified vernal pool, or priority habitat of rare species.

**III. Proposed Site Description**

The proposed project will include the construction of a new house, patio, paved driveway, a septic system, and the installation of utilities. The dwelling will be served by the municipal water distribution system located in Hill Street. As previously stated, the project will create approximately 10,217 square feet of new impervious surfaces. Approximately 75,500 square feet of the lot will be disturbed as a result of the proposed development. The project falls under the jurisdiction of the Town of Topsfield Stormwater and Erosion Control Regulations.

**IV. Stormwater Best Management Practices**

- **Crushed Stone Trenches:** The proposed paved driveway will be directed to 2' wide by 2' deep crushed stone infiltration trenches with perforated pipe located along the western and southern edges of the driveway. Stormwater will be collected in the trenches and will direct runoff to subsurface recharge systems on the southern side of the lot.

- **Subsurface Recharge Systems:** Two 2-unit Cultec 330XLHD recharge systems will be placed in fill areas in the southern portion of the property. Runoff from the proposed driveway and dwelling roof will be directed to these systems. The recharge systems will provide the required groundwater recharge volume for the site. The applicable calculations are provided on the Stormwater Management Plan.

The proposed stormwater management system is designed to provide sufficient storage for the groundwater recharge volume based on proposed impervious coverage. This approach has previously been approved as an acceptable method for stormwater management for single-family house lots in Topsfield. The project consists of the construction of a single-family dwelling, which is considered to be exempt from the requirements of the Massachusetts DEP Stormwater Management Policy and Stormwater Standards. Since it is considered exempt the requirements that consider the 2, 10, and 100-year 24 hour storm events do not apply to the project.

Areas not flowing to the stormwater BMPs will be directed overland across at least 100' of pervious ground cover prior to discharging offsite. The estimated seasonal high water table (E.S.H.W.T.) used to design the stormwater management system is conservatively assumed to be 21" (based on test pit TP 16-7). Soil testing in the vicinity of the septic field showed this to be the shallowest observed E.S.H.W.T.

## **V. Erosion and Sedimentation Control**

To manage the on-site sedimentation control during construction a proposed silt sock shall be placed along the downstream limit of work for the driveway, dwelling, septic system and associated site grading (see Stormwater Management Plan for location) prior to the commencement of construction activity. The integrity of the erosion control barrier will be maintained by periodic inspection and replacement as necessary. The erosion control barrier will remain in place until all the disturbed areas have been paved or loamed and seeded and vegetation has been established. Construction stockpile areas will be provided in locations determined by the site contractor upstream of the erosion control barrier. Operations and Maintenance Plans for the construction phase (Construction Period Pollution Prevention Plan) and long-term operation (Long Term Stormwater Best Management Practices Operation and Maintenance Plan) of the site have been included with this letter.

## **Construction Period Pollution Prevention Plan**

Erosion and Sedimentation will be controlled at the site by utilizing Structural Practices, Stabilization Practices, and Dust Control. These practices correspond with plans entitled "Site Development Plan in Topsfield, Massachusetts, 79 Hill Street – lot 11," prepared by The Morin-Cameron Group, Inc. dated July 10, 2023 as revised and approved by the Topsfield Planning Board, hereinafter referred to as the Site Plans.

The disturbance area for the project is greater than 1 acre and therefore will require a Notice of Intent filing under the EPA's Construction General Permit. This will be filed prior to the start of construction activities.

### **Responsible Party Contact Information:**

\*Stormwater Management System Owner:

Paul Daniels  
79 Hill Street – Lot 11  
Topsfield, MA 01983  
P: (603) 475-5787

Topsfield Department of Public Works:

279 Boston Street  
Topsfield, MA 01983  
P: (978) 887-1517

Topsfield Planning Board:

Topsfield Town Offices  
8 West Common Street  
Topsfield, MA 01983  
P: (978) 887-1504

Site Design Engineer Information:

The Morin-Cameron Group, Inc.  
66 Elm Street  
Danvers, MA 01923  
Phone: (978) 777-8586

## **Structural Practices:**

- 1) **Silt Sock** – A silt sock sediment barrier will be constructed around the limit of work as indicated on the Site Development Plans to prevent the spreading of fine sediments from the site. This control will be installed prior to major soil disturbance on the site.

### **Silt Sock Requirements \***

- a) Locate the silt sock where identified on the plans.
- b) The silt sock should be nearly level through most of its length to impound a broad, temporary pool. The last 10 to 20 feet at each end of the silt sock should be swung slightly uphill (approximately 0.5 feet in elevation) to provide storage capacity.
- c) Stake the silt sock in accordance with the construction details.
- d) The silt sock should be removed when it has served its useful purpose, but not before the upslope area has been permanently stabilized through one growing season and only following approval by the Planning Board or their representative. Retained sediment must be removed and properly disposed of, or mulched and seeded.

### **Silt Sock Inspection/Maintenance \***

- a) Silt socks should be inspected immediately after each rainfall event of 0.5 inches or greater, and at least daily during prolonged rainfall. Inspect the depth of sediment, tears, if the silt sock is securely attached to the stakes, and to see that the stakes are firmly in the ground. Repair or replace as necessary.
- b) Remove sediment deposits promptly after storm events to provide adequate storage volume for the next rain and to reduce pressure on the mulch sock. Sediment will be removed from behind the silt sock when it becomes about 4" deep at the silt sock. Take care to avoid undermining the mulch sock during cleanout.
- c) If the silt sock tears, decomposes, or in any way becomes ineffective, replace it immediately.
- d) Remove all silt sock materials after the contributing drainage area has been properly stabilized. The mulch can remain at the discretion of the owner as this will decompose over time. However, any fabric or stakes should be removed. Sediment deposits remaining after the silt sock has been removed should be graded to conform to the existing topography and vegetation.

- 2) **Sediment Track-Out** – Stabilized Construction Entrance/Exit: Prior to the commencement of site work, crushed stone anti-tracking pads will be installed at the entrance to the site. This will prevent trucks from tracking material onto the road from the construction site. If, at any point during the project, the tracking pad becomes ineffective due to accumulation of soil, the crushed stone shall be replaced. The site supervisor will inspect the tracking pads weekly to ensure that they are properly limiting the tracking of soil onto the road. If tracking onto the roadway is noted, it shall be removed immediately via a mechanical street sweeper.

- 3) **Settling/Sediment Basin** – The settling/sediment basin shall be maintained in conjunction with the stabilized construction entrance/exit. The settling/sediment basin should be cleaned out as often as necessary to assure that adequate trapping efficiency and storage volume is available. When the sediment accumulates to 4" or half the depth of the settling/sediment basin, sediment shall be removed and stabilized onsite. Inspection and maintenance of the settling/sediment basin prior to storm events should occur as it is essential to ensure functionality. The basin shall be inspected at a minimum once per week or after any major storm event.

### **Stabilization Practices:**

Stabilization measures shall be implemented as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased, with the following exceptions.

- Where the initiation of stabilization measures by the 14<sup>th</sup> day after construction activity temporary or permanently cease is precluded by snow cover, stabilization measures shall be initiated as soon as practicable.
  - Where construction activity will resume on a portion of the site within 21 days from when activities ceased, (e.g. the total time period that construction activity is temporarily ceased is less than 21 days) then stabilization measures do not have to be initiated on that portion of the site by the 14<sup>th</sup> day after construction activity temporarily ceased.
- 1) **Temporary Seeding** – Temporary seeding will allow a short-term vegetative cover on disturbed site areas that may be in danger of erosion. Temporary seeding will be done at stock piles and disturbed portions of the site where construction activity will temporarily cease for at least 21 days. The temporary seedings will stabilize cleared and unvegetated areas that will not be brought into final grade for several weeks or months.

#### **Temporary Seeding Planting Procedures \***

- a) Planting should preferably be done between April 1<sup>st</sup> and June 30<sup>th</sup>, and September 1<sup>st</sup> through September 31<sup>st</sup>. If planting is done in the months of July and August, irrigation may be required. If planting is done between October 1<sup>st</sup> and March 31<sup>st</sup>, mulching should be applied immediately after planting. If seeding is done during the summer months, irrigation of some sort will probably be necessary.
- b) Before seeding, install structural practice controls. Utilize Amoco supergro or equivalent.
- c) Select the appropriate seed species for temporary cover from the following table.

Species	Seeding Rate (lbs/1,000 sq.ft.)	Seeding Rate (lbs/acre)	Recommended Seeding Dates	Seed Cover required
Annual Ryegrass	1	40	April 1 <sup>st</sup> to June 1 <sup>st</sup> August 15 <sup>th</sup> to Sept. 15 <sup>th</sup>	¼ inch

Foxtail Millet	0.7	30	May 1 <sup>st</sup> to June 30 <sup>th</sup>	½ to ¾ inch
Oats	2	80	April 1 <sup>st</sup> to July 1 <sup>st</sup> August 15 <sup>th</sup> to Sept. 15 <sup>th</sup>	1 to 1-½ inch
Winter Rye	3	120	August 15 <sup>th</sup> to Oct. 15 <sup>th</sup>	1 to 1-½ inch

Apply the seed uniformly by hydroseeding, broadcasting, or by hand.

- d) Use effective mulch, such as clean grain straw; tacked and/or tied with netting to protect seedbed and encourage plant growth.

Temporary Seeding Inspection/Maintenance \*

- a) Inspect within 6 weeks of planting to see if stands are adequate. Check for damage within 24 hours of the end to a heavy rainfall, defined as a 2-year storm event (i.e., 3.2 inches of rainfall within a twenty-four hour period). Stands should be uniform and dense. Reseed and mulch damaged and sparse areas immediately. Tack or tie down mulch as necessary.
  - b) Seeds should be supplied with adequate moisture. Furnish water as needed, especially in abnormally hot or dry weather. Water application rates should be controlled to prevent runoff.
- 2) **Geotextiles** - Geotextiles such as jute netting will be used in combination with other practices such as mulching to stabilize slopes. The following geotextile materials or equivalent are to be utilized for structural and nonstructural controls as shown in the following table.

Practice	Manufacturer	Product	Remarks
Sediment Fence	Amoco	Woven polypropylene 1198 or equivalent	0.425 mm opening
Construction Entrance	Amoco	Woven polypropylene 2002 or equivalent	0.300 mm opening
Outlet Protection	Amoco	Nonwoven polypropylene 4551 or equivalent	0.150 mm opening
Erosion Control (slope stability)	Amoco	Supergro or equivalent	Erosion control revegetation mix, open polypropylene fiber on degradable polypropylene net scrim

Amoco may be reached at (800) 445-7732

#### Geotextile Installation

- a) Netting and matting require firm, continuous contact between the materials and the soil. If there is no contact, the material will not hold the soil and erosion will occur underneath the material.

#### Geotextile Inspection/Maintenance \*

- a) In the field, regular inspections should be made to check for cracks, tears, or breaches in the fabric. The appropriate repairs should be made.

- 3) **Mulching and Netting** – Mulching will provide immediate protection to exposed soils during the period of short construction delays, or over winter months through the application of plant residues, or other suitable materials, to exposed soil areas. In areas, which have been seeded either for temporary or permanent cover, mulching should immediately follow seeding. On steep slopes, mulch must be supplemented with netting. The preferred mulching material is straw.

#### Mulch (Hay or Straw) Materials and Installation

- a) Straw has been found to be one of the most effective organic mulch materials. The specifications for straw are described below, but other material may be appropriate. The straw should be air-dried; free of undesirable seeds & coarse materials. The application rate per 1,000 sq.ft. is 90-100 lbs. (2-3 bales) and the application rate per acre is 2 tons (100-120 bales). The application should cover about 90% of the surface. The use of straw mulch is appropriate where mulch is maintained for more than three months. Straw mulch is subject to wind blowing unless anchored, is the most commonly used mulching material, and has the best microenvironment for germinating seeds.

#### Mulch Maintenance \*

- a) Inspect after rainstorms to check for movement of mulch or erosion. If washout, breakage, or erosion occurs, repair surface, reseed, remulch, and install new netting.
  - b) Straw or grass mulches that blow or wash away should be repaired promptly.
  - c) If plastic netting is used to anchor mulch, care should be taken during initial mowings to keep the mower height high. Otherwise, the netting can wrap up on the mower blade shafts. After a period of time, the netting degrades and becomes less of a problem.
  - d) Continue inspections until vegetation is well established.
- 4) **Land Grading** – Grading on fill slopes, cut slopes, and stockpile areas will be done with full siltation controls in place.

#### Land Grading Design/Installation Requirements

- a) Areas to be graded should be cleared and grubbed of all timber, logs, brush, rubbish, and vegetated matter that will interfere with the grading operation. Topsoil should be stripped and stockpiled for use on critical disturbed areas for establishment of vegetation. Cut slopes to be topsoiled should be thoroughly scarified to a minimum depth of 3-inches prior to placement of topsoil.
- b) Fill materials should be generally free of brush, rubbish, rocks, and stumps. Frozen materials or soft and easily compressible materials should not be used in fills intended to support buildings, parking lots, roads, conduits, or other structures.
- c) Earth fill intended to support structural measures should be compacted to a minimum of 90 percent of Standard Proctor Test density with proper moisture control, or as otherwise specified by the engineer responsible for the design. Compaction of other fills

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#### **Construction Period Pollution Prevention Plan**

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should be to the density required to control sloughing, erosion or excessive moisture content. Maximum thickness of fill layers prior to compaction should not exceed 9 inches.

- d) The uppermost one foot of fill slopes should be compacted to at least 85 percent of the maximum unit weight (based on the modified AASHTO compaction test). This is usually accomplished by running heavy equipment over the fill.
- e) Fill should consist of material from borrow areas and excess cut will be stockpiled in areas shown on the Site Plans. All disturbed areas should be free draining, left with a neat and finished appearance, and should be protected from erosion.

Land Grading Stabilization Inspection/Maintenance \*

- a) All slopes should be checked periodically to see that vegetation is in good condition. Any rills or damage from erosion and animal burrowing should be repaired immediately to avoid further damage.
  - b) If seeps develop on the slopes, the area should be evaluated to determine if the seep will cause an unstable condition. Subsurface drains or a gravel mulch may be required to solve seep problems. However, no seeps are anticipated.
  - c) Areas requiring revegetation should be repaired immediately. Control undesirable vegetation such as weeds and woody growth to avoid bank stability problems in the future.
- 5) **Topsoiling \*** – Topsoiling will help establish vegetation on all disturbed areas throughout the site during the seeding process. The soil texture of the topsoil to be used will be a sandy loam to a silt loam texture with 15% to 20% organic content.

Topsoiling Placement

- a) Topsoil should not be placed while in a frozen or muddy condition, when the subgrade is excessively wet, or when conditions exist that may otherwise be detrimental to proper grading or proposed seeding.
  - b) Do not place topsoil on slopes steeper than 2.5:1, as it will tend to erode.
  - c) If topsoil and subsoil are not properly bonded, water will not infiltrate the soil profile evenly and it will be difficult to establish vegetation. The best method is to actually work the topsoil into the layer below for a depth of at least 6 inches.
- 6) **Permanent Seeding** – Permanent Seeding should be done immediately after the final design grades are achieved. Native species of plants should be used to establish perennial vegetative cover on disturbed areas. The revegetation should be done early enough in the fall so that a good cover is established before cold weather comes and growth stops until the spring. A good cover is defined as vegetation covering 75 percent or more of the ground surface.

Permanent Seeding Seedbed Preparation

- a) In infertile or coarse-textured subsoil, it is best to stockpile topsoil and re-spread it over the finished slope at a minimum 2 to 6-inch depth and roll it to provide a firm seedbed. The topsoil must have a sandy loam to silt loam texture with 15% to 20% organic content. If construction fill operations have left soil exposed with a loose, rough, or irregular surface, smooth with blade and roll.
- b) Loosen the soil to a depth of 3-5 inches with suitable agricultural or construction equipment.



- c) Areas not to receive topsoil shall be treated to firm the seedbed after incorporation of the lime and fertilizer so that it is depressed no more than ½ - 1 inch when stepped on with a shoe. Areas to receive topsoil shall not be firmed until after topsoiling and lime and fertilizer is applied and incorporated, at which time it shall be treated to firm the seedbed as described above.

#### Permanent Seeding Grass Selection/Application

- a) Select an appropriate cool or warm season grass based on site conditions and seeding date. Apply the seed uniformly by hydro-seeding, broadcasting, or by hand. Uniform seed distribution is essential. On steep slopes, hydroseeding may be the most effective seeding method. Surface roughening is particularly important when preparing slopes for hydroseeding.
- b) Lime and fertilize. Organic fertilizer shall be utilized in areas within the 100 foot buffer zone to a wetland resource area.
- c) Mulch the seedings with straw applied at the rate of ½ tons per acre. Anchor the mulch with erosion control netting or fabric on sloping areas. Amoco supergro or equivalent should be utilized.

#### Permanent Seeding Inspection/Maintenance \*

- a) Frequently inspect seeded areas for failure and make necessary repairs and reseed immediately. Conduct or follow-up survey after one year and replace failed plants where necessary.
- b) If vegetative cover is inadequate to prevent rill erosion, overseed and fertilize in accordance with soil test results.
- c) If a stand has less than 40% cover, reevaluate choice of plant materials and quantities of lime and fertilizer. Re-establish the stand following seedbed preparation and seeding recommendations, omitting lime and fertilizer in the absence of soil test results. If the season prevents resowing, mulch or jute netting is an effective temporary cover.
- d) Seeded areas should be fertilized during the second growing season. Lime and fertilize thereafter at periodic intervals, as needed. Organic fertilizer shall be utilized in areas within the 100-foot buffer zone to a wetland resource area.

#### **Dust Control:**

Dust control will be utilized throughout the entire construction process of the site. For example, keeping disturbed surfaces moist during windy periods will be an effective control measure, especially for construction access roads. The use of dust control will prevent the movement of soil to offsite areas. However, care must be taken to not create runoff from excessive use of water to control dust. The following are methods of Dust Control that may be used on-site:

- Vegetative Cover – The most practical method for disturbed areas not subject to traffic.
- Calcium Chloride – Calcium chloride may be applied by mechanical spreader as loose, dry granules or flakes at a rate that keeps the surface moist but not so high as to cause water pollution or plant damage.
- Sprinkling – The site may be sprinkled until the surface is wet. Sprinkling will be effective for dust control on haul roads and other traffic routes.
- Stone – Stone will be used to stabilize construction access; will also be effective for dust control.

The general contractor shall employ an on-site water vehicle for the control of dust as necessary.

**Non-Stormwater Discharges:**

The construction de-watering and all non-stormwater discharges will be directed into a sediment dirt bag (or equivalent inlet protection) or a sediment basin. Sediment material removed shall be disposed of in accordance with all applicable local, state, and federal regulations.

**Inspection/Maintenance:**

The Site Contractor constructing the site and drainage system shall be responsible for periodic inspections and maintaining the stormwater system during construction.

Routine maintenance of all items shall be performed in order to ensure adequate runoff and pollution control during construction.

**Long Term Stormwater Best Management Practices**  
**Operation and Maintenance Plan**

for the  
**Residential Development**  
of

**79 Hill Street – Lot 11**  
**Topsfield, Massachusetts**

July 10, 2023

The following operation and maintenance plan has been provided associated with development of the site and associated infrastructure. The success of the Stormwater Management Plan depends on the proper implementation, operation and maintenance of several management components. The following procedures shall be implemented to ensure success of the Stormwater Management Plan:

1. The contractor shall comply with the details of construction of the site as shown on the approved plans.
2. The drainage systems shall be inspected and maintained as indicated below.
3. Effective erosion control measures during and after construction shall be maintained until a stabilized finished surface is established on all altered areas.

**Basic Information**

Stormwater Management System Owner:

Paul Daniels  
79 Hill Street – Lot 11  
Topsfield, MA 01983  
P: (603) 475-5787

Topsfield Department of Public Works:

279 Boston Street  
Topsfield, MA 01983  
P: (978) 887-1517

Topsfield Planning Board:

Topsfield Town Offices  
8 West Common Street  
Topsfield, MA 01983  
P: (978) 887-1504

**Erosion and Sedimentation Controls during Construction:**

The site and drainage construction contractor shall be responsible for maintaining the stormwater system during construction. Routine maintenance of all items shall be performed to ensure adequate runoff and pollution control during construction.

Proposed erosion controls will be placed as shown on the Site Plan prior to the commencement of any clearing, grubbing, and earth removal or construction activity. The integrity of the erosion control barrier will be maintained by periodic inspection and replacement as necessary. The erosion control barrier will remain in place until the first course of pavement has been placed and all disturbed areas have been loamed and seeded and vegetation has been established.

**General Conditions**

1. The developer shall be responsible for scheduling regular inspections and maintenance of the stormwater BMP's. The BMP maintenance shall be conducted as detailed in the following long-term pollution prevention plan and illustrated on the approved design plans:

"Site Development Plan in Topsfield, Massachusetts, 79 Hill Street – Lot 11 (Assessor's Map 68, Portion of Lot 14)", prepared by The Morin-Cameron Group, Inc. dated July 10, 2023 as revised
2. The owner shall:
  - a. Maintain an Operation and Maintenance Log for the last three years. The Log shall include all BMP inspections, repairs, replacement activities and disposal activities (disposal material and disposal location shall be included in the Log);
  - b. Make the log available to the Topsfield Department of Public Works and Planning Board upon request;
  - c. Allow members and agents of the Topsfield Department of Public Works and Planning Board to enter the premises and ensure that the Owner has complied with the Operation and Maintenance Plan requirements for each BMP.
3. A recommended inspection and maintenance schedule is outlined below based on statewide averages. This inspection and maintenance schedule shall be adhered to at a minimum for the first year of service of all BMP's referenced in this document. At the conclusion of the first year of service, a more accurate inspection/maintenance schedule shall be determined based on the level of service for this site.
4. Inspections and maintenance activities for this residential development will generally be performed by the developer or future homeowner. If major repairs are required, then detailed cost estimates will be provided by local landscaping companies prior to commencement of work.

## **Long-Term Pollution Prevention Plan (LTPPP)**

### **Vegetated Areas:**

Immediately after construction, monitoring of the erosion control systems shall occur until establishment of natural vegetation. Afterwards, vegetated areas shall be maintained as such. Vegetation shall be replaced as necessary to ensure proper stabilization of the site.

### **Crushed Stone Trenches:**

The crushed stone trenches with perforated PVC underdrain pipes shall be checked regularly to ensure that the surface is free of debris such as leaves, sticks and trash. Remove and dispose of any debris. If surface ponding is visible, remove top course of crushed stone and accumulated sediment and replace with clean stone. Material removed from the trench shall be disposed of in accordance with all applicable local, state, and federal regulations. In the case that water remains in the trench for greater than three (3) days after a storm event, an inspection is warranted, and necessary maintenance or repairs should be addressed as necessary.

Cost: Consult with local landscaping companies for associated costs if necessary.

### **Subsurface Recharge Chambers:**

The subsurface recharge chambers shall be checked for debris accumulation twice per year. Each system is equipped with an inspection port. Additional inspections should be scheduled during the first few months to make sure that the facility is functioning as intended. Trash, leaves, branches, etc. shall be removed from facility. Silt, sand and sediment, if significant accumulation occurs, shall be removed annually. Material removed from the system shall be disposed of in accordance with all applicable local, state, and federal regulations. In the case that water remains in the infiltration facilities for greater than three (3) days after a storm event an inspection is warranted, and necessary maintenance or repairs should be addressed as necessary.

Cost: Consult with local landscaping companies for associated costs if necessary.

Public Safety Concerns: The inspection port covers shall not be left open and unattended at any time during inspection, cleaning or otherwise. Broken covers or frames shall be replaced immediately. At no time shall any person enter the subsurface structure unless measures have been taken to ensure safe access in accordance with OSHA enclosed space regulations.

### **Rip-Rap Outfalls:**

The outlet pipe and rip-rap outfall shall be inspected after every major storm event for the first 3 months after construction; a major storm event is 3.15 inches of rainfall in a 24-hour period (2 year storm). Thereafter, the system shall be inspected twice per year in April and October. Any signs of erosion shall be repaired immediately, and any trash or debris shall be removed,

Cost: Included in the routine landscaping maintenance schedule. The Owner shall consult local landscaping contractors for details.

### **Debris & Litter:**

All debris and litter shall be removed from the driveway as necessary to prevent migration into the drainage system.

**Pesticides, Herbicides, and Fertilizers:**

Pesticides and herbicides shall be used sparingly. Fertilizers shall be restricted to the use of organic fertilizers only. All fertilizers, herbicides, pesticides, sand and salt for deicing and the like shall be stored in dry area that is protected from weather.

**Prevention of Illicit Discharges:**

Illicit discharges to the stormwater management system are not allowed. Illicit discharges are discharges that are not comprised entirely of stormwater. Pursuant to Mass DEP Stormwater Standards the following activities or facilities are not considered illicit discharges: firefighting, water line flushing, landscape irrigation, uncontaminated groundwater, potable water sources, foundation drains, air conditioning condensation, footing drains, individual resident car washing, flows from riparian habitats and wetlands, De-chlorinated water from swimming pools, water used for street washing and water used to clean residential building without detergents.

To prevent illicit discharges to the stormwater management system the following policies should be implemented:

1. Good Housekeeping Practices
  - The site shall be kept clean of litter and debris and continuously maintained as noted above. All chemicals shall be covered and stored in secured location. Any land disturbances that change drainage characteristics shall be remedied to pre-disturbance characteristics (i.e. shoulder rutting from vehicles, land disturbance from plowing, etc.) as soon as possible to ensure proper treatment of all stormwater runoff.
2. Provisions for Storing Materials and Waste Products Inside or Under Cover
  - All chemicals and chemical waste products shall be stored inside or in a secured covered location to prevent potential discharge. Any major spills shall be reported to municipal officials and a remediation plan shall be implemented immediately.
3. Vehicle Maintenance
  - Any vehicle maintenance shall be done with care to prevent discharge of illicit fluids. If fluids are accidentally spilled, immediate action shall be implemented to clean and remove the fluid to prevent discharge into the stormwater management system and/or infiltrating into the groundwater.
4. Pet Waste Management Provisions
  - Pet waste shall be picked up and disposed of in an appropriate individual waste refuse area.
5. Spill Prevention and Response Plans
  - If a major spill of an illicit substance occurs, town officials (including but not limited to the Fire Department and Police Department) shall be notified immediately. A response plan shall then be implemented immediately to prevent any illicit discharges from entering the stormwater management system and ultimately surface waters of the Commonwealth.
6. Solid waste
  - All domestic solid waste shall be disposed of in accordance with all applicable local, state and federal regulations. Waste shall be placed into covered dumpsters and/or covered waste bins to prevent water intrusion and potentially contaminated runoff. No household chemicals, hazardous materials, construction debris or non-household generated refuse shall be disposed of in the on-site waste disposal containers.