

**Municipality/Organization:** Town of Eastham, MA

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**EPA NPDES Permit Number:** MAR041110

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**MassDEP Transmittal Number:** W- 040891

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**Annual Report Number** Year 10  
**& Reporting Period:** April 1, 2012 – March 31, 2013

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## NPDES PII Small MS4 General Permit Annual Report (Due: May 1, 2012)

### Part I. General Information

Contact Person: Jane Crowley

Title: Health Agent

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Telephone #: (508) 240-5900

Email: [jcrowley@eastham-ma.gov](mailto:jcrowley@eastham-ma.gov)

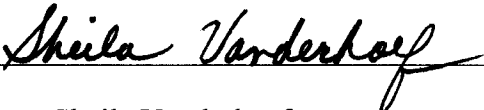
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Mailing Address: 2500 State Highway, Eastham, MA 02642

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#### 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.

Signature: 

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Printed Name: Sheila Vanderhoef

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Title: Town Administrator

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Date: April 30, 2013

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## **Part II. Self-Assessment**

The Town of Eastham has completed the required self-assessment and has determined that our municipality is in compliance with all permit conditions.

### Part III. Summary of Minimum Control Measures

#### 1. Public Education and Outreach

| BMP ID #       | BMP Description                                                                                                                                                                                                                                                                                                         | Responsible Dept./Person Name            | Measurable Goal(s)                                                                                | Progress on Goal(s) – Permit Year 9 (Reliance on non-municipal partners indicated, if any)                                                                                                                                                                                             | Planned Activities                                                                                                                                                                                                              |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.1<br>Revised | <p>Educational Brochures</p> <p>New brochures educate the public about proper disposal of medical waste and prescription medication</p> <p>New unwanted and unused medical waste drop off box available to the public</p> <p>Participate in Drug Take Back Day and offer Drop Off box open 24 hours, 7 days a week.</p> | <p>DPW, Health</p> <p>Health, Police</p> | <p>Development of Brochures</p> <p>Proper disposal of prescription and non prescription drugs</p> | <p>Updated brochures; disseminated brochures concerning hazardous waste disposal days.</p> <p>Continued to coordinate with Cape Cod Commission on informational campaign.</p> <p>Drug Drop Box located in Police Department available 24/7 to remove medication from waste stream.</p> | <p>Continue to update educational brochures as new information arises; provide information on hazardous waste disposal days.</p> <p>Continue efforts to educate the public about proper disposal of unwanted medical waste.</p> |
| 1.2<br>Revised | <p>Mailings to Homeowners</p> <p><a href="http://www.eastham-ma.gov/Public_Documents/EasthamMA_Health/index">http://www.eastham-ma.gov/Public_Documents/EasthamMA_Health/index</a></p> <p>septic pumping brochure</p>                                                                                                   | <p>Health</p>                            | <p>Distribution of Brochures</p>                                                                  | <p>Homeowner mailings regarding importance of septic system maintenance.</p>                                                                                                                                                                                                           | <p>Continue annually.</p> <p>3,349 mailings have been sent in 2013 to homeowners who have not pumped septic system in 3 or more years</p>                                                                                       |
| 1.3            | <p>Mailing to all Property Owners</p>                                                                                                                                                                                                                                                                                   | <p>Health</p>                            | <p>Distribution of Brochures and educational presentation on wastewater management</p>            | <p>Homeowner mailings regarding importance of wastewater management plan including storm water.</p>                                                                                                                                                                                    | <p>Air local wastewater presentation and educational video on local cable and website video on demand</p>                                                                                                                       |

|         |                                                                                                 |                                                                      |                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.4     | Coastal/Pond Clean-up<br>Remediation of Herring Pond conducted October 2012 with Alum Treatment | ConCom,<br>DPW,<br>Health Dept.,<br>Water<br>Management<br>Committee | Conducting<br>Clean-up<br>Pond water<br>quality<br>monitoring for<br>phosphorus + Al<br>profiles. Also<br>monitor<br>D.O./PH/ALK<br>dissolved; see<br>attached. | Private owners clean<br>pond areas and test<br>fresh water. DPW<br>cleans as necessary.<br>Mutt-mitt project for<br>dog waste has been<br>implemented and<br>continued. Enhanced<br>enforcement of pet<br>regulations. Form local<br>Citizens Advisory group<br>to facilitate compliance                                                                                                                                                     | DPW continues to clean up as<br>necessary. Possible expansion<br>of mutt-mitt program to other<br>areas of town. Review pond<br>report from CCC:<br><br>Water quality monitoring to<br>continue.                                                                                                                                                                                                                                                                                                                                                                                |
| Revised |                                                                                                 |                                                                      |                                                                                                                                                                 | Alum Treatment has<br>improved water quality                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 1.5     | Office Brochure                                                                                 | NR, DPW,<br>Planning                                                 | Availability of<br>Brochures                                                                                                                                    | Brochures with local<br>contact information<br>corresponding with 1.1<br>displayed in NR, DPW,<br>and Town Hall.<br>Distribute educational<br>materials from Cape<br>Cod Water Protection<br>Collaborative or<br>Massachusetts Estuaries<br>Project.<br>Updated brochures;<br>disseminated brochures<br>concerning hazardous<br>waste disposal days.<br>Continued to coordinate<br>with Cape Cod<br>Commission on<br>informational campaign. | Continue to update brochures<br>and informational/educational<br>brochures in Year 10,<br>including information on<br>fertilizers and other potential<br>contaminants. Review grant-<br>funded Pleasant Bay<br>Watershed Management Plan<br>for cross-applicability.<br>Continue strategies to reduce<br>TMDLs as required in Draft<br>Mass Estuaries Report for<br>Rock Harbor. Final reports<br>on TMDL for Nauset<br>expected 2013.<br>Continue to update<br>educational materials as new<br>information arises; provide<br>information on hazardous<br>waste disposal days. |
| Revised |                                                                                                 |                                                                      |                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

## 1a. Additions

|     |                                                                                                                                                                                                                                                               |                         |                                 |                                                                                                                                                                                                   |                                                                                                    |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| 1.6 | Post information on Countywide Rain Barrel Distribution Program<br><a href="http://www.eastham-ma.gov/Public_Documents/EasthamMA_Planning/rainflyer10.pdf">http://www.eastham-ma.gov/Public_Documents/EasthamMA_Planning/rainflyer10.pdf</a><br>Beach Signage | DPW,<br>NR,<br>Planning | Availability of<br>rain barrels | Disseminate information<br>from the Cape Cod<br>Groundwater Guardian<br>Team                                                                                                                      | Continue indefinitely                                                                              |
| 1.7 |                                                                                                                                                                                                                                                               | Health                  | Post signage                    | Inspect condition of<br>signage at every marine<br>& freshwater beach to<br>enforce compliance with<br>state beach regulations,<br>noting contact info,<br>testing data and periods<br>of testing | Continue indefinitely. 2<br>new beach signage sites<br>Salt Pond and Jemima<br>Pond installed 2012 |

## 2. Public Involvement and Participation

| BMP ID # | BMP Description                                                              | Responsible Dept./Person Name          | Measurable Goal(s)                                        | Progress on Goal(s) – Permit Year 9<br>(Reliance on non-municipal partners indicated, if any)                                                                                                                                                                                                                                                                                                    | Planned Activities                                                                                                                                                                                                                                                                       |
|----------|------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2.1      | Stormwater Management Program                                                | NR, DPW, ConCom, Planning, Health, WMC | Development of Program, including prioritization of sites | Program has been developed and sites have been identified. Catchbasins and discharge pipes have been mapped in GIS database, based on paper maps.<br><a href="http://www.eastham-ma.gov/Public_Documents/EasthamMA_Planning/NPDES/Maps/">http://www.eastham-ma.gov/Public_Documents/EasthamMA_Planning/NPDES/Maps/</a>                                                                           | Contact Mass State Highway about stormwater drainage into Salt Pond and Minister Pond in attempt to mitigate impact to ponds and develop best management practices.                                                                                                                      |
| Revised  | <i>Map updated September 2009; Priority outfall maps prepared and posted</i> |                                        |                                                           | Obtaining quotes for GPS equipment                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                          |
| 2.2      | Pollution Reporting                                                          | NR, DPW, Pond Stewards                 | Visual Monitoring / Recording                             | Continue routine monitoring of marine areas conducted by NR staff 5 times per week, daily monitoring of drainage system/road network by DPW, and monitoring of fresh surface waters by Eastham Pond Stewards. Monitoring capabilities augmented for summer months in Rock Harbor (marina) by seasonal employee. NR monitoring of Town Cove bacteria levels with MA Division of Marine Fisheries. | Continue with monitoring as described; receive report from Cape Cod Commission's monitoring efforts for action. Pond Report implementation strategies reviewed.<br><a href="http://www.barnstablecountyhealth.org/bseastham.htm">http://www.barnstablecountyhealth.org/bseastham.htm</a> |
| Revised  |                                                                              |                                        |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                          |

## 2a. Additions

|     |                                                                                                              |            |  |                                                        |                                                                                                                                                                      |                                                                                                                                                                                                                     |
|-----|--------------------------------------------------------------------------------------------------------------|------------|--|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2.3 | Volunteer Corp<br>"HOGS & FROGS"<br>Helping Out Growing Shellfish & Friends<br>Revitalizing Our Green Spaces | NR         |  | Development of Program                                 | Program ended due to staffing                                                                                                                                        | Consider staffing with Americorp or Seniorcorp<br><a href="http://www.eastham-ma.gov/Public_Documents/EasthamMA_Resources/Volunteers">http://www.eastham-ma.gov/Public_Documents/EasthamMA_Resources/Volunteers</a> |
| 2.4 | Pond Associations                                                                                            | NR, Health |  | Conduct outreach for Pond Remediation Project Planning | 2 Private pond associations formed to support Pond issues. Work to educate and gain support for pond remediation and continue to encourage best management practices | Continue indefinitely. Bi annual Association Meeting Planned to update developments on best management practices and pond remediation strategies.                                                                   |

### 3. Illicit Discharge Detection and Elimination

| BMP ID #       | BMP Description                                                                                                             | Responsible Dept./Person Name            | Measurable Goal(s)                                  | Progress on Goal(s) – Permit Year 9<br>(Reliance on non-municipal partners indicated, if any)                                                                                                           | Planned Activities                                                                                                                                                                                                |
|----------------|-----------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.1<br>Revised | Map Outfalls                                                                                                                | NR, DPW                                  | Comprehensive Map GIS/GPS                           | Program has been developed and sites have been identified.                                                                                                                                              | Continue to Refine and enhance source point/waterways map.                                                                                                                                                        |
| 3.2<br>Revised | Detection of Non-Stormwater Discharge                                                                                       | NR, Health                               | Correction of Discharges                            | Continue to identify no stormwater discharges and remedy situations as they arise, depending on the source of the discharge                                                                             | Continue project indefinitely. Update map as needed                                                                                                                                                               |
| 3.3<br>Revised | Dry Weather Flow Screening                                                                                                  | NR, Health                               | Screening Testing; Correction of Discharges         | Incorporate dry weather flow screening into the routine monitoring of marine areas conducted by NR staff 5x per week spring through fall.                                                               | Continue project indefinitely.                                                                                                                                                                                    |
| 3.4<br>Revised | Reporting Line<br><i>A team is assembled when an illicit discharge is confirmed (DPW, Health, Fire, Building Inspector)</i> | NR, DPW, Fire                            | Establishment of Line                               | Line established and maintained for NR and DPW to report any inappropriate inputs to the MS4. Reports involving oil or hazardous waste is reported to the Fire Dept. and MA DEP.                        | Illicit Discharge and Detection Hotline established.<br><a href="http://www.eastham-ma.gov/Public_Documents/EasthamMA_BBoard/1022B6F80">http://www.eastham-ma.gov/Public_Documents/EasthamMA_BBoard/1022B6F80</a> |
| 3.5<br>Revised | Hazardous Product Collection<br>Medical Waste Disposal Day                                                                  | Health, DPW, Recycling<br>Health, Police | Conducting Collection Day<br>Conduct Collection Day | Hazardous waste collection days scheduled for July 21, 2012 and September 15, 2012. Planned Medical Waste take back day conducted in conjunction with DEA. Drop Box available in Police Department 24/7 | Continue project indefinitely.<br>Continue project indefinitely.<br>Planned for July 20, 2013 and September 21, 2013.                                                                                             |

### 3a. Additions

| 3.6 | Outfall Elimination | DPW | Reduction of outfalls contributing to bodies of water | Projects Completed | Maintenance and Operations Plan |
|-----|---------------------|-----|-------------------------------------------------------|--------------------|---------------------------------|
|-----|---------------------|-----|-------------------------------------------------------|--------------------|---------------------------------|

|     |       |                        |                      |                          |                     |
|-----|-------|------------------------|----------------------|--------------------------|---------------------|
| 3.7 | I'DDE | DPW<br>Board of Health | Found and Eliminated | See attached enforcement | Continue monitoring |
|-----|-------|------------------------|----------------------|--------------------------|---------------------|

#### 4. Construction Site Stormwater Runoff Control

| BMP ID #       | BMP Description                              | Responsible Dept./Person Name  | Measurable Goal(s) | Progress on Goal(s) – Permit Year 9<br>(Reliance on non-municipal partners indicated, if any)                                                                                                                                                                                                                                        | Planned Activities                                                                                                          |
|----------------|----------------------------------------------|--------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| 4.1<br>Revised | Draft Construction Site Runoff Control Bylaw | Planning                       | Develop Bylaws     | Bylaw adopted by Planning Board for adoption at Town Meeting (May 2010)<br><a href="http://www.eastham-ma.gov/Public_Documents/EasthamMA_Planning/LegalNotices/ForATM2010/MLU_Form7_02-18-10_PBNotice.pdf">http://www.eastham-ma.gov/Public_Documents/EasthamMA_Planning/LegalNotices/ForATM2010/MLU_Form7_02-18-10_PBNotice.pdf</a> | Implement bylaw                                                                                                             |
| 4.2<br>Revised | Enact Construction Site Runoff Control Bylaw | ConCom, Planning, Town Meeting | Implement Bylaw    | Continue to discuss the creation of a bylaw to be incorporated into local wetland control bylaw and local subdivision rules and regulations.                                                                                                                                                                                         | Continue to work on the development and implementation of bylaws. There is a policy, but not a bylaw.                       |
| 4.3<br>Revised | Sand Nourishment                             | ConCom                         | Regulations        | Continuation of goal for better compliance and quality of sand. NR agent frequently meets with applicants.                                                                                                                                                                                                                           | Homeowners required to do sand nourishment must do so with sand of comparable grain size to what is natural with no debris. |
|                |                                              |                                |                    |                                                                                                                                                                                                                                                                                                                                      |                                                                                                                             |

#### 4a. Additions

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|--|--|--|--|--|--|
|  |  |  |  |  |  |
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## 5. Post-Construction Stormwater Management in New Development and Redevelopment

| BMP ID #       | BMP Description                              | Responsible Dept./Person Name                   | Measurable Goal(s) | Progress on Goal(s) – Permit Year 9<br>(Reliance on non-municipal partners indicated, if any)                                                        | Planned Activities                                                                                                                                                                                                                                      |
|----------------|----------------------------------------------|-------------------------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5.1<br>Revised | Draft Construction Site Runoff Control Bylaw | ConCom,                                         | Develop Bylaws     | Continue to discuss the creation of a bylaw to be incorporated into local wetland control bylaw and local subdivision control rules and regulations. | Continue to work on the development and implementation of a bylaw. Review bylaw for adoption at town meeting for ConCom. Continue “Limit of Work” in Order of Conditions for project as well as use hay bales &/or silt fence until area is stabilized. |
| 5.2<br>Revised | Amend Site Plan Review                       | Planning                                        | Bylaw              | Bylaw adopted.                                                                                                                                       | Goal achieved                                                                                                                                                                                                                                           |
| 5.3<br>Revised | Enact Construction Site Runoff Control Bylaw | ConCom, Town Planning, Bd. Of Highway Surveyors | Implement Bylaw    | Continue to discuss the creation of a bylaw to be incorporated into local wetland control bylaw and local subdivision rules and regulations.         | Continue to work on the development and implementation of bylaws. There is a policy, but not a bylaw.                                                                                                                                                   |
|                |                                              |                                                 |                    |                                                                                                                                                      |                                                                                                                                                                                                                                                         |

### 5a. Additions

|  |  |  |  |  |  |
|--|--|--|--|--|--|
|  |  |  |  |  |  |
|--|--|--|--|--|--|

## 6. Pollution Prevention and Good Housekeeping in Municipal Operations

| BMP ID #       | BMP Description                                                                                                                                                                                                                                                                               | Responsible Dept./Person Name   | Measurable Goal(s)                  | Progress on Goal(s) – Permit Year 9<br>(Reliance on non-municipal partners indicated, if any)                                   | Planned Activities                                                                                                  |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| 6.1<br>Revised | Annual Training                                                                                                                                                                                                                                                                               | NR, DPW, Planning, Fire, Health | Training Session                    | Annual training on best practices for pollution prevention and mitigation.                                                      | Annual training for worker safety, attend educational workshops for employees or public given by CCC or WBNERR etc. |
| 6.2<br>Revised | Review of Town Properties                                                                                                                                                                                                                                                                     | DPW, Building Maintenance       | Monitor and Correct Problems        | Audit conducted by MIIA.                                                                                                        | Continue indefinitely.                                                                                              |
| 6.3<br>Revised | Review of Town Operations                                                                                                                                                                                                                                                                     | DPW, Facilities Manager         | Monitor and Correct Problems        | Pollution Prevention Control                                                                                                    | Ongoing project                                                                                                     |
| 6.4<br>Revised | Catch basin Cleaning<br><a href="http://www.eastham-ma.gov/Public_Documents/EasthamMA_Planning/NPDES/DPW%20Street%20Sweeping%20and%20Catchbasin%20Policy.pdf">http://www.eastham-ma.gov/Public_Documents/EasthamMA_Planning/NPDES/DPW%20Street%20Sweeping%20and%20Catchbasin%20Policy.pdf</a> | DPW                             | Updated Log                         | Clean all town-owned catchbasins in spring and fall 2011                                                                        | Clean all town-owned catchbasins in Spring and Fall 2012                                                            |
| 6.5<br>Revised | Street Sweeping                                                                                                                                                                                                                                                                               | DPW                             | Record areas swept                  | Sweep all town-owned roadways and parking lots in spring and fall 2011. Received beneficial use determination based on testing. | Sweep all town-owned roadways and parking lots in Spring and Fall 2012                                              |
| 6.6<br>Revised | Remediation of existing outfall                                                                                                                                                                                                                                                               | DPW                             | Elimination of stormwater discharge | One discharge site identified: Cole Road. Funding not received.                                                                 | Complete survey                                                                                                     |
| 6.7<br>Revised | Drainage Alterations                                                                                                                                                                                                                                                                          | DPW                             | Catch basin Replacement             | Catch basins identified for replacement or closure.                                                                             | Continue project indefinitely. Incorporate green infrastructure in at least 1 location                              |
| 6.8<br>Revised | Fuel Tanks                                                                                                                                                                                                                                                                                    | Fire                            | Fuel Tank Removal                   | Goal achieved.                                                                                                                  | Goal achieved                                                                                                       |
| 6.9            | Flooding Remediation                                                                                                                                                                                                                                                                          | DPW                             | Construction of Detention pond      | Brackett Road stormwater design completed                                                                                       | Ensure compliance                                                                                                   |



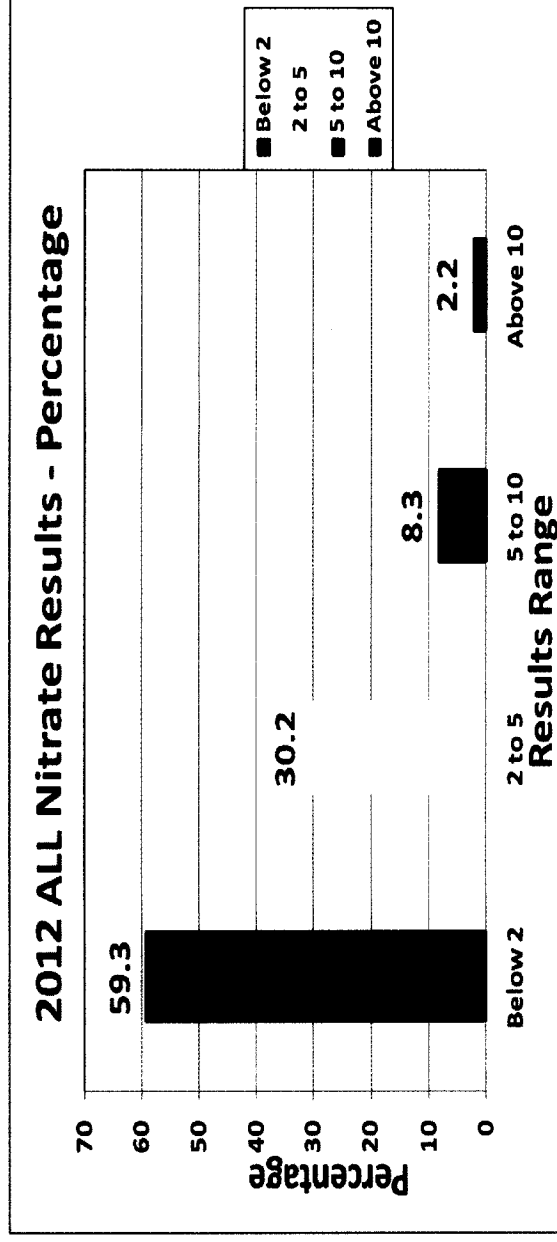
#### Part IV. Summary of Information Collected and Analyzed

**Freshwater Sampling** – The Cape Cod Pond and Lake Stewardship (PALS) are continually sampling the Eastham ponds in an effort to identify possible pollutant and recommend best management practices for containing and eliminating possible pollutants. Eastham has a total of 12 ponds currently being sampled. (<http://www.capecodcommission.org/water/PALS/home.htm>). See attached.

**Beach Sampling** – Sixteen Eastham beaches (12 saltwater and 6 freshwater) were sampled during the summer months by the Barnstable County Department of Health and Environment. In 2012 over 2234 samples were tested for E. Coli or Enterococci as applicable. In 2012 over 300 weekly samples were tested. Samples exceeding the limits result in the posting of swimming advisory notices and posting on our website. In 2011 only 4 samples exceeded were detected. Repeat samples taken the following day were within acceptable limits in all cases and the beaches were reopened to the public. (<http://www.barnstablecountyhealth.org/bseastham.htm>). See attached.

**Groundwater Sampling** – The town continued its voluntary sampling project to evaluate levels of nitrate in residential wells. Each year one-third of the town is sampled allowing for a three-year sampling rotation schedule. We are experiencing a return of approximately 60% of the vials mailed.

| Year | # Samples Returned |
|------|--------------------|
| 2012 | 1809               |



**Shellfish Sampling** – The Natural Resources Office continues to test for Red Tide and participate in shellfish sampling in coordination with Massachusetts Division of Marine Fisheries on a weekly basis through the Spring, Summer and Fall.

**Part V. Program Outputs & Accomplishments (OPTIONAL)**

(Since beginning of permit coverage unless specified otherwise by a \*\*, which indicates response is for period covering April 1, 2009 through March 31, 2010)

**Programmatic**

|                                                               | (Preferred Units) | Response |
|---------------------------------------------------------------|-------------------|----------|
| Stormwater management position created/staffed                | (y/n)             |          |
| Annual program budget/expenditures **                         | (\$)              |          |
| Total program expenditures since beginning of permit coverage | (\$)              |          |
| Funding mechanism(s) (General Fund, Enterprise, Utility, etc) |                   |          |
|                                                               |                   |          |

**Education, Involvement, and Training**

|                                                                            |               |  |
|----------------------------------------------------------------------------|---------------|--|
| Estimated number of property owners reached by education program(s)        | (# or %)      |  |
| Stormwater management committee established                                | (y/n)         |  |
| Stream teams established or supported                                      | (# or y/n)    |  |
| Shoreline clean-up participation or quantity of shoreline miles cleaned ** | (y/n or mi.)  |  |
| Shoreline cleaned since beginning of permit coverage                       | (mi.)         |  |
| Household Hazardous Waste Collection Days                                  |               |  |
| ▪ days sponsored **                                                        | (#)           |  |
| ▪ community participation **                                               | (# or %)      |  |
| ▪ material collected **                                                    | (tons or gal) |  |
| School curricula implemented                                               | (y/n)         |  |
|                                                                            |               |  |

## Legal/Regulatory

| Regulatory Mechanism Status (indicate with "X")    |                                      |         |                       |         |
|----------------------------------------------------|--------------------------------------|---------|-----------------------|---------|
| In Place<br>Prior to<br>Phase II                   | Reviewing<br>Existing<br>Authorities | Drafted | Draft<br>in<br>Review | Adopted |
| ▪ Illicit Discharge Detection & Elimination        |                                      |         |                       |         |
| ▪ Erosion & Sediment Control                       |                                      |         |                       |         |
| ▪ Post-Development Stormwater Management           |                                      |         |                       |         |
| Accompanying Regulation Status (indicate with "X") |                                      |         |                       |         |
| ▪ Illicit Discharge Detection & Elimination        |                                      |         |                       |         |
| ▪ Erosion & Sediment Control                       |                                      |         |                       |         |
| ▪ Post-Development Stormwater Management           |                                      |         |                       |         |

## Mapping and Illicit Discharges

|                                                                    | (Preferred Units) |                         | Response |
|--------------------------------------------------------------------|-------------------|-------------------------|----------|
| Outfall mapping complete                                           |                   | (%)                     |          |
| Estimated or actual number of outfalls                             |                   | (#)                     |          |
| System-Wide mapping complete (complete storm sewer infrastructure) |                   | (%)                     |          |
| Mapping method(s)                                                  |                   |                         |          |
| ▪ Paper/Mylar                                                      |                   | (%)                     |          |
| ▪ CADD                                                             |                   | (%)                     |          |
| ▪ GIS                                                              |                   | (%)                     |          |
| Outfalls inspected/screened **                                     |                   | (# or %)                |          |
| Outfalls inspected/screened (Since beginning of permit coverage)   |                   | (# or %)                |          |
| Illicit discharges identified **                                   |                   | (#)                     |          |
| Illicit discharges identified (Since beginning of permit coverage) |                   | (#)                     |          |
| Illicit connections removed **                                     |                   | (# ); and<br>(est. gpd) |          |
| Illicit connections removed (Since beginning of permit coverage)   |                   | (#); and<br>(est. gpd)  |          |
| % of population on sewer                                           |                   | (%)                     |          |
| % of population on septic systems                                  |                   | (%)                     |          |

### Construction

|                                                                                                      | (Preferred Units) | Response |
|------------------------------------------------------------------------------------------------------|-------------------|----------|
| Number of construction starts (>1-acre) **                                                           | (#)               |          |
| Estimated percentage of construction starts adequately regulated for erosion and sediment control ** | (%)               |          |
| Site inspections completed **                                                                        | (# or %)          |          |
| Tickets/Stop work orders issued **                                                                   | (# or %)          |          |
| Fines collected **                                                                                   | (# and \$)        |          |
| Complaints/concerns received from public **                                                          | (#)               |          |
|                                                                                                      |                   |          |
|                                                                                                      |                   |          |

### Post-Development Stormwater Management

|                                                                                                                          |          |  |
|--------------------------------------------------------------------------------------------------------------------------|----------|--|
| Estimated percentage of development/redevelopment projects adequately regulated for post-construction stormwater control | (%)      |  |
| Site inspections (for proper BMP installation & operation) completed **                                                  | (# or %) |  |
| BMP maintenance required through covenants, escrow, deed restrictions, etc.                                              | (y/n)    |  |
| Low-impact development (LID) practices permitted and encouraged                                                          | (y/n)    |  |
|                                                                                                                          |          |  |
|                                                                                                                          |          |  |

### Operations and Maintenance

|                                                                                              |                |  |
|----------------------------------------------------------------------------------------------|----------------|--|
| Average frequency of catch basin cleaning (non-commercial/non-arterial streets) **           | (times/yr)     |  |
| Average frequency of catch basin cleaning (commercial/arterial or other critical streets) ** | (times/yr)     |  |
| Qty of structures cleaned **                                                                 | (#)            |  |
| Qty. of storm drain cleaned **                                                               | (%, LF or mi.) |  |
| Qty. of screenings/debris removed from storm sewer infrastructure **                         | (lbs. or tons) |  |
| Disposal or use of screenings (landfill, POTW, compost, beneficial use, etc.) **             | (location)     |  |

|                                                   |                         |  |
|---------------------------------------------------|-------------------------|--|
| Basin Cleaning Costs                              |                         |  |
| • Annual budget/expenditure (labor & equipment)** | (\$)                    |  |
| • Hourly or per basin contract rate **            | (\$/hr or \$ per basin) |  |
| • Disposal cost**                                 | (\$)                    |  |
| Cleaning Equipment                                |                         |  |
| • Clam shell truck(s) owned/leased                | (#)                     |  |
| • Vacuum truck(s) owned/leased                    | (#)                     |  |
| • Vacuum trucks specified in contracts            | (y/n)                   |  |
| • % Structures cleaned with clam shells **        | (%)                     |  |
| • % Structures cleaned with vacor **              | (%)                     |  |

|                                                                                         | (Preferred Units)  | Response |
|-----------------------------------------------------------------------------------------|--------------------|----------|
| Average frequency of street sweeping (non-commercial/non-arterial streets) **           | (times/yr)         |          |
| Average frequency of street sweeping (commercial/arterial or other critical streets) ** | (times/yr)         |          |
| Qty. of sand/debris collected by sweeping **                                            | (lbs. or tons)     |          |
| Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.) **                | (location)         |          |
| Annual Sweeping Costs                                                                   |                    |          |
| • Annual budget/expenditure (labor & equipment)**                                       | (\$)               |          |
| • Hourly or lane mile contract rate **                                                  | (\$/hr. or ln mi.) |          |
| • Disposal cost**                                                                       | (\$)               |          |
| Sweeping Equipment                                                                      |                    |          |
| • Rotary brush street sweepers owned/leased                                             | (#)                |          |
| • Vacuum street sweepers owned/leased                                                   | (#)                |          |
| • Vacuum street sweepers specified in contracts                                         | (y/n)              |          |
| • % Roads swept with rotary brush sweepers **                                           | %                  |          |
| • % Roads swept with vacuum sweepers **                                                 | %                  |          |

|                                                                                                                                |             |
|--------------------------------------------------------------------------------------------------------------------------------|-------------|
| Reduction (since beginning of permit coverage) in application on public land of:<br>("N/A" = never used; "100%" = elimination) |             |
| ▪ Fertilizers                                                                                                                  | (lbs. or %) |
| ▪ Herbicides                                                                                                                   | (lbs. or %) |
| ▪ Pesticides                                                                                                                   | (lbs. or %) |
| Integrated Pest Management (IPM) Practices Implemented                                                                         | (y/n)       |
|                                                                                                                                |             |

| (Preferred Units)                                                                                                                                        | Response                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| Average Ratio of Anti-/De-Icing products used **<br><br>(also identify chemicals and ratios used in specific areas, e.g., water supply protection areas) | % NaCl<br>% CaCl <sub>2</sub><br>% MgCl <sub>2</sub><br>% CMA<br>% Kac<br>% KCl<br>% Sand |
| Pre-wetting techniques utilized **                                                                                                                       | (y/n or %)                                                                                |
| Manual control spreaders used **                                                                                                                         | (y/n or %)                                                                                |
| Zero-velocity spreaders used **                                                                                                                          | (y/n or %)                                                                                |
| Estimated net reduction or increase in typical year salt/chemical application rate                                                                       | (±lbs/ln mi.<br>or %)                                                                     |
| Estimated net reduction or increase in typical year sand application rate **                                                                             | (±lbs/ln mi.<br>or %)                                                                     |
| % of salt/chemical pile(s) covered in storage shed(s)                                                                                                    | (%)                                                                                       |
| Storage shed(s) in design or under construction                                                                                                          | (y/n or #)                                                                                |
| 100% of salt/chemical pile(s) covered in storage shed(s) by May 2008                                                                                     | (y/n)                                                                                     |
|                                                                                                                                                          |                                                                                           |
|                                                                                                                                                          |                                                                                           |

## Water Supply Protection

|                                                                                                                                     |          |  |
|-------------------------------------------------------------------------------------------------------------------------------------|----------|--|
| Storm water outfalls to public water supplies eliminated or relocated                                                               | # or y/n |  |
| Installed or planned treatment BMPs for public drinking water supplies and their protection areas                                   | # or y/n |  |
| <ul style="list-style-type: none"> <li>Treatment units induce infiltration within 500-feet of a wellhead protection area</li> </ul> | # or y/n |  |







Contact the Barnstable County  
Hazardous Materials Program  
(508)375-6699 / (800)319-2783

Questions?

HOUSEHOLD  
HAZARDOUS  
PRODUCTS



Date: July 20  
Time: 9:00 am to Noon

Location: Eastham DPW/Natural Resources  
555 Old Orchard Road, Eastham

September 21  
9:00 am to Noon

Orleans DPW / Highway Garage  
22 Bay Ridge Lane, Orleans

These collections are open to all Town of Eastham & Orleans residents & homeowners.  
Local businesses must call to participate at cost: 508-375-6699

*Towns of Eastham & Orleans*

2013  
COLLECTION SCHEDULE



Cape Cod Cooperative Extension  
P.O. Box 367  
Deeds & Probate Building  
Barnstable, MA 02630-0367

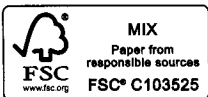
PRSRT STD  
U.S. POSTAGE  
PAID  
LEOMINSTER, MA  
PERMIT NO. 17

\*\*\*\*\*ECRWSS\*\*\*\*

LOCAL  
POSTAL CUSTOMER

**COVANTA™**

Household Hazardous Products (HHP) Collections  
are funded by the Towns of Eastham & Orleans, Covanta SEMASS,  
and Barnstable County / Cape Cod Cooperative Extension.



Printed in the U.S.A on recycle paper  
with vegetable-based inks.

Produced by Cape Cod Cooperative Extension — [www.capecodextension.org](http://www.capecodextension.org) — Cape Cod-HazMat-and-Resource-Recovery



*Towns of Eastham & Orleans*

2013  
COLLECTION SCHEDULE

*A Resident's Guide to  
Difficult-to-Manage Waste*





Many products in our homes are considered hazardous to use, store, and/or dispose. They pose harmful or toxic risks to humans, animals, and the environment. The level of risk and toxicity varies from product to product. Some products are inherently toxic, while other products contain toxic ingredients. Likewise, some toxins are hazardous in very small amounts and others pose risks by building up in our bodies or the environment. In homes, subtle build up of toxic materials can accumulate in things like indoor air, house dust, and food.

On Cape Cod, toxic materials that seep into our groundwater are of special concern. All drinking water on the Cape, whether supplied by municipal or private well, is fed by groundwater from Cape Cod's Sole Source Aquifer. As the name suggests, the Sole Source Aquifer is the principal source of drinking water in the region and, therefore, should be protected from contamination.

Beyond general risks to humans and the environment, improperly disposed hazardous products pose extraordinary risks to sanitation workers through exposure to toxic fumes and the risk of explosion or fire.

**Please IDENTIFY AND HANDLE HAZARDOUS PRODUCTS RESPONSIBLY**

- ✓ Know what is considered hazardous.
- ✓ Read the label. If it says *Danger, Poison, Warning, Caution, or Flammable* the product is likely to pose a hazardous risk that requires proper use, storage, or disposal.
- ✓ Follow the directions on the label.
- ✓ Seek non-hazardous alternatives.
- ✓ Dispose of hazardous products responsibly.

## Guide to Difficult-to-Manage Waste



All Cape Cod towns are equipped to handle the regular disposal of many household hazardous products. The following lists will guide you in the every-day disposal of these items. Hazardous products not listed below can be disposed of at scheduled Household Hazardous Products Collections in your town. See the HHP Check List for items.

### RECYCLE at Your Local Transfer Station

- All Non-Hazardous Recyclables\*
- Antifreeze
- Batteries: Auto & Rechargeable
- Cans, empty
- Computers
- Computer Monitors
- Dry Paint Cans
- Fire Extinguishers, empty
- Light Bulbs: Fluorescent & CFLs
- Oil & Oil Filters, used
- Propane Tanks
- Televisions

\* (Consult your local recycling guide for details, or big box store for recycling programs)

### USE UP, GIVE AWAY, or DRY OUT Before Disposing or Recycling

- |                         |                          |
|-------------------------|--------------------------|
| • Abrasive Cleaners     | • Detergents             |
| • Air Fresheners        | • Nail Polish            |
| • Ammonia               | • Latex Glues            |
| • Borax / Boric Acid    | • Latex Caulks           |
| • Car Washes & Finishes | • Lime                   |
| • Chlorine Bleach       | • Personal Care Products |
| • Compounds             | • Plant Food             |
| • Cosmetics             |                          |

### DISPOSE OF as Noted

Alkaline Batteries — Throw Away

➤ **Acrylic Paint, Latex Paint, Water-Based Stains & Wood Finishes — Pour Over Cat Litter, or Other Soluble Material to Absorb Liquid and Throw Away**

Ammunition, Firearms, Fireworks, Explosives — Contact Your Local Police Department

Medical Sharps / Syringes — Take to Your Local Fire Department

Unwanted Medications — Bring to Your Local Police Station, or Crush and Mix with Coffee Grounds and Throw Away. **Do Not Flush.**

Safety Flares — Bring to Your Local Fire Department

## HHP Check List



## What you can bring to a HHP Collection

### AUTO FLUIDS

- Brake & Power Steering Fluid
- Bug & Tar Remover
- Camp Fuel
- Car Polish
- Car Cleaner with Solvent
- Gasoline
- Radiator Flush

### CLEANERS & CHEMICALS

- Acids
- Degreasers
- Disinfectants
- Drain Cleaner
- Oven Cleaner
- Photo & Hobby Chemicals
- Pool Cleaners & Chemicals
- Solvents
- Spot Remover

### MERCURY PRODUCTS

- Blood Pressure Gauges
- Mercury in Bottles
- Switches
- Thermometers
- Thermostats

### PAINTS, POLISHES & STAINS

#### ➤ NO LATEX PAINT

- Alkyd-Based Paint & Stain
- Auto Paint
- Marine Paints & Sealers
- Metal & Furniture Polish
- Oil-Based Paint & Stain
- Paint Thinner & Remover
- Solvent-Based Wood Finish
- Wood Preservatives

### YARD CHEMICALS

- Driveway Sealer w/ Solvent
- Fertilizers w/ Weed Killer
- Insecticides
- Pesticides
- Rodent Poison
- Weed Killer

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# Project Completion Report

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Herring Pond, Eastham  
Alum Treatment  
Program

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EcoLogic LLC

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December 6, 2012

## **Eastham Ponds**

|                                                                         |   |
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## **Herring Pond Alum Treatment Program: Project Completion Report**

### **Introduction**

The Eastham Ponds Action Plan, submitted to the Town of Eastham Massachusetts in December, 2011, recommended an alum treatment program to help mitigate the internal (sediment) phosphorus loading in Herring Pond. This small (40 acre) pond exhibits elevated phosphorus concentrations and algal density. Residents reported declining water quality conditions. An alum treatment program for Herring Pond was ranked as the top priority recommendation of the Action Plan.

Funding for an alum treatment program of Herring Pond was approved in the Town budget for the fiscal year beginning July, 2012. GHD and EcoLogic, in collaboration with Town officials and advisory boards, obtained the required permits and approvals for the treatment. EcoLogic collected sediment samples from Herring Pond and worked with Spectrum Analytical of Agawam MA to assay the sediments and calculate the application rate that would immobilize the pool of iron-bound phosphorus present in the pond's sediments. The Town Conservation Commission drew up an Order of Conditions to ensure that the alum treatment program would minimize the risk of harm to the environment.

GHD contracted with Aquatic Control Technology (ACT), a licensed applicator, to apply a calibrated mixture of aluminum sulfate (alum) and sodium aluminate to Herring Pond, based on the site-specific dose calculation. This contractor has successfully completed alum treatment programs across Cape Cod, including ponds in Barnstable, Harwich, Brewster and Chatham.

The alum treatment program and the associated water quality monitoring were completed over a several week period, beginning on October 24, 2012 and ending on November 13, 2012. Weather conditions and scheduling contributed to the lengthy treatment program; the chemical application itself took only three days. Water quality conditions of Herring Pond were monitored before, during, and after the alum application.

This project completion report summarizes the treatment program and results of the water quality monitoring.

## Chronology

| Date                   | Activity Log                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Wed. 10/24/12</b>   | ACT arrived on site, assembled treatment barge, calibrated spray equipment<br>EcoLogic arrived on site, profiled water quality conditions at pond's deepest point                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Thurs. 10/25/12</b> | ACT treated 10 acres of the total treatment area (20 acres) with one-half the planned dose of alum. This was a modification to the original plan (calling for treating 5 acres at full dose on Day 1). ACT and EcoLogic decided to proceed with caution, due to fluctuating pH conditions in prior weeks during an major algal bloom. Decision was reviewed with Town of Eastham official (Jane Crowley, by phone). Other town officials on site during application. Nate Weeks (GHD) on site.<br>EcoLogic completed water quality monitoring and visual inspections of pond conditions, before, during, and after the chemical application. The pH and alkalinity remained stable, no evidence of stress to aquatic biota. No visual evidence of floc outside of the treatment zone. |
| <b>Fri. 10/26/12</b>   | Weather forecast threatening- Hurricane Sandy was projected to make landfall on the east coast early next week. Days 2 and 3 of chemical treatment (planned for Monday and Tuesday) called off. Barge secured.<br>EcoLogic completed three rounds of visual inspection and water quality monitoring- inside and outside of the treatment area. The pH and alkalinity remained stable, no evidence of stress to aquatic biota. No visual indication of floc, water was very clear. Nate Weeks (GHD) on site.                                                                                                                                                                                                                                                                           |
| <b>Sat 10/27/12</b>    | EcoLogic completed three rounds of visual inspection and water quality monitoring- inside and outside of the treatment area. The pH and alkalinity remained stable, no evidence of stress to aquatic biota. No visual indication of floc, water very clear.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Sum 10/28/12</b>    | EcoLogic completed one round of visual inspection and water quality monitoring- inside and outside of the treatment area. The pH and alkalinity remained stable, no evidence of stress to aquatic biota. No visual evidence of floc. Conditions very windy. EcoLogic team headed off Cape in advance of the storm.                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Tues 11/6/12</b>    | ACT completed treatment of 15 acres of Herring Pond- with half the planned dose ( $37.5 \text{ g/m}^2$ ). Now, one 5 acre section has been treated with the full dose of alum/sodium aluminate ( $75 \text{ g/m}^2$ ), and 15 acres have been received half of the planned dose. One more day of treatment (15 acres at half dose) is required to complete the application. Another pending storm forced delay of the final day of treatment. High winds were forecast to persist for several days.<br>EcoLogic completed three rounds of visual inspection and water quality monitoring- inside and outside of the treatment area. The pH and alkalinity remained stable, no evidence of stress to aquatic biota. No visual indication of floc, water very clear.                    |
| <b>Mon 11/12/12</b>    | ACT completed the alum application, dosing 15 acres of Herring Pond at a rate of $37.5 \text{ g/m}^2$ . 20 acres received the full dose, $75 \text{ g/m}^2$ , in a split application.<br>EcoLogic completed three rounds of visual inspection and water quality monitoring- inside and outside of the treatment area. The pH and alkalinity remained stable, no evidence of stress to aquatic biota. No visual indication of floc, water very clear.                                                                                                                                                                                                                                                                                                                                  |
| <b>Tues 11/13/12</b>   | ACT demobilized from site, and restored the site per Order of Condition.<br>EcoLogic completed post-treatment profile monitoring at the deepest location.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

## Water Quality Monitoring Results

### Part 1: Phosphorus and Al profiles, before and after treatment

10/24- 1600 Pre-treatment monitoring

| Depth | pH     | Water temp. | D.O    | Sp. Cond. | Alkalinity<br>(mg/L as<br>CaCO <sub>3</sub> ) | Diss. Al | Total P | SRP  |
|-------|--------|-------------|--------|-----------|-----------------------------------------------|----------|---------|------|
|       | (S.U.) | (deg. C)    | (mg/L) | (uS)      |                                               | mg/L     | mg/L    | mg/L |
| 0     | 7.64   | 15.5        | 7.0    | 1399      | 26                                            | ND       | 0.022   | ND   |
| 2     | 7.61   | 15.5        | 7.0    | 1404      | 35                                            | ND       | 0.019   | ND   |
| 4     | 7.6    | 15.5        | 6.6    | 2410      | 33                                            | ND       | 0.016   | ND   |
| 6     | 7.5    | 15.2        | 6.34   | 1419      | 33                                            | ND       | 0.020   | ND   |
| 8     | 7.2    | 13.6        | <2     | 30        | 91                                            | ND       | 0.794   | 2.05 |
| 10    | 7.13   | 12.3        | <2     | 24.3      | 140                                           | 0.017    | 2.28    | 5.88 |

Water samples from 8 and 10 m were black, with strong sulfide odor

ND= not detectable

11/13- 0830 post treatment monitoring

| Depth | pH     | Water temp. | D.O    | Sp. Cond. | Alkalinity<br>(mg/L as<br>CaCO <sub>3</sub> ) | Diss. Al | Total P | SRP  |
|-------|--------|-------------|--------|-----------|-----------------------------------------------|----------|---------|------|
|       | (S.U.) | (deg. C)    | (mg/L) | (uS)      |                                               | mg/L     | mg/L    | mg/L |
| 0     | 7.57   | 12.6        | 7.50   | 2178      | 40                                            | 0.270    | 0.093   | ND   |
| 2     | 7.53   | 13.2        | 7.36   | 1663      | 33                                            | 0.246    | 0.118   | ND   |
| 4     | 7.6    | 13.5        | 6.79   | 1733      | 48                                            | 0.264    | 0.057   | ND   |
| 6     | 7.6    | 13.8        | 6.50   | 1718      | 37                                            | 0.324    | 0.050   | ND   |
| 8     | 7.6    | 13.8        | 6.50   | 1723      | 41                                            | 0.284    | 0.052   | ND   |
| 10    | 7.6    | 13.6        | 6.55   | 1720      | 51                                            | 0.273    | 0.155   | ND   |

Note that Herring Pond was stratified prior to the alum treatment, and had completely mixed by the end of the treatment program.

ND= not detectable

## Part 2: Measurements of pH, inside and outside the treatment area

The project team monitored pH using a field instrument, and collected water samples for a field titration of total alkalinity, reported as mg/L as  $\text{CaCO}_3$ . This monitoring plan was in place to verify that the application of the alum and sodium aluminate mixture did not consume alkalinity and allow a rapid decline in the pond's pH. The environmental concern is that aluminum in water is amphoteric; defined as more soluble in acidic solutions and in basic solutions than in circumneutral solutions. Ionic aluminum can be harmful to aquatic life. Consequently, the project team calculated the ratio of alum and sodium aluminate to ensure that the pH would not fall below 6.5, nor rise above 8.5 during treatment. ACT and the chemical supplier completed laboratory jar testing using Herring Pond water prior to the application.

Results of frequent monitoring before, during and after the application confirmed that the pH remained in a safe range. Similarly, the alkalinity measurements were stable. The largest gradients in pH and alkalinity were related to the pond's thermal stratification. Water quality conditions at the 8 m and 10 m depth were distinctly different, as a consequence of chemical changes caused by prolonged oxygen depletion over the summer. There were no observations of pH below 6.97.

### Summary of measured pH Data

| Inside Treatment Area  |      |      |       |
|------------------------|------|------|-------|
| Depth (m)              | Max  | Min  | Count |
| 0                      | 7.8  | 7.24 | 15    |
| 2                      | 7.7  | 7.32 |       |
| 4                      | 7.7  | 7.38 |       |
| 6                      | 7.67 | 7.34 |       |
| 8                      | 7.65 | 7.01 |       |
| 10                     | 7.6  | 6.97 |       |
| Outside Treatment Area |      |      |       |
| Depth (m)              | Max  | Min  | Count |
| 0                      | 7.8  | 7.4  | 14    |
| 2                      | 7.9  | 7.45 |       |
| 4                      | 7.77 | 7.46 |       |
| 6                      | 7.73 | 7.42 |       |

## Discussion

The alum treatment program was completed successfully, despite various weather-related scheduling complications. The Orders of Conditions were met. All required samples were collected and analyzed.

The effectiveness of the alum treatment program in reducing phosphorus flux from the pond sediments into the overlying waters, and stimulating algal growth, will be evident beginning in the summer of 2013. Continued monitoring and assessment will help determine the effectiveness of this remedial measure.

The alum treatment program appears to have slightly reduced the mass of phosphorus present in Herring Pond's water column. We calculated the reduction in the mass of total phosphorus (TP) present in the pond before and after the alum treatment, assigning a volume weighting factor to each water depth. The volume weighting factor estimates the proportional volume of the pond (total volume is 235 million gallons, or  $8.89 \times 10^5 \text{ m}^3$ ) represented by each sampling depth, which are at 2 m intervals.

Based on this simple calculation, the alum treatment program sequestered about 17% of the mass of TP present in the water column prior to treatment. Note the impact of fall mixing on the gradient in concentration.

|                               |          |                | Pre-treatment                     |           | Post-treatment                    |           |
|-------------------------------|----------|----------------|-----------------------------------|-----------|-----------------------------------|-----------|
|                               | Depth    | Percent Volume | Concentration (g/m <sup>3</sup> ) | Mass (kg) | Concentration (g/m <sup>3</sup> ) | Mass (kg) |
|                               | 0        | 35             | 0.022                             | 6.8453    | 0.093                             | 28.93695  |
|                               | 2        | 25             | 0.019                             | 4.22275   | 0.118                             | 26.2255   |
|                               | 4        | 18             | 0.016                             | 2.56032   | 0.057                             | 9.12114   |
|                               | 6        | 15             | 0.02                              | 2.667     | 0.05                              | 6.6675    |
|                               | 8        | 5              | 0.794                             | 35.2933   | 0.052                             | 2.3114    |
|                               | 10       | 2              | 2.28                              | 40.5384   | 0.155                             | 2.7559    |
| Pond Volume (m <sup>3</sup> ) | 8.89E+05 |                |                                   |           |                                   |           |
| Summed Mass (pre-treatment)   | 92.1271  | kg             |                                   |           |                                   |           |
| Summed Mass (post-treatment)  | 76.0184  | kg             |                                   |           |                                   |           |

The concentration of dissolved Al in the pond water was significantly higher directly after the treatment was completed. The maximum concentration 324 ug/L is above the federal criterion for chronic exposure, but below the federal criterion for acute exposure. While chemical reactions of Al in water are not rapid compared with other compounds, water column concentrations are projected to decline within the scale of days to weeks. Quarterly monitoring will track this response.

It is important to note that the concentrations of Al measured in the water directly after the alum treatment program was completed was within the federal criteria for protection of aquatic life against acute (short-term) toxicity. The toxicity criteria for Al in fresh water are cited below (EPA 1988).

"The procedures described in the "Guidelines for Deriving Numerical Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses" indicate that, except possibly where a

locally important species is very sensitive, freshwater aquatic organisms and their uses should not be affected unacceptably, when the pH is between 6.5 and 9.0, if the four-day average concentration of aluminum does not exceed 87 ug/L more than once *every* three years on the average and if the one-hour average concentration does not exceed 750 ug/L more than once every three years on the average.”<sup>1</sup>

The measured Al concentrations are consistent with the field observations. The field team did not observe adverse impacts on the aquatic biota during their frequent visual assessments of Herring Pond.

---

<sup>1</sup> EPA. 1988. Ambient water quality criteria for aluminum. EPA 440/5-86-008



# Town of Orleans

## Board of Health

19 School Road - Orleans, MA 02653-3699

T: 508-240-3700  
x450

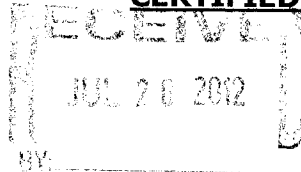
F: 508-240-3746

July 18, 2012

Mark Powers  
11 Old Turnpike Road  
Haddam, CT 06438

James F. & Susan G. Trainor Trs.  
Two Family Trust  
PO Box 1848  
Orleans, MA 02653

**CERTIFIED MAIL RRR**



Re: **Finbars Landing-5 Rt. 6A**

Dear Mr. Powers, Mr. Trainor and Mrs. Trainor:

On July 16, 2012, the Orleans Health Department received a telephone call from officials of the Town of Eastham stating that employees of Finbars Landing are disposing of food and wastewater, generated at Finbars Landing, into a catch basin on Old County Road/Old State Highway. On July 11, 2012, Neil Andres, Eastham DPW Director, conducted a site visit and observed evidence of putrescible wastewater, being poured down the catch basin. On that same day he spoke with representatives of Finbars Landing and instructed them to cease and desist the illegal disposal of wastewater. On July 14, 2012, an employee of the Eastham DPW observed an employee of Finbars Landing pouring food product down the same catch basin.

On July 16, 2012, the Orleans Health Department met with officials from the Town of Eastham on site to evaluate the situation. Present at the inspection were Jane Crowley, Eastham Health Agent, Neil Andres, Eastham DPW Director and myself. At the time of the inspection the following was observed:

- There was evidence of food (onions) at the catch basin.
- There was an odor and a large number of flies at the catch basin.
- There was staining and a splash mark around the catch basin.
- The catch basin immediately behind Finbars Landing and the one immediately to the south had a layer of scum/grease on top of the effluent in the basins.
- These basins discharge into a detention basin located on Old County Road which discharges into Town Cove.

On July 16, 2012 The Orleans Health Department discussed the matter with person in charge (PIC) of the food establishment as well as the property owner. During these discussions it was revealed that wastewater from the restaurant was being discharged to the top of the ground

and into the catch basin in an effort to eliminate sanitizing agents from entering the septic system.

The discharge of wastewater on top of the ground &/or into a stormwater drainage system threatens the public health, public safety and the environment as well as creates a nuisance. In addition, per the provisions of 310 CMR 15.000: The State Environmental Code, Title 5, it is illegal to discharge wastewater to a surface water or an open drain.

The 1999 Federal Food Code addresses the disposal of wastes as follows:

- **Section 5-402.13 Conveying Sewage** - requires that all sewage be conveyed to the point of disposal through an approved sanitary sewage system.
- **Section 5-403.11** requires all sewage be disposed through an approved facility that is (B) An individual sewage disposal system that is sized, constructed, maintained , and operated according to law.
- **Section 5-503.11 Community or Individual Facility** - requires that all solid waste not disposed of through the sewage system shall be recycled or disposed of in an approved public or private community recycling or refuse facility.

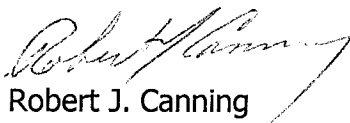
**You are hereby ordered to immediately cease and desist the practice of discharging putrescible wastewater, diswashing water and food waste on top of the ground or into the stormwater drainage system. You are also ordered to clean the two catch basins on Old County/Old State Road of any remaining effluent or food products.**

**In addition you are ordered to submit, within 5 days upon receipt of this notice, a written protocol on the handling and disposal of all liquid waste and solid waste generated at Finbars Landing.** This protocol must include the collection of these wastes as they are generated, how they will be removed from inside the establishment and how they will be removed from the property for final disposal. Failure to submit this information will cause the town to seek additional legal remedies.

You have the right to a hearing and you may request a hearing before the Orleans Board of Health by filing a written petition with the Board of Health within seven (7) days upon receipt of this notice.

If you have any questions, please contact me at the Orleans Health Department at (508) 240-3700 Ext. 450.

Sincerely,



Robert J. Canning  
Health Agent

Cc: Orleans Board of Health  
Orleans Town Administrator  
Orleans Highway Superintendent  
Eastham Health Department  
Eastham DPW Director

**POLICY ON THE CONTENT AND APPLICATION OF FERTILIZERS AND  
PESTICIDES ON MUNICIPAL LAND IN THE TOWN OF EASTHAM**  
**Final Draft: 3/1/13 including Changes Suggested by Water Management Committee  
on 2/12/13**

**I. Purpose**

The purpose of this policy is to codify practices the Town of Eastham uses to reduce or eliminate nutrient loading from the application of fertilizers and reduce concerns related to the application of high risk or undesirable pesticides on town-owned properties by Town employees or private contractors of the Town.

**II. Background**

The Massachusetts Estuaries Project (MEP) found that fertilizers account for an important portion of controllable nitrogen load in Cape Cod watersheds. Excessive nitrogen from fertilizers and other watershed sources leads to eutrophication of marine embayments. Other studies have demonstrated that phosphorous from fertilizers can lead to eutrophication in freshwater ponds.

Excessive use of certain pesticides to control undesirable plants and insects is both an environmental problem and a public health issue. Some of these compounds accumulate in the food chain contaminating shell and fin fish.

The Town of Eastham will maintain its commitment to using fertilizers on town land only as allowed under this policy, and limiting pesticide use to non-toxic methods, used only when required to protect public health. The intent of this policy is to provide guidance for town staff whenever active management of land is required as specified in Section III below.

The Town of Eastham is seeking to reduce the share of the watershed nitrogen and phosphorus load resulting from fertilizers as part of nutrient management planning and to protect the public and the natural environment from unnecessary use of toxic pesticides. Reductions in nitrogen and phosphorus loads from fertilizer use is one part of a comprehensive wastewater management strategy and, if successful, could somewhat reduce infrastructure costs in future phases of wastewater management implementation.

The Town of Eastham seeks to demonstrate its commitment to reducing nutrient loading from fertilizer and use of pesticides by adopting this policy. The benefits of a municipal policy on the use of fertilizers and pesticides on municipal properties include 1) Setting a positive example for other persons and groups and 2) Demonstrating that town greens and fields can be maintained without the use of fertilizers and pesticides and 3) Reduction of any contribution by the Town of nitrogen, phosphorous and pesticides to the town's watersheds and natural environment.

**III. Identification of Town Properties Covered by This Policy**

This policy applies to all turf and green spaces owned and managed by the Town or by contractors on behalf of the Town including, but not limited to:

- Athletic fields
- Grounds of town buildings
- Memorial squares and planted intersections on town land
- Town greens
- Cemeteries

#### **IV. Practices for Management of Town Land**

Whenever the Town chooses to manage the vegetation / turf on town land, the Town hereby agrees to adopt the following best management practices and to require adherence to these practices by any employee or private contractors working on behalf of the Town.

##### **1. Soil Testing**

For any property that is managed with fertilizer, the Town agrees to conduct soil testing and analysis on a biennial or regular basis. Results of the soil analysis shall be used to enhance soil biology in order to reduce the need for fertilizers. Fertilizer will only be applied based on the results of recent soil testing.

##### **2. Compost**

The spreading of compost shall be restricted to leaf-based composts because of heavy nitrogen and phosphorus components in other forms of compost.

##### **3. Top Soil and Site Preparation**

Any new turf areas developed by the Town should be developed with a minimum of 6 inches of high quality top soil or in accordance with other professional standards appropriate to the type and planned use of the facility.

##### **4. Grass Type**

Whenever possible, hardy and drought resistant grass types such as fine leaf fescues (ie., Hard, Chewing, Creeping, Red and Sheep fescues) or minimal mow mixes should be selected so as to minimize the need for watering, mowing or fertilizing. These grass types also should be used when over-seeding established turf areas. Areas intended for special purposes such as athletic fields should use such a grass type appropriate for the intended type and intensity of use.

##### **5. Maintenance Practices**

For any property that is managed with fertilizer the following maintenance practices will be followed:

- Turf areas will be mechanically weeded and aerated annually with prison labor as available, preferably in the spring;
- Over-seeding of turf areas will be undertaken every fall if funding is available. Hardy and drought resistant grass types such as fine leaf fescues (ie., Hard, Chewing, Creeping, Red and Sheep fescues) and minimal mow mixes should be used for over-seeding unless an alternate grass type is required for an athletic field;
- Turf will be mowed to a height of 3 inches unless otherwise specified for a special use such as an athletic field;
- As a general rule, mowed clippings will not be bagged and will be left to mulch. However no grass clippings, leaves, or any other vegetative debris will be deposited into or within 25 feet of any water body, retention or detention areas, drainage ditches or storm water drains, or onto impervious surfaces such as but not limited to

roadways and sidewalks, except during scheduled clean-up programs.

#### 6. Irrigation

Watering will only be undertaken if necessary. Irrigation systems should be equipped with rain, moisture, or evapotranspiration sensors, as appropriate.

#### 7. Fertilizer Application

For any property that is managed with fertilizer the following fertilizer application practices should be followed:

- Fertilizer will be applied if needed for healthy plant growth appropriate to the type and intensity of use of the turf area or any ornamental garden and only in the minimum amount needed for this purpose.
- Only fertilizers with slow release / slowly soluble organic forms of nitrogen will be used. Use of leaf based compost and a compost tea is highly recommended.
- Fertilizer products should have a minimum of 8% water insoluble nitrogen and conform to the approved list of fertilizers issued by the Organic Materials Review Institute of Eugene, Oregon.
- Fertilizer products containing phosphorous will be used only if required in accordance with the results of a recent soil analysis;
- Fertilizers will be applied to benefit the spring and fall heavy growth periods; Fertilizers will not be applied after October 31<sup>st</sup> or before April 15<sup>th</sup> unless required in accordance with the requirements of athletic fields or the results of a soil analysis.
- Fertilizer will not be applied immediately before or during heavy rainfall or when soil is saturated.
- Fertilizer will not be applied, spilled or deposited on impervious surfaces or in a manner that allows fertilizer to enter storm drains or other man-made storm flowage receptacles or channels;
- Fertilizer will not be applied closer than 100 feet to any water body unless permitted by the Eastham Conservation Commission.

#### 8. Pesticides

Definition: Pesticides are defined by the Massachusetts Department of Food and Agriculture Pesticide Bureau as: "substances or mixtures of substances that prevent, destroy, repel, or mitigate pests, or defoliate, desiccate, or regulate plants." Some pesticides are poisonous substances that can have an adverse effect on the natural environment or impair human health. "Pesticide" is the umbrella term that encompasses many different products that includes, but is not limited to, herbicides, fungicides, and insecticides.

Use: The DPW Superintendent must determine the necessity for, and when appropriate, approve the use by any town employee or contractor of any pesticide except pesticides that appear on the EPA 25(b) exempted list. Only those pesticides considered minimum risk products that appear on the EPA Toxicity Category III and IV lists may be approved for use by any town employee or private contractor working for the town.

Prohibited Use: Those products that meet the criteria for inclusion on the EPA Toxicity Category I and II lists are permanently prohibited.

#### 9. Record Keeping

Records will be kept of turf management practices and applications (i.e., amount and frequency of application, nutrient content) for all fields and turf areas that are managed with irrigation and/or fertilizer or pesticides. The DPW Superintendent shall keep a written record of any pesticides used under Section 8 above and will document the public necessity for the use of any pesticides used that are in EPA Category III and IV above.

#### 10. Training

Municipal personnel involved in turf management will be required to attend training on techniques and best practices associated with organic turf management and non-toxic means of pest control.

BOS – First Review: Wednesday August 8, 2012

BOS – Second Review: Wednesday September 5, 2012

DRAFT



## TOWN OF EASTHAM

2500 State Highway, Eastham, MA 02642-2544

*All departments 508-240-5900 • Fax 508-240-1291*

[www.eastham-ma.gov](http://www.eastham-ma.gov)

TO: Diane Rommelmeyer, Town Accountant  
Neil Andres, DPW Superintendent

FROM: Sheila Vanderhoef, Town Administrator

DATE: December 4, 2012

RE: **Pilot Vegetation Managment with Goats - Surplus Property**

Please be advised that on Monday, December 3, 2012, the Board of Selectmen voted to declare our herd of four Alpine Goats, used as part of the Pilot Goat Vegetation Management Project, as surplus property for disposal. As stated, and as per our gift agreement with Leo Cakounes, he has the right of first refusal once the project ended and the goats were declared as surplus property (see attached with specifics as to the agreed-upon parameters)

As such, please see the attached letter sent to Mr. Cakounes on behalf of the Board of Selectmen. Once I have received the required written notification from Mr. Cakounes' related to his intention to reclaim possession of the animals, I will direct Neil Andres to contact Mr. Cakounes on how best to effect the return of the goats.

Thank you for your consideration of this matter.

# Town of Eastham

Department of Public Works  
555 Old Orchard Road  
Eastham, MA. 02642



508 240-5973  
Fax 508 240-6687  
dpw@eastham-ma.gov

IV B 1.

To: Sheila Vanderhoef, Town Administrator

From: Neil Andres, Superintendent DPW

Date: November 27, 2012

RE: Pilot Vegetation Management with Goats

Over the course of the past year, we have found that goats can be successfully used to manage vegetation including poison ivy, locust, and brambles. Our small scale program with a herd of four Alpine goats has determined that:

Goats need to be supervised - larger herds increase the economic effectiveness of their use for vegetation management.

The management of goats is no simple matter. Although staff have done an excellent job with the pilot project, we are in agreement that goats must be handled by full time professional farmers if a program is to be successful.

The economic effectiveness of goats for vegetation management can be increased by adopting other uses for them including fiber and milk. Vegetation management can provide an added source of income for farmers so that local agriculture can be sustainable.

The public has an overwhelming positive reaction to the use of goats. This has required staff presence to manage the public. If the use of animals were more common, less staff time would be required to let the animals do their job undisturbed.

While the use of herbicides for vegetation management initially appears economical, the cost to adding chemicals to our environment can be significant as groundwater pollution is expensive to mitigate. Goats can be a valuable tool in a vegetation management program as they both handle vegetation and raise awareness of preserving our environment through sustainable practices.

At the conclusion of the pilot program, I recommend that the Board of Selectmen declare the goats as surplus property for disposal. Per our gift agreement with Leo Cokounes, he has right of first refusal once the project ends and the goats are declared surplus property.



# TOWN OF EASTHAM

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*All departments* 508-240-5900 • *Fax* 508-240-1291  
[www.eastham-ma.gov](http://www.eastham-ma.gov)

December 4, 2012

Mr. Leo Cakounes  
d/b/a Cape Farm Supply & Cranberry Co.  
1601 Factory Road  
Harwich, MA 02646

**Dear Mr. Cakounes:**

**RE: End of Project - Vegetation Management with Goats**  
**Four (4) Alpine/Nubian Cross Breed Goats**

Please be advised that on Monday, December 3, 2012, the Board of Selectmen voted to declare our herd of four Alpine Goats, used as part of the Pilot Goat Vegetation Management Project, as surplus property for disposal. In accordance with our agreement with you (copy attached) and with your right of first refusal, this serves as formal notification to you that the project has ended. As stated in the agreement, please notify us of your intention to reclaim possession of the animals by written notice directed to my attention, within thirty days.

Notwithstanding the declaration of surplus property for disposal as stated, the Pilot Vegetation Management with Goats program served as a positive model and created positive interest from the community in exploring alternate options for vegetation management.

Thank you for your consideration of this matter.

Sincerely,

Sheila Vanderhoef  
Sheila Vanderhoef  
on behalf of the Board of Selectmen

cc: Board of Selectmen  
Diane Rommelmeyer, Town Accountant  
Neil Andres, DPW Superintendent

GRANT to the Town of Eastham

I, Leo Cakounes d/b/a/ Cape Farm Supply & Cranberry Co. ("Grantor"), 1601 Factory Road, Harwich, MA 02646, hereby grant to the Town of Eastham ("Town"), 2500 State Highway, Eastham, MA 02642 four (4) Alpine/Nubian cross breed goats ("the Animals") for use by the Town for the control of nuisance vegetation by browsing, under the following conditions:

1. The Town shall maintain the animals for the exclusive purpose set out above; provided, however, that if the Town, acting through the Board of Selectmen, shall in the future determine that the Town no longer requires the Animals for said purpose, the Town shall provide written notice of such determination to the Grantor.
2. Upon receipt of such notice, the Grantor shall have thirty (30) days to reclaim possession of the animals by written notice to the Town, delivered to the office of the Town Administrator.
3. If the Grantor fails to reclaim possession of the animals within said thirty (30) days, the Grantor's rights to the Animals shall expire and the Town may dispose of the animals in a manner as provided by law.

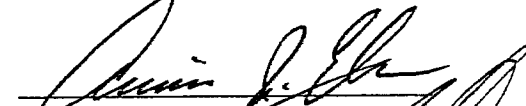
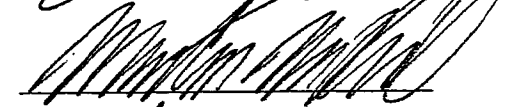
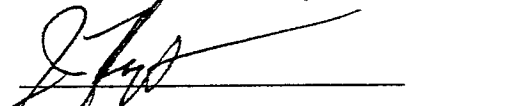
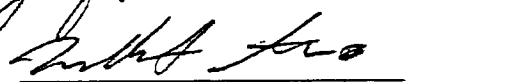
Leo Cakounes  
d/b/a Cape Farm Supply & Cranberry Co.

Date:

2/21/12

Witness: \_\_\_\_\_

Acceptance:  
TOWN OF EASTHAM  
by its Board of Selectmen

Date:



## TOWN OF EASTHAM

2500 State Highway, Eastham, MA 02642-2544  
*All departments 508-240-5900 • Fax 508-240-1291*  
[www.eastham-ma.gov](http://www.eastham-ma.gov)

March 7, 2012

Mr. Leo Cakounes  
Cape Farm Supply & Cranberry Co.  
1601 Factory Road  
Harwich, MA 02646

Dear Mr. Cakounes:

Please accept our thanks for your most generous donation of four (4) Alpine/Nubian cross breed goats, which was approved at our recent Monday, March 5, 2012 meeting. Attached is an originally signed document with specifics as to the parameters related to this gift.

Your support of our efforts related to goat vegetation management is most appreciated.

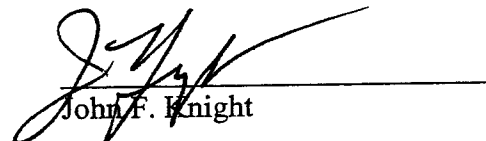
Thank you for your interest in the Town of Eastham.

  
Linda S. Burt, Chair

  
Martin F. McDonald, Clerk

  
Wallace F. Adams, II

  
Aimee J. Eckman, Vice-Chair

  
John F. Knight

**BOARD OF SELECTMEN**

GRANT to the Town of Eastham

I, Leo Cakounes d/b/a/ Cape Farm Supply & Cranberry Co. ("Grantor"), 1601 Factory Road, Harwich, MA 02646, hereby grant to the Town of Eastham ("Town"), 2500 State Highway, Eastham, MA 02642 four (4) Alpine/Nubian cross breed goats ("the Animals") for use by the Town for the control of nuisance vegetation by browsing, under the following conditions:

1. The Town shall maintain the animals for the exclusive purpose set out above; provided, however, that if the Town, acting through the Board of Selectmen, shall in the future determine that the Town no longer requires the Animals for said purpose, the Town shall provide written notice of such determination to the Grantor.
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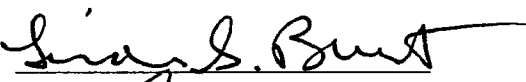
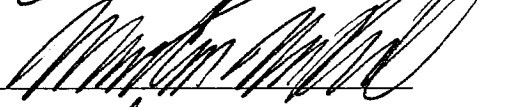
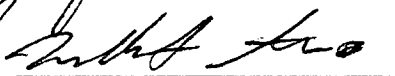
Leo Cakounes  
d/b/a Cape Farm Supply & Cranberry Co.

Date:

2/21/12

Witness: \_\_\_\_\_

Acceptance:  
TOWN OF EASTHAM  
by its Board of Selectmen

Date:



## TOWN OF EASTHAM

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All departments 508-240-5900 • Fax 508-240-1291  
[www.eastham-ma.gov](http://www.eastham-ma.gov)

TO: Joan Plante, Treasurer/Collector  
Diane Rommelmeyer, Town Accountant

FROM: Sheila Vanderhoef, Town Administrator 

DATE: March 7, 2012

RE: **Establishment of Goat Vegetation Management Fund**

At a public meeting held Monday, March 5, 2012, the Board of Selectmen voted to establish a gift fund under the provision of M.G.L. Chapter 44, Section 53A, for the purposes as outlined below. Said fund is to be known as the Goat Vegetation Management Fund

### **Goat Vegetation Management Fund**

The Board of Selectmen, in accordance with M.G.L. Chapter 44, Section 53A, hereby establish a gift fund to be known as the "Goat Vegetation Management Fund" to accept funds from any and all individuals, clubs, private non-profits, or corporations interested in supporting the maintenance of goats housed at the Department of Public Works for the purposes of Goat Vegetation Management. Expenditure of funds within such account shall be made upon the recommendation of the Town Administrator and/or the Superintendent of Public Works.

Also, attached for your information and records, is the signed document by the Board of Selectmen on Monday, March 5, 2012 and a copy of a letter of thanks sent to Mr. Leo Cakounes.