

**Municipality/Organization:** Orleans, MA

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**EPA NPDES Permit Number:** MAR041146

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**MaDEP Transmittal Number:** W- 035744

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**Annual Report Number  
& Reporting Period:** No. 11: May 1, 2013-April 30, 2014

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## NPDES PII Small MS4 General Permit Annual Report

### Part I. General Information

Contact Person: Mark Budnick Title: Manager, Public Works

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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: John F. Kelly

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Title: Town Administrator

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Date: 4/28/14

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

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

### ***Notable Accomplishments/Improvements in Permit Year 11:***

#### ***Water Quality Task Force & Comprehensive Wastewater Management Plan***

The Town of Orleans continues to develop significant ongoing programs to improve marine and fresh water quality and work towards the goals of the Phase II Permit and the final TMDLs for pathogens and nutrients. The efforts of the Marine and Fresh Water Quality Task Force, Orleans Pond Coalition, past and planned BMP construction projects and the development of the December 2010 Comprehensive Wastewater Management Plan (CWMP) have or will result in significant water quality and habitat improvements. The 2010 CWMP provides recommendations for wastewater treatment capital improvements to address failing septic systems and significantly reduce nitrogen loading to the local bays and impoundments, which represent the majority of the pollutant load. The CWMP received final approval from the MA DEP on February 14, 2012. The Town's consultant completed an evaluation of full lifecycle costs for the CWMP and for a small pipe (STE) collection system to provide further support for recommendations in the CWMP. The Board of Selectmen is seeking funding in 2014 to study alternatives and to build consensus for a long-term solution to wastewater management to protect surface and groundwater.

In addition to the efforts to reduce nitrogen loading from septic sources, the Town of Orleans continues to implement BMPs to reduce the use of fertilizers and pesticides. The Pleasant Bay Alliance developed a fertilizer and pesticide use policy for municipal properties in April 2012. Building upon this effort, the Town developed a Fertilizer Nitrogen Control bylaw that passed at the 2014 Annual Town Meeting. The purpose of the bylaw is to restrict the use of nitrogen based fertilizers throughout Town and it includes the following provisions: no application of nitrogen between October 16 and April 14; no application before or during heavy rain; and no application within 100 feet of Resource Areas. In support of these efforts, the Town has a robust public education campaign to inform residents and businesses about the proper use of and alternatives to fertilizers. Orleans is one of three Massachusetts towns (Falmouth and Nantucket) to have such a bylaw.

In Year 10, the Orleans Pond Coalition received a grant for water quality monitoring in the Cedar Pond and Rock Harbor estuarine system. The results of this study increased the awareness and importance of preserving water quality. In Year 11, a Cedar Pond Management Plan was produced by the UMASS – Dartmouth School of Marine Science and Technology (SMAST) and the Water Quality Task Force and was unanimously approved by the Board of Selectmen. In the Cedar Pond Management Plan, SMAST recommended replacing the boards in the old weir to hold back the pond and limit salt water intrusion. In order to put the boards back, the Town is waiting for approval from the property owner (MADOT). After the salinity is reduced to a level low enough for herring (etc), DMF is interested in installing a ladder structure to better enable fish passage.

### Pleasant Bay Resource Management Plan Update

The Pleasant Bay Resource Management Plan was updated in 2013 and the updated plan was adopted in May 2013. The plan will further the Town's ongoing effort to work collaboratively with neighboring Towns to promote the natural resource health and public enjoyment of Pleasant Bay.

### Stormwater Management Planning

The Town and its consultant continued to evaluate program needs based on the pending Phase II permit for Interstate, Merrimack and South Coastal Watersheds and the draft Phase II permit that was issued for New Hampshire MS4s. The Town anticipates using this information and the results from other activities (e.g., CWMP, BMP projects) to develop an appropriate strategy to address the requirements related to TMDLs and impaired water bodies, as part of the Stormwater Management Plan (SWMP) development under the final permit (once issued). The Town presented an article at the May 2013 Town Meeting requesting \$500,000 to fund a comprehensive SWMP to meet future regulatory requirements and water quality goals. The article was funded and as part of the project the Town has contracted with AMEC – Environment & Infrastructure to begin asset management using AMEC's ALERT software.

### Public Education & Involvement Activities

The Town of Orleans conducted the following major events to promote awareness of water resources and engage the community:

- Celebrate Our Waters Event: The Orleans Pond Coalition hosted a "Celebrate Our Waters" event on September 13, 14 and 15, 2013. The celebration was well attended with over 2,000 people and it expanded its geographic footprint to include events in Eastham. The Orleans Pond Coalition hopes to further expand the event into Brewster in 2014 to highlight the "shared waters".
- Arbor Day Celebration: The Orleans Tree Department and the Orleans Conservation Trust teamed with Ameri-Corp Cape Cod honoring Arbor Day by planting 6 large trees and native plants on a historical property in Orleans. The effort also included removal of invasive species and unhealthy trees. The event received significant media coverage by appearing in local newspapers.

### Stormwater BMP Assessment, Design & Construction

The Town has completed design for stormwater improvements at Pochet Road to address flooding issues and remediate stormwater entering the adjacent resource area. This project is going to bid in May 2014. The Town is also in the design phase for stormwater improvements incorporating bioretention for nutrient removal for a project on Tonset Road. This project is expected to be bid in June of 2014.

The Town is in the process of designing a stormwater BMP project for the Barley Neck Road stormwater discharge to protect water

quality in the Meeting House River. This project was put on hold in 2012 so the Town could conduct a more comprehensive assessment of stormwater improvement needs at key outfalls and priority water bodies. In Year 11 the Town's consultant conducted a Preliminary Town-wide Stormwater Assessment to identify and rank outfalls with the highest potential pollutant discharges. The Assessment prioritized the outfalls for remediation and provided a course of action with cost estimates to reduce or eliminate pollutant discharges. The Assessment also identified further actions necessary to evaluate and address all stormwater discharges in the anticipated next Phase of a Town-wide Stormwater Assessment. Through this project the Town developed a Stormwater Task Force consisting of the DPW Director, Highway Manager, Town Planner, Health Agent, Conservation Officer and the Chairperson of the Marine and Freshwater Quality Task Force.

The Town previously completed the design for stormwater BMPs to address a stormwater outfall off Tar Kiln Road. The BMPs will remediate a direct discharge to the upland marsh leading to Pleasant Bay through the use of new deep sump catch basins and subsurface leaching. Construction was completed in Year 11.

The Town completed construction on septic and stormwater improvements at the Skaket Beach parking lot. The parking lot previously had no stormwater controls with a direct discharge to Cape Cod Bay.

The Highway Department completed additional drainage improvements on Overland Way that resulted in the elimination of direct stormwater discharges to Namskaket Marsh/Namskaet Creek.

#### Stormwater Team

In Permit Year 11, the Town of Orleans established a stormwater committee called the "Stormwater Team." The Stormwater Team was developed to provide broader insight to evaluate stormwater projects and for the planning and prioritization of stormwater improvements. Members include the DPW Director, Highway Manager, Town Planner, Health Agent, Conservation Officer and the Chairperson of the Marine and Freshwater Quality Task Force.

### 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 11   | Planned Activities – Next Permit Term   |
|----------|---|------------------------------------|---|--|---|
| A.1      | Develop and Broadcast Via PA CATV Storm Water Video | Mark Budnick, Public Works Manager | One per year – in conjunction with County Group | The video “After the Storm” is available through an internet media player on the Highway Department’s web page.  | Broadcast other pertinent videos on local cable. Evaluate methods for tracking the number of video views/hits on website. Consider using local cable to broadcast pertinent presentations and Selectmen meetings relating to stormwater management. |
| Revised  |   |                                    | # website hits/views for video                  | The video was broadcast on a regular basis on the Town’s cable channel during the permit year. The video is also available on-demand on the Highway Department’s webpage.  |   |
| A.2      | Household Hazardous Waste Control                   | Mark Budnick, Public Works Manager | Annual HHW Collection                           | Collection days were held in Eastham on July 20 <sup>th</sup> and in Orleans on September 21 <sup>st</sup> , 2013. 152 Orleans households participated and a total of ~19,370 lbs and 4,630 gallons of household hazardous waste were collected from both communities. Event organizers tracked the effectiveness of the various advertisement methods and ~ 60% of participants heard of the events through the brochure, 18% heard of the event through the newspaper and the remainder through other methods. | Continue reciprocal HHW collections with the Town of Eastham. Continue tracking resident participation and results. Consider promoting the HHW collection events using additional methods.  |
| Revised  |   |                                    | # residents participating                       | The Orleans Transfer station offers semi-annual paint collections (June 8 <sup>th</sup> and October 12 <sup>th</sup> ) and offers collection of waste gasoline, waste oil and waste antifreeze free to Transfer Station ticket holders. In 2013 the Transfer Station collected and disposed of ~575 gallons of paint products, 885 gallons of waste oil, 200 gallons of waste gasoline and 125 gallons of waste antifreeze.  |   |

| <b>BMP ID #</b> | <b>BMP Description</b> | <b>Responsible Dept./Person Name</b>     | <b>Measurable Goal(s)</b>                    | <b>Progress on Goal(s) – Permit Year 11</b>  | <b>Planned Activities – Next Permit Term</b>  |
|-----------------|------------------------|--|--|--|---|
| A.3             | Education Flyers       | Mark Budnick,<br>Public Works<br>Manager | Distribute 2 per year<br>at Transfer Station | Two different flyers were made available at<br>the Transfer Station and Town Facilities. | Continue to distribute educational<br>flyers and/or other materials and<br>track materials taken.   |
| Revised         |                        |  | # flyers taken by<br>residents               |  | Consider alternative methods to<br>provide public education and<br>outreach addressing HHW collection<br>and stormwater management<br>concepts. |

**1a. Additions**

| BMP ID # | BMP Description      | Responsible Dept./Person Name                                      | Measurable Goal(s)           | Progress on Goal(s) – Permit Year 11   | Planned Activities – Next Permit Term  |
|----------|----------------------|--|------------------------------|--|--|
| A.4      | Web Page Information | Mark Budnick, Public Works Manager & Peter VanDyck, IT Coordinator | Short Article – one per year | As discussed under BMP A.1, the video “After the Storm” is linked through the Highway Department’s webpage. The webpage also links to EPA’s NPDES Stormwater Program web page and the Town’s stormwater bylaws. A link to the Cape Cod Commission’s CCH <sub>2</sub> O webpage was also added to the Highway Department’s web page in Year 11.   | Continue to maintain existing web pages related to stormwater and water quality. Evaluate additional web page links and begin tracking the number of hits. Consider short articles or topics that can be posted annually on web pages. |
| Revised  |                      |  | # website hits               | <p>Agendas, meeting minutes, and additional information are posted on a webpage for the Marine and Fresh Water Quality Task Force. The Town also maintains a webpage for reports, meeting minutes and other documents related to the CWMP.</p> <p>The Orleans Pond Coalition maintained and updated its website to continue to promote general awareness of water bodies in Orleans. The website integrates the Town’s efforts to protect and improve water quality through the implementation of the CWMP, fertilizer management programs and “Mutt Mitts” program for dog waste.</p> | <p>Evaluate methods to integrate stormwater program information and educational opportunities between the Town web pages and the website maintained by the Orleans Pond Coalition.</p>   |

| <b>BMP ID #</b> | <b>BMP Description</b>                       | <b>Responsible Dept./Person Name</b>    | <b>Measurable Goal(s)</b>   | <b>Progress on Goal(s) – Permit Year 11</b>  | <b>Planned Activities – Next Permit Term</b>   |
|-----------------|--|---|---|--|--|
| A.5             | Other Public Education In Year 10            | Mark Budnick, Public Works Manager      |   | Copies of “The Orleans Blue Pages” water quality protection booklet (50+ pages) developed by the Orleans Pond Coalition were made available at no cost for residents at Town Hall. | Continue existing public awareness activities and evaluate methods to track materials taken, posters, displays and audience (number) reached.  |
| Revised         | Other Public Education Activities in Year 11 |   | # copies of “Orleans Blue Pages” taken by residents<br><br># posters displayed & handouts |  |  |
| A.6             | Storm Drain Stenciling                       | Mark Budnick, Public Works Manager      | Stencil storm drains leading to critical priority outfalls.                               | No storm drain stenciling occurred during the permit term.   | Continue storm drain stenciling activities at highly visible areas and areas that drain directly to priority outfalls and waterways. More actively solicit volunteers through the Marine and Fresh Water Quality Task Force or with schools. |
| Revised         |  | Marine & Fresh Water Quality Task Force | # stenciled drains per year   |  |  |



## 2. Public Involvement and Participation

| BMP ID # | BMP Description  | Responsible Dept./Person Name           | Measurable Goal(s)  | Progress on Goal(s) – Permit Year 11  | Planned Activities – Next Permit Term  |
|----------|--|---|---|---|--|
| B.1      | Water Quality Monitoring Program                             | Marine & Fresh Water Quality Task Force | Ongoing   | Water quality monitoring was performed over the permit year for select estuaries and freshwater bodies. The Marine & Fresh Water Quality Task Force met once per month to review monitoring activities and results related to priority water bodies and potential improvement projects.   | Evaluate priorities and continue monitoring water quality and tracking which program results were most effective. Use monitoring results to develop remediation plans for high priority areas. Continue to support Task Force and hold monthly meetings. |
| Revised  |  | Town Administrator & Board of Selectmen | # samples collected, water bodies assessed each year & water quality improvements   | The following areas are considered high priority areas in town: Cedar Pond, Meetinghouse Pond, Meetinghouse River, Town Cove, and inland ponds and estuaries. No additional action was taken this Permit Year.  |  |
| B.2      | Estuaries Program  | Director of Planning and Development    | Ongoing   | The Town's Comprehensive Wastewater Management Plan (CWMP) received final approval from the MA DEP on February 14, 2012. The Town's consultant completed an analysis of full lifecycle costs for the CWMP and for a small pipe (STE) collection system to support the recommendations of the CWMP.  | Continue to promote the CWMP and implement recommendations and strategies. Continue to incorporate elements of the CWMP into the SWMP to meet the new permit requirements, as appropriate.   |
| Revised  | Estuaries Program & Comprehensive Wastewater Management Plan |   | Regulatory review of CWMP.<br><br>Assessment of potential cost-saving alternatives. | The Board of Selectmen is seeking funding in 2014 to study alternatives and to build consensus for a long-term solution to wastewater management to protect surface and groundwater.<br><br>The goal of the program is to meet the TMDL for Pleasant Bay, the anticipated TMDLs for the Nauset system and Rock Harbor, and help protect 8 priority ponds. Multiple public hearings were held to review the program and provide input. |  |

**2a. Additions**

| <b>BMP ID #</b> | <b>BMP Description</b>  | <b>Responsible Dept./Person Name</b>          | <b>Measurable Goal(s)</b>   | <b>Progress on Goal(s) – Permit Year 11</b>  | <b>Planned Activities – Next Permit Term</b>   |
|-----------------|---|---|---|--|--|
| B.3             | Storm Drain Stenciling  | Mark Budnick,<br>Public Works<br>Manager      | Stencil storm drains<br>in downtown area<br>and other at systems<br>leading to critical<br>priority outfalls.                               | Refer to BMP A.6.  | Refer to BMP A.6.  |
| Revised         |   | Volunteers                                    | # stenciled drains<br>per year & #<br>volunteers  |  |  |
| B.4             | Outfall Monitoring  | Mark Budnick,<br>Public Works<br>Manager      | Perform dry weather<br>outfall monitoring<br>of all outfalls that<br>were initially<br>observed to have<br>flow during the GIS<br>locating. | Highway Department staff received training<br>on data collection and illicit discharge<br>detection during catch basin cleaning<br>activities. Outfall inspection activities are<br>discussed under BMP C.1.   | Incorporate inspection results into<br>the prioritization scheme for future<br>improvement projects.   |
| Revised         | Volunteer Outfall<br>Monitoring Program                             | Marine & Fresh<br>Water Quality Task<br>Force | # volunteer<br>participants   | In Year 10, the Orleans Pond Coalition<br>received a grant for water quality monitoring<br>the Cedar Pond and Rock Harbor estuarine<br>system. The results of this study increased<br>the awareness and importance of preserving<br>water quality. In Year 11, a Cedar Pond<br>Management Plan was produced by SMAST<br>and the Water Quality Task Force and was<br>unanimously approved by the Board of<br>Selectmen. | Continue to support the efforts of<br>the Marine & Fresh Water Quality<br>Task Force and coordinate efforts<br>with the Orleans Pond Coalition<br>volunteers.  |
| B.5             | Maintain Animal Waste<br>Collection Bags in Key<br>Areas of Concern | Orleans Pond<br>Coalition                     |   | “Mutt Mitts” animal waste collection bags<br>were maintained by volunteers from the<br>Orleans Pond Coalition at key areas of<br>concern for residents to properly dispose of<br>waste. Town Departments assisted with<br>proper waste disposal. Approximately<br>30,000 bags were used at all of the collection<br>stations.  | Continue maintenance of “Mutt<br>Mitts” program and ensure proper<br>disposal of wastes. Continue to<br>track the number of bags taken and<br>evaluate if high occurrences of<br>improper disposal warrant a<br>targeted education campaign. |
| Revised         |   | Mark Budnick,<br>Public Works<br>Manager      |   |  |  |

| <b>BMP ID #</b> | <b>BMP Description</b> | <b>Responsible Dept./Person Name</b>    | <b>Measurable Goal(s)</b>         | <b>Progress on Goal(s) – Permit Year 11</b>   | <b>Planned Activities – Next Permit Term</b>  |
|-----------------|------------------------|---|-----------------------------------|---|---|
| B.6             | Water Day Celebration  | Orleans Pond Coalition                  | List of activities & participants | The Orleans Pond Coalition hosted a “Celebrate Our Waters” event on September 13 <sup>th</sup> , 14 <sup>th</sup> and 15 <sup>th</sup> , 2013. The event was well attended with over 2,000 people. The celebration expanded to include events in Eastham.                   | Organize another “Celebrate Our Waters” event with the Orleans Pond Coalition. Incorporate stormwater education topics and activities into the event. |
| Revised         |                        |   |                                   |   |   |
| B.7             | Operation Orleans      | Orleans Tree Dept. & Conservation Trust | List of activities & participants | The Orleans Tree Department and the Orleans Conservation Trust teamed with Ameri-Corp Cape Cod honoring Arbor Day by planting 6 large trees and native plants on a historical property in Orleans. Refer to “Notable Accomplishments” for further description of the event. |   |
| Revised         | Orleans Green Week     |   |                                   |   |   |

### 3. Illicit Discharge Detection and Elimination

| BMP ID # | BMP Description                                     | Responsible Dept./Person Name        | Measurable Goal(s)   | Progress on Goal(s) – Permit Year 11   | Planned Activities – Next Permit Term  |
|----------|---|--------------------------------------|--|--|--|
| C.1      | Storm Water System Mapping and Database Development | Mark Budnick, Public Works Manager   | Comprehensive town-wide survey by year 2 – as funding allows | In Permit Year 10, the Town hired a consultant to field verify the drainage system and update the GIS database. The mapping effort included outfall screening for illicit discharges (see BMP C.3 for screening results). The storm drain mapping project is anticipated to be completed by the end of 2014.<br><br>The Town’s consultant completed a Preliminary Assessment of stormwater outfalls and drainage areas – remediation efforts we prioritized in the Final Report. | Continue to update the drainage system base map as needed.   |
| Revised  |   |                                      |  |  |  |
| C.2      | Review Existing By-Laws                             | Director of Planning and Development | Review existing by-laws and adopt storm water ordinance FY06 | As discussed in previous reports, a Floor Drain Regulation went into effect on July 1, 2010. The Highway Department drafted an Illicit Discharge Bylaw that was passed and adopted at the May 2013 Town Meeting. The Bylaw addresses all illicit discharges to the MS4 and water bodies in Orleans.  | Monitor and enforce the Illicit Discharge Bylaw and local requirements related to floor drains, dumping, and pet waste control.  |
| Revised  |   |                                      |  |  |  |
| C.3      | Identify and Document Illicit Connections           | Mark Budnick, Public Works Manager   | Review C.1 results, finalize database by Year 4              | The Highway Department inspects all catch basins during cleaning operations and completes a form to document the condition and any potential illicit discharges. No new unknown connections to the MS4 were identified.<br><br>All known outfalls were observed for flow, condition and were photographed as part of the Towns Preliminary Stormwater Assessment in 2013.  | Inspect outfalls with previous dry weather flows to verify that an illicit discharge is not present.<br><br>Continue to review mapping results with catch basin, pipe cleaning and inspection information. Incorporate existing procedures into future IDDE procedures and the O&M Plan under Control Measure 6. |
| Revised  | Identify & Remove Illicit Connections & Discharges  |                                      | # discharges identified, removed within 1 year of discovery  |  |  |

**3a. Additions**

| <b>BMP ID #</b>         | <b>BMP Description</b>                   | <b>Responsible Dept./Person Name</b> | <b>Measurable Goal(s)</b>     | <b>Progress on Goal(s) – Permit Year 11</b>   | <b>Planned Activities – Next Permit Term</b>  |
|-------------------------|--|--------------------------------------|-------------------------------|---|---|
| C.4<br>-----<br>Revised | Comprehensive Wastewater Management Plan | Director of Planning and Development | Progress towards a final CWMP | <p>In Permit Year 10, the Town’s consultant completed an analysis of full lifecycle costs for the CWMP and for a small pipe (STE) collection system to support the recommendations of the CWMP</p> <p>The Board of Selectmen is seeking funding in 2014 to study alternatives and to build consensus for a long-term solution to wastewater management to protect surface and groundwater.</p> <p>The Town anticipates incorporating the results of the CWMP into the SWMP update based on new permit requirements.</p> | Continue to monitor how elements from the CWMP and SWMP overlap to identify any practices that could satisfy requirements of both.    |
| C.5<br>-----<br>Revised | Public Education for Illicit Discharges  | Mark Budnick, Public Works Manager   |                               | As outlined in BMPs A.1 through A.6 and B.5, various entities have incorporated information regarding illicit discharges into existing public education and public involvement activities.  | Continue to incorporate illicit discharge information into existing public education and involvement activities and evaluate results. |

#### 4. Construction Site Stormwater Runoff Control

| BMP ID # | BMP Description                                 | Responsible Dept./Person Name        | Measurable Goal(s)                                       | Progress on Goal(s) – Permit Year 11  | Planned Activities – Next Permit Term                                |
|----------|---|--------------------------------------|--|---|--|
| D.1      | Review Existing By-Laws                         | Director of Planning and Development | Review existing by-laws and adopt construction ordinance | As discussed in the Year 6 Annual Report, the Town adopted the Drainage and Erosion and Sediment control bylaw at Town meeting in May 2008.   | Continue to enforce bylaws and document actions.                     |
| Revised  |   |                                      |  | <p>Enforcement action was undertaken for construction erosion at 84 Old Duck Hole Road</p> <p>The Highway Department continued to inspect sites throughout Town for potential erosion issues and no significant issues were identified.</p> |  |
| D.2      | Propose amendments and articles at Town Meeting | Director of Planning and Development | Spring 06  | As discussed in the Year 6 Annual Report, the Town adopted the Drainage and Erosion and Sediment control bylaw at Town meeting in May 2008. No amendments were deemed necessary at this time.   | Continue to evaluate effectiveness of bylaws and amend if necessary. |
| Revised  |   |                                      | Ongoing  |   |  |

#### 4a. Additions

| BMP ID # | BMP Description  | Responsible Dept./Person Name      | Measurable Goal(s)                              | Progress on Goal(s) – Permit Year 11   | Planned Activities – Next Permit Term  |
|----------|--|------------------------------------|---|--|--|
| D.3      | Establish a Procedure for Receipt of Information by Public | Mark Budnick, Public Works Manager | # calls received & record of corrective actions | The Highway Department received two calls related to a construction site and Town staff worked with the contractor to address the issue. | Continue to respond to calls regarding construction site erosion and sediment issues. Improve recordkeeping and documenting calls and actions by all departments by standardizing forms and improved sharing of information. |
| Revised  |  |                                    |   |  |  |

### 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 11  | Planned Activities – Next Permit Term  |
|----------|---|--|--|---|--|
| E.1      | Review Existing By-Laws                         | George Meservey,<br>Director of<br>Planning and<br>Development | Review existing by-laws and adopt Runoff Control Ordinance | As discussed in the Year 6 Annual Report, the Town adopted the Drainage and Erosion and Sediment control bylaw at Town meeting in May 2008. | Continue to enforce bylaw and review plans through Site Plan Review committee. |
| Revised  |   |  |  | Any plans for significant development are reviewed for compliance through the Site Plan Review committee.                                   |  |
| E.2      | Propose amendments and articles at Town Meeting | George Meservey,<br>Director of<br>Planning and<br>Development |  | Refer to BMP E.1.<br><br>No amendments were deemed necessary at this time.  | Continue to evaluate effectiveness of bylaws and amend if necessary.           |
| Revised  |   |  | Ongoing  |   |  |

#### 5a. Additions (none at this time)

## 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 11  | Planned Activities – Next Permit Term   |
|----------|----------------------|--|--|---|---|
| F.1      | Street Sweeping      | Mark Budnick,<br>Public Works<br>Manager | Sweep as part of annual winter cleanup and as needed | <p>There are 54 miles of street in the Town and all streets were swept at least once during the permit year. Additional streets are swept 2-3 times during the year including known areas of high sediment/sand accumulation, downtown areas, and paved areas that discharge to environmentally sensitive areas.</p> <p>In 2013, the Town purchased a new generative air sweeper to improve street sweeping operations to improve water quality.</p> <p>Approximately 796 tons of street sweepings were collected during the year and reused in accordance with the existing BUD.</p> | Continue annual street sweeping program and focus additional sweeping efforts on needed and environmentally sensitive areas.    |
| Revised  |                      |  |  |   |   |
| F.2      | Catch Basin Cleaning | Mark Budnick,<br>Public Works<br>Manager | Clean all basins in town on yearly rotating schedule | <p>All 900+ basins were cleaned or inspected once and some were cleaned more than once. Approximately 104 tons of catch basin cleanings were collected during the year. In addition, all existing stormwater BMPs were inspected and if necessary cleaned of sediment.</p> <p>Approximately 700 feet of storm drain pipes were cleaned and an additional 500 feet of pipe were camera inspected. Materials were reused in accordance with the existing BUD.</p>   | Continue annual catch basin cleaning Program. Consider evaluating drainage areas to prioritize cleaning efforts as appropriate. |
| Revised  |                      |  |  |   |   |



| <b>BMP ID #</b> | <b>BMP Description</b>                          | <b>Responsible Dept./Person Name</b> | <b>Measurable Goal(s)</b>              | <b>Progress on Goal(s) – Permit Year 11</b>  | <b>Planned Activities – Next Permit Term</b>  |
|-----------------|---|--------------------------------------|--|--|---|
| F.3             | Develop Drainage System Improvement Plan        | Mark Budnick, Public Works Manager   | Prepare Capital Plan Article for FY10  | <p>The Ongoing Capital Plan includes an allotment of \$157,580 for water quality related drainage improvements. A construction plan for water quality improvements projects is updated annually based on the results and input from the Marine and Fresh Water Quality Task Force.</p> <p>See “Notable Accomplishments” for a more detailed description of activities and projects related to this BMP.</p>        | <p>Continue funding the drainage system components of the Capital Plan to remediate outfalls and construct stormwater BMPs.</p> <p>Consider adding improvements to the Capital Plan that specifically address the Town’s TMDL responsibilities.</p> |
| Revised         |   |                                      | Update Capital Plan Annually           |  |   |
| F.4             | Propose Amendments and Articles at Town Meeting | Mark Budnick, Public Works Manager   | Spring 06                              | <p>Consistent with the efforts under BMP F.3, The Town continued to appropriate \$157,580 for the design and construction of stormwater BMPs throughout the year. This funding is now available for stormwater planning efforts to evaluate the most appropriate locations for stormwater remediation projects. The Town focused on evaluating priority stormwater remediation projects during Permit Year 11.</p> | <p>Continue to fund water quality improvement planning and construction projects annually.</p>  |
| Revised         |   |                                      | Prepare Capital Plan Articles Annually |  |   |

6a. Additions

| <b>BMP ID #</b>    | <b>BMP Description</b>  | <b>Responsible Dept./Person Name</b> | <b>Measurable Goal(s)</b> | <b>Progress on Goal(s) – Permit Year 11</b>  | <b>Planned Activities – Next Permit Term</b>   |
|--------------------|---|--------------------------------------|---------------------------|--|--|
| F.5<br><br>Revised | Maintain Animal Waste Collection Bags in Key Areas of Concern | Orleans Pond Coalition               |                           | <p>“Mutt Mitts” animal waste collection bags were maintained by volunteers from the Orleans Pond Coalition at key areas of concern for residents to properly dispose of waste.</p> <p>Town Departments assisted with proper waste disposal and more than 30,000 bags were used at all of the collection stations. The Orleans Pond Coalition maintains dispensers at 49 locations.</p> | Continue maintenance of “Mutt Mitts” program and ensure proper disposal of wastes. Continue to track the number of bags taken and evaluate if high occurrences of improper disposal warrant a targeted education campaign. |

| <b>BMP ID #</b> | <b>BMP Description</b>      | <b>Responsible Dept./Person Name</b>  | <b>Measurable Goal(s)</b>                       | <b>Progress on Goal(s) – Permit Year 11</b>   | <b>Planned Activities – Next Permit Term</b>  |
|-----------------|-----------------------------|---|---|---|---|
| F.6             | Nutrient Loading Reductions | Mark Budnick<br>Public Works Manager  | Implement Organic Based Land Management Program | <p>As discussed under “Notable Accomplishments”, the Pleasant Bay Alliance developed a fertilizer and pesticide use policy for municipal properties in April 2012. Building upon this effort, the Town developed a Fertilizer Nitrogen Control bylaw that passed at the 2014 Annual Town Meeting. The purpose of the bylaw is to restrict the use of nitrogen based fertilizers throughout Town.</p> <p>The Organic Based Land Management Program continued for Town properties, consistent with NOFA guidelines. The program focuses on reducing nutrient loads through the use of cultural land management practices and organic enhancements for healthy turf and native vegetation. Compost from the Transfer Station was used for turf enhancement.</p> <p>Modified mowing practices continued at the Town Cove conservation viewing areas to reduce the need for rigorous turf management. The Town has used limited organic-based pesticides for the last 7 years.</p> | <p>Adopt and enforce the Fertilizer Nitrogen Control bylaw.</p> <p>Continue organic based land management program to minimize nutrient loading. Evaluate methods to estimate the quantity of nutrients reduced through this program.</p> <p>Continue turf and pesticide management practices at Town Cove and other locations to reduce the need for chemical applications.</p> <p>Continue implementation of the fertilizer and pesticide use policy for municipal properties.</p> |
| Revised         |                             |   |   |   |   |
| F.7             | Trash Management            | Mark Budnick,<br>Public Works Manager &<br>Dawson Farber,<br>Harbormaster and<br>Natural Resources<br>Manager | Maintain a proactive trash collection program   | <p>Town Departments maintained the active Trash collection program at appropriate town properties with waste receptacles.</p> <p>A dumpster is also maintained by the Harbor Master for fishing fleet waste at the Town harbor. The program provides a means of waste disposal at public areas to discourage littering.</p>   | <p>Continue to service litter receptacles at appropriate locations around the Town.</p> <p>Evaluate whether a “carry in/carry out” policy would reduce improper waste disposal.</p>   |
| Revised         |                             |   |   |   |   |

| <b>BMP ID #</b> | <b>BMP Description</b>                | <b>Responsible Dept./Person Name</b> | <b>Measurable Goal(s)</b>  | <b>Progress on Goal(s) – Permit Year 11</b>   | <b>Planned Activities – Next Permit Term</b>  |
|-----------------|---------------------------------------|--------------------------------------|--|---|---|
| F.8             | Inventory of BMP Locations & Needs    | Mark Budnick,<br>Highway Manager     | Ongoing inventory of BMP locations and needs to address water quality issues | The locations of stormwater BMPs are maintained to develop projects for water quality improvement. This BMP supports BMPs F.3 and F.4. As discussed under “Notable Accomplishments”, the Town’s consultant completed a Preliminary Town-wide Stormwater Assessment to identify and rank outfalls with the highest potential pollutant discharges.<br><br>No stormwater BMP projects were added at discharge locations during the permit year since the focus turned to planning, as discussed above. However, construction was completed on stormwater BMPs Tar Kiln Road, Overland Way and Skaket Beach. BMPs at Pochet Road are in the final design phase and will go to bid Spring 2014. | Complete the Preliminary Town-wide Stormwater Assessment and prioritize future BMP projects for funding.<br><br>Continue to maintain and update the BMP inventory and develop projects with the Marine & Fresh Water Quality Task Force.                            |
| Revised         |                                       |                                      |  |   |   |
| F.9             | Stormwater Training for Highway Staff | Mark Budnick,<br>Highway Manager     | Annual training on various topics, record of training attendance & materials | Highway Department staff are trained annually for the inspection and maintenance of the drainage system, including how to identify potential illicit discharges.  | Continue to train staff annually and begin maintaining copies of curriculum and attendance sheets. Review the stormwater training for Highway staff to determine if targeted educational topics could more effectively address current stormwater management needs. |
| Revised         |                                       |                                      |  |   |   |
| F.10            | Municipal Facilities Evaluation       | Mark Budnick,<br>Highway Manager     | Inventory of municipal facilities & report                                   | In Year 10, the Town hired a consultant to inventory and evaluate municipal facilities for pollution prevention and good housekeeping practices to determine if any improvements are needed. Findings from the inspections were submitted to the Town in a final report.  | Implement recommendations based on the availability of funding.   |
|                 |                                       |                                      |  |   |   |

**7. BMPs for Meeting Total Maximum Daily Load (TMDL) Waste Load Allocations (WLA) <<if applicable>>**

| BMP ID # | BMP Description | Responsible Dept./Person Name | Measurable Goal(s) | Progress on Goal(s) – Permit Year 11 | Planned Activities – Next Permit Term |
|----------|-----------------|-------------------------------|--------------------|--------------------------------------|---------------------------------------|
| Revised  |                 |                               |                    |                                      |                                       |

**7a. Additions** (none at this time)

**7b. WLA Assessment**

As discussed in this annual report, the Town of Orleans continues to develop significant ongoing programs that improve marine and fresh water quality and meet compliance responsibilities with the Phase II Permit and the pathogen and nutrient TMDLs. The efforts of the Marine and Fresh Water Quality Task Force, Orleans Pond Coalition, past and planned BMP construction projects and the planned work under the approved Comprehensive Wastewater Management Plan (CWMP) have or will result in significant water quality and habitat improvements. As part of the development of the CWMP, the necessary waste load reduction and environmental impact related to structural wastewater improvements and non-structural BMPs have been assessed. In 2012, the Town’s consultant completed an evaluation of full lifecycle costs for the CWMP and for a small pipe (STE) collection system to support the recommendations of the CWMP. The Board of Selectmen is seeking funding in 2014 to study alternatives and to build consensus for a long-term solution to wastewater management to protect surface and groundwater.

The Town and its consultant continued to evaluate program needs based on the pending Phase II permit for Interstate, Merrimack and South Coastal Watersheds and the draft 2013 Phase II permit that was issued for New Hampshire MS4s. The Town’s consultant completed a Preliminary Town-wide Stormwater Assessment to identify and rank outfalls with the highest potential pollutant discharges. The Assessment prioritized the outfalls for remediation and provided a course of action with cost estimates to reduce or eliminate pollutant discharges. The Town anticipates using this information and the results from other activities (e.g., CWMP, BMP projects) to develop an appropriate strategy to address the requirements related to TMDLs and impaired water bodies, as part of the Stormwater Management Plan (SWMP) development under the final permit (once issued). The Town also received \$500,000 to fund a comprehensive SWMP to meet future regulatory requirements and water quality goals at the May 2013 Town Meeting.

The Pleasant Bay Resource Management Plan was updated in 2013 and the updated plan was adopted in May 2013. The plan will further the Town’s ongoing effort to work collaboratively with neighboring Towns to promote the natural resource health and public enjoyment of Pleasant Bay.

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

Beach monitoring was performed by the Town of Orleans Health Department in Permit Year 11. Additional water quality data was collected for various water bodies in Permit Year 11.

In Year 10, the Orleans Pond Coalition received a grant for water quality monitoring the Cedar Pond and Rock Harbor estuarine system. The results of this study increased the awareness and importance of preserving water quality. In Year 11, a Cedar Pond Management Plan was produced by SMAST and the Water Quality Task Force and was unanimously approved by the Board of Selectmen. In the Cedar Pond Management Plan, SMAST recommended replacing the boards in the old weir to hold back the pond and limit salt water intrusion. In order to put the boards back, the Town is waiting for approval from the property owner (MADOT). After the salinity is reduced to a level low enough for herring (etc), DMF is interested in installing a ladder structure to better enable fish passage.

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

**Programmatic**

|  |       |           |
|--|-------|-----------|
| Stormwater management position created/staffed | (y/n) | N         |
| Annual program budget/expenditures             | (\$)  | \$157,580 |

**Education, Involvement, and Training**

|   |               |                 |
|---|---------------|-----------------|
| Estimated number of residents reached by education program(s)   | (# or %)      | 100             |
| Stormwater management committee established   | (y/n)         | Y               |
| Stream teams established or supported   | (# or y/n)    | N               |
| Shoreline clean-up participation or quantity of shoreline miles cleaned   | (y/n or mi.)  |                 |
| Household Hazardous Waste Collection Days   |               |                 |
| ▪ days sponsored  | (#)           | 2               |
| ▪ community participation   | (%)           | 152 homes       |
| ▪ material collected  | (tons or gal) | 9.7 T   4,630 G |
| School curricula implemented  | (y/n)         |                 |
| Note: The Town also collected waste oil, gasoline, antifreeze and paint products at the Transfer Station that resulted in a total of 1,785 gallons. |               |                 |

## Legal/Regulatory

|  | In place prior to Phase II | Under Review | Drafted | Adopted |
|--|----------------------------|--------------|---------|---------|
| Regulatory Mechanism Status (indicate with "X")    |                            |              |         |         |
| ▪ Illicit Discharge Detection & Elimination        |                            |              |         | X       |
| ▪ Erosion & Sediment Control                       |                            |              |         | X       |
| ▪ Post-Development Stormwater Management           |                            |              |         | X       |
| Accompanying Regulation Status (indicate with "X") |                            |              |         |         |
| ▪ Illicit Discharge Detection & Elimination        |                            |              |         | X       |
| ▪ Erosion & Sediment Control                       |                            |              |         | X       |
| ▪ Post-Development Stormwater Management           |                            |              |         | X       |

## Mapping and Illicit Discharges

|  |                   |      |
|--|-------------------|------|
| Outfall mapping complete               | (%)               | 95%  |
| Estimated or actual number of outfalls | (#)               | 100  |
| System-Wide mapping complete           | (%)               | 75%  |
| Mapping method(s)                      |                   |      |
| ▪ Paper/Mylar                          | (%)               | 40%  |
| ▪ CADD                                 | (%)               |      |
| ▪ GIS                                  | (%)               | 60%  |
| Outfalls inspected/screened            | (# or %)          | 95%  |
| Illicit discharges identified          | (#)               | 0    |
| Illicit connections removed            | (#)<br>(est. gpd) |      |
| % of population on sewer               | (%)               | 0%   |
| % of population on septic systems      | (%)               | 100% |

## Construction

|   |            |      |
|---|------------|------|
| Number of construction starts (>1-acre)   | (#)        | 0    |
| Estimated percentage of construction starts adequately regulated for erosion and sediment control | (%)        | 100% |
| Site inspections completed  | (# or %)   | 0    |
| Tickets/Stop work orders issued   | (# or %)   | 0    |
| Fines collected   | (# and \$) | 0    |
| Complaints/concerns received from public  | (#)        | 2    |

## Post-Development Stormwater Management

|  |          |      |
|--|----------|------|
| Estimated percentage of development/redevelopment projects adequately regulated for post-construction stormwater control | (%)      | 100% |
| Site inspections completed   | (# or %) | 0    |
| Estimated volume of stormwater recharged   | (gpy)    | NA   |

## Operations and Maintenance

|  |                |          |
|--|----------------|----------|
| Average frequency of catch basin cleaning (non-commercial/non-arterial streets)                | (times/yr)     | 1/yr     |
| Average frequency of catch basin cleaning (commercial/arterial or other critical streets)      | (times/yr)     | 1-2/yr   |
| Total number of structures cleaned /inspected  | (#)            | 450      |
| Storm drain cleaned  | (LF or mi.)    | 700 LF   |
| Qty. of screenings/debris removed from storm sewer infrastructure                              | (lbs. or tons) | 104 Tons |
| Disposal or use of sweepings (landfill, POTW, compost, recycle for sand, beneficial use, etc.) |                | BUD      |
| Cost of screenings disposal  | (\$)           | ~\$3,000 |



### Operations and Maintenance (con't.)

|  |                |          |
|--|----------------|----------|
| Average frequency of street sweeping (non-commercial/non-arterial streets)           | (times/yr)     | 1/yr     |
| Average frequency of street sweeping (commercial/arterial or other critical streets) | (times/yr)     | 2-3/yr   |
| Qty. of sand/debris collected by sweeping  | (lbs. or tons) | 796 Tons |
| Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.)                | (location)     | BUD      |
| Cost of sweepings disposal   | (\$)           | ~\$3,000 |
| Vacuum street sweepers purchased/leased  | (#)            | 0        |
| Vacuum street sweepers specified in contracts  | (y/n)          | N        |

|  |             |      |
|--|-------------|------|
| Reduction in application on public land of: (“N/A” = never used; “100%” = elimination) |             |      |
| ▪ Fertilizers  | (lbs. or %) | 100% |
| ▪ Herbicides   | (lbs. or %) | 100% |
| ▪ Pesticides   | (lbs. or %) | 100% |

|  |             |                 |
|--|-------------|-----------------|
| Anti-/De-Icing products and ratios                       | % NaCl      | 70% of the time |
|  | % Sand/Salt | 30% of the time |
| Pre-wetting techniques utilized                          | (y/n)       | N               |
| Manual control spreaders used                            | (y/n)       | Y               |
| Automatic or Zero-velocity spreaders used                | (y/n)       | Y*              |
| Estimated net reduction in typical year salt application | (lbs. or %) | 33%             |
| Salt pile(s) covered in storage shed(s)                  | (y/n)       | Y               |
| Storage shed(s) in design or under construction          | (y/n)       | N               |
| *3 of 5 spreaders now have ground speed controllers      |             |                 |