

# Catch Basin Management Plan

Town of Lincoln

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## Prepared For:

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# 1 Permit Requirements

This Catch Basin Management Plan has been prepared by Lincoln, MA to address the catch basin inspection, cleaning and maintenance requirements of the United States Environmental Protection Agency's (USEPA's) 2016 National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) in Massachusetts, hereafter referred to as the "2016 Massachusetts MS4 Permit", "2016 Permit", "MS4 Permit", and/or "2016 MS4 Permit." The 2016 Permit was cosigned by the Massachusetts Department of Environmental Protection (MassDEP) and is thus jointly regulated by EPA and MassDEP for Massachusetts permittees.

This Catch Basin Management Plan addresses Sections 2 and 4 of Part 2.3.7.a.iii of the 2016 MS4 Permit (Infrastructure Operations and Maintenance) and includes the following requirements:

- **Establish a schedule** with the goal that the frequency of routine cleaning will ensure that no catch basin at any time will be more than 50 percent full<sup>1</sup>;
- **Establish procedures to prioritize** inspection and maintenance for catch basins located:
  - Near construction activities<sup>2</sup>;
  - Near impaired waters where the pollutant of concern is sedimentation/siltation, nitrogen, or phosphorus; and
  - With sumps more than 50% full during consecutive inspections.
- **Establish proper documentation** of catch basin inspections to include:
  - The location and total number of catch basins;
  - The location and total number of catch basins cleaned or inspected; and
  - The total volume or mass of material removed from catch basins.
- **Submit an optimization plan** in the first annual report and in the SWMP for:
  - Catch basin cleaning and inspections; or
  - A schedule to develop the optimization plan.

The Town of Lincoln discharges to the Charles River Watershed and must account for the associated TMDL for phosphorus in Appendix F of the 2016 Permit. Additional requirements for non-structural controls such as additional catch basin and/or street sweeping cleaning are included in the description of the Phase I non-structural controls expected to be completed within five years of the permit date. Specific requirements are listed in Section 2.

## 2 Existing Catch Basin Management

Currently, Lincoln does not have a routine catch basin inspection program, however, routinely cleans its catch basins through an outside contractor with a clamshell truck. All catch basins

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<sup>1</sup> A catch basin sump is more than 50 percent full if the contents within the sump exceed one half the distance between the bottom interior of the catch basin to the invert of the deepest outlet of the catch basin.

<sup>2</sup> Roadway construction; residential, commercial, or industrial development or redevelopment.

are cleaned annually, with generally half the catch basins cleaned in the spring (those on the south side of town) and the other half in the fall (those on the north side of town) over an approximate three-week period each time.

As the Town's current program does not meet all permit 2016 MS4 Permit requirements, the following section outlines Lincoln's proposed catch basin optimization methodology.

## 3 Catch Basin Cleaning Optimization Methodology

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### 3.1 Proposed Catch Basin Program and Schedule

Lincoln will update its existing catch basin inspection and maintenance procedures to include the prioritization of catch basins. Lincoln has approximately 404 known catch basins town-wide. The town will develop a prioritization schedule based on approximately 40 representative catch basins to be inspected during 2019. These basins will include a variety of conditions such as land uses, topographic locations, and vegetation cover to ensure a wide range of conditions are represented. A map of all Town catch basins is included in **Appendix A**, and a map of representative catch basins can be found in **Appendix B**.

The initial 40 catch basins will be cleaned inspected following the standard operating procedures (SOP) provided in **Appendix C**. There are two options for obtaining required data:

**Method 1:** Inspect basins before cleaning in the spring but after winter sanding is finished, anticipated to occur late March/early April and then again immediately after cleaning is performed. This method uses both SOP-1 and SOP-2.

**Method 2:** Inspect basins concurrent with cleaning operations. This method uses only SOP-3.

Both methods will generally include measuring sediment depth from the rim before cleaning and then depth from the rim to the bottom of the basin after cleaning in order to determine whether or not basins are 50% full. When combined with previous maintenance records, the Town will be able to determine the approximate sediment accumulation rates for the 40 representative catch basins. This will allow Lincoln to begin to develop a prioritization schedule of all catch basins town-wide based on the representative basins.

After completing the preliminary study of the 40 catch basins, Lincoln will review the results and determine if additional field work is required to further refine catch basin prioritization. If required, the Town will further refine its prioritization efforts during subsequent years to continue its catch basin cleaning optimization program with a goal that no basins are more than 50% full at any time.

Inspections will also attempt to measure the approximate sump depth, define as the distance from the bottom of the basin to the bottom of the lowest outlet pipe, however this may not be feasible in all locations due to factors such as limited visibility within oversized structures, presence of water within the basin, or required confined space entry as defined by OSHA. In

the event that the sump depth cannot be readily determined, it shall be assumed that the basins have a two-foot sump until more accurate information can be obtained.

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### **3.2 Documentation of Results**

All catch basin inspections will be documented, including a log of catch basins cleaned or inspected, and approximate sediment depth and sump depth, to further identify priority catch basins. A catch basin inspection checklist inspection form can be found in **Appendix C**. The total number of catch basins inspected and action taken in response to excessive sediment or debris loadings will also be included in this documentation.

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### **3.3 Prioritization of Catch Basins within Sensitive Areas**

Based on existing catch basin cleaning records and due to the relatively undeveloped nature of the town, it is not anticipated that additional inspection or maintenance will be required for catch basins within sensitive watersheds or near areas with higher than normal sediment loads. However, catch basin sediment accumulation rates will be reviewed at the end of the first year to in part determine if certain areas require more frequent cleaning.

As part of the requirements for developing the Charles River Watershed Phosphorus Control Plan, areas for additional catch basin cleaning will be evaluated as a potential non-structural control measure necessary to support achievement of the phosphorus export milestones outlined in the 2016 Permit. This requirement is to be completed within five years of the permit effective date and this plan will be updated to reflect any areas prioritized for additional catch basin cleaning during the Phosphorus Control Plan development.

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### **3.4 Catch Basin Cleanings Storage and Disposal**

Lincoln temporarily stores its catch basin cleanings at the Department of Public Works. The Town's storage procedures for catch basin cleanings are covered under an Operation and Maintenance (O&M) Plan prepared during Year 2 of the permit to ensure that cleanings are not exposed to stormwater in any way. The Town will also explore possible beneficial uses for its collected catch basin cleanings as applicable and will continue to properly dispose of cleanings at the Fitchburg-Westminster Landfill.

## **Appendix A: Map of Drainage Infrastructure**

## **Appendix B: Map of Representative Catch Basins**

## **Appendix C: SOPs and Forms**

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Standard Operating Procedures for Catch Basin Cleaning and  
Inspection

Catch Basin Inspection Form

## **SOP-1 – Preliminary Catch Basin Inspection**

This SOP is to be followed as a standalone inspection-only procedure prior to cleaning basins. If using this SOP, this SOP must be combined with SOP-2 – Catch Basin Cleaning and Post-Inspection, to be performed and completed at a later date.

### **1. Before Inspection/Cleaning**

- a. Notify residents and businesses of catch basin inspection schedule to restrict parking that could obstruct catch basin inspection operations, if required.
- b. Gather necessary forms/maps.

### **2. Inspection**

- a. Clean sediment and trash off grate.
- b. Remove grate, if necessary.
- c. Fill out inspection form with basin-specific information:
  - i. Record site-specific information.
  - ii. Do visual inspection of outside of grate.
  - iii. Do a visual inspection of the inside of the catch basin to determine cleaning needs and structural issues.
  - iv. Measure depth from rim of catch basin to top of sediment.
  - v. Measure depth from rim of catch basin to the top of the outlet pipe.
  - vi. Note if the catch basin requires maintenance or if there are pollutants present.

## **SOP-2 – Catch Basin Post-Cleaning Inspection**

This SOP is to be followed as a follow-up to SOP-1 – Preliminary Catch Basin Inspection. This SOP may be performed either concurrent with catch basin cleaning activities or immediately after.

### **1. Before Inspection/Cleaning**

- a. Notify residents and businesses of catch basin cleaning schedule to restrict parking that could obstruct catch basin cleaning operations, if required.
- b. Gather necessary maps.
- c. Locate forms previously completed under SOP-1.

### **2. Clean Catch Basin** (if performing concurrent with cleaning activities, otherwise go to Step 3)

- a. For manual removal, place removed material in a location protected from potential runoff and place cleanings in a vehicle for transport to designated disposal area.
- b. OR use a high-powered vac truck to remove sediment.

### **3. Inspection**

- a. Complete blanks within the previously completed form:
  - i. Depth from rim to bottom of catch basin.
  - ii. Depth of sump (outlet pipe to bottom of catch basin).
  - iii. Note if the catch basin was more than 50% full with sediment.

### **4. Clean-up**

- a. Bring cleanings to the Highway Garage for temporary storage before contracting out for offsite disposal at a regulated landfill.
- b. If any illicit discharges are observed or suspected, notify supervisor.
- c. At the end of the day, document location and number of catch basins cleaned, amount of waste collected, and disposal method for all screenings.

### **SOP-3 – Joint Catch Basin Cleaning and Inspection**

This SOP is to be followed if comprehensive catch basin inspections are performed concurrently during cleaning activities. This SOP replaces SOP-1 and SOP-2.

#### **1. Before Inspection/Cleaning**

- a. Notify residents and businesses of catch basin cleaning schedule to restrict parking that could obstruct catch basin cleaning operations, if required.
- b. Gather necessary forms/maps.

#### **2. Inspection**

- a. Clean sediment and trash off grate. Remove.
- b. Fill out inspection form with basin-specific information:
  - i. Do visual inspection of outside of grate.
  - ii. Do a visual inspection of the inside of the catch basin to determine cleaning needs and structural issues.
  - iii. Measure depth from rim of catch basin to top of sediment.
  - iv. Measure depth from rim of catch basin to the top of the outlet pipe.
  - v. Note if the catch basin is more than 50% full with sediment.
  - vi. Note if the catch basin requires maintenance or if there are pollutants present.
- c. Determine if catch basin needs to be cleaned (>50% full).

#### **3. Cleaning**

- a. Clean catch basin:
  - i. For manual removal, place removed material in a location protected from potential runoff and place cleanings in a vehicle for transport to designated disposal area.
  - ii. OR use a high-powered vac truck to remove sediment.
- b. After catch basin is clean, measure:
  - i. Depth from rim to bottom of catch basin.
  - ii. Depth of sump (outlet pipe to bottom of catch basin).

#### **4. Clean-up**

- a. Bring cleanings to the Highway Garage for temporary storage before contracting out for offsite disposal at a regulated landfill.
- b. If any illicit discharges are observed or suspected, notify supervisor.
- c. At the end of the day, document location and number of catch basins cleaned, amount of waste collected, and disposal method for all screenings.

### Catch Basin Cleaning Inspection Log

Date: _____		Precipitation in last three days? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Weather Today: _____		Supervisor/Crew Leader: _____	
Catch Basin ID: _____	<b>Basin Material:</b> <input type="checkbox"/> Poured Concrete <input type="checkbox"/> Concrete Block <input type="checkbox"/> Stone <input type="checkbox"/> Brick <input type="checkbox"/> Other: _____	<b>Catch Basin Condition:</b> <input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor <input type="checkbox"/> Crumbling <input type="checkbox"/> Other: _____	Comments: _____
Location/ Street Name: _____			
A. Depth from Rim to Top of Sediment: _____ B. Depth from Rim to Bottom of Basin (after vac): _____ C. Sump Depth: _____ D. Depth of Sediment (B-A): _____ E. More than 50% Full of Sediment? (D/C): _____		Sketch CB (outlet/inlet pipes):   	
<b>Required Maintenance/Problems (check all that apply):</b> <input type="checkbox"/> Cannot Remove Cover <input type="checkbox"/> Corrosion at Structure <input type="checkbox"/> New Grate is Required <input type="checkbox"/> Erosion Around Structure <input type="checkbox"/> Pipe is Blocked <input type="checkbox"/> Remove Trash and Debris <input type="checkbox"/> Frame Maintenance is Required <input type="checkbox"/> Basin Undermined or Bypassed <input type="checkbox"/> Remove Accumulated Sediment <input type="checkbox"/> Other: _____ <input type="checkbox"/> Pipe Maintenance is Required <input type="checkbox"/> None		<b>Check those Present:</b> <input type="checkbox"/> Sanitary Waste/Smell <input type="checkbox"/> Excessive Sediment <input type="checkbox"/> Oil Sheen <input type="checkbox"/> Floatables/Trash <input type="checkbox"/> Pet Waste <input type="checkbox"/> Other: _____ <b>Potential Source:</b> _____	
Catch Basin ID: _____	<b>Basin Material:</b> <input type="checkbox"/> Poured Concrete <input type="checkbox"/> Concrete Block <input type="checkbox"/> Stone <input type="checkbox"/> Brick <input type="checkbox"/> Other: _____	<b>Catch Basin Condition:</b> <input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor <input type="checkbox"/> Crumbling <input type="checkbox"/> Other: _____	Comments: _____
Location/ Street Name: _____			
A. Depth from Rim to Top of Sediment: _____ B. Depth from Rim to Bottom of Basin (after vac): _____ C. Sump Depth: _____ D. Depth of Sediment (B-A): _____ E. More than 50% Full of Sediment? (D/C): _____		Sketch CB (outlet/inlet pipes):   	
<b>Required Maintenance/Problems (check all that apply):</b> <input type="checkbox"/> Cannot Remove Cover <input type="checkbox"/> Corrosion at Structure <input type="checkbox"/> New Grate is Required <input type="checkbox"/> Erosion Around Structure <input type="checkbox"/> Pipe is Blocked <input type="checkbox"/> Remove Trash and Debris <input type="checkbox"/> Frame Maintenance is Required <input type="checkbox"/> Basin Undermined or Bypassed <input type="checkbox"/> Remove Accumulated Sediment <input type="checkbox"/> Other: _____ <input type="checkbox"/> Pipe Maintenance is Required <input type="checkbox"/> None		<b>Check those Present:</b> <input type="checkbox"/> Sanitary Waste/Smell <input type="checkbox"/> Excessive Sediment <input type="checkbox"/> Oil Sheen <input type="checkbox"/> Floatables/Trash <input type="checkbox"/> Pet Waste: <input type="checkbox"/> Other: _____ <b>Potential Source:</b> _____	