Save the Rain: Green Infrastructure Program Standard Maintenance Procedure (SMP)

SMP-04: Stormwater Structure Cleaning

Stormwater Structures are structures used to capture runoff, connect pipes, provide access, control the water level in stormwater management systems, and/or allow excess runoff to discharge or overflow in a controlled manner. Stormwater structures may include the following:

- Catch basin
- Inlet
- Sediment trap
- Manhole
- Overflow structure with or without removable weir
- Observation well
- Clean-out
- Domed riser

Type of Maintenance: Preventative

Tools and Supplies

- Manhole Pick
- Vacuum/Vactor truck
- Safety cones, trash bags, gloves
- Screwdriver or similar tool for cleaning clogged orifices in sediment trap/sump
- Wrench, if necessary, for removing weir

Frequency: Semi-Annually

Labor Requirements: 2 people for approximately 30 minutes per structure, varies by structure type and configuration.

Maintenance Procedure (numbers correspond with Maximo sequencing):

10 *Safety set-up:* Set up safety perimeter.

20 *Inspect*: Visually inspect stormwater structure and adjacent area for any immediate damage or potential problems, including any upstream pollution sources or locations of existing or potential vegetation debris. Inspect stormwater structure for signs of accumulated sediment, leaf litter, and/or debris. Look for signs of settlement and/or washout around structures and attached pipes. Record all observations in the **Maintenance Report Log** and report as necessary. If possible, take photographs to document site conditions.

30 *Prepare site for servicing*: Remove any debris that has accumulated on top of the structure. Remove structure lid (e.g., inlet grate, manhole cover, or observation well cover) and set aside. Visually inspect interior of the structure for defects and evidence of illegal dumping. If illegal dumping has occurred, notify the proper authorities as necessary. Record observations/ damage in the **Maintenance Report Log**, include photos if possible, and report as necessary.

31 Examine structure for any unintended or excessive standing water. Inspect for signs of mosquito larvae. If sediment trap is in place and contains standing water, inspect the drainage orifices for signs of clogging. These orifices are usually 1-inch diameter and located at the base of the structure. Remove any and all material clogging these orifices.

32 Observe if the structure has a filter insert and follow separate guidelines in **SMP-05 Inlet Filters** for maintenance and replacement of filter insert.

40 *Cleaning*: If using a vacuum truck, clean the interior of the structure and remove all debris or sediment contained in sump. Leave weir in place. Employees should be properly trained in use of the vactor truck and should follow all recommended guidelines for use by the vacuum truck manufacturer. If removable weir is present and not sufficiently cleaned, use wrench/screwdriver or other tool to remove the bolts, lift it up and out of the structure, and set it to the side and repeat cleaning.

50 *Disposal*: Ensure that the removed waste/sediment is properly disposed of and securely contained as to not run back into the stormwater system. Follow guidelines for disposal of waste/sediment on the local, state, and federal levels.

60 *Record:* Make a note of any recorded observations in the **Maintenance Report Log.**

70 *Replace:* Replace the stormwater structure cover and confirm it is tightly secured.

80 *Safety completion:* Remove safety perimeter.

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SMP-05: Inlet Filter Insert Cleaning

Manufactured filter inserts are designed to trap sediment, debris, trash, oil and grease. Filter inserts are located inside a catch basin or stormwater inlet. Filter inserts should be cleaned quarterly. Replacement of the filter insert pouch should occur at least annually, or as necessary, during a cleaning task.

Type of Maintenance: Preventative

Tools and Supplies

- Manhole Pick
- Replacement filter insert pouch (one pouch per inlet)
- Industrial vacuum and/or vacuum truck with hose
- Safety cones, trash bags, gloves

Frequency: Quarterly, unless established that a particular inlet requires less frequent cleaning.

Labor Requirements: 2 people for approximately 30 minutes per inlet

Maintenance Procedure (numbers correspond with Maximo sequencing):

10 *Safety set-up:* Set up a safety perimeter.

20 *Inspect:* Remove catch basin lid/grate with manhole pick and set safely aside. Visually inspect filter insert for evidence of defects and deterioration. Extensive damage to the filter (torn liner/mesh, etc.) will require immediate replacement. Record all observations in the **Maintenance Report Log** and report as necessary.

30 *Clean filter liner/mesh:* Use an industrial vacuum or vacuum truck hose to remove any collected materials from the liner. Follow vacuum manufacturer's directions for operation of the vacuum.

40 *Inspect filter hardware:* After removal of collected materials from the filter, remove the filter insert as per manufacturer's instructions. In many filters, this is done by unsnapping the tether from the D-ring. Set inlet filter insert to one side. Inspect the filter liner, gaskets, stainless steel frame, and mounting brackets, etc. for continued serviceability. Refer to the manufacturer's manual to assist in locating these items. Correct minor damage and/or defects found during inspection. Record all damage and corrective actions undertaken in the **Maintenance Report Log**. Follow replacement guidelines attached to this SMP if filter is torn or in need of replacement.

50 *Insert filter:* After thoroughly inspecting the filter insert pouch for damage and continued serviceability, reattach the pouch tethers to the liner's D-ring (or equivalent part).

60 *Replace grate/lid:* Replace the catch basin grate/lid and make sure it is secure.

70 *Safety completion:* Remove safety perimeter.

Task Name: Inlet Filter Insert Pouch Replacement

Manufactured filter inserts are designed to trap sediment, debris, trash, oil and grease. Filter inserts are located in the interior of a catch basin or inlet. Replacement of the filter insert pouch should occur at least annually, or as necessary, in conjunction with cleaning task.

Type of Maintenance: Predictive

Tools and Supplies

- Manhole Pick
- Replacement filter insert pouch (one pouch per inlet)
- Industrial vacuum and/or truck
- Safety cones, trash bags, gloves

Frequency: as needed

Labor Requirements: Included in the time required to complete the filter insert cleaning task

Annually:

10 *Safety set-up:* Set up a safety perimeter.

20 *Remove lid/grate:* Remove catch basin lid/grate with manhole pick, and set safely aside.

30 *Remove and replace pouch:* Remove and replace filter insert pouch. Properly dispose of removed pouches and debris according to local, state and federal regulations. Record observations in the **Maintenance Report Log**, include photos if possible, and report as necessary.

40 *Replace lid/grate:* Replace the catch basin grate/lid and make sure it is secure.

50 *Safety completion:* Remove safety perimeter

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SMP-07: Riverstone Edge/Stone Gutter Maintenance

The riverstone edge/stone gutter is a 1 to 3-foot wide (width varies) gravel edge around some porous pavement areas that serves as a backup mechanism for runoff to enter the subsurface infiltration bed should the porous pavement ever be adversely modified such that is permeability is reduced.

Type of Maintenance - Preventative

Tools and Supplies

- Rake
- Clean-washed riverstone per project specifications
- Trash bag, gloves

Frequency: Annually in spring

Labor Hours: 2 people for approximately 1-2 hours per site

Maintenance Procedure (numbers correspond with Maximo sequencing):

10 *Safety set-up:* Set up a safety perimeter

20 *Inspect*: Visually inspect the riverstone edge/stone gutter for any areas of riverstone that are bare and/or need to be replenished or replaced. Inspect for signs of weed growth, dumping of debris, or plow damage. Record observations in the **Maintenance Report Log** and report as necessary. If possible, take photographs to document site conditions.

30 *Remove trash/debris:* Remove any large debris and trash that has accumulated in the riverstone edge/stone gutter area.

40 *Weed*: Remove any obvious weed growth that has established itself within the limits of the riverstone edge/stone gutter. The riverstone edge should be free of vegetative growth.

60 *Rake:* Gently rake riverstone edge/stone gutter to re-establish an even surface and even out any irregular depressions or high points (stones may have moved or shifted during the year).

70 *Replenish:* Add new riverstone only if shallow and/or bare areas exist after raking has been completed. Add only enough riverstone to bring entire riverstone edge/stone gutter to a consistent and level grade, approximately even with the elevation of the adjacent edge of pavement.

80 *Record:* Make note of any unrecorded observations in the **Maintenance Report Log.**

90 *Safety completion:* Remove safety perimeter.