

SD-8

Rain Barrels

BMP MAINTENANCE FACT SHEET FOR SITE DESIGN BMP SD-8 RAIN BARRELS

Rain barrels are containers that can capture rooftop runoff and store it for future use such as irrigation or alternative grey water between storm events. Rain barrels tend to be smaller systems, 100 gallons or less, and are used as site design BMPs to remove a portion of the roof runoff from the site discharge. For larger systems serving as a structural BMP for pollutant control and/or flow control, see HU-1 Cisterns. Typical rain barrel components include:

- Storage container, barrel or tank for holding captured flows
- Inlet and associated valves and piping
- Outlet and associated valves and piping
- Overflow outlet
- Optional pump
- Optional first flush diverters
- Optional roof, supports, foundation, level indicator, and other accessories

Normal Expected Maintenance

Rain barrels can be expected to accumulate some debris that is small enough to pass through the inlet into the storage container. Leaves may accumulate at the inlet. Ancillary parts including valves, piping, screens, level indicators, and other accessories will wear and require occasional replacement. Maintenance of a rain barrel generally involves: removing accumulated debris from the inlet and storage container on a routine basis; and replacement of ancillary parts on an as-needed basis. A summary table of standard inspection and maintenance indicators is provided within this Fact Sheet. If the system includes a pump, maintenance of the pump shall be based on the manufacturer's recommended maintenance plan.

Non-Standard Maintenance or BMP Failure

If any of the following scenarios are observed, the BMP is not performing as intended to protect downstream waterways from pollution and/or erosion. Corrective maintenance, increased inspection and maintenance, BMP replacement, or a different BMP type will be required.

- The inlet is found to be obstructed at every inspection such that storm water bypasses the rain barrel. The rain barrel is not functioning properly if it is not capturing storm water. This would require addition of ancillary features to protect the inlet, such as screens on roof gutters.
- The rain barrel is not drained between storm events. If the rain barrel is not drained between storm events, the storage volume will be diminished and the rain barrel will not capture the required volume of storm water from subsequent storms. This would require implementation of practices onsite to drain and use the stored water, or a different BMP if onsite use cannot be reliably sustained.

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Other Special Considerations

Site design BMPs, such as rain barrels, installed within a new development or redevelopment project are components of an overall storm water management strategy for the project. The presence of site design BMPs within a project is usually a factor in the determination of the amount of runoff to be managed with structural BMPs (i.e., the amount of runoff expected to reach downstream retention or biofiltration basins that process storm water runoff from the project as a whole). When site design BMPs are not maintained or are removed, this can lead to clogging or failure of downstream structural BMPs due to greater delivery of runoff and pollutants than intended for the structural BMP. Therefore, the [City Engineer] may require confirmation of maintenance of site design BMPs as part of their structural BMP maintenance documentation requirements. Site design BMPs that have been installed as part of the project should not be removed, nor should they be bypassed by re-routing roof drains or re-grading surfaces within the project. If changes are necessary, consult the [City Engineer] to determine requirements.

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SUMMARY OF STANDARD INSPECTION AND MAINTENANCE FOR SD-8 RAIN BARRELS		
<p>The property owner is responsible to ensure inspection, operation and maintenance of permanent BMPs on their property unless responsibility has been formally transferred to an agency, community facilities district, homeowners association, property owners association, or other special district.</p> <p>Maintenance frequencies listed in this table are average/typical frequencies. Actual maintenance needs are site-specific, and maintenance may be required more frequently. Maintenance must be performed whenever needed, based on maintenance indicators presented in this table. The BMP owner is responsible for conducting regular inspections to see when maintenance is needed based on the maintenance indicators. During the first year of operation of a structural BMP, inspection is recommended at least once prior to August 31 and then monthly from September through May. Inspection during a storm event is also recommended. After the initial period of frequent inspections, the minimum inspection and maintenance frequency can be determined based on the results of the first year inspections.</p>		
Threshold/Indicator	Maintenance Action	Typical Maintenance Frequency
Accumulation of debris at the inlet	Remove and properly dispose of accumulated materials.	<ul style="list-style-type: none"> • Inspect monthly and after every 0.5-inch or larger storm event. • Remove any accumulated materials found at each inspection.
Outlet blocked	Clear blockage.	<ul style="list-style-type: none"> • Inspect monthly and after every 0.5-inch or larger storm event. • Remove any accumulated materials found at each inspection.
Accumulation of debris in the storage container	Remove and properly dispose of accumulated materials.	<ul style="list-style-type: none"> • Inspect twice per year. • Maintenance when needed.
Leaks or other damage to storage container	Repair or replace as applicable.	<ul style="list-style-type: none"> • Inspect twice per year. • Maintenance when needed.
Standing water in storage container between storm events outside of normal use timeframe for the stored water. Normal use timeframe is 36 to 96 hours following a storm event.	Use the water as intended, or disperse to landscaping.	<ul style="list-style-type: none"> • Inspect monthly and after every 0.5-inch or larger storm event. If standing water is observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed.
Presence of mosquitos/larvae For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology	If mosquitos/larvae are observed: first, immediately remove any standing water by using the water as intended for irrigation or alternative grey water, or by dispersing to landscaping; second, check outlet for blockage and clear blockage if applicable to restore drainage; third, install barriers such as screens that prevent mosquito access to the storage container.	<ul style="list-style-type: none"> • Inspect monthly and after every 0.5-inch or larger storm event. If mosquitos are observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed.

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SUMMARY OF STANDARD INSPECTION AND MAINTENANCE FOR SD-8 RAIN BARRELS (Continued from previous page)		
Threshold/Indicator	Maintenance Action	Typical Maintenance Frequency
Leaks or other damage to ancillary parts including valves, piping, screens, level indicators, and other accessories	Repair or replace as applicable.	<ul style="list-style-type: none"> • Inspect twice per year. • Maintenance when needed.
Rain barrel leaning or unstable, damage to roof, supports, anchors, or foundation	Make repairs as appropriate to correct the problem and stabilize the system.	<ul style="list-style-type: none"> • Inspect twice per year. • Maintenance when needed.

References

American Mosquito Control Association.

<http://www.mosquito.org/>

County of San Diego. 2014. Low Impact Development Handbook.

<http://www.sandiegocounty.gov/content/sdc/dpw/watersheds/susmp/lid.html>

San Diego County Copermittees. 2016. Model BMP Design Manual, Appendix E, Fact Sheet SD-8.

http://www.projectcleanwater.org/index.php?option=com_content&view=article&id=250&Itemid=220

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Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	
Property / Development Name:		Responsible Party Name and Phone Number:
Property Address of BMP:		Responsible Party Address:

INSPECTION AND MAINTENANCE CHECKLIST FOR SD-8 RAIN BARREL PAGE 1 of 4			
Threshold/Indicator	Maintenance Recommendation	Date	Description of Maintenance Conducted
Accumulation of debris at the inlet Maintenance Needed? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A	<input type="checkbox"/> Remove and properly dispose of accumulated materials <input type="checkbox"/> If the inlet is found to be obstructed at every inspection, add features to protect the inlet (e.g., screens on roof gutters) <input type="checkbox"/> Other / Comments:		
Outlet blocked Maintenance Needed? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A	<input type="checkbox"/> Clear blockage <input type="checkbox"/> Other / Comments:		

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Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR SD-8 RAIN BARREL PAGE 2 of 4			
Threshold/Indicator	Maintenance Recommendation	Date	Description of Maintenance Conducted
<p>Standing water in storage container between storm events outside of normal use timeframe for the stored water. Normal use timeframe is 36 to 96 hours following a storm event.</p> <p>Maintenance Needed?</p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A</p>	<p><input type="checkbox"/> Use the water as intended, or disperse to landscaping</p> <p><input type="checkbox"/> Implement practices on-site to drain and use the stored water</p> <p><input type="checkbox"/> If on-site use cannot be sustained, implement a different BMP*</p> <p><input type="checkbox"/> Other / Comments:</p>		
<p>Presence of mosquitos/larvae</p> <p>For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology</p> <p>Maintenance Needed?</p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A</p>	<p><input type="checkbox"/> Use the water as intended, or disperse to landscaping</p> <p><input type="checkbox"/> Install barriers such as screens that prevent mosquito access to the storage container</p> <p><input type="checkbox"/> Other / Comments:</p>		

*Contact the [City Engineer] to determine options and process to change the BMP if on-site use cannot be sustained.

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Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR SD-8 RAIN BARREL PAGE 3 of 4			
Threshold/Indicator	Maintenance Recommendation	Date	Description of Maintenance Conducted
<p>Accumulation of debris in the storage container – to be cleared once per year or when debris accumulation is 25% of the total container volume, or accumulation blocks outlet, whichever is more frequent</p> <p>Maintenance Needed?</p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A</p>	<p><input type="checkbox"/> Remove and properly dispose of accumulated materials</p> <p><input type="checkbox"/> If accumulation of sediment within one year is >25% of the volume of the rain barrel, add features to prevent debris entry to the rain barrel (e.g., screens on roof gutters)</p> <p><input type="checkbox"/> Other / Comments:</p>		
<p>Leaks or other damage to storage container</p> <p>Maintenance Needed?</p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A</p>	<p><input type="checkbox"/> Repair or replace as applicable</p> <p><input type="checkbox"/> Other / Comments:</p>		

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Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR SD-8 RAIN BARREL PAGE 4 of 4			
Threshold/Indicator	Maintenance Recommendation	Date	Description of Maintenance Conducted
Leaks or other damage to ancillary parts including valves, piping, screens, level indicators, and other accessories Maintenance Needed? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A	<input type="checkbox"/> Repair or replace as applicable <input type="checkbox"/> Other / Comments:		
Rain barrel leaning or unstable, damage to roof, supports, anchors, or foundation Maintenance Needed? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A	<input type="checkbox"/> Make repairs as appropriate to correct the problem and stabilize the system <input type="checkbox"/> Other / Comments:		