
USWAC's Standard Operation Procedures (SOPs)

Adapted for City of Orem

It is the property owner's and maintenance team's responsibility to ensure the following SOPs are adequate for managing runoff impacts. Any additional SOPs required for the site should be added to The Storm Water System Management Plan (The Plan).

All SOPs are required to be followed per reference to this document in The Plan and Maintenance Agreement.

IMPORTANT: Each SOP is not expected to cover all necessary procedure operations. Owners or maintenance personnel, in good judgment, should take action to effectively contain or prevent pollutants on site. Any operation changes that are more effective at protecting storm water quality should be documented and adopted as standard.

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Pavement Sweeping

1. Purpose:

- a) One of the primary contaminants in local water bodies is organic material (sediment, plant matter).
- b) Organic material as well as trash and spilt fluids found on our parking areas and sidewalks could be transported via runoff to the drainage system, increasing our maintenance cost. Utilizing pavement sweeping can be far more efficient than removing these debris after they have washed into the drainage system.

2. Regular Procedure:

- a) Remain aware of minor sediment/debris and hand sweep or remove material by other means as needed. Significant deposits will likely collect in autumn with leaf fall and early spring after winter thaw. Sweeping machinery is often the best tool for this application.
- b) Regularly manage outside activities that spread fugitive debris on our pavements. This involves outside functions including but not limited to: Yard sales, yard storage, fund raisers, etc.
- c) Do not allow car wash fundraisers or other related activities. Detergents in wash water are detrimental to storm water quality.

4. Disposal Procedure:

- a) Dispose of hand collected material in dumpster
- b) Use licensed facilities when haul off is necessary

5. Training:

- a) Annually and at hire
- b) If incorrect SOP implementation is observed, reinstruct staff or service contractors of proper SOP.

Landscape Maintenance

1. Purpose:

- a) Contaminates in local water bodies include(s) plant material, sediment, nutrients, and pesticides.
- b) Debris from landscape maintenance operations can enter difficult to access storm water facilities, increasing maintenance cost. Proper landscape maintenance practices will facilitate immediate pollutant mitigation, which is far preferable to removing pollutants after they have already entered the storm water system.

2. Maintenance Procedure:

- a) Maintain healthy vegetation root systems. Healthy root systems will help maintain more desirable infiltration rates of landscape areas receiving runoff.
- b) Grooming
 - Lawn Mowing – Immediately following operation, either remove grass clippings to a dumpster or sweep/blow clippings back into the lawn for nutrient recycling.
 - Fertilizer and Pesticide Operations – Prevent overspray onto pavements for liquid applications. For granular application, sweep or blow any overspread back into the vegetated area immediately.
 - Trash and Debris – Remove and properly dispose of trash and debris collecting within landscaping.
- c) Remove or contain all erodible or loose material prior to forecasted wind and precipitation events, before any non-stormwater will pass through the property, and at end of work period. Light weight debris and landscape material requires immediate attention when wind or rain is expected.
- d) Landscape materials and waste can usually be contained or controlled by operational best management practices.
 - Operational; including but not limited to:
 - Strategic staging of materials eliminating exposure, such as not staging on pavement
 - Avoiding multiple day staging of backfill and spoil material on pavements
 - Haul off spoil as generated/daily
 - Schedule work when clear weather is forecasted.
- e) Cleanup:
 - Use dry cleanup methods, e.g. square nose shovel and broom. Conditions are usually sufficient when no more material can be swept onto the square nosed shovel.

3. Disposal Procedure:

- a) Dispose of waste according to General Waste Management SOP, unless this SOP states otherwise.

4. Equipment:

- a) Tools sufficient for proper containment of pollutants and removal.

5. Training:

- a) Annually and at hire
- b) If incorrect SOP implementation is observed, reinstruct staff or service contractors of proper SOP.
- c) Landscape Service Contractors must use equal or better SOPs.

Waste Management

1. Purpose:

- a) Trash can easily blow out of dumpsters and trash receptacles. Additionally, liquids can leak from dumpsters causing staining/odors and polluting waterways and subsurface soils. This SOP intends to mitigate these problems.

2. Procedure:

- a) Keep lids of dumpsters and trash receptacles closed when not in use.
- b) Inspect waste receptacle for leaks regularly and minimize allowing disposal of liquids.
- c) Beware of dumpster capacity. Solve capacity issues. Leaving bags outside of a dumpster is not acceptable.
- d) Dispose of waste through a licensed service provider or haul waste to the local landfill facility. Review facility regulations for restrictions on certain hazardous materials.

4. Training:

- a) Annually and at hire
- b) If incorrect SOP implementation is observed, reinstruct staff or service contractors of proper SOP.

Storm Water System Maintenance

1. Purpose:

- a) Regular inspection and maintenance of the storm water system can ensure that the system meets its designed purpose. The procedures outlined are general best practices for each storm water control type.
- b) Any proprietary inspection and maintenance procedures not described in this SOP can be found in Appendix B of The Storm Water System Management Plan for the site.
- c) Removing pollutants/debris prior to collection by runoff is far more cost effective than after they have washed into the drainage system.
- d) Any liquids or dissolved pollutants can increase the risk for contaminating groundwater for which the owner/operator is responsible.
- e) During very intense storm events, pollutants in excess runoff may bypass the system increasing the risk of contaminating groundwater and local water bodies.

2. Inspections and Maintenance:

Structural Controls

- a) Catch basin inlets:
Look into the grate and note any debris accumulation. Remove any floating trash at each inspection interval with rake or other means. Remove oil sheen with absorbent materials. Remove accumulated sediments once sediment has reached the flowline of the lowest pipe in the structure. This can be performed by hand or hydro-vacuum machinery.
- b) Catch basins with pre-treatment hood or elbow:
Remove any floating trash at each inspection interval with rake or other means. Remove oil sheen with absorbent materials. Remove sediments once capacity below pipe flowline is reduced by 33% (see image). This will usually require hydro-vacuum machinery.
 - a. If nuisance mosquito larvae are observed in standing water that has not reached the required maintenance threshold, contact a local mosquito abatement company when necessary.
- c) Underground retention/detention infiltration chamber systems:
Access manhole or inspection ports and look for liquid, sediment, or debris accumulation that can pollute subsurface soils and reduce the longevity of the system. Identify the source(s) of pollution and modify the Plan to prevent pollution from entering the subsurface system.
 - a. If sediment and debris accumulation has reduced the storm water volume capacity of the infiltration system below 90%, hydro-vacuum machinery will be required to restore volume capacity.

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- d) Dry well:

Access manhole and look for liquid, sediment, or debris accumulation. Identify the source of pollution and modify the Plan or retrofit the stormwater system to prevent pollutants from entering the injection well.

 - a. Dry well should be free of pollutants. The inspector should see a gravel bottom. If sediment and debris accumulation has reduced the storm water volume capacity of the sump by more than 10% or if grease/debris have impacted the design infiltration of the sump, maintenance is required. Hydro-vacuum machinery will be required to restore the dry well to working order.
 - e) Orifice and other flow restriction devices:

These openings must be free of debris so the discharge of storm water from the site is not impeded. Remove any debris observed by hand or machinery.
 - f) Weep holes or other wall drainage:

These openings must be free of debris. Remove any debris observed by hand or machinery.

Low Impact Development Controls

- a) Above ground detention/retention system:

Remove any debris observed and remove sediment accumulation when volume capacities drop below 90% or design infiltration rates are compromised due to silting in.
- b) Bioswales, rain gardens, and similar:

Regularly remove trash and debris from landscaping areas. Inspect sediment accumulations and remove accumulations when volumes within the swales, rain gardens and landscape areas drop below 90%.

 - a. Poor drainage can be improved by maintaining healthy plant root systems.
- c) Curb cuts and outfalls:

Inspect areas where stormwater will enter non-structural infiltration areas such as from curb cuts, end of pipe, etc into landscaped areas. Remove any landscaping that will impede flow and any sediment accumulation. Ideally, the final grade of landscaping will be 2" below the flowline of stormwater discharge.

After Heavy Precipitation Events

- a) Inspect water levels throughout the storm water system following significant storm events. The retention and detention depths should not exceed the depths shown on the plans for the respective storm event volumes. Contact an engineer when high water depths shown with plans are not consistent with the storm event.

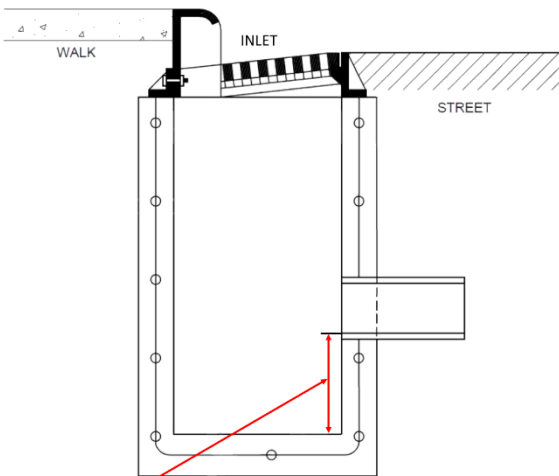
- b) Inspect surface water ponding. Water should not remain for more than 72 hours. Contact an engineer when the system is not draining.
- c) Inspect the storm water system for damage and tampering.

3. Disposal Procedure:

- a) Dispose of sediment and debris removed from the storm water system in a dumpster that will be serviced by a licensed facility.
- b) Disposal of hazardous and liquid waste
 - 1. Dispose of hazardous waste and/or liquid waste at regulated disposal facilities. Follow SDS Sheets. Also see Waste Management and Spill Control SOP

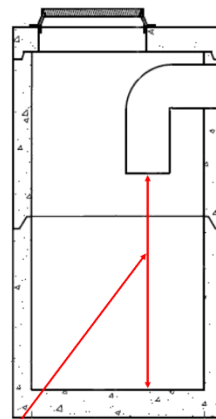
4. Training:

- a) Annually and at hire
- b) If incorrect SOP implementation is observed, reinstruct staff or service contractors of proper SOP.



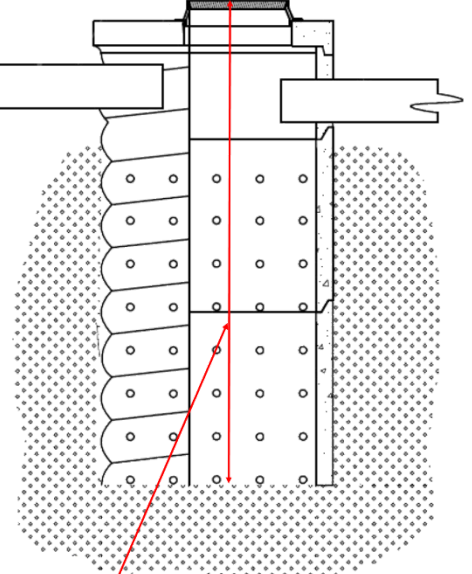
Inlet/Standard Catch Basin

The distance shown is the entrapment depth for an inlet/standard catch basin. When that depth has been reduced by 1/3 or 33% this BMP requires maintenance to bring back to full capacity.



Pretreatment Catch Basin

The distance shown is the entrapment depth for a pretreatment catch basin. When that depth has been reduced by 1/3 or 33% this BMP requires maintenance to bring back to full capacity.



C.M.P. or Concrete Sump

The distance shown is the total sump capacity/depth. When that capacity/depth is reduced to 8' or less (measure from surface down) this BMP requires maintenance to bring back to full capacity.

Pavement Washing

1. Purpose:

- a) Pavement washing should be avoided wherever possible. However, when it is necessary, a strict SOP must be used.
- b) Pavement washing can fill necessary void space in low impact development (LID) systems, damage retention/detention controls, and increase storm system maintenance costs. Removing these debris before they are washed to the storm system is imperative.

2. Procedure:

- a) Sweep up debris and use dry clean up methods to absorb any liquid waste as described in the Spill Control SOP. After all dry clean up methods have been exhausted and pavement washing is necessary, follow this SOP to avoid the potential for polluting drainage ways and groundwater.
- b) Prevent wash waters and any detergents if used from entering the storm drain system or LID areas. The following methods are acceptable for this operation.
 - Dam any nearby inlets using a boom material that seals itself to the pavement and remove wastewater with shop-vacuum or absorbent materials.
 - Collect wastewater with a vacuum simultaneously with the washing operation.
- c) This procedure must not be used to clean initial spills. First follow the Spill Control SOP followed by pavement washing when necessary.

3. Disposal Procedure:

- a) Small volumes of wash water (10 gallons or less) can be drained into onsite vegetation if non-hazardous to plant survival.
- b) Large volumes must be disposed of at regulated facilities.

4. Pavement Cleaning Frequency:

- a) There is no regular pavement washing regimen. Avoid pavement washing through better pollution prevention measures. Pavement washing is determined by conditions that warrant it, including but not limited to: prevention of slick or other hazardous conditions or restore acceptable appearance of pavements.

5. Training:

- a) Annually and at hire
- b) If incorrect SOP implementation is observed, reinstruct staff or service contractors of proper SOP.

Snow and Ice Removal Management

1. Purpose:

- a) To preserve storm water quality and protect vegetation bordering impervious areas, proper snow and ice removal management is necessary.
- b) Maintaining healthy root systems will help maintain optimum infiltration rates.

2. Snow Management

- a) Conserve and utilize snow accumulations as a valuable water resource. Where practical, remove snow onto landscaped areas rather than piling it up in one location such as a corner of a parking lot.
- b) Do not place snow such that it will refreeze and block storm water flow paths.

3. De-Icing Procedure:

- a) Do not store salt outdoors where possible. If salt or other de-icing materials are stored outside, keep the material completely covered and place appropriate BMPs to prevent runoff mixing with the pile (such as gravel socks, waddles, etc). Proper stock pile management will also allow the cover to continue to be effective.
- b) Vary salt use relative to the hazard potential and sweep any excess.
- c) Watch weather forecasts and use less or no salt when temperatures are expected to increase and snow would melt on its own.

4. Training:

- a) Annually and at hire.
- b) If incorrect SOP implementation is observed, reinstruct staff or service contractors of proper SOP.
- c) Require snow and ice service contractors to follow the stronger this SOP and their company SOPs.

Spill Control

1. Purpose:

- a) It is vital to contain all spills on the surface. Spills reaching waterways and permeable surfaces can result in expensive spill mitigation, including waterway restoration and potential replacement of permeable drainage systems.

2. Procedure:

- a) Priority is to dam and contain flowing spills.
- b) Use spill kit booms if available or any material available to stop flowing liquids; including but not limited to, nearby sand, dirt, landscaping materials, etc.
- c) Hazardous or unknown waste material spills
 1. Critical Emergency constitutes large quantities of flowing uncontained liquid that may pose a safety risk or reach storm drain systems. Generally, burst or tipped tanks and containment is still critical. Call HAZMAT, DWQ, The Local Health Department, and the City.
Also report spills to DWQ of quantities of 25 gallons and more and when the spill of lesser quantity causes a sheen on downstream water bodies.
 2. Minor Emergency constitutes a spill that is no longer flowing but has reached a storm drain and adequate cleanup is still critical. Call the Local Health Department and the City.
 3. Spills that are contained on the surface, typically do not meet the criteria for Critical and Minor Emergencies and may be managed by the responsible implementation of this SOP.
 4. Contact Numbers:
National Response Center (Nrc) 800-424-8802
Hazmat - 911
DWQ Hotline –801-536-4123, 801-231-1769, 801-536-4300
Utah Health Department – 801-851-3000
Orem Storm Water Hotline – 801-229-7577

3. Cleanup Procedure:

- a) NEVER WASH SPILLS TO THE STORM DRAIN SYSTEMS.
- b) Clean per SDS requirements, but generally most spills can be cleaned up according to the following:
 - Absorb liquid spills with spill kit absorbent material, sand or dirt until liquid is sufficiently converted to solid material.
 - Remove immediately using dry cleanup methods, e.g. broom and shovel, or vacuum operations.
 - Cleanup with water and detergents may also be necessary depending on the spilled material. However, the wash waters from this operation must be

vacuumed or effectively picked up by dry methods. See Pavement Washing SOP.

- Repeat the process until minimal material remains.

4. Disposal:

- a) Follow SDS requirements, but usually most spills can be disposed per the following b. & c.
- b) Generally, most spills absorbed into solid forms can be disposed of in a waste receptacle. Follow Waste Management SOP.
- c) Generally, liquid waste from surface cleansing processes may be disposed to the sanitary sewer system after the following conditions have been met:
 - Dry cleanup methods have been used to remove the bulk of the spill and disposed of by the Waste Management SOP.
 - The liquid waste amounts are small and diluted with water. This is intended for spill cleanup waste only and never for the disposal of unused or spent liquids.

5. Documentation:

- a) Document all spills.

6. SDS sheets:

- a) SDS Manual for each chemical stored on site must be kept on site at a known location.

7. Materials:

- a) Generally, sand or dirt will work for most cleanup operations and for containment. However, it is the responsibility of the owner to select the absorbent materials and cleanup methods required by the SDS Manuals for chemicals used by the company.

8. Training:

- a) Annually and at hire.
- b) If incorrect SOP implementation is observed, reinstruct staff or service contractors of proper SOP.