

# **OPERATIONS AND MAINTENANCE MANUAL FOR DRAINAGE FACILITIES**

**for**

**1200 7<sup>th</sup> Ave SE Townhomes  
Puyallup, Washington**

**October 2024**

**Prepared for:  
Seatac Enterprise, LLC  
10019 SE 226<sup>th</sup> Place  
Kent, WA 98031**

**Prepared by:  
Daniel Smith, P.E., Senior Project Manger**

**Approved By:  
Daniel Smith, P.E., Senior Project Manager**

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**C.E.S. NW, INC.  
429 29<sup>TH</sup> STREET NE, SUITE D  
PUYALLUP, WA 98372  
(253) 848-4278  
Project#19078**

## **Section 1 – Project Description**

**Site Address:** 1200 7<sup>th</sup> Ave SE Puyallup, WA 98372

**Developer Address:** 10019 SE 226<sup>th</sup> Place  
Kent, WA 98031

**Tax Parcel Numbers:** 7845001330

**Ownership/Maintenance:** Property Owner

**Legal description** – (Per statutory warranty deed filed under recording number 201910110806). The west 33 feet of block 77, and the east 50 feet of block 78, Frank R. Spinning's first addition to the Town of Puyallup, according to the plat thereof recorded in Book 4 of Plats, page 86, in Pierce County, Washington.

Situate in the County of Pierce, State of Washington.

The 1200 7<sup>th</sup> Ave SE Townhome project proposes 6 townhomes on a 0.48-acre parcel (7845001330). The project site is accessed from 7<sup>th</sup> Ave SE with a new commercial driveway approach. The project site proposes approximately 4,690 sq.ft. of rooftops, 6,005 sq.ft. of pavement, patios and walkways, and 990 sq.ft. of frontage improvements. A detention tank is proposed in the northwestern portion of the site for flow control. The project proposes 4,805 sq.ft. of pollution generating impervious surfaces (PGIS); therefore, runoff treatment is not required. Perforated stub-outs are proposed to connect the rooftops to the tank. All disturbed areas which are not converted to impervious surface will have soil amended (BMP T5.13).

The average annual cost for maintenance is approximately \$5,000.00.

## **Section 2 – Maintenance Importance and Intent**

“The importance of maintenance for the proper functioning of stormwater control facilities cannot be over-emphasized. A substantial portion of failures (clogging of filters, resuspension of sediments, loss of storage capacity, etc.) are due to inadequate maintenance. Stormwater BMP maintenance is essential to ensure that BMPs function as intended throughout their full life cycle. The fundamental goals of maintenance activities are to ensure the entire flow regime and treatment train designed for this site continue to fully function. For this site these include:

- Maintain the ability of storm facility to attenuate flows.
- Maintain ability to safely convey design stormwater flows.
- Preserve soil and plant health, as well as stormwater flow contact with plant and soil systems.
- Clearly identify systems so they can be protected
- Keep maintenance costs low
- Prevent large-scale or expensive stormwater system failures
- Prevent water quality violations or damage to downstream properties.

### **Section 3 – Responsible Parties**

Stormwater drainage facilities will be installed, constructed, and maintained with documentation of maintenance by the homeowner. This maintenance plan shall be kept onsite and must be made available for inspection by the City of Puyallup upon request.

### **Section 4 – Facilities Requiring Maintenance**

The following stormwater facilities/Best Management Practices require maintenance:

- Detention Tank
- Closed conveyance system comprised of catch basins and PVC pipes
- Amended Soils

### **Section 5 – Maintenance Instructions**

“The parties responsible for maintenance must review and apply the maintenance requirements contained herein. These maintenance instructions outline conditions for determining if maintenance actions are required, as identified through inspection. However, they are not intended to be measures of the facility’s required condition at all times between inspections. Exceedance of these conditions at any time between inspections or maintenance activity does not automatically constitute a violation of these standards. However, based upon inspection observations, the inspection and maintenance presented in these checklists shall be adjusted to minimize the length of time that a facility is in a condition that requires a maintenance action.

For facilities not owned and maintained by the City, a log of maintenance activity that indicates what actions were taken must be kept on site and be available for inspection by the City.”

The following pages contain maintenance needs for most of the components that are part of your drainage system, as well as for some components that you may not have. Let the City know if there are any components that are missing from these pages. Ignore the requirements that do not apply to your system. You should plan to complete a checklist for all system components on the following schedule:

1. Monthly from November through April.
2. Once in late summer (preferably in September).
3. After any major storm (use 1-inch in 24-hours as a guideline).

Using photocopies of the checklist pages check off the problems that you looked for each time you did an inspection. Add comments on problems found and actions taken. Keep these “checked” sheets in your files, as they will be used to write your annual report. Some items do not need to be looked at every time an inspection is done. Use the suggested frequency at the left of each item as a guideline for your inspection.

## **Section 6 – Vegetation Maintenance**

Plant material affecting the storm water system consists of grass, leaves, and yard debris. Maintenance checklists on the following pages and instructions listed above address appropriate maintenance requirements.

**REQUIRED ACTIONS: The following actions shall be taken to ensure that pollution generated on site shall be minimized:**

1. Warning signs (e.g., "Dump No Waste-Drains to Stream") shall be painted or embossed on or adjacent to all storm drain inlets. They shall be repainted as needed.
2. Sediment removed from the catch basins and storm system shall be disposed of in a proper manner. Contact the City of Puyallup for instruction prior to completing this task.

**ATTACHMENT "A"**

**MAINTAINANCE PROGRAM  
COVER SHEET**

Inspection Period: \_\_\_\_\_

Number of Sheets Attached: \_\_\_\_\_

Date Inspected: \_\_\_\_\_

Name of Inspector: \_\_\_\_\_

Inspector's Signature: \_\_\_\_\_

## Closed Detention Systems (Tanks/Vaults) Checklist (Continued)

Frequency	Drainage System Feature	Date				Problem	Conditions to Check For	Conditions That Should Exist
		✓	✓	✓	✓			
A	Manhole					Cover Difficult to Remove	One maintenance person cannot remove lid after applying normal lifting pressure. Intent is to keep cover from sealing off access to maintenance.	Cover can be removed and reinstalled by one maintenance person.
A	Manhole					Ladder Rungs Unsafe	Ladder is unsafe due to missing rungs, misalignment, not securely attached to structure wall, rust, or cracks.	Ladder meets design standards. Allows maintenance person safe access.

If you are unsure whether a problem exists, please contact a Professional Engineer.

Comments:

Key:

(M) Monthly from November through April.

(A) Once in late summer (preferable September)

(S) After any major storm (use 1-inch in 24 hours as a guideline).

## Closed Detention Systems (Tanks/Vaults) Checklist

Frequency	Drainage System Feature	Date				Problem	Conditions to Check For	Conditions That Should Exist
		✓	✓	✓	✓			
M	Storage Area					Plugged Air Vents	One-half of the cross section of a vent is blocked at any point or the vent is damaged.	Vents open and functioning.
M	Storage Area					Debris and Sediment	Accumulated sediment depth exceeds 10% of the diameter of the storage area for ½ length of storage vault or any point depth exceeds 15% of diameter. (Example: 72-inch storage tank would require cleaning when sediment reaches depth of 7 inches for more than 1/2 length of tank.)	All sediment and debris removed from storage area.
A	Storage Area					Joints Between Tank/Pipe Section	Any openings or voids allowing material to be transported into facility. (Will require engineering analysis to determine structural stability).	All joint between tank/pipe sections are sealed.
A	Storage Area					Tank Pipe Bent Out of Shape	Any part of tank/pipe is bent out of shape more than 10% of its design shape. (Review required by engineer to determine structural stability).	Tank/pipe repaired or replaced to design.
A	Storage Area					Vault Structure Includes Cracks in Wall, Bottom, Damage to Frame and/or Top Slab	Cracks wider than 1/2-inch and any evidence of soil particles entering the structure through the cracks, or maintenance/inspection personnel determines that the vault is not structurally sound.	Vault replaced or repaired to design specifications and is structurally sound.
A	Storage Area						Cracks wider than 1/2-inch at the joint of any inlet/outlet pipe or any evidence of soil particles entering the vault through the walls	No cracks more than 1/4-inch wide at the joint of the inlet/outlet pipe.
A	Manhole					Cover Not in Place	Cover is missing or only partially in place. Any open manhole requires maintenance.	Manhole is closed.
A	Manhole					Locking Mechanism Not Working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread (may not apply to self-locking lids).	Mechanism opens with proper tools.

## Control Structure/Flow Restrictor Checklist

Frequency	Drainage System Feature	Date				Problem	Conditions to Check For	Conditions That Should Exist
		✓	✓	✓	✓			
M	General					Trash and Debris (Includes Sediment)	Material exceeds 25% of sump depth or 1 foot below orifice plate.	Control structure orifice is not blocked. All trash and debris removed.
A	General					Structural Damage	Structure is not securely attached to manhole wall.	Structure securely attached to wall and outlet pipe.
A	General					Structural Damage	Structure is not in upright position (allow up to 10% from plumb).	Structure in correct position.
A	General					Structural Damage	Connections to outlet pipe are not watertight and show signs of rust.	Connections to outlet pipe are water tight; structure repaired or replaced and works as designed.
A	General					Structural Damage	Any holes--other than designed holes--in the structure.	Structure has no holes other than designed holes.
A	Cleanout Gate					Damaged or Missing	Cleanout gate is not watertight or is missing.	Gate is watertight and works as designed.
A	Cleanout Gate					Damaged or Missing	Gate cannot be moved up and down by one maintenance person.	Gate moves up and down easily and is watertight.
A	Cleanout Gate					Damaged or Missing	Chain/rod leading to gate is missing or damaged.	Chain is in place and works as designed.
A	Cleanout Gate					Damaged or Missing	Gate is rusted over 50% of its surface area.	Gate is repaired or replaced to meet design standards.
A	Orifice Plate					Damaged or Missing	Control device is not working properly due to missing, out of place, or bent orifice plate.	Plate is in place and works as designed.
M,S	Orifice Plate					Obstructions	Any trash, debris, sediment, or vegetation blocking the plate.	Plate is free of all obstructions and works as designed.
	Overflow Pipe					Obstructions	Any trash or debris blocking (or having the potential of blocking) the overflow pipe.	Pipe is free of all obstructions and works as designed.
A	Manhole					Cover Not in Place	Cover is missing or only partially in place. Any open manhole requires maintenance.	Manhole is closed.

## Control Structure/Flow Restrictor Checklist (Continued)

Frequency	Drainage System Feature	Date				Problem	Conditions to Check For	Conditions That Should Exist
		✓	✓	✓	✓			
A	Manhole					Locking Mechanism Not Working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread (may not apply to self-locking lids).	Mechanism opens with proper tools.
A	Manhole					Cover Difficult to Remove	One maintenance person cannot remove lid after applying normal lifting pressure. Intent is to keep cover from sealing off access to maintenance.	Cover can be removed and reinstalled by one maintenance person.
A	Manhole					Ladder Rungs Unsafe	Ladder is unsafe due to missing rungs, misalignment, not securely attached to structure wall, rust, or cracks.	Ladder meets design standards. Allows maintenance person safe access.

If you are unsure whether a problem exists, please contact a Professional Engineer.

Comments:

Key:

(M) Monthly from November through April.

(A) Once in late summer (preferable September)

(S) After any major storm (use 1-inch in 24 hours as a guideline).

## Catch Basins Checklist

Frequency	Drainage System Feature	Date				Problem	Conditions to Check For	Conditions That Should Exist
		✓	✓	✓	✓			
A	General					"Dump no pollutants " Stencil or stamp not visible	Stencil or stamp should be visible and easily read	Warning signs (e.g., "Dump No Waste-Drains to Stream") shall be painted or embossed on or adjacent to all storm drain inlets.
M,S	General					Trash & Debris	Trash or debris which is located immediately in front of the catch basin opening or is blocking inletting capacity of the basin by more than 10%.	No trash or debris located immediately in front of catch basin or on grate opening.
M	General					Trash & Debris	Trash or debris (in the basin) that exceeds 60 percent of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of six inches clearance from the debris surface to the invert of the lowest pipe.	No trash or debris in the catch basin.
M	General					Trash & Debris	Trash or debris in any inlet or outlet pipe blocking more than 1/3 of its height.	Inlet and outlet pipes free of trash or debris.
M	General					Trash & Debris	Dead animals or vegetation that could generate odors that could cause complaints or dangerous gases (e.g., methane).	No dead animals or vegetation present within the catch basin.
M	General					Sediment	Sediment (in the basin) that exceeds 60 percent of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of 6 inches clearance from the sediment surface to the invert of the lowest pipe.	No sediment in the catch basin
A	General					Structure Damage to Frame and/or Top Slab	Top slab has holes larger than 2 square inches or cracks wider than 1/4 inch (Intent is to make sure no material is running into basin).	Top slab is free of holes and cracks.

## Catch Basins Checklist (Continued)

Frequency	Drainage System Feature	Date				Problem	Conditions to Check For	Conditions That Should Exist
		✓	✓	✓	✓			
A	General					Structure Damage to Frame and/or Top Slab	Frame not sitting flush on top slab, i.e., separation of more than 3/4 inch of the frame from the top slab. Frame not securely attached.	Frame is sitting flush on the riser rings or top slab and firmly attached.
A	General					Fractures or Cracks in Basin Walls/ Bottom	Maintenance person judges that structure is unsound.	Basin replaced or repaired to design standards.
A	General					Fractures or Cracks in Basin Walls/ Bottom	Grout fillet has separated or cracked wider than 1/2 inch and longer than 1 foot at the joint of any inlet/outlet pipe or any evidence of soil particles entering catch basin through cracks.	Pipe is re-grouted and secure at basin wall.
A	General					Settlement / Misalignment	If failure of basin has created a safety, function, or design problem.	Basin replaced or repaired to design standards.
M	General					Vegetation	Vegetation growing across and blocking more than 10% of the basin opening.	No vegetation blocking opening to basin.
M	General					Vegetation	Vegetation growing in inlet/outlet pipe joints that is more than six inches tall and less than six inches apart.	No vegetation or root growth present.
M	General					Contamination and Pollution	Any evidence of oil, gasoline, contaminants, or other pollutants (Coordinate removal/cleanup with local water quality response agency).	No contaminants or pollutants present.
A	Catch Basin Cover					Cover Not in Place	Cover is missing or only partially in place.	Any open catch basin requires maintenance. Catch basin cover is closed
A	Catch Basin Cover					Locking Mechanism Not Working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread.	Mechanism opens with proper tools.
A	Catch Basin Cover					Cover Difficult to Remove	One maintenance person cannot remove lid after applying normal lifting pressure. (Intent is to keep cover from sealing off access to maintenance.)	Cover can be removed by one maintenance person.

## Catch Basins Checklist (Continued)

Frequency	Drainage System Feature	Date				Problem	Conditions to Check For	Conditions That Should Exist
		✓	✓	✓	✓			
A	Ladder					Ladder Rungs Unsafe	Ladder is unsafe due to missing rungs, not securely attached to basin wall, misalignment, rust, cracks, or sharp edges.	Ladder meets design standards and allows maintenance person safe access.
	Grates					Grate opening Unsafe	Grate with opening wider than 7/8 inch.	Grate opening meets design standards.
M,S	Grates					Trash and Debris	Trash and debris that is blocking more than 20% of grate surface inletting capacity.	Grate free of trash and debris.
A	Grates					Damaged or Missing.	Grate missing or broken member(s) of the grate.	Grate is in place and meets design standards.

If you are unsure whether a problem exists, please contact a Professional Engineer.

Comments:

Key:

(M) Monthly from November through April.

(A) Once in late summer (preferable September)

(S) After any major storm (use 1-inch in 24 hours as a guideline).

### 3.21 Grounds (Landscaping)

Landscaping is an essential component of stormwater management. Bare soil areas generate higher levels of stormwater runoff and sedimentation in stormwater facilities. The following check list gives some general guidance for landscape management.

#### Grounds (Landscaping) Checklist

Frequency	Drainage System Feature	Date				Problem	Conditions to Check For	Conditions That Should Exist
		✓	✓	✓	✓			
M	General					Weeds (nonpoisonous)	Weeds growing in more than 20% of the landscaped area (trees and shrubs only).	Weeds present in less than 5% of the landscaped area.
M	General					Insect hazard	Any presence of poison ivy or other poisonous vegetation or insect nests.	No poisonous vegetation or insect nests present in landscaped area.
M,S	General					Trash or litter	See Ponds Checklist.	See Ponds Checklist.
M,S	General					Erosion of Ground Surface	Noticeable rills are seen in landscaped areas.	Causes of erosion are identified and steps taken to slow down/spread out the water. Eroded areas are filled, contoured, and seeded.
A	Trees and shrubs					Damage	Limbs or parts of trees or shrubs that are split or broken which affect more than 25% of the total foliage of the tree or shrub.	Trim trees/shrubs to restore shape. Replace trees/shrubs with severe damage.
M	Trees and shrubs					Damage	Trees or shrubs that have been blown down or knocked over.	Replant tree, inspecting for injury to stem or roots. Replace if severely damaged.
A	Trees and shrubs					Damage	Trees or shrubs which are not adequately supported or are leaning over, causing exposure of the roots.	Place stakes and rubber-coated ties around young trees/shrubs for support.

If you are unsure whether a problem exists, please contact a Professional Engineer.

Comments:

Key:

(M) Monthly from November through April.

(A) Once in late summer (preferable September)

(S) After any major storm (use 1-inch in 24 hours as a guideline).

### 3.26 Inlet/Outlet Stormwater Pipe

The inlet and outlet stormwater pipes convey stormwater in, through, and out of stormwater facilities.

Storm sewer pipes convey stormwater. Pipes are built from many materials and are sometimes perforated to allow stormwater to infiltrate into the ground. Stormwater pipes are cleaned to remove sediment or blockages when problems are identified. Stormwater pipes must be clear of obstructions and breaks to prevent localized flooding. All stormwater pipes should be in proper working order and free of the possible defects listed below.

In addition, outlet stormwater pipes should be inspected to make sure stormwater exits the facility without causing any negative impacts to the drainage area, if applicable.

#### Inlet/Outlet Storm Pipe Checklist

Frequency	Drainage System Feature	Date				Problem	Conditions to Check For	Conditions That Should Exist
		✓	✓	✓	✓			
M	General					Obstructions including roots	Storm pipe- root enters or deforms pipe, reducing flow.	Use mechanical methods to remove root. Do not put root-dissolving chemicals in storm sewer pipes. If necessary, remove the vegetation over the line.
M	General					Pipe dented or broken	Inlet/outlet piping damaged or broken and in need of repair.	Pipe repaired and/or replaced.
M	General					Pipe rusted or deteriorated	Any part of the piping that is crushed or deformed more than 20% or any other failure to the piping.	Pipe repaired and/or replaced.
M	Erosion					Erosion	Eroded or scoured areas due to flow channelization, high flows, or vehicular damage.	For ruts or bare areas less than 12 inches wide, repair the damaged area by filling with crushed gravel. If bare areas are large, generally greater than 12 inches wide, the damaged area should be re-graded and re-seeded. For smaller bare areas, overseed.
M	Pipe outfall					Missing or removed rock	Only one layer of rock exists above native soil in area five square feet or larger, or any exposure of native soil.	Rock pad replaced to design standards.
M	Pipe outfall					Erosion	Soil erosion in or adjacent to rock pad.	Rock pad replaced to design standards.

## Inlet/Outlet Storm Pipe Checklist (Continued)

Frequency	Drainage System Feature	Date				Problem	Conditions to Check For	Conditions That Should Exist
		✓	✓	✓	✓			
M	Pipe outfall					Erosion/Scouring	Eroded or scoured ditch or stream banks due to flow channelization, or higher flows.	For ruts or bare areas less than 12 inches wide, repair the damaged area by filling with crushed gravel. If bare areas are large, generally greater than 12 inches wide, damaged area should be re-graded and re-seeded. For smaller bare areas, overseed.
M	Pipe Outfall					Missing or Moved Rock	Only one layer of rock exists above native soil area in area five square feet or larger, or any exposure of native soil.	Rock pad replaced to design standards.
M	Pipe Outfall					Erosion	Soil erosion in or adjacent to rock pad.	Rock pad replaced to design standards.

If you are unsure whether a problem exists, please contact a Professional Engineer.

Comments:

Key:

(A) Annual (March or April preferred)

(M) Monthly (see schedule)

(S) After major storms (use 1-inch in 24 hours as a guideline)

**POLLUTION SOURCE CONTROL MANUAL  
FOR SINGLE-FAMILY RESIDENCES  
for**

**1200 7<sup>th</sup> Ave SE Townhomes  
Puyallup, Washington**

**October 2024**

**Prepared for:  
Seatac Enterprise, LLC  
10019 SE 226<sup>th</sup> Place  
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**Project#19078**

## **Pollution Source Control Program for Single-Family Residences**

The actions we take each day in and around our homes have a profound effect on stormwater quality in this region. Small amounts of pollution from many different sources can significantly affect our waterways. Yard maintenance, waste storage, car washing and maintenance, and pool cleaning are some of the activities that can adversely impact water quality. The best management practices (BMPs) discussed in this section are practical ways to keep stormwater from becoming polluted in the first place. It is recommended that all residences in the City of Puyallup use these BMPs. **Please note that some of these procedures are required by various state, federal, or county laws, and are noted as required BMPs.**

### **1.0 Automobile Washing**

Most residents wash their vehicles in the driveway or on the street. Washwaters typically flow to a storm drain or ditch, which discharges stormwater directly to the nearest stream, lake or to the Puget Sound. Soaps and detergents, even the biodegradable ones, can have immediate and long-term effects on plants and animals living in water bodies. The pollutants washed off vehicles also contain a variety of pollutants that can harm fish and wildlife.

#### Suggested BMPs

- ❖ Wash your vehicle directly over your lawn or make sure the wash water drains to a vegetated area. This allows the water and soap to soak into the ground instead of running off into a local waterbody.
- ❖ Ideally, no soaps or detergents should be used, but if you do use one, select one without phosphates.
- ❖ Sweep driveways and street gutters **before** washing vehicle to clean up dirt, leaves, trash and other materials that may flow to the storm drain along with your wash water. This helps reduce storm drain maintenance costs as well as protect water quality.

- ❖ Commercial products are available that allow you to clean a vehicle without water. These were developed for areas where water is scarce, so a water saving benefit is realized as well as reduced pollution.
- ❖ Use a nozzle on your hose to save water.
- ❖ Do not wash your vehicle if rain is expected.
- ❖ Consider not washing your vehicle at home. Take it to a commercial car wash that has a recycle system and discharges wastewater to the sanitary sewer for treatment.

## 1.1 Automobile Maintenance

Many of us are "weekend mechanics." We enjoy the cost savings of changing our own oil and antifreeze, topping off the battery with water, and generally making our car perform its best. There is much potential for stormwater pollution associated with these activities; however, the following BMPs will help you minimize pollution while servicing your car.

### Suggested BMPs

- ❖ Recycle all oils, antifreeze, solvents and batteries. Many local car parts dealers and gas stations accept used oil. The Household Hazardous Waste facility at the Tacoma Landfill accepts oil, oil filters, antifreeze and solvents from both City of Tacoma and non-city residents. Pierce County and Tacoma also hold Household Hazardous Waste Turn-In days, which will accept car wastes including old batteries. Old batteries can actually be worth money. Call shops listed under Batteries in the Yellow Pages of the phone book to find out if they are paying for used batteries.
- ❖ **Never** dump new or used automotive fluids or solvents on the ground, in a storm drain or street gutter, or in a waterbody. Eventually, it will make its way to local surface waters or groundwater, including the water we drink.
- ❖ Do not mix wastes. The chlorinated solvents in some carburetor cleaners can contaminate a huge tank of used oil, rendering it unsuitable for recycling. Always keep your wastes in separate containers that are properly labeled and store them out of the weather.

### Suggested BMPs

- ❖ To dispose of oil filters, punch a hole in the top and let drain for 24 hours. This is where a large funnel in the top of your oil storage container will come in handy. After draining, wrap in 2 layers of plastic and dispose of in your regular garbage or recycle by taking it to the Tacoma Landfill Household Hazardous Waste facility even for non-city residences. Pending State law may make disposal in your home garbage illegal, so please call the Hazardous Waste line at 1-800-287-6429 for up-to-date information.
- ❖ Use care in draining and collecting antifreeze to prevent accidental spills. Spilled antifreeze can be deadly to cats and dogs that ingest it.
- ❖ Perform your service activities on concrete or asphalt or over a plastic tarp to make spill cleanup easier. Keep a bag of kitty litter on hand to absorb spills. Sprinkle a good layer on the spill, let it absorb for a little while and then sweep it up. Place the contaminated litter in a plastic bag, tie it up and dispose of it in your regular garbage. Take care not to leave kitty litter out in the rain; it will form sticky goo that is hard to clean up.
- ❖ If you are doing bodywork outside, be sure to use a tarp to catch material resulting from grinding, sanding and painting. Dispose of this waste by double bagging in plastic and placing in your garbage.

## **1.2 Storage of Solid Wastes and Food Wastes**

Improper storage of food and solid waste at residences can lead not only to water pollution problems, but problems with neighborhood pets and vermin as well. Following the BMPs listed below can help keep your property a clean and healthy place to live.

### Suggested BMPs

- ❖ All waste containers kept outside should have lids.
- ❖ Leaking waste containers should be replaced.
- ❖ Store waste containers under cover if possible, or on grassy areas.

- ❖ Inspect the storage area regularly to pick up loose scraps of material and dispose of them properly.
- ❖ Recycle as much as you can. The City of Puyallup offers curbside recycling, through LeMay Inc., to a majority of residents. Also, look under "Recycling" in the phone book for firms that take other recyclable materials.
- ❖ Purchase products that have the least amount of packaging materials.
- ❖ Compost biodegradable materials such as grass clippings and vegetable scraps instead of throwing them away. Your flowerbeds will love the finished compost, and we will not fill our landfills so quickly. Call LeMay Inc. at (253) 875-5053 for more information on composting.
- ❖ A fun alternative to traditional composting is worm composting. You can let worms do all the work for you by keeping a small vermiculture box just outside your kitchen. For more information on getting started with worms, call the numbers listed above.

### **1.3 Composting**

Composting is an earth-friendly activity as long as some commonsense rules outlined below are followed. If you choose to compost, the following BMPs should be utilized.

#### Suggested BMPs

- ❖ Compost piles must be located on an unpaved area where runoff can soak into the ground or be filtered by grass and other vegetation. Compost piles should be located in an area of your yard not prone to water ponding during storms, and should be kept well away from wetlands, streams, lakes and other drainage paths.
- ❖ Avoid putting hazardous or non-decomposable waste in the pile.
- ❖ Cover the compost pile for two reasons:
- ❖ To keep stormwater from washing nutrients into waterways.

- ❖ To keep excess water from cooling down the pile, which will slow down the rate of decomposition.
- ❖ Build bins of wood, chicken wire or fencing material to contain compost so it cannot be washed away. Call LeMay Inc. at (253) 875-5053 to get free composter designs and materials lists.
- ❖ Building a small earthen dike around your compost pile is an effective means of preventing nutrient-rich compost drainage from reaching stormwater paths.

## **1.4 Yard Maintenance and Gardening**

This section deals with the normal yard maintenance activities we all perform at our homes. Overwatering, overfertilizing, improper herbicide application and improper disposal of trimmings and clippings can all contribute to serious water pollution problems. Following the BMPs listed below will help alleviate pollutant runoff.

### Required BMPs

- ❖ Follow the manufacturer's directions exactly for mixing and applying herbicides, fungicides and insecticides, and use them sparingly. Never apply when it is windy or when rain is expected. Never apply over water, within 100 feet of a wellhead, or adjacent to streams or other waterbodies. Triple-rinse empty containers, using the rinsate for mixing your next batch of spray, and then double-bag and dispose of the empty container in your regular garbage.
- ❖ **Never** dispose of grass clippings or other vegetation in or near storm drains, streams, lakes or Puget Sound.
- ❖ Follow manufacturer's directions when applying fertilizers. More is not better, either for your lawn or for local waterbodies. Never apply fertilizers over water or adjacent to ditches, streams or other water bodies. Remember that organic fertilizers have a slow release of nitrogen, and less potential to pollute than synthetic fertilizers.

- ❖ Save water and prevent pollution problems by watering your lawn sensibly. Lawns and gardens typically need the equivalent of 1" of rainfall per week. You can check on how you are doing by putting a wide mouth jar out where you are sprinkling and measure the water with a small plastic ruler. Overwatering to the point of runoff can carry polluting nutrients to the nearest waterbody.
- ❖ Consider planting a vegetated buffer zone adjacent to streams or other water bodies on your property. Call the Pierce County Conservation District for advice and assistance in developing a planting plan. The Stream Team at the Conservation District may even be able to help you plant it!
- ❖ Make sure all fertilizers and pesticides are stored in a covered location. Rain can wash the labels off bottles and convert 50 lbs. of fertilizer into either a solid lump or a river of nutrients.
- ❖ Compost all yard clippings or use them as mulch to save water and keep down weeds in your garden.
- ❖ Practice organic gardening and virtually eliminate the need to use pesticides and fertilizers. Contact Pierce County Cooperative Extension at 798-7180 or the Ask-A-Master Gardener program at 798-7170 for information and classes on earth friendly gardening.
- ❖ Pull weeds instead of spraying and get some healthy exercise, too. If you must spray, use the least toxic formulations that will get the job done. The Master Gardener program listed above can help advise you on which spray to use.
- ❖ Work fertilizers into the soil instead of letting them lie on the ground surface exposed to the next rainstorm.
- ❖ Contact your local garbage hauler for curbside pickup and recycling of yard waste.

## **1.5 Swimming Pool and Spa Cleaning and Maintenance**

Despite the fact that we immerse ourselves in it, the water from pools and spas is far from chemically clean. Nutrients, pH and chlorine can adversely affect fish and wildlife in

waterbodies. Following these BMPs will ensure the cleanliness of your pool and the environment.

### Required BMPs

- ❖ Pool and spa water must be dechlorinated if it is to be emptied into a ditch, on the ground, or a lawn or to the storm drainage system. Contact your pool chemical supplier to obtain the neutralizing chemicals you will need. The rate of flow into the ditch or drainage system must be regulated so that it does not cause problems such as erosion, surcharging or flooding. Water discharged to the ground or a lawn must not cross property lines and must not produce runoff. If you live in a sewered area, you must discharge pool water to the sanitary sewer. Contact the pre-treatment unit at 798-3013 for permission prior to discharge.
- ❖ If pool and spa water cannot be dechlorinated, it must be discharged to the sanitary sewer. Prior to draining, your local wastewater treatment plant must be notified to ensure they are aware of the volume of discharge and the potential effects of chlorine levels. A pool service company can help you determine the frequency of cleaning and backwash of filters.
- ❖ Diatomaceous earth used in pool filters cannot be disposed of in surface waters, on the ground, into storm drainage systems or septic systems. Dry it out as much as possible; bag it in plastic and dispose of at the landfill.

### Suggested BMPs

- ❖ Hire a professional pool service company to collect all pool water for proper disposal. Make sure to ask them where they will dispose of it and the kind of permits, they hold to do so.

## **1.6 Household Hazardous Material Use, Storage, and Disposal**

Once we really start looking around our houses, the amount of hazardous materials we have on site is a real revelation. Oil-based paints and stains, paint thinner, gasoline, charcoal starter fluid, cleaners, waxes, pesticides, fingernail polish remover, and wood preservatives are just a few that most of us have around the house.

When products such as these are dumped on the ground or in a storm drain, they can be washed directly to receiving waters where they can harm fish and wildlife. They can also infiltrate into the ground and contaminate drinking water supplies. The same problem can occur if they are disposed of with your regular garbage; the containers can leak at the landfill and contaminate groundwater. The same type of contamination can occur if hazardous products are poured down a sink or toilet into a septic system. Do not pour them down the drain if you are on municipal sewers, either. Many compounds will "pass through" the wastewater treatment plant without treatment and contaminate receiving waters, or they can harm the biological process used at the treatment plant, reducing overall treatment efficiency.

With such a diversity of hazardous products present in all homes in City of Puyallup, a large potential for serious environmental harm exists if improper methods of storage, usage and disposal are employed. Using the following, BMPs will help keep these materials out of our soils, sediments and waters.

#### Required BMPs

- ❖ Dispose of hazardous materials and their containers properly. Never dump products labeled as *poisonous, corrosive, caustic, flammable, inflammable, volatile, explosive danger, warning, caution or dangerous* outdoors, in a storm drain, or into sinks, toilets or drains. Call LeMay Inc. at (253) 875-5053 or the Hazardous Waste Line at 1-800- 287-6429 for information on disposal methods, collection events, and alternative products. Household hazardous wastes from City of Tacoma residents and non- residents are accepted at the Tacoma Landfill.

#### Suggested BMPs

- ❖ Check containers containing hazardous materials frequently for signs of leakage. If a container is rusty and has the potential of leaking soon, place it in a secondary container before the leak occurs and prevent a clean-up problem.
- ❖ Store hazardous materials containers under cover and off the ground. Keep them out of the weather to avoid rusting, freezing, cracking, labels being washed off, etc.

- ❖ Hazardous materials should be stored out of the reach of children. Never transfer to or store these materials in food or beverage containers that could be misinterpreted by a child as something to eat or drink.
- ❖ Keep appropriate spill cleanup materials on hand. Kitty litter is good for many oil-based spills.
- ❖ Ground cloths and drip pans must be used under any work outdoors that involves hazardous materials such as oil-based paints, stains, rust removers, masonry cleaners and others bearing label warnings as outlined above.
- ❖ Latex paints are not a hazardous waste but are not accepted in liquid form at the landfill. To dispose, leave uncovered in a protected place until dry, then place in the garbage. If you wish to dry waste paint quickly, just pour kitty litter in the can to absorb the paint. Once paint is dry, leave the lid off when you place it in the garbage so your garbage collector can see that it is no longer liquid.
- ❖ Use fewer toxic products whenever possible. The Hazardous Waste Line at 1-800-287-6429 and the Washington Toxics Coalition at (206) 632-1545 have information detailing alternatives to toxic products.
- ❖ If an activity involving the use of a hazardous material can be moved indoors out of the weather, then do so. Make sure you can provide proper ventilation, however.
- ❖ Follow manufacturers' directions in the use of all materials. Over-application of yard chemicals, for instance, can result in the washing of these compounds into receiving waterbodies. Never apply pesticides when rain is expected.
- ❖ When hazardous materials are in use, place the container inside a tub or bucket to minimize spills.