

## LANDSCAPING A DRAIN FIELD

### What is a Drain Field and How Does a Septic System Work?

A septic system is simply a private sewage treatment plant. It consists of a holding tank to receive the waste and begin initial treatment, and a network of pipes to distribute the liquids into a drain field for further treatment. As the waste enters one side of the tank, heavier solids sink to the bottom, becoming “sludge,” and lighter materials float on the liquid above the sludge, becoming “scum”.

Bacteria within the tank digest some of the scum and sludge, turning it into gas or liquid. As new liquids enter the tank, the partially treated liquid drains out through the opposite side of the tank and into a series of perforated pipes laid in gravel-lined trenches: the drain field.

The gravel acts as a surface for aerobic bacteria and other organisms that feed on the sewage. In the soil below the disposal trenches, pollutants, including disease-causing bacteria, are filtered out. Soil bacteria destroy some of the pollutants. Other pollutants become bonded to clay particles. While these mechanisms remove many pollutants, some trace constituents such as nitrates may reach ground water tables if they are not far below the surface.

As sludge builds up in the bottom of the tank, it will become necessary to have the tank pumped to remove the excess before it builds up to the point of overflowing into the drain field pipes and clogging them. Pumping the tank is usually required every three to five years, depending on the input level

### What Does Landscaping Have To Do With a Septic System?

Installing appropriate plants can help the septic system drain field function at its best by removing excess moisture and nutrients from the soil. Plants help provide oxygen exchange and contribute to the evaporation necessary in the drain field. Plant cover is also important to reduce soil erosion.

Landscape fabric, plastic sheeting, and mulches should not be used over a drain field. These materials can reduce air exchange, and mulch may also retain excess moisture. Adding even a few inches of soil on top of the drain field (such as for a raised bed) limits air exchange and can lead to compaction. Compacted soils contain less oxygen and can reduce the system’s effectiveness. Traffic over a drain field should be limited to reduce the risk of soil compaction.

### Considerations When Selecting Plants

It is best to select **shallow-rooted plants** that will not interfere with drain lines which may be only 6” below the soil surface. **Drought-tolerant plants** which will not require additional irrigation are also desirable so that the soil will not be overloaded with additional water from irrigation. Since salt levels in the soil above a drain field may be high, plants which are **salt-tolerant** are also good choices.

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## C081 – Landscaping a Drain Field

Disturbing the soil in a drain field should be minimized, therefore perennials which require frequent division should be avoided; instead, **low-maintenance** plants are preferred. Drain fields require sunlight and good air circulation; therefore, plants that grow in **full sun** are preferred. The edges of the drain field may be partly shaded by neighboring trees and shrubs, so plants that can grow in some shade may also be suitable. Aggressive plants such as English ivy should be avoided.

### RECOMMENDED PLANTS

**Grasses:** Grasses are ideal plants for drain fields. Their fibrous roots help stabilize the soil and prevent erosion, and they provide year-round cover. Turf and native grasses are appropriate as well as some ornamental grasses provided their root systems are not too deep. Good choices for our area include:

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| Perennial rye<br>( <i>Lolium perenne</i> ) | Small ornamental fescues<br>such as <i>Festuca glauca</i> | Blue oat grass<br>( <i>Helictotrichon sempervirens</i> ) | Big bluegrass<br>( <i>Poa ampla</i> )    |
| Canby bluegrass<br>( <i>Poa canbyi</i> )   | Idaho fescue<br>( <i>Festuca idahoensis</i> )             | Columbia needlegrass<br>( <i>Stipa columbiana</i> )      | Sheep fescue<br>( <i>Festuca ovina</i> ) |

**Groundcovers:** Groundcovers are low growing plants that blanket the ground. The following suggestions are drought-tolerant and non-invasive. All are perennials and prefer full sun except where noted.

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| Barrenwort ( <i>Epimedium rubrum</i> )<br>(prefers shade but will tolerate part sun) | Creeping phlox ( <i>Phlox subulata</i> )<br>(can tolerate part shade)   |
| Creeping red penstemon ( <i>Penstemon pinifolius</i> )                               | Creeping thyme ( <i>Thymus praecox</i> )                                |
| Kinnikinnick ( <i>Arctostaphylos uva-ursi</i> )<br>(can tolerate part shade)         | Rockcress ( <i>Arabis caucasica</i> )                                   |
| Yellow corydalis ( <i>Corydalis lutea</i> )<br>(prefers part sun)                    | Wintercreeper ( <i>Euonymus fortunei</i> )<br>(can tolerate part shade) |
| Woolly thyme ( <i>Thymus pseudolanuginosus</i> )                                     | Sedum (low growing types) ( <i>Sedum</i> spp.)                          |

**Taller Perennials:** The following ornamental perennials are taller than most groundcovers and are also suitable choices for a drain field. All prefer full sun except where noted.

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| Bergenia ( <i>Bergenia cordifolia</i> )<br>(can tolerate part shade) | Blanket flower<br>( <i>Gaillardia grandiflora</i> ) | Blazing star ( <i>Liatris</i> spp.)                                     |
| Butterfly weed<br>( <i>Asclepias tuberosa</i> )                      | Catmint ( <i>Nepeta</i> spp.)                       | Columbine ( <i>Aquilegia</i> spp.)<br>(can tolerate part shade)         |
| Coreopsis ( <i>Coreopsis</i> spp.)                                   | Marguerite<br>( <i>Anthemis tinctoria</i> )         | Lady's mantle ( <i>Alchemilla mollis</i> )<br>(can tolerate part shade) |
| Penstemon ( <i>Penstemon</i> spp.)                                   | Rose campion<br>( <i>Lychnis coronaria</i> )        | Purple coneflower<br>( <i>Echinacea purpurea</i> )                      |
| Stonecrop ( <i>Sedum</i> spp.)                                       |   |   |

C081 – Landscaping a Drain Field

**Bulbs:** Small bulbs which readily naturalize (that is, remain in the ground yearlong) are reasonably drought-tolerant and can be an attractive addition. The following bulbs are planted no deeper than 6 inches.

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| Crocus ( <i>Crocus</i> spp.)                         | Daffodil (small) ( <i>Narcissus</i> spp.)       | Squill ( <i>Scilla</i> spp.)       |
| Glory-of-the-snow<br>( <i>Chionodoxa sardensis</i> ) | Grape hyacinth<br>( <i>Muscari armeniacum</i> ) | Snowdrops ( <i>Galanthus</i> spp.) |

**Native Wildflowers:** A meadow look with a mix of native grasses and shallow-rooted wildflowers can be very attractive and good for wildlife. The following plants are all drought-tolerant perennials and prefer full sun.

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| Arrowleaf balsamroot<br>( <i>Balsamorhiza sagittata</i> )  | Bear grass ( <i>Xerophyllum tenax</i> )               | Bitter root ( <i>Lewisia</i> spp.)           |
| Blue flax ( <i>Linum lewisii</i> )                         | Buckwheat ( <i>Eriogonum</i> spp.)                    | Coral bells ( <i>Heuchera cylindrica</i> )   |
| Desert evening primrose<br>( <i>Oenothera caespitosa</i> ) | Indian paint flower<br>( <i>Gaillardia aristata</i> ) | Pasque flower ( <i>Anemone patens</i> )      |
| Pearly everlasting<br>( <i>Anaphalis margaritacea</i> )    | Prairie smoke ( <i>Geum triflorum</i> )               | Scarlet gilia ( <i>Ipomopsis aggregata</i> ) |
| Sticky purple geranium ( <i>Geranium viscosissimum</i> )   |   |  |

**Annual flowers:** Annuals are generally shallow-rooted and therefore will not interfere with the drain lines, however, many require supplemental irrigation which will add moisture to the drain field which is not desirable. Annuals die at the end of the growing season and therefore require replanting each spring unless those plants which readily self-sow are chosen. The following annuals all require full sun and readily self-sow.

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| Bachelor’s button<br>( <i>Centaurea cyanus</i> ) | California poppy<br>( <i>Eschscholzia californica</i> ) | Larkspur<br>( <i>Consolida ambigua</i> )      | Love-in-a-mist<br>( <i>Nigella damascene</i> ) |
| Marigold ( <i>Tagetes</i> spp.)                  | Pot marigold<br>( <i>Calendula officinalis</i> )        | Rose moss<br>( <i>Portulaca grandiflora</i> ) | Snapdragon<br>( <i>Antirrhinum majus</i> )     |
| Sweet alyssum<br>( <i>Lobularia maritime</i> )   | Sweet William ( <i>Dianthus barbatus</i> )              |   |  |

**Trees and Shrubs:** Often the drain field is in a part of the landscape where it would be desirable to plant trees or shrubs to set off the house and lawn. However, trees and shrubs are risky choices for the drain field because the woody roots of these plants are likely to clog and damage drain lines. Especially notorious for line clogging are water-loving trees such as willows, maples, elms, and poplars. These trees should be planted a minimum of 50 feet away from the drain field or avoided altogether.

Because drain fields require sunlight and air circulation, too much shade from trees can interfere with proper operation of the system. If planted, trees and shrubs should be at least as far away as their estimated root spread at maturity. For example, a weeping cherry might be expected to grow about 25 feet tall, so it should be planted a minimum of 25 feet away from the drain field. It is good to remember that the larger the plant, the more extensive the root system.

## Vegetable Gardens and Drain Fields

Sometimes the ideal place to put a vegetable garden seems to be over the drain field. Because of the possibility of bacterial and viral contamination from the sewage effluent distributed through the soil in the drain field area, **edible crops are not recommended**. Any root vegetables planted in this area may be directly exposed to septic tank effluent. Vegetable gardening requires frequent cultivation, and digging in the drain field area is inadvisable. The best plan is to use the drain field for ornamentals and plant vegetables elsewhere.

### Sources:

1. Virginia State University Cooperative Extension Publication #426-617, Planting on Your Septic Drain Field, by Susan D. Day and Ellen Silva
2. Washington State University/Clallam County Cooperative Extension, Landscaping Your Drainfield
3. Washington State University/Clark County Extension, Properly Landscape Your Septic System, 2005
4. Washington State University/Kittitas County Extension, Landscaping Septic Drain Fields: Do's and Don'ts for Planting on Drain Fields, 2003
5. Washington State University EB1579 Landscape Plants for the Inland Northwest, 2001
6. Washington State University Cooperative Extension Gardening Column, December 6, 1998, What To Plant Over the Septic System?, by Mary Robson
7. Benton County, Oregon, Environmental Health Pamphlet, Septic Systems - A Homeowners Guide to Operation and Maintenance
8. University of Maryland Cooperative Extension, Septic Systems and Their Maintenance, by Thomas H. Miller