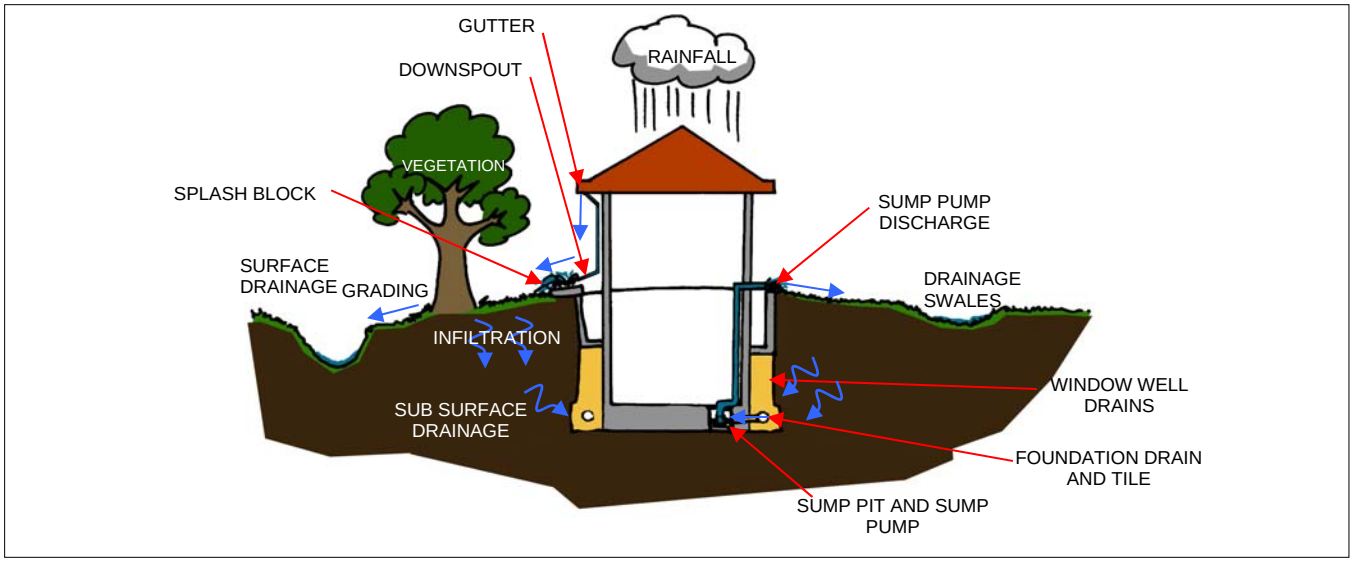
BASIC UNDERSTANDING
WHAT IS A HOME DRAINAGE SYSTEM?



Protecting a home and its contents from damage due to surface water runoff and groundwater is a major concern for many homeowners. A properly designed, installed and maintained drainage system can provide this protection.

Drainage systems can be divided into two types of systems, one for surface water (rainfall runoff), and one for subsurface water (groundwater).

The first defense against water draining into your home is to protect your home from rainfall. This is done with your roof, gutters and downspouts on your home. This system on your home collects the rainfall and directs it to the ground where it can drain away from your home as surface runoff. Some of this surface runoff will then infiltrate into the ground and become subsurface water or groundwater.

A very important part of the drainage system is the surface grading around your home. The ground surrounding your home, as well as your walkways and driveways, should slope away from your home. A good grade around your home would be a 6 inch drop in the ground surface in the first 10 feet away from the house foundation. This area immediately around the home not only drains the water from the downspouts, but also the water that runs down the walls of the home. After the first 10 feet, a 1 foot drop every 50 feet provides excellent drainage across the rest of the property. This grading around the home and across your property will also protect the home from surface runoff coming off of adjacent properties. At the rear or sides of properties a swale or very shallow ditch will collect the runoff and direct the runoff into the stormwater management system (typically a detention basin or storm sewer).

Two other things affecting surface runoff are the infiltration properties of your soil, and the type and amount of vegetation, or landscaping, on the property. These two elements are not typically thought of as components of a drainage system, but they do affect the amount of surface water runoff and are very significant elements in the hydrologic cycle.

Vegetation will, through its root systems, use water that infiltrates into the ground. Also, with landscaping, the soil is generally more permeable, increasing infiltration rates. Ground covers and mulches in gardens and as part of the landscaping will absorb water from both rainfall and surface runoff.

Infiltration of surface water runoff into the ground has many benefits such as reducing the amount of surface water, improving water quality, and recharge of aquifers. Water in the ground however can create drainage or seepage problems. Problems occur when the soil becomes saturated or when excess water finds its way to and through walls and floors that are underground. A home is protected from this underground water with a subsurface drainage system.

The subsurface drainage system is usually referred to as a foundation drain. This is because a typical system is installed at the perimeter of the foundation of the home. The main components are gravel backfill, a perimeter drain tile, and a sump pump. The gravel backfill is place along the outside of the footing and part way up the foundation or basement wall. The perimeter drain tile is a perforated pipe installed at the bottom and within the gravel backfill around the home and drains into a sump pit under the basement floor. The subsurface water that is collected by the gravel backfill and tile is directed to a hole under the basement floor called a sump pit. Once water rises to a specific level in the pit, a sump pump will activate and raise the water out of the pit and discharge it onto the yard where it will drain away as surface runoff. In addition to the collection and discharge of subsurface water through foundation drains and sump pumps, waterproofing and caulking of joints and window frames also help prevent water from seeping into the basement.