

LIST OF TERMS

Further definitions and pictures of the following items are available on the Drainage Utility Website found at:

<http://www.killeentexas.gov/index.php?section=113>

Bedrock
Erosion
Drainage Utility
Groundwater
Karst
Sanitary Sewer Line
Seep
Soil
Spring
Storm Water Management Plan
Surface Water
Water Line
Water Table



Groundwater seep piped to a curb and gutter outfall with seepage from between sidewalk and driveway.



Groundwater seep between asphalt overlays



“THE CITY WITHOUT LIMITS”



DISCLAIMER

The Drainage Utility has prepared this brochure for informational and educational purposes only and the brochure is not intended as legal advice. This brochure was created as part of a series of brochures to fulfill the education portion of the City of Killeen Storm Water Management Plan required by the Texas Commission on Environmental Quality.

For further information contact:

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SEEPS AND SPRINGS

FACT SHEET

CITY OF KILLEEN – PUBLIC WORKS
ENVIRONMENTAL SERVICES
DRAINAGE UTILITY
200 E. AVE D, 2ND FLOOR
KILLEEN, TX 76540
(254) 501-7629

INTRODUCTION

This brochure is intended to accomplish the following:

- Provide residents with a general overview of what seeps and springs are;
- Help residents identify seeps, springs, water line leaks and sanitary sewer line leaks;
- Inform residents of how they can help the city record seep and spring locations; and
- Educate residents on the naturally occurring conditions that form seeps and springs.

WHAT ARE SEEPS AND SPRINGS?

Seeps and springs originate from areas with naturally occurring groundwater that rises from the bedrock or soil to become surface water. There is little difference between a seep and a spring. Generally, if the rate of flow is rapid and continuous, it is called a spring. If the flow is slow and intermittent, it is called a seep.



Groundwater seep flowing over sidewalk

WHAT FACTORS AFFECT SEEP LOCATIONS?

There are a number of factors determining the presence and occurrence of seeps throughout the City of Killeen. The following is a short list of factors:

- Bedrock: The number of holes and cracks in the bedrock may be greater in some locations, allowing water to percolate or rise to the surface.
- Water Table: Rainfall increases groundwater levels. A high water table causes an increase in the flow and number of seeps observed at the ground surface.
- Artificial Discharge: Leaks in water lines and sanitary sewer lines create seeps.

WHAT DO SEEPS, WATER AND SEWER LINE LEAKS LOOK LIKE?

- Groundwater Seeps consist of water that has tiny air bubbles and green algae near the seep and may exhibit an odor
- Water Lines Leaks consist of water that is clear and contains chlorine
- Sanitary Sewer Lines Leaks consist of cloudy to clear water with a foul odor

WHERE DO I REPORT A SEEP?

Drainage Utility - (254) 501-7629
Water and Sewer Utilities- (254) 634-0588
Streets Division- (254) 634-3710

WHY DO WE HAVE SEEPS IN KILLEEN?

Killeen is located on a type of landscape known as karst. Karst is a description of bedrock that has undergone (chemical) erosion. Karst has the appearance of a sponge or may have voids. The type of karst depends on long-term weathering of the area and the make up of bedrock. The karst under Killeen is made up of mostly limestone bedrock. The long-term weather conditions and bedrock in Killeen have created karst with lots of tiny holes forming seeps.



Example of karst bedrock above ground

HOW DOES KARST FORM?

Limestone is chemically erosive when it comes in contact with carbonic acid. Carbonic acid is a mild acid made up of water and carbon dioxide. Carbonic acid is found in all carbonated beverages. If a coin is placed in a soda pop, it will begin to dissolve. The same process that occurs to a coin in a soda pop occurs to limestone bedrock exposed to carbonic acid. However, chemical erosion of limestone takes thousands to hundreds of thousands of years to occur.