Austin guide to...
URBAN SEEPS

On a walk through your neighborhood, you come across an unexpected stream of water. You wonder where it is coming from so you follow it to the source – a crack in the street curb. Seeps may conjure images of dripping, moss-laden rocks along cliffs in a forest. But seeps can be a common occurrence in urban areas as well. Water moves through natural and urban landscapes below the surface, unseen until it is forced out of the ground by things like bedrock or impervious clay. When this happens, it creates a seep.

Possible Seep Sources

Natural : groundwater flows, shallow recharge (springs or base flow of stream)

Urban: stormwater runoff from a rain event, water line breaks, leaking water meters, irrigation water, pond failures (water quality, agricultural, etc.), or failure of wastewater lines, septic systems, or reclaim water lines

Frequency of Seeps

Because of Austin's frequently erratic weather patterns, water flows may intermittently appear and disappear from year to year. In addition, periods of drought can cause soil and bedrock to shift, opening or closing routes for water to travel. This can cause water seeps to begin, move, or stop completely.

Highway

Potential Seep Zones

Major Creeks

Plbt Knob

Edwards Formation Limestone

Georgetown Formation Limestome

Taylor Group Clays

Walnut Formation Limestone

Glen Rose Limestone

Eagle Ford Shale

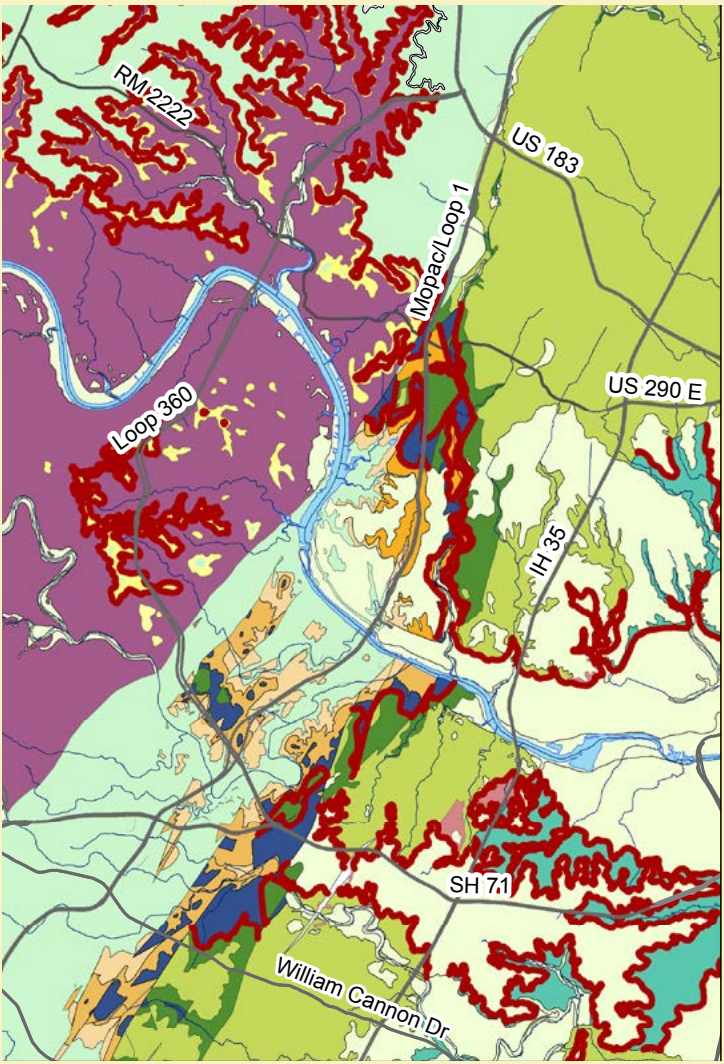
Terrace /Alluvial deposits

Del Rio Clay

Austin Chalk Limestone

Buda Limestone

Areas Where Natural Seeps Are Common



0 0.75 1.5 3 Miles

Water flow seeks a point of least resistance. Water may naturally appear at places such as a rock outcrop on a slope, a fracture in rock, along a geologic fault, a crack in concrete or pavement or as a wet area on the ground. Occurrences such as this are common following heavy rain and when the overlying geologic formation "fills up." You may notice places in your yard, park, or neighborhood that seem to flow after repeated rainfall. This is a natural process and flow will subside eventually. No action is necessary to stop the flow.

As Austin's population increases and development continues, we will continue to see changes in the landscape and hydrology that can affect the occurrence of urban seeps.

Natural Seeps: Geologic conditions in the Austin area can sometimes account for where these urban seeps occur.

- Limestone - The Edwards Group limestones, associated with the Edwards Aquifer, are familiar to many Austinites. Limestone formations are readily dissolved by rainwater, forming what is termed "karstic" features. These passages rapidly convey water through the limestone.
- Terrace Deposits - Ancient river deposits of the Colorado River have lots of sand and gravel. These formations also allow rapid groundwater flow.
- High clay content - the Del Rio Clay, the Walnut Formation or the Eagle Ford (shale) Formation act as barriers to water flow.

When a karstic limestone or terrace deposit overlies a clay formation, there is potential for a seep to emerge. Some examples of these are Seiders Springs on Shoal Creek, Balcones District Park Spring and Backdoor Springs on Barton Creek.

The most frequent geologic formation conditions are:

- Buda Limestone over Del Rio Formation (clay)
- Edwards Group (limestones) over Walnut Formation limestone
- Colorado River or St. Elmo terrace sand and gravel deposits over Austin Chalk
- Eagle Ford Shale over Buda Limestone
- Alluvial sand and gravels over bedrock

Common Concerns

Regardless of the source, seeps on occasion can create problems like slippery sidewalks from algae buildup, smelly puddles that attract vermin, structure or infrastructure damage, flooding, erosion, or even pollution.

Who do you call for urban seep concerns?

- **3-1-1 (Austin Water)** to first rule out wastewater, septic system, or water line discharge problems
- **512-974-2550 (24-Hour Pollution Hotline**) for suspected pollutants in unusual water flows and to investigate suspected natural sources

The City of Austin Watershed Protection Department developed The Urban Seep Program to investigate surface discharges causing concern in an effort to determine their source and seek solutions to the problems they may be creating. Sometimes, a resolution is not necessary if the source is naturally occurring and the problems are minimal.

Besides conducting an investigation, City staff track and monitor those areas of Austin where natural conditions lend themselves to surface discharges of water. This is just one tool that helps us solve the “mystery water” problems that arise.

WATERSHED PROTECTION

www.austintexas.gov/watershed