

MUD 113 Newsletter

November, 2018

Flood Mitigation Considerations

Both regional and local issues are in play during heavy rainstorms.

Lake Creek- a regional problem under region-wide review

The regional picture is dominated by Lake Creek, which runs by Woodforest to the south and east. Lake Creek rises in eastern Grimes County and runs for 50 miles to its mouth at the West Fork of the San Jacinto River, seven miles southeast of Lake Conroe. A map of the Lake Creek watershed is attached. The drainage area of Lake Creek is 330 square miles. As an example of the massive amount of water it can bring in our direction, the peak flow of Lake Creek during Hurricane Harvey was measured at 58,300 cubic feet per second (cfs) at the Fish Creek Thoroughfare bridge vs. the average flow for 2017 of only 469 cfs. That's a factor of 124 increase! The creek level rose by 38 feet at that point. Our drainage system is not supposed to deal with overflow from Lake Creek. Our Detention Ponds are designed to draw modest amounts of water off Lake Creek as it rises and detain it for a short period of time. The ponds have become inundated during several periods of prolonged or heavy rainfall.

The Flood Management Division of SJRA is actively involved in developing short-term and long-term regional flood management strategies within the Authority's portion of the San Jacinto River Basin, including Lake Creek; building partnerships with federal, state, and local government entities; identifying funding sources and opportunities; and coordinating, collaborating, and potentially partnering with other flood management entities throughout the entire San Jacinto River basin. Phase II of their modeling study, which will focus on the Lake Creek watershed, is expected to be available shortly. MUD 113 is monitoring their work and may be in a position to participate in any regional improvements identified.

Fish Creek and Mound Creek—important parts of Woodforest's drainage system.

There are 2 other important smaller streams in our area, Mound Creek and Fish Creek, which both run north to south and into Lake Creek. Mound Creek is about 9 miles long and runs along the western edge of the District. Fish Creek is about 5 miles long and runs through the middle of Woodforest. Both streams have performed as expected by carrying away runoff water from within the District. Locally, the streets and storm drainage pipe systems are built to handle certain high rate rainfalls over a short period of time. The design criterion is up to a 5-year event as required by Conroe and Montgomery County. A 5-year event has a probability of 20% of occurring in any given year, i.e., not all that uncommon. In storms greater than a 5-year event, street ponding would be expected to occur. Overflow swales connected to a low point in the curb are incorporated at certain points to allow street water to drain more quickly toward an ultimate outfall point to Mound, Fish, or Lake Creeks. These overflow swales are designed with the capacity to pass a 100-year event without exceeding their banks. We appreciate emails sent in to the MUD 113 website during an event last month in which we experienced a 4.5-inch rainfall in one hour where water levels in several spots were over the curb and up the driveways. Our operator inspected the storm drains and in some cases found con-

struction material and silting as well as builder grading near the swales making them less effective. These situations are being corrected.

Another local issue is rainfall and drainage between and among adjacent lots. This is NOT a MUD function but rather a Developer/Builder issue. Lots are generally graded to allow rainwater to flow to the street and conveyed away as described above rather than to a neighboring lot. The Developer has made an effort to preserve as many natural trees as possible and work with the natural topography rather than alter or regrade the lots. Lots are presented to builders in a natural, uncleared state. The builder is provided with a lot drainage plan that shows the natural drainage patterns of the property and instructs the builder where lot drainage must be accounted for from neighboring lots. Fences, swales, and French drains are commonly used tools to accomplish this purpose. Consideration is also given to setting slab elevations of each home to ensure that this drainage pattern can be preserved. A general guideline is to set the slab one foot above the highest point of the slab footprint.

We hope this article gives you a better appreciation of the factors involved in flood mitigation in our Community

