

## 650.0808 UGO Design

### (j) Relief Wells

Relief wells may be used to protect a tile line from developing excessive pressure. Two common examples of when this can occur are as follows:

1. When an underground outlet from a new tile outlet terrace system connects to an existing tile line, the capacity in the existing line may not be adequate to carry all of the additional flow from the underground outlet.
2. When a tile line goes from a steep to a flat slope, the capacity of the tile on the flatter slope is less than the tile on the steep slope. This could create pressure flow in the tile line.

The relief well should be designed so the maximum velocity through the relief well pipe will not exceed 2 feet per second. The following table shows the maximum flow for various pipe sizes.

<u>Nominal Pipe Diameter (In.)</u>	<u>Maximum Flow (cfs)</u>
4	0.17
5	0.27
6	0.39
8	0.70
10	1.09
12	1.57
14	2.14
15	2.45
16	2.79
18	3.53
21	4.81
24	6.28

The flow to use for designing the relief well should be the full pipe flow in the upstream tile line minus the flow in the downstream tile line. The full pipe flow in each line may be estimated based on the type of tile, diameter, and the slope of the line.

The relief well should be located as close as possible to the junction of the two lines or the slope break, but should not be downstream from these points.