French Drains

French Drains are simple subsurface drainage trenches which collect and move sub-surface drainage to a desired location. These drains are an option for removing excessive wetness in unwanted areas. These drains are commonly used in this area to reduce water from around the foundation of a building and its basement (if applicable). In simplicity, a French drain is a trench filled with gravel and a perforated pipe at the bottom.

THINGS TO CONSIDER

- **Utility Lines**
- **Slope of property**
- **Source of drainage issue (wetness)**

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French Drain Design

Designing:

In designing your French drain there are a few things to take into consideration. This includes the shape of the property surrounding the wet foundation/basement or depression. If the property slopes down towards the foundation, sending water downhill and into the foundation, you will benefit from reshaping this area to drain away from the foundation. Remember water runs downhill.

MATERIALS:

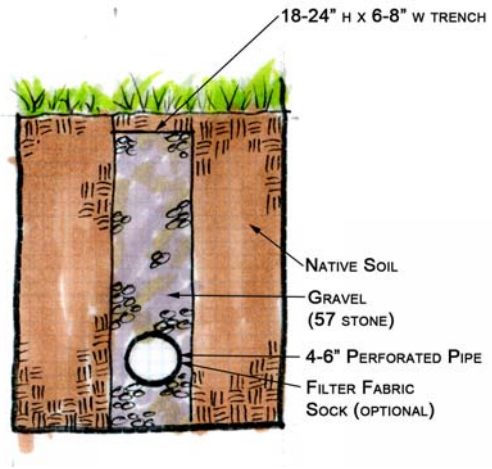
- **Shovel**
- **Mattock**
- **6" or 4" Perforated pipe, length will vary**
- **Standard gravel (#57 stone)**
- **Filter fabric pipe sock or wrap**
- **Landscaping cover**
- **Stones for outfall (optional)**

Advantages:

- Removes moisture from unwanted locations
- Sub-surface (unseen)

Disadvantages:

- Can clog or fail overtime, unnoticeably
- Slope of drainage
- Typically linear



Design Considerations:

- The location of the excessive moisture and the location the pipe daylights. At this point the water is concentrated and needs to be dispersed appropriately.
- Linking the French drain to a stormwater feature can mitigate the concentrated flow..
- The shape of the land around the area of excessive moisture. Is the property sloping towards the foundation of a building? Is there a natural depression?
- Slope of the land
- Drains located adjacent to the foundation should be placed at a minimum 2' out from the foundation.

French Drain Implementation

Designing:

1. Locate your French Drain:

Your site analysis will help in locating the French drain. Make sure to locate all utility lines so you can route your drain to avoid these elements if possible. If a utility line must be crossed contact the service provider for assistance in placing the perforated pipe below the utility and add a pvc or other buffering sheath to protect the utility line. In some cases, like with gas lines, the utility company will need to by hired to do this. Avoiding them is the best option.

If your basement or foundation is wet after rain events, then a French drain would be necessary along the foundation where the moisture is apparent. These locations are usually higher in elevation than the basement floor or foundation. It would be useful to extend the drain past current areas of wetness to cover any additional drainage during larger storm events. Drains located adjacent to the foundation should be placed approximately 2' out from the foundation.

Locate the place you would like the 6" perforated pipe to daylight, preferably into a stormwater BMP. Route the drain from the location of excessive moisture to the daylight point. The daylight point must be lower in elevation than the drain itself. The pipe should slope down consistently at a slope between 2% to 10%. The steeper the slope the higher velocity of the water coming from the drain pipe , therefore the outfall my need additional armoring with stones.

2. Excavate a trench 6 to 8 inches wide and a minimum of 18" in depth, along the routing line, sloping the trench consistently to the outfall location.

3. Place 2" of gravel in the trench.

4. Wrap 4" or 6" perforated pipe with filter fabric (optional). The filter fabric will minimize clogging of individual perforations in the pipe.

5. Lay pipe in the trench and back fill with gravel up to 2-3" below ground surface.

6. Cover with soil and either seed with grass or mulch over the drain.