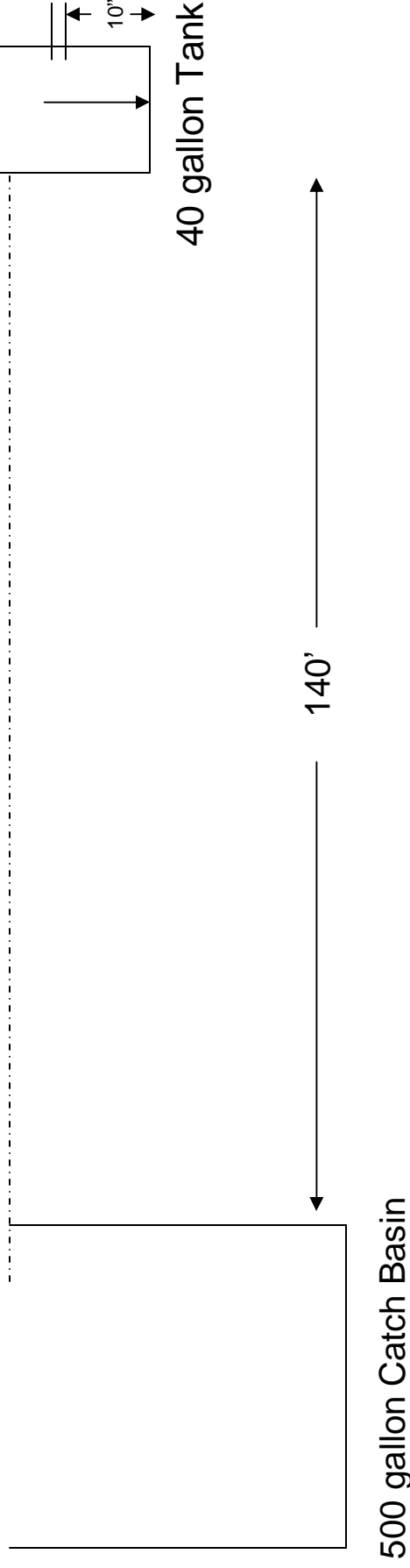


CURRENT SITUATION

A 500 gallon subsurface Catch Basin collects rain run-off and ground water from our 1 acre rural property. Currently, there is a 3/4HP pump that pumps the water through 1½" PVC into a 40 gallon tank 140' away. From there, the water flows out a 6" pipe, via gravity, into a downward sloping channel that eventually dumps into a County-maintained drainage trench.

In a heavy downpour, our 500 gallon Catch Basin can fill up in about an hour. We have had situations where a power outage causes the pump to fail, and water has then backed up in the Catch Basin and overflowed onto our property. So we want to install a gravity-based system to get the water from the Catch Basin to the Tank.

The Tank is 54" tall, with a 6" outlet pipe whose bottom is 10" from the bottom of the Tank. From the top of the Catch Basin (ground level), a level line winds up 27" below the top of the Tank.

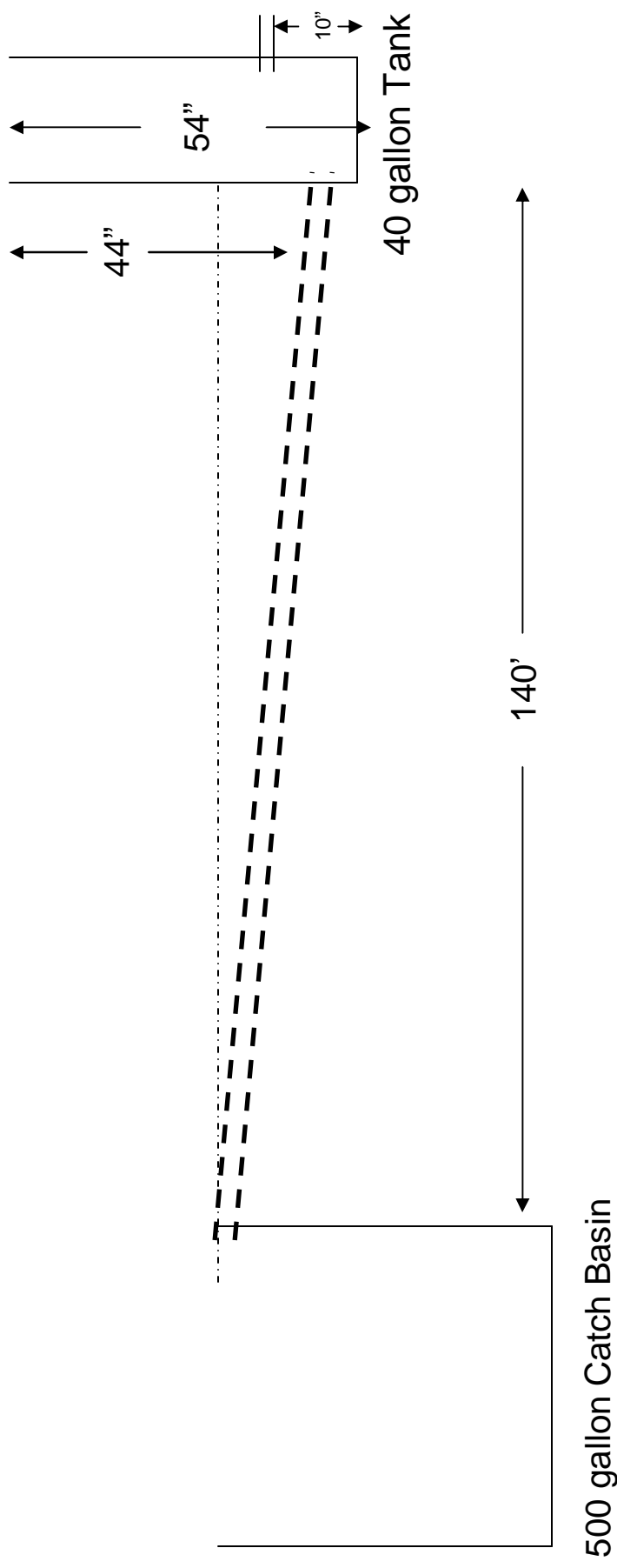


OPTION 1: Use 6" diameter drainage pipe with a 1/8"-per-foot fall

We would use 6" diameter smooth-wall drainage pipe with a 1/8" fall.

From the top of the Catch Basin, the 6" drainage pipe would enter the Tank at 44" from the top of the Tank and 4" from the bottom of the Tank.

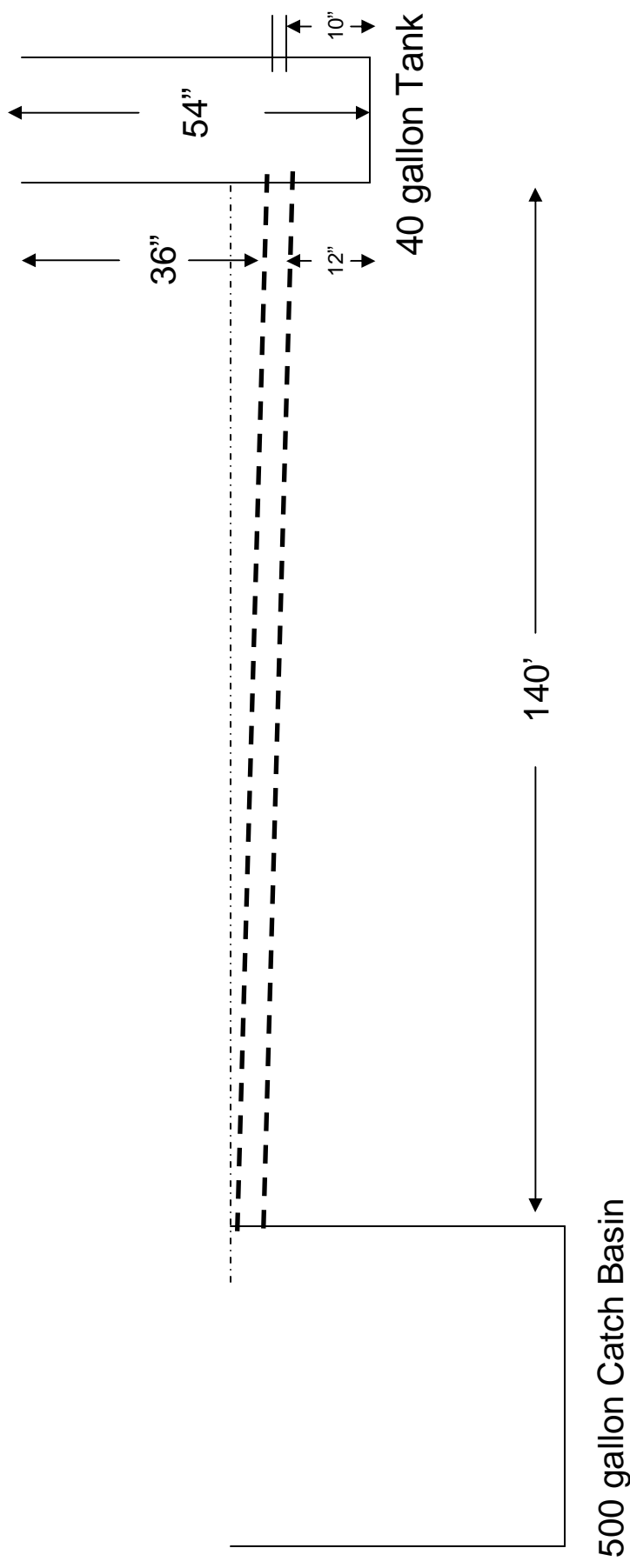
ISSUE: Is it OK that the 6" inflow pipe enters the Tank BELOW the outflow pipe?



OPTION 2: Use 6" diameter drainage pipe with a 1/16"-per-foot drop

From the top of the Catch Basin, a 6" smooth-wall drainage pipe with a 1/16" fall would enter the Tank at 36" from the top of the Tank and 12" from the bottom of the Tank

ISSUE: This option allows the inflow pipe to enter the tank HIGHER than the outflow pipe. But is a 1/16" drop sufficient for this length of pipe and this type of application?



OPTION 3: Use 6" pipe with a 1/8"-per-foot fall, starting 12" higher

We could extend the top of the Catch Basin by 12". From the top of the extended Catch Basin, a 6" pipe with a 1/8" fall would stay above ground for 96', then go below ground and enter the Tank 32" from the top of the Tank (and 16" from the bottom of the Tank)

ISSUE: This option provides for 1/8" drop and the inlet into the Tank higher than the outlet. However, are there risks associated with an above-ground installation (i.e., supporting the weight of the water; potential for pipe freezing; etc.)?

