the clayton engineering company, inc.

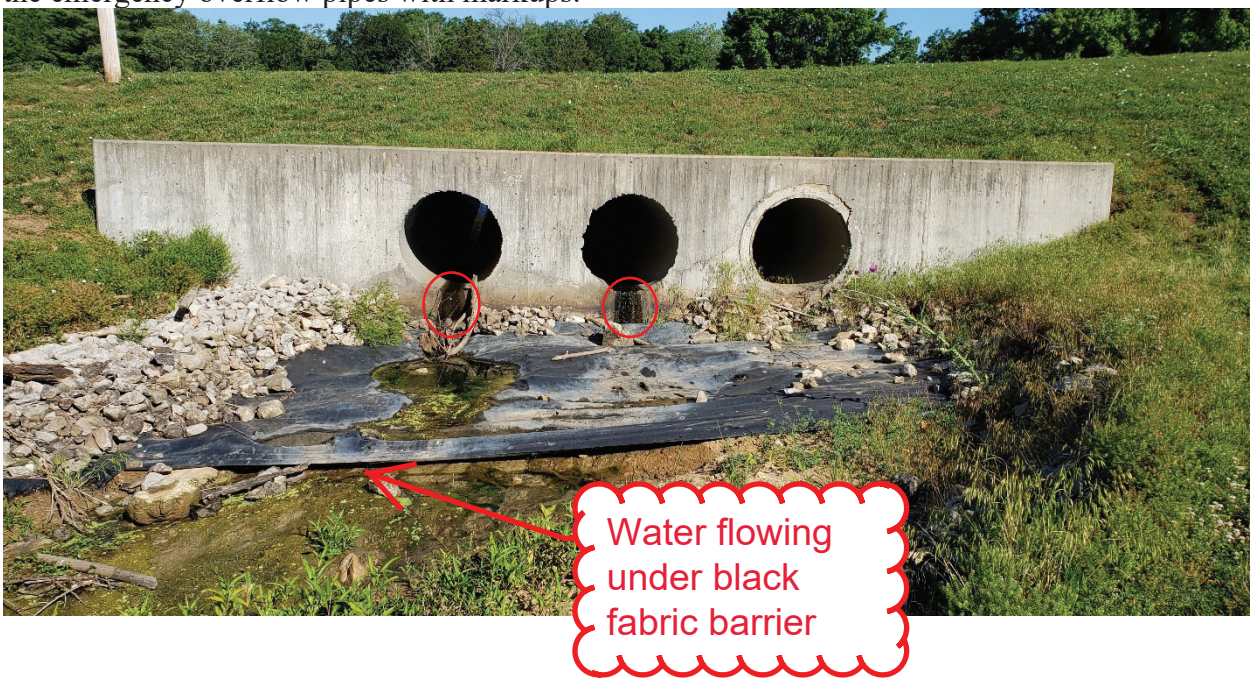
MEMORANDUM

TO: Green Trails Estates Trustees
FROM: Greg Staley, PE
DATE: 6/17/2020
SUBJECT: Site Visit for Dam

The dam consists of the following items: 1) the earth dam itself; 2) general detention structure, which is the flat grate in the lake that is intended to keep debris from getting into the structure; 3) three emergency overflow pipes intended to convey larger storms; 4) the outflow channel from the emergency overflow pipes to the creek.

Following is a list of bullet points from my site visit to the dam:

1. Water is draining out of the two southern pipes, which is dropping down under the black fabric barrier causing erosion of the earth surface. The concrete headwalls on either end of the pipes seem to be in good condition. Below is the view of the downstream ends of the emergency overflow pipes with markups.

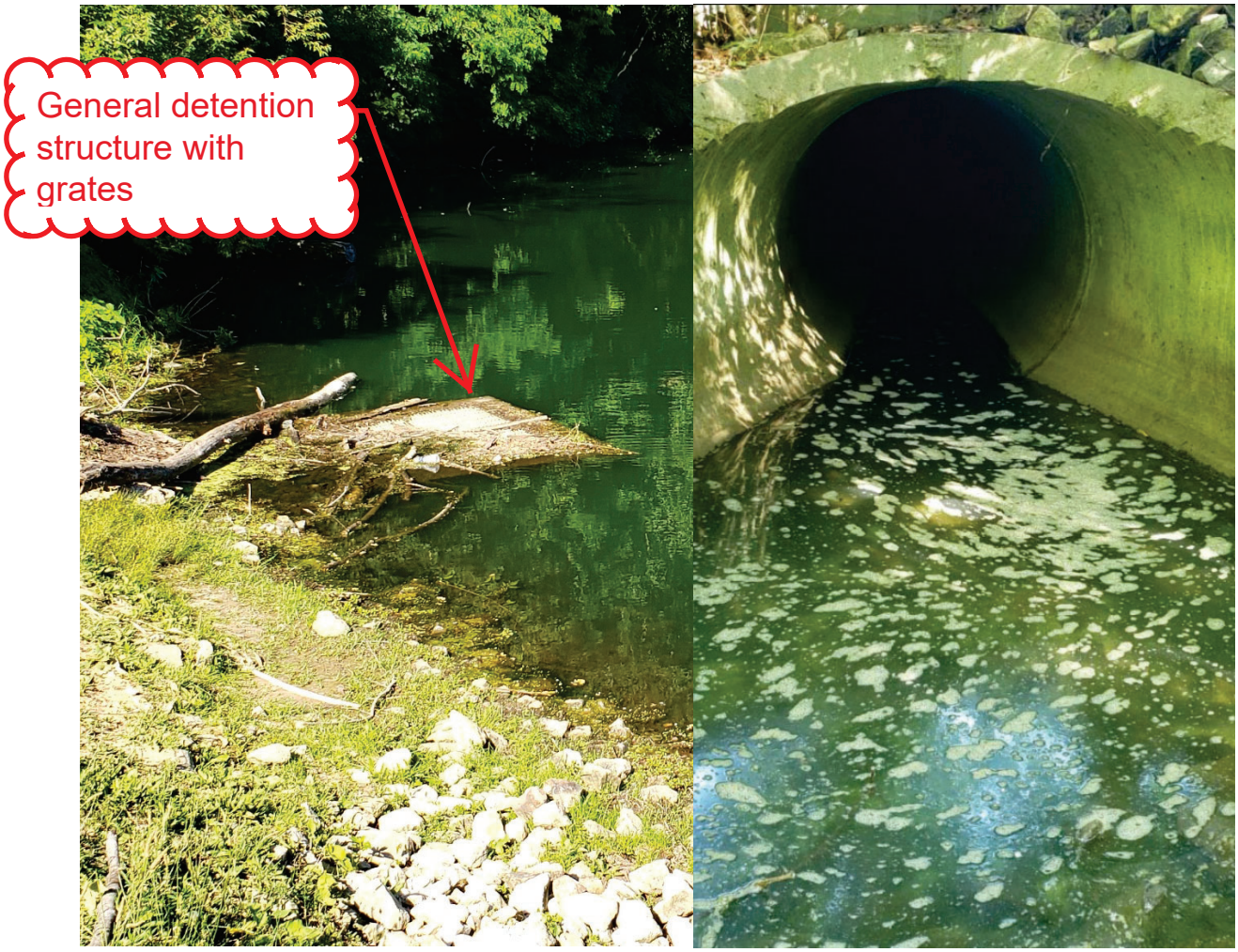


2. Due to major storms, the downstream channel's rock revetment (similar to the rock on the banks) has been washed away with portions of the black fabric barrier. The earth is exposed and susceptible to erosion, deep cutting, and meandering of the channel.

3. The next two pictures below (looking upstream) is hard to see in a 2D picture, but there are two significant drops in the channel that are susceptible to continued erosion upstream.

4. All-in-all, the downstream area where the stream flattens out is not eroding as much in comparison to the steeper portion upstream, however, there is still erosion occurring.

5. At the downstream end of the general detention structure's outflow pipe I could hear water dropping into the pipe, but there did not seem to be any outflow that I could see. This should be investigated via a roving camera to see the condition of the pipe.



Time did not allow me to continue downstream to check the condition of the stream into the woods.

We will investigate ways to better control the major storms with the following potential options: larger diameter rock; stilling basin(s); stream drops; other energy dissipation devices; etc.