



# SAFEGUARDS TO PROTECT ENDANGERED SPECIES

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Carroll County, Maryland, situated along the State's northern border adjacent to Pennsylvania, is not unlike any other municipality when it comes to rehabilitation projects. Once a pipe has been identified as seeing signs of wear or potential failure the owner will determine the best course of action.

If the decision is to use cured-in-place-pipe (CIPP) as the rehabilitation method, then the typical considerations come into play such as pipe diameter, amount of cover over the pipe, load being applied to the pipe and access. If streams and waterways are involved there are additional considerations that the local or state Department of Natural Resources (DNR) may impose.

During the permitting process with Maryland DNR, a critically-endangered species was discovered living in the worksite area – the Bog Turtle (*Glyptemys muhlenbergii*). Bog Turtles are rare to Maryland and are only found in a very specific habitat of





spring-fed wetlands. Bog turtles are the smallest of all North American turtles and among the smallest in the world. Bog Turtles seldom exceed 4" in length and weigh no more than 5 ounces (142 g).

When DNR was notified that UV GRP CIPP was the technology being used on this project, the initial permit was revised due to the environmental safeguards built into this technology. The only precaution needed was that a Wildlife Ecologist had to visit the jobsite the morning of the project to verify that no Bog Turtles were present in the pipe or limits of disturbance.

Utilizing UV GRP CIPP reduces the environmental footprint on the jobsite. The liner is pulled into place using a constant tension winch. Once the liner is in place, it is inflated with air. Then, a light train is inserted into the liner, and the liner ends are secured with a packer (to eliminate air escaping). After the liner is fully inflated, the interior of the liner is inspected using CCTV prior to curing. The speed of the curing is determined by the pipe diameter, liner thickness and the intensity of the UV lamps.

UV GRP CIPP was a good choice in this situation thanks to the liners being totally encapsulated with both an exterior and interior foil to contain the styrene, thus eliminating the potential of resin slugs or spills onsite. Post-cure rinsing of the liner was not required, which is a known benefit of the UV curing process.

The project was a success, and no visible signs of disruption occurred to the Bog Turtles.

