

**Jefferson County Public Works Department  
Hillsboro Victoria Road Retaining Wall Design  
Hillsboro, Missouri**

*Subconsultant, Geotechnical Engineering*

Millennia performed a geotechnical study for use in the design and construction of the proposed replacement of the headwall and retaining wall along the east side of Hillsboro Victoria Road at the bridge crossing of a tributary to Cotter Creek near Hillsboro, Missouri. The bridge is a concrete arch culvert, skewed at about 40 degrees to the road orientation. The arch opening is about 8 feet wide by about 7 feet high. The concrete headwall on the east side of the roadway is about 40 feet in length and up to about 12 feet in height. The maximum wall height is at the south end, tapering downward to the north. Beyond the north termination of the concrete headwall, a stacked limestone block wall is present, extending about 40 additional feet northward and continuing to taper downward in height. The existing concrete headwall displayed significant cracking, and the limestone block wall was bowed outward substantially. Both are to be replaced with a new cast-in-place concrete cantilever or gravity retaining wall. The new wall will be designed in accordance with MoDOT LFD methods. Millennia provided an exploration program consisting of four soil borings, spaced at approximately 25 feet apart. The purpose of the geotechnical services was to obtain information concerning subsurface conditions at the site to form conclusions and make engineering recommendations for the following geotechnical considerations:

- A general geologic reconnaissance of the site was performed to observe for geotechnical conditions that might affect the design, construction, and performance of the new retaining wall.
- Description, depth, thickness, and general engineering properties of the materials encountered at the boring locations.
- Recommendations for the design of spread footing foundations including bearing capacity and settlement considerations.
- Recommended lateral earth pressures for use in wall design, based on the general character of the subsurface materials and anticipated condition of the wall backfill.
- The location and description of any potentially deleterious materials encountered at the boring locations that may interfere with construction progress or wall performance.
- The potential impact of bedrock and groundwater on the design and construction of the project.
- Recommended observation, documentation and materials testing programs during construction of the project.

**Client:**

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