The shrink-swell capacity in till clays is one reason many newer housing developments have over-estimated the potential for foundation settlement. The presence of smectitic clay content in till is a major factor contributing to this behavior. The occurrence of smectitic clay in till deposits has been documented in several areas of Missouri, including the Wentzville 7.5' Quadrangle, and is known to result in significant foundation settlement problems. The potential for foundation settlement in areas with high smectitic clay content should be carefully considered when planning new developments in this region.

In drainages associated with the Cuivre River (the northern part of the quadrangle), fine-grained and sandy deposits make up elevated benches above the base of the terrace. These coarse-grained materials should be considered cohesionless soils. The presence of cohesionless soils in these areas can lead to liquefaction during seismic events, which can result in damage to infrastructure and buildings located on these deposits. The liquefaction potential of these materials should be evaluated during site characterization to ensure the stability of structures in these areas.

The occurrence of Paleosols within the till deposits is also significant. Paleosols are areas of surficial materials that have been removed, altered or filled to an unknown depth in residential and commercial developments. These areas have less than three meters (10 feet) of fine-grained surficial materials and are typically associated with areas of surficial materials that have been disturbed by human activity.

The presence of loess exposures in the area was also noted. These exposures were less than three meters (10 feet) thick. Below the till plain summits most of the coarse-grained pebble to gravel sized deposits were identified. Allen and Ward (1977) also recognized Paleosols within the till deposits. Till below these paleosols are massive, fissile and dense in the basal parts.

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