EXPANSIVE SOIL AND ROCK SUSCEPTIBILITY MAP OF THE MAGNA QUADRANGLE, SALT LAKE COUNTY, UTAH

by

Ashley H. Elliott, Jessica J. Castleton, and Greg N. McDonald

2011

USING THE MAP

This map depicts the location of known or suspected expansive soil and rock in the Magna quadrangle. The presence and severity of expansive soil and rock along with other geologic hazards should be addressed in site-specific geotechnical/geologic-hazard investigations. This map is not intended for use at scales other than 1:24,000, and is designed for use in general planning to indicate the need for site-specific geotechnical/geologic-hazard investigations. Site-specific geotechnical/geologic-hazard investigations can resolve uncertainties inherent in generalized mapping and help ensure safety by identifying the need for special foundation designs, mitigation and/or construction techniques.

For additional information about expansive soil and rock in the Magna quadrangle, refer to Chapter 7 of the accompanying report.

EXPLANATION

- Not Mapped - Areas not mapped due to significant and ongoing human disturbance.
- EXPANSIVE SOIL AND ROCK SUSCEPTIBILITY
  - High - Soils classified by the U.S. Natural Resources Conservation Service (NRCS) as having a high potential for volumetric change (linear extensibility >6%); includes geologic units mapped by Solomon and others (2007) in which geotechnical testing indicates an abundance of expansive clay minerals (swell/collapse test [SCT] values greater than or equal to 3% and/or liquid limit [LL] values greater than or equal to 45, and plasticity index [PI] values greater than or equal to 20).
  - Moderate - Soils classified by the NRCS as having moderate susceptibility for volumetric change (linear extensibility 3–6%); includes interbedded Lake Bonneville deposits mapped by Solomon and others (2007) in which geotechnical borehole logs indicate thick expansive clay layers are present. Typically, these units have an SCT of 2–3% and/or an LL of 20–40 and a PI of 10–30.
  - Low - Soils classified by the NRCS as having low potential for volumetric change (linear extensibility 0–3%); includes geologic units dominated by sand and gravel mapped by Solomon and others (2007) in which geotechnical testing indicates a lack of expansive clay minerals (SCT values of 0–2% and/or an LL of 0–30, and a PI of 0–15).