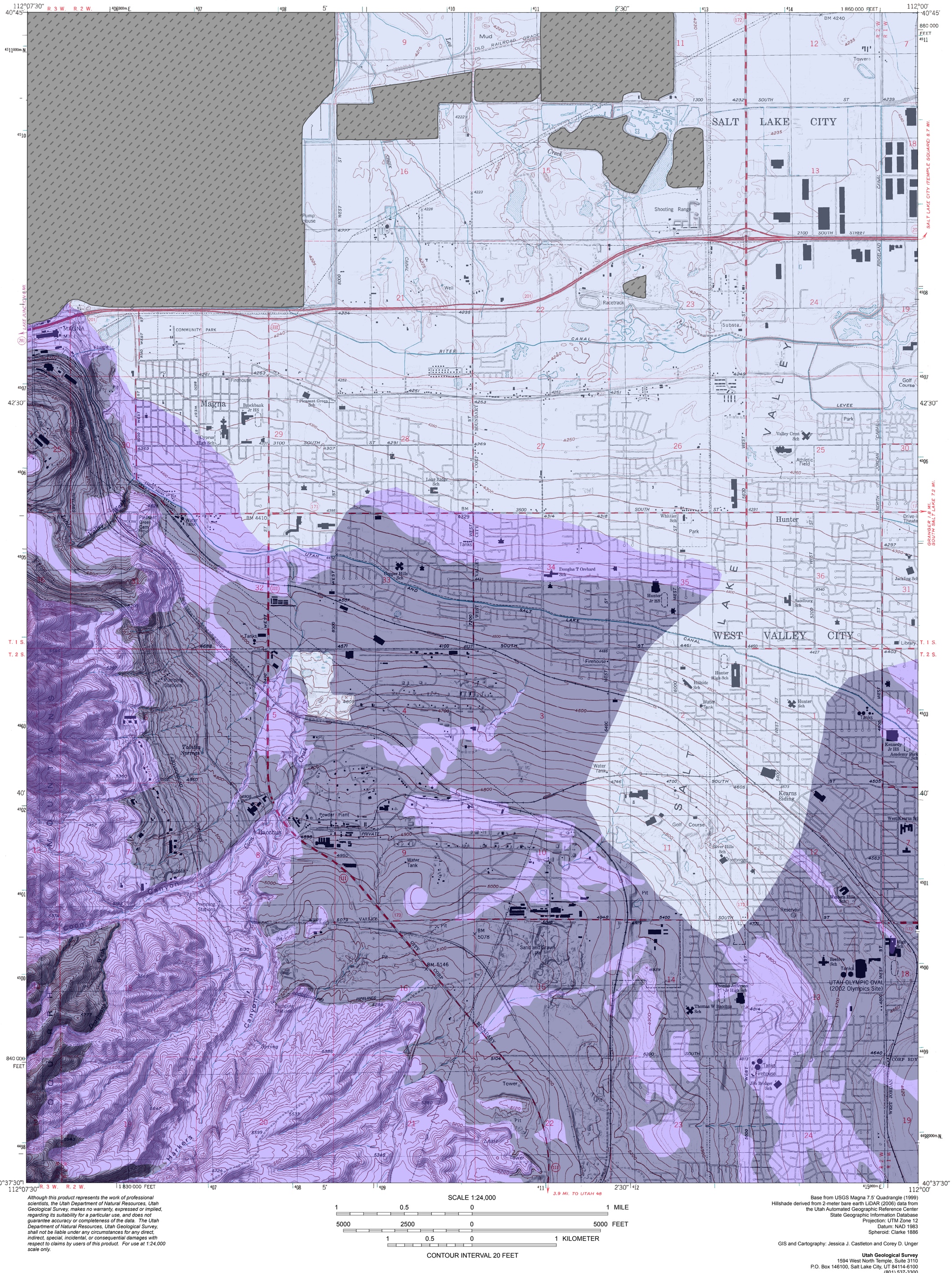
UTAH GEOLOGICAL SURVEY
a division of
Utah Department of Natural Resources

Plate 10
Utah Geological Survey Special Study 137
Geologic Hazards of the Magna Quadrangle, Salt Lake County, Utah



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SCALE 1:24,000

1 0.5 0 1 MILE

5000 2500 0 5000 FEET

1 0.5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET

Base from USGS Magna 7.5' Quadrangle (1999)
Hillshade derived from 2-meter bare earth LiDAR (2006) data from the Utah Automated Geographic Reference Center State Geographic Information Database

Projection: UTM Zone 12
Datum: NAD 1983
Spheroid: Clarke 1886

GIS and Cartography: Jessica J. Castleton and Corey D. Unger

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SHALLOW GROUNDWATER POTENTIAL MAP OF THE MAGNA QUADRANGLE, SALT LAKE COUNTY, UTAH

by

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2011

APPROXIMATE MEAN DECLINATION, 2010

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1. Antelope Island South
2. Baileys Lake
3. Salt Lake City North
4. Farnsworth Peak
5. Salt Lake City South
6. Bingham Canyon
7. Copperton
8. Midvale

ADJOINING 7.5' QUADRANGLE NAMES

EXPLANATION

Not Mapped – Areas not mapped due to significant and ongoing human disturbance.

SHALLOW GROUNDWATER POTENTIAL CATEGORIES

Shallow Groundwater unit 1 (SGW1) – Areas identified as having potentially shallow groundwater, including soils mapped by the Natural Resources Conservation Service (NRCS) as naturally wet (depth to groundwater less than 60 inches [152 cm] below the ground surface), poorly drained or frequently irrigated, and where water-well or geotechnical data indicate a significant area of permanent shallow groundwater (less than 10 feet [3 m]). Construction in these areas will likely encounter groundwater at less than 10 feet (3m). Basements and other water-sensitive underground facilities are not recommended without adequate drainage or other protection. Following development, landscape irrigation and other sources of urban runoff may cause groundwater levels to rise even higher in these areas.

Shallow Groundwater unit 2 (SGW2) – Areas identified as having potentially shallow groundwater, including soils mapped by the NRCS as poorly drained (depth to groundwater is likely less than 50 feet [15 m] below the ground surface), generally fine-grained soils that may develop shallow groundwater locally when rates of water application exceed the soil's drainage capacity. Subsurface drains are frequently required to prevent these soils from becoming saturated. Because these soils naturally drain slowly, they may remain wet for most of the year, even though water is applied only during the growing season. Permanent shallow groundwater is possible following urbanization.

Shallow Groundwater unit 3 (SGW3) – Areas identified as having potentially shallow groundwater, including soils mapped by the NRCS as moderately to freely draining soils (depth to groundwater is likely greater than or equal to 50 feet [15 m] below the ground surface) that are commonly irrigated for agricultural purposes. However, where intense levels of water application occur, these soils may develop seasonally high groundwater, but typically drain quickly once water application stops or is reduced below the soil's drainage capacity. Seasonal or transient shallow ground water is possible especially following development; landscape irrigation and other sources of urban runoff may cause groundwater levels to rise even higher in these areas.

USING THIS MAP

This map shows the location of known and possible areas of shallow groundwater in the Magna quadrangle. The map is intended for general planning purposes to indicate where shallow groundwater may be present and where site-specific geotechnical/geologic-hazard investigations may be required. The UGS recommends a site-specific geotechnical/geologic-hazard investigation for development at all locations in the Magna quadrangle. Site-specific geotechnical/geologic-hazard investigations can resolve uncertainties inherent in generalized hazard mapping and help ensure safety by identifying the need for special foundation designs, mitigation, and/or construction techniques. These investigations are particularly important for areas within the Magna quadrangle because local areas of shallow perched groundwater too small to show at the map scale (1:24,000) may be present anywhere within the quadrangle. 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 may require installing and monitoring observation wells through more than one season and/or examining sediments exposed in test pits for evidence of seasonal groundwater fluctuations.

For additional information about the shallow groundwater potential in the Magna quadrangle, refer to Chapter 8 of the accompanying report.