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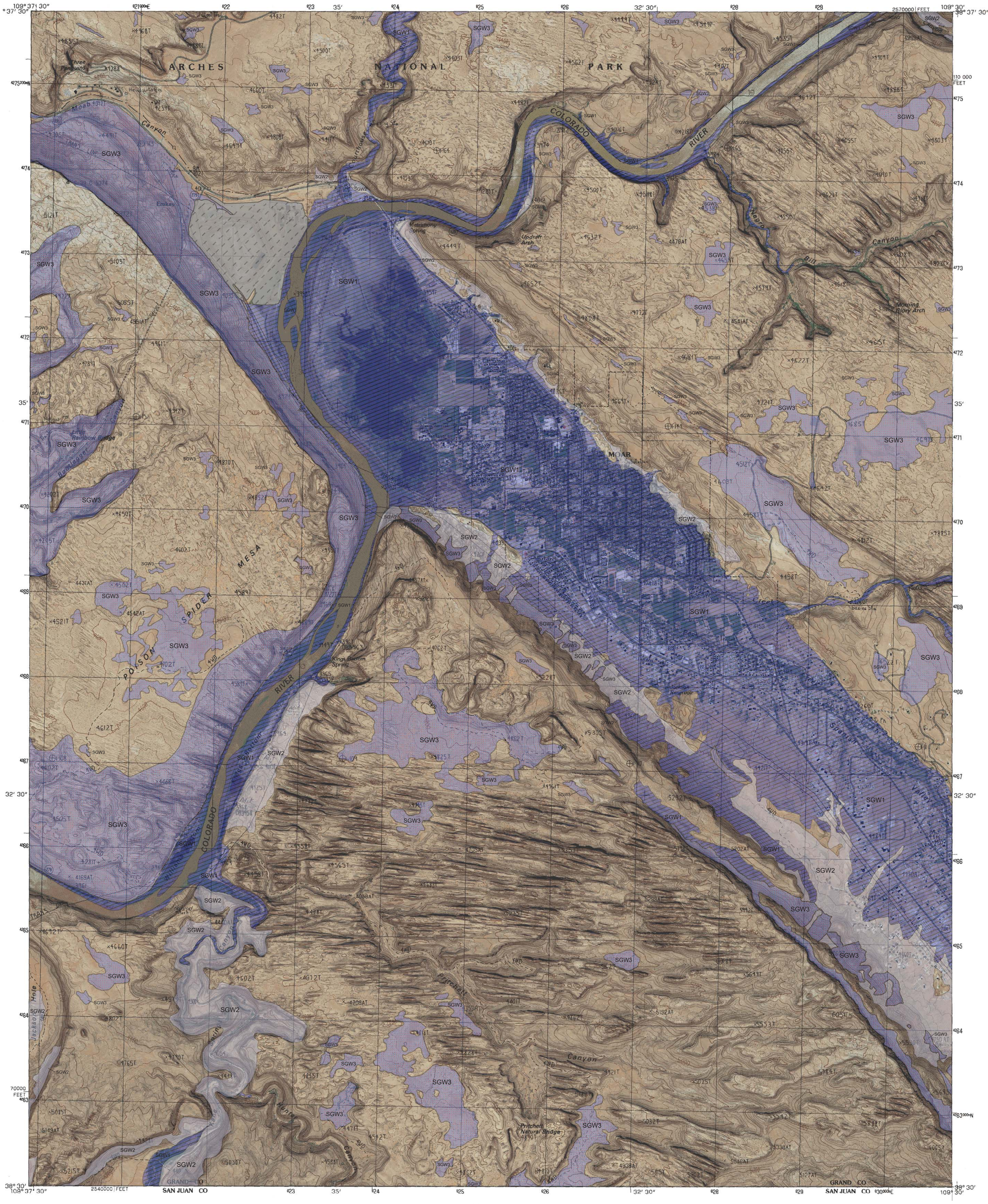

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SCALE 1:24,000

1 0.5 0 1 MILE

5000 2500 0 5000 FEET

1 0.5 0 1 KILOMETER

CONTOUR INTERVAL 40 FEET

Base from USGS Moab 7.5' quadrangle (1985), slopeshade derived from the USGS 10-meter National Elevation Dataset (NED) (2009), and aerial photography from the National Agriculture Imagery Program (NAIP, 2011).
Projection: UTM Zone 12
Datum: NAD 1983

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APPROXIMATE MEAN DECLINATION, 2018

SHALLOW GROUNDWATER POTENTIAL MAP OF THE MOAB QUADRANGLE, GRAND COUNTY, UTAH

by

Jessica J. Castleton, Ben A. Erickson, and Emily J. Kleber

2018

QUADRANGLE LOCATION

1. Merrimac Butte
2. The Windows Section
3. Big Bend
4. Gold Bar Canyon
5. Rill Creek
6. Shafer Basin
7. Trough Springs Canyon
8. Kane Springs

ADJOINING 7.5' QUADRANGLE NAMES

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EXPLANATION

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

Shallow Groundwater Potential Categories

Shallow Groundwater Unit 1 – Area identified as having potentially shallow groundwater, or the possibility of developing shallow groundwater. Includes soils mapped by the Natural Resources Conservation Service (NRCS) as naturally wet, poorly drained or frequently irrigated, and where water-well and/or geotechnical data indicate a significant area of poorly drained soil characteristics or confining geologic conditions where permanent shallow groundwater (less than 10 feet [3 m]) may develop. Current groundwater levels may be deeper than 10 feet (3 m) below the surface; however, construction, irrigation, runoff, and/or increased precipitation in these areas will likely increase shallow groundwater potential. Subsurface drains are frequently required to prevent these soils from becoming saturated. Following development, landscape irrigation, wastewater disposal, and other sources of urban runoff may cause groundwater levels to rise even higher in these areas.

Shallow Groundwater Unit 2 – Area 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, closer to the surface, is possible following urbanization.

Shallow Groundwater Unit 3 – Area 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 groundwater is possible especially following development; landscape irrigation, wastewater disposal, and other sources of urban runoff may cause groundwater levels to rise even higher in these areas.

Bedrock – Limited to no potential for shallow groundwater, but may have springs and water flow at the base of steep cliffs.

USING THE MAP

This map shows the location of known and possible areas of shallow groundwater in the Moab quadrangle. Existing and future development within all three mapped groundwater units will potentially need to contend with shallow groundwater. 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 Moab 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 engineering design, mitigation, and/or construction techniques. These investigations are particularly important for areas within the Moab 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 intended for use at a scale of 1:24,000, and is designed for use in general planning to indicate the need for site-specific, detailed groundwater 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 Moab quadrangle, refer to the accompanying report.