APPENDIX 2.E. CURRENT AND HISTORICAL GROUNDWATER CONDITIONS

2.E.a. Existing and Historical Groundwater Monitoring Programs/Groundwater Elevation Contour Maps

Prepared as part of the

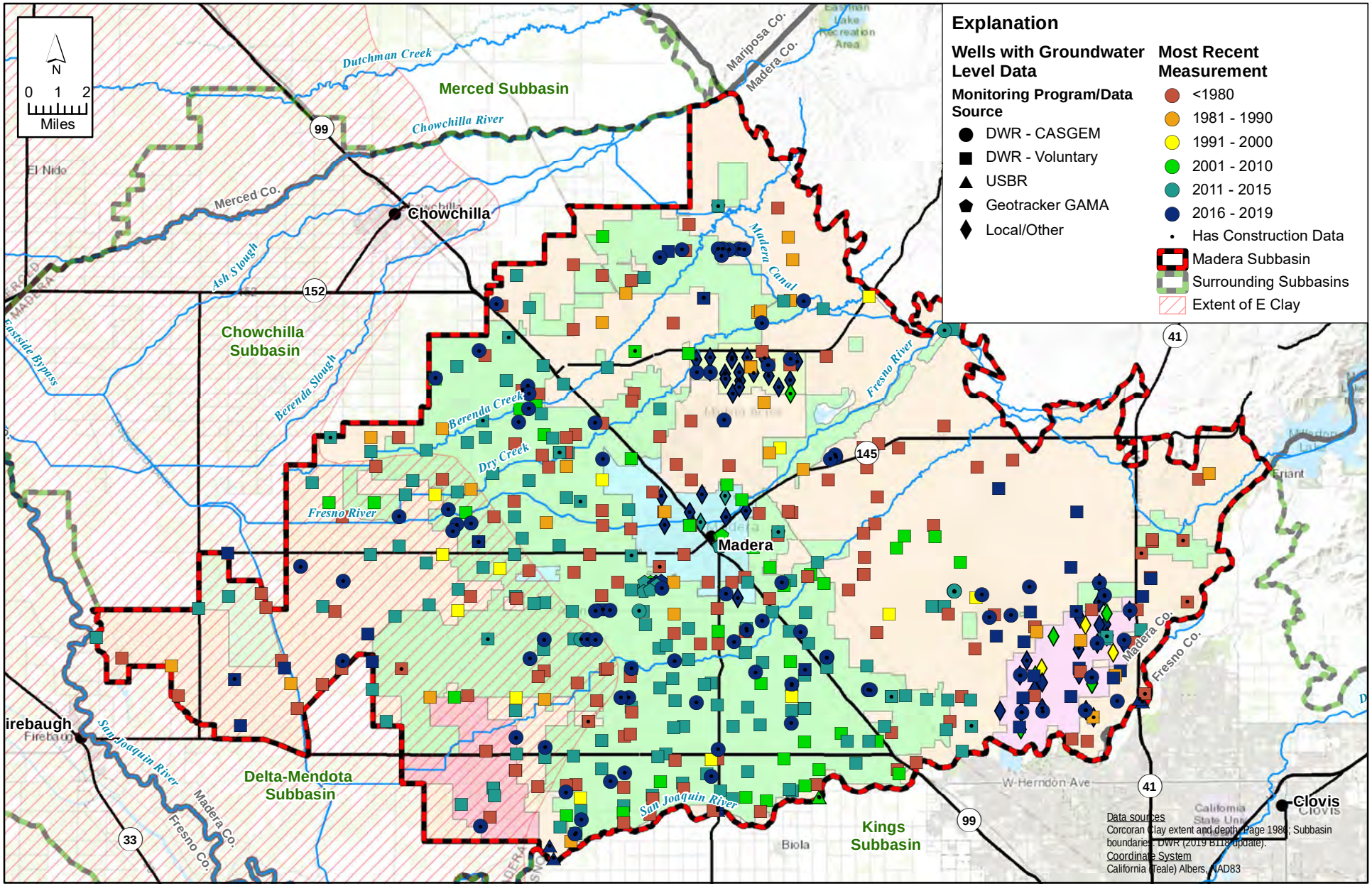
Joint Groundwater Sustainability Plan
Madera Subbasin

January 2020

GSP Team:

Davids Engineering, Inc
Luhdorff & Scalmanini
ERA Economics
Stillwater Sciences and
California State University, Sacramento

Existing and Historical Groundwater Monitoring Programs

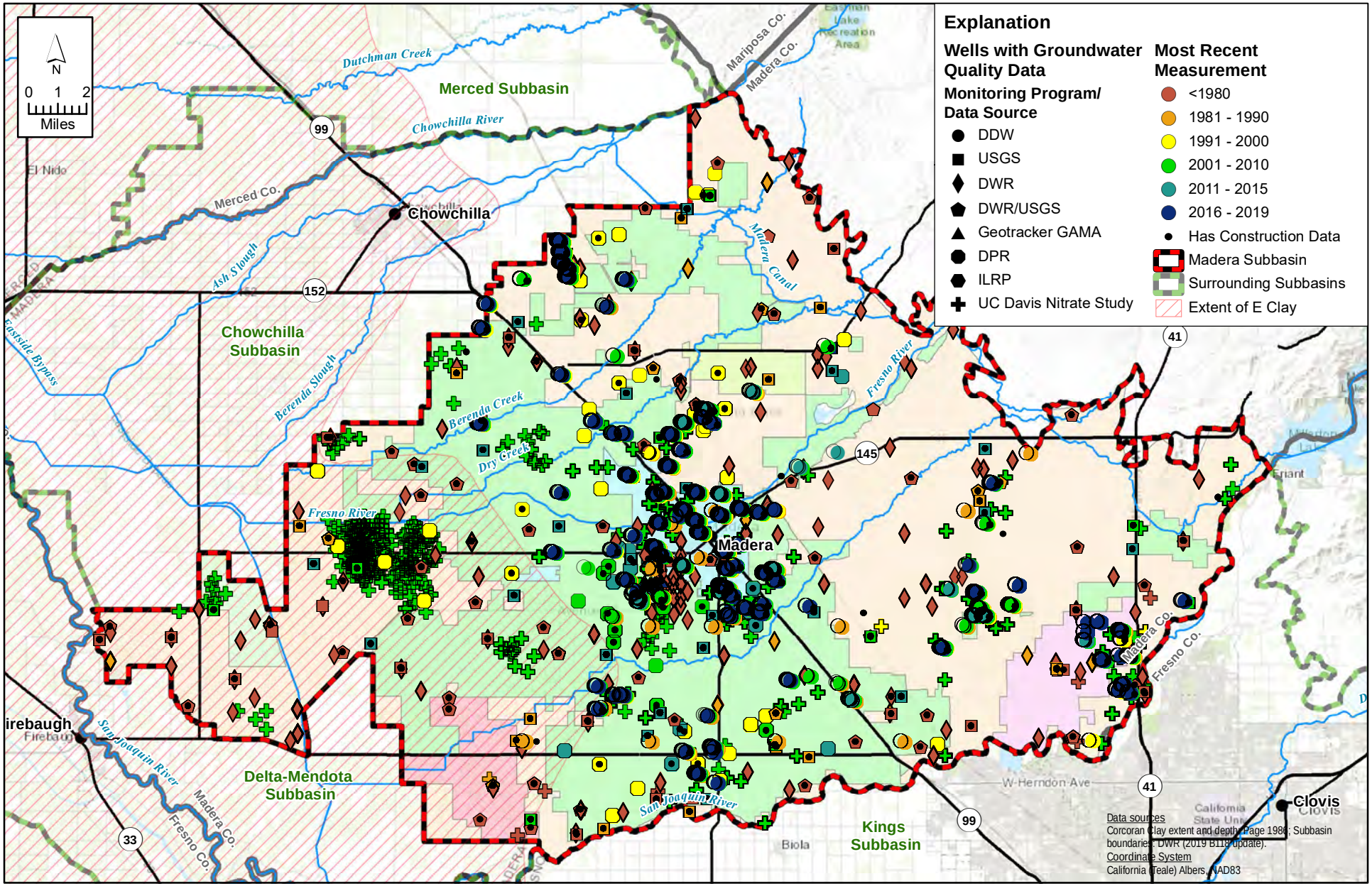


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Appendix 2.E Madera Subbasin Existing and Historical Groundwater Level Monitoring.mxd

DAVIDS ENGINEERING, INC

Luhdorff & Scalmanini Consulting Engineers

APPENDIX 2.E
Existing and Historical Groundwater Level Monitoring Programs



X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Appendix 2.E Madera Subbasin Existing and Historical Groundwater Quality Monitoring.mxd

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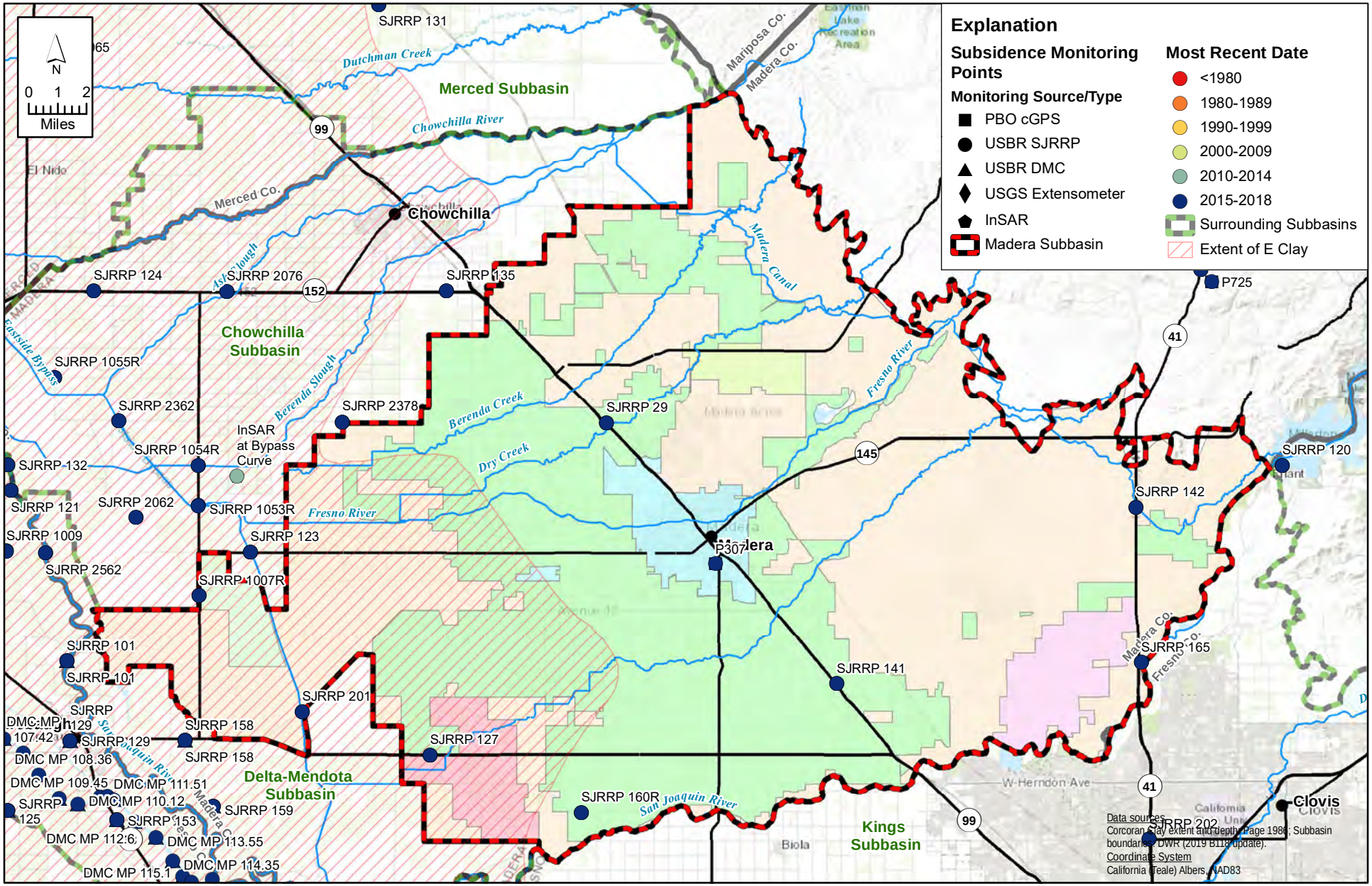
Luhdorff & Scalmanini Consulting Engineers

APPENDIX 2.E
Existing and Historical Groundwater Quality Monitoring Programs



X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Appendix 2.E Madera Subbasin Existing and Historical Land Subsidence Monitoring.mxd

DAVIDS ENGINEERING, INC

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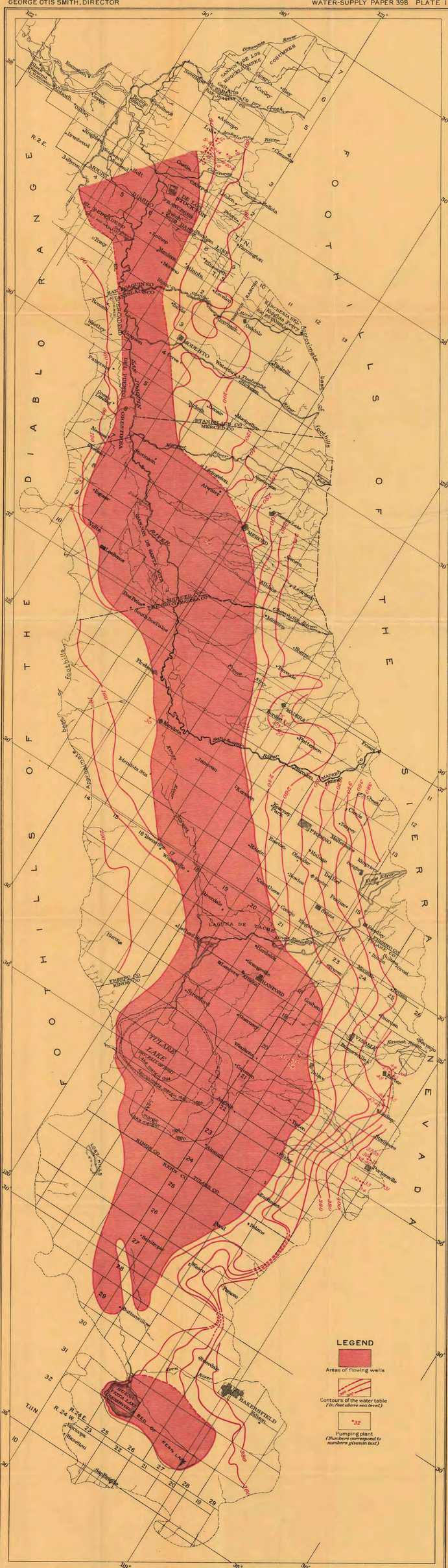
APPENDIX 2.E

Existing and Historical Land Subsidence Monitoring

Groundwater Elevation

Contour Maps



Base from map prepared by W. C. Mendenhall. Corrected from U.S.G.S. topographic atlas sheets

MAP OF SAN JOAQUIN VALLEY, CALIFORNIA

SHOWING ARTESIAN AREAS, GROUND-WATER LEVELS AND LOCATION OF PUMPING PLANTS

Scale 1:500,000

5 0 5 10 15 20 Miles

10 0 10 20 Kilometers

Artesian areas and ground-water levels by W. C. Mendenhall. Pumping plants by Herman Stabler

1915

A2.E.a-6

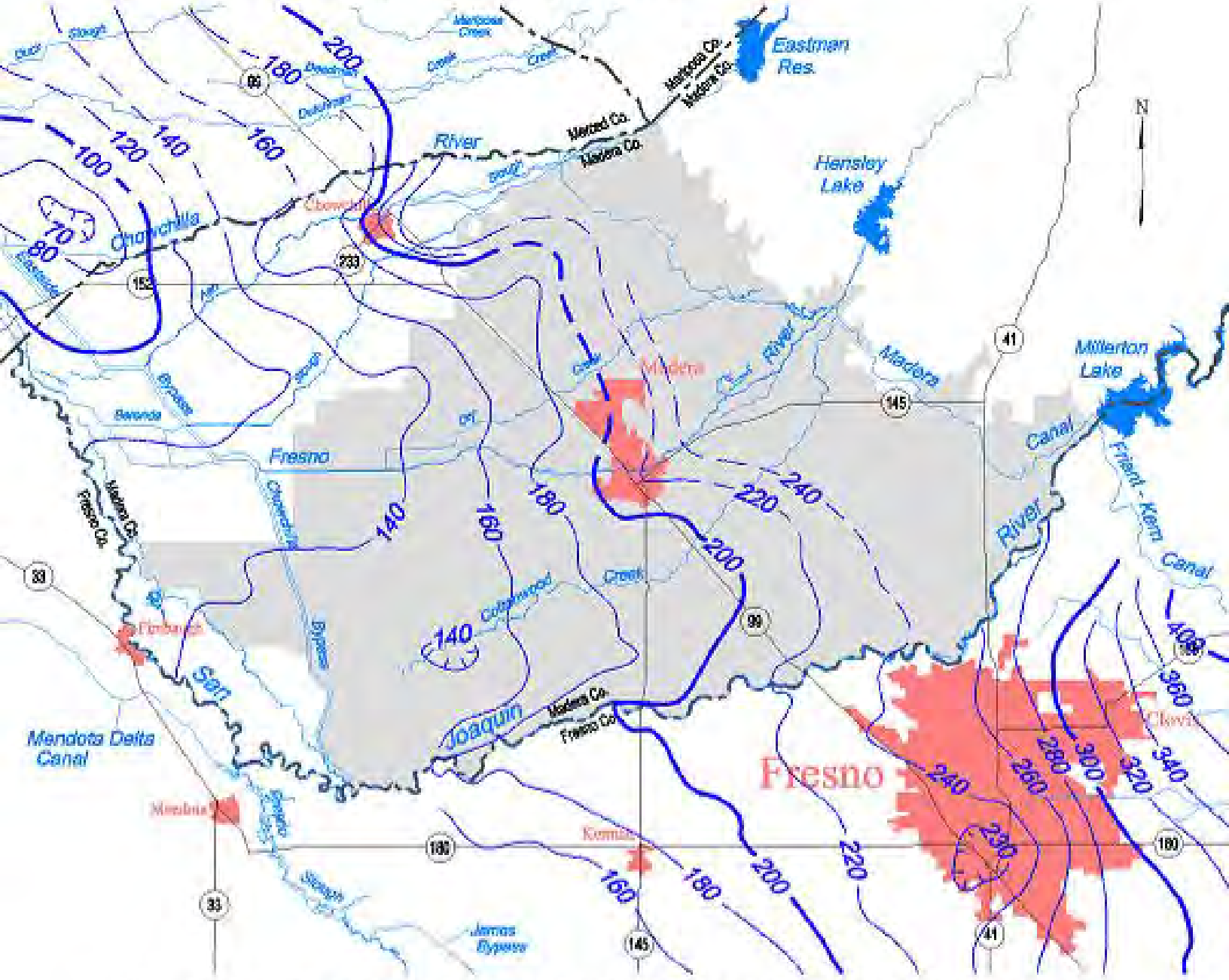
Madera Groundwater Basin

Spring 1958, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer

Scale of Miles

2 0 2 4 6 8

Disclaimer: Base map created from current USGS 1:24,000 and 1:100,000 maps. Some base map features may not have been present (i.e. roads, canals, reservoirs) for the water year shown.



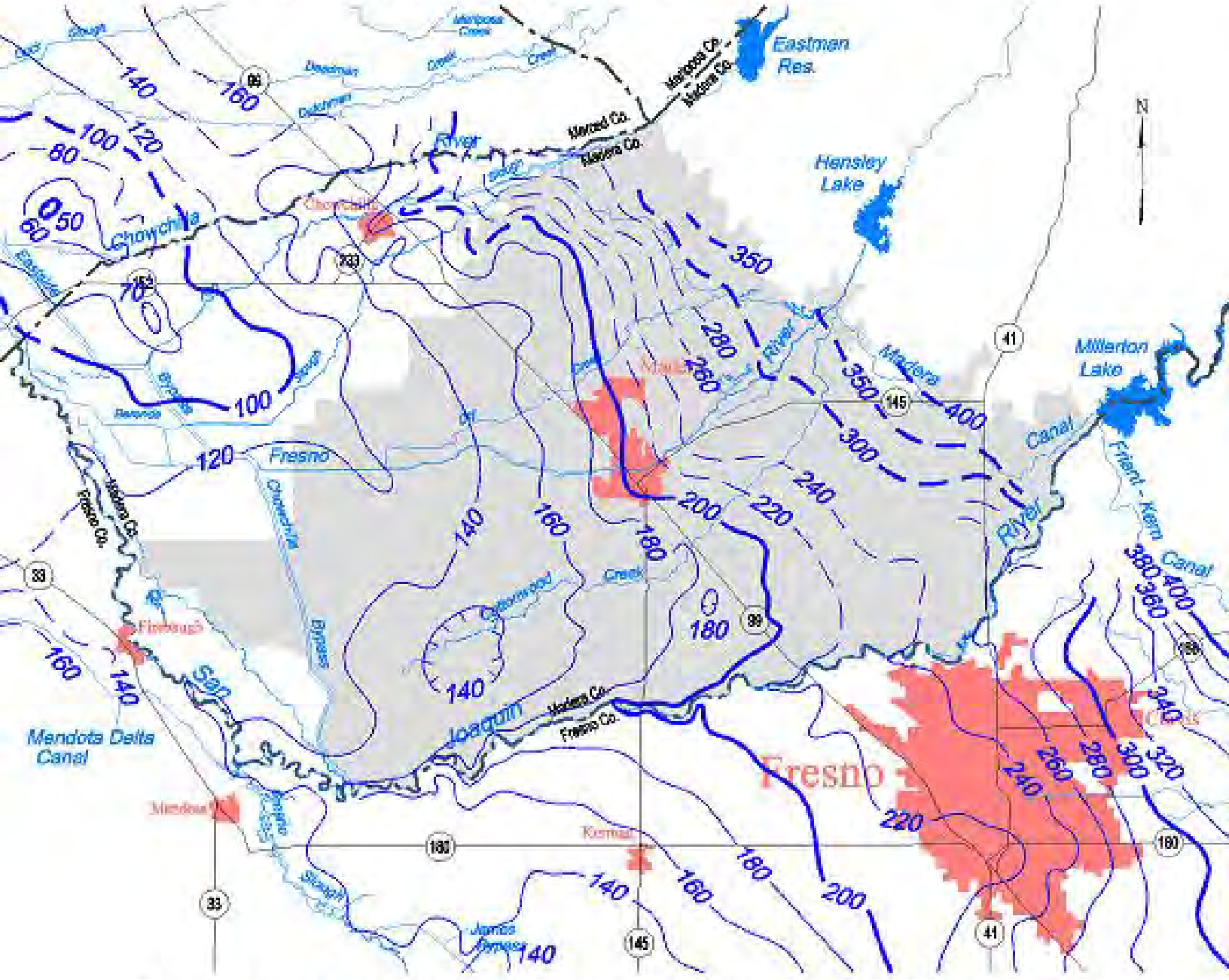
Contours are dashed where inferred. Contour interval is 10, 20 and 40 feet.

Madera Groundwater Basin

Spring 1962, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer

Scale of Miles
2 0 2 4 6 8

Disclaimer: Base map created from current USGS 1:24,000 and 1:100,000 maps. Some base map features may not have been present (i.e. roads, canals, reservoirs) for the water year shown.



Contours are dashed where inferred. Contour interval is 10, 20 and 50 feet.

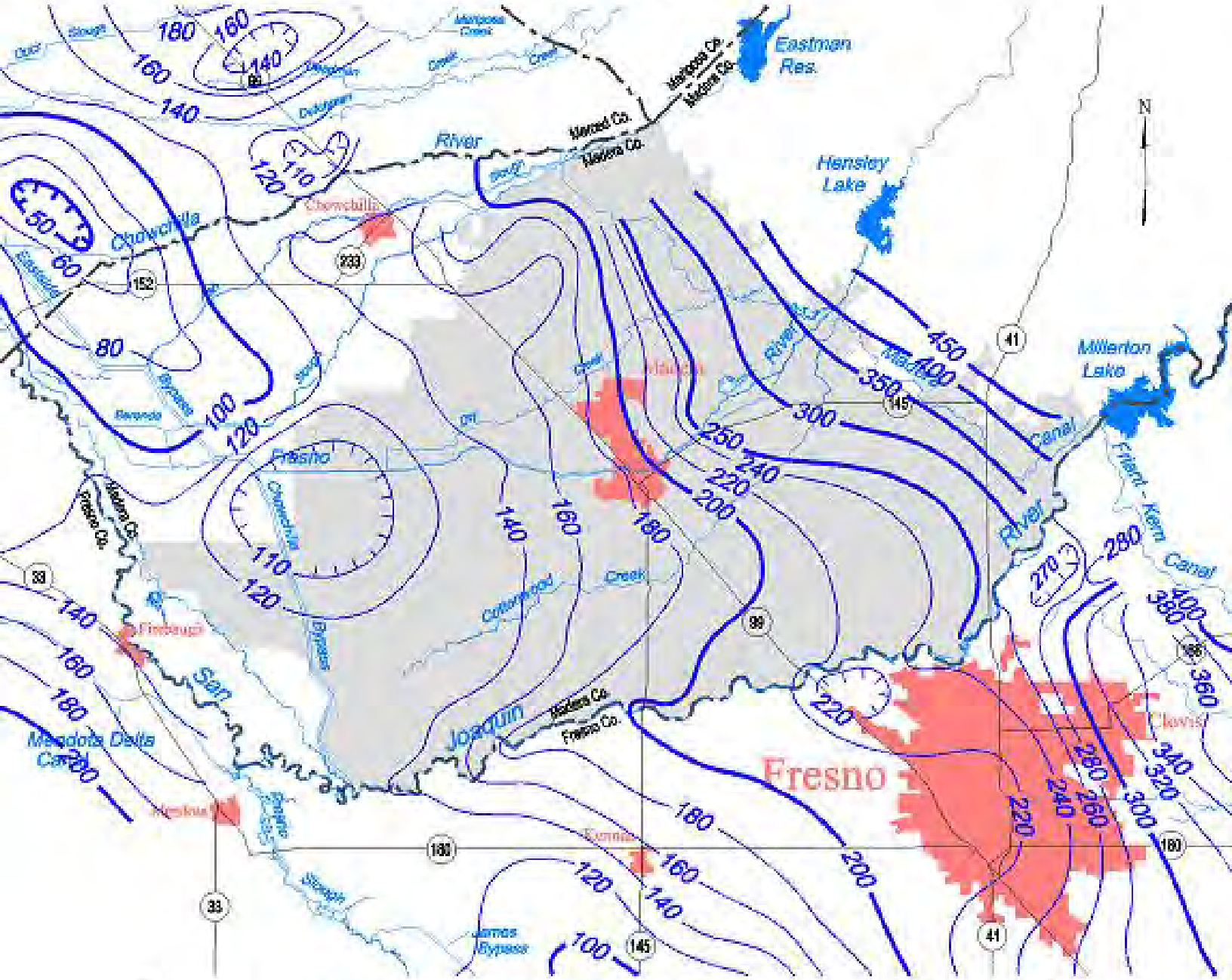
Madera Groundwater Basin

Spring 1969, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer

Scale of Miles

2 0 2 4 6 8

Disclaimer: Base map created from current USGS 1:24,000 and 1:100,000 maps. Some base map features may not have been present (i.e. roads, canals, reservoirs) for the water year shown.



Contours are dashed where inferred. Contour interval is 10, 20 and 50 feet.

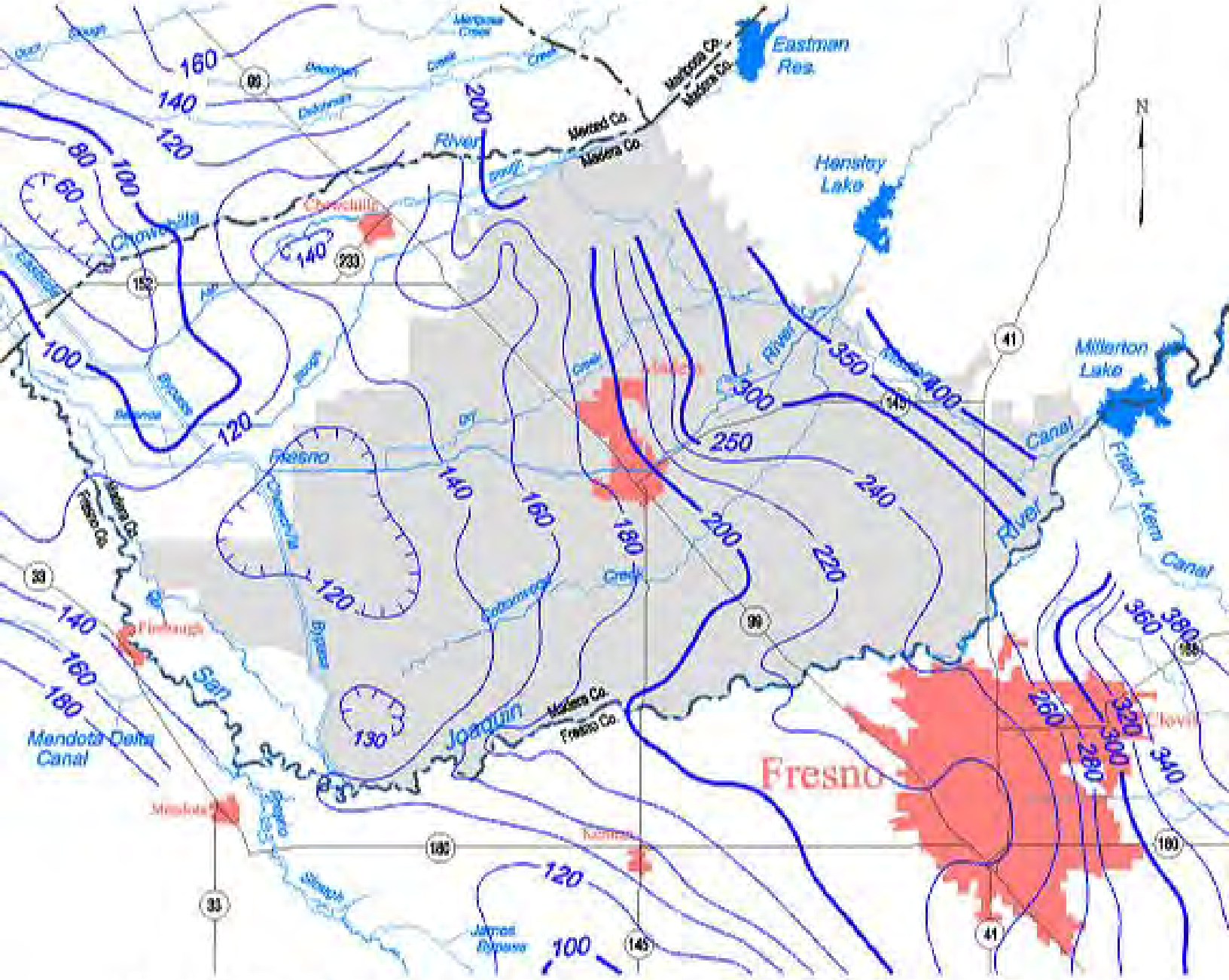
Madera Groundwater Basin

Spring 1970, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer

Scale of Miles

2 0 2 4 6 8

Disclaimer: Base map created from current USGS 1:24,000 and 1:100,000 maps. Some base map features may not have been present (i.e. roads, canals, reservoirs) for the water year shown.



Contours are dashed where inferred. Contour interval is 10, 20 and 50 feet.

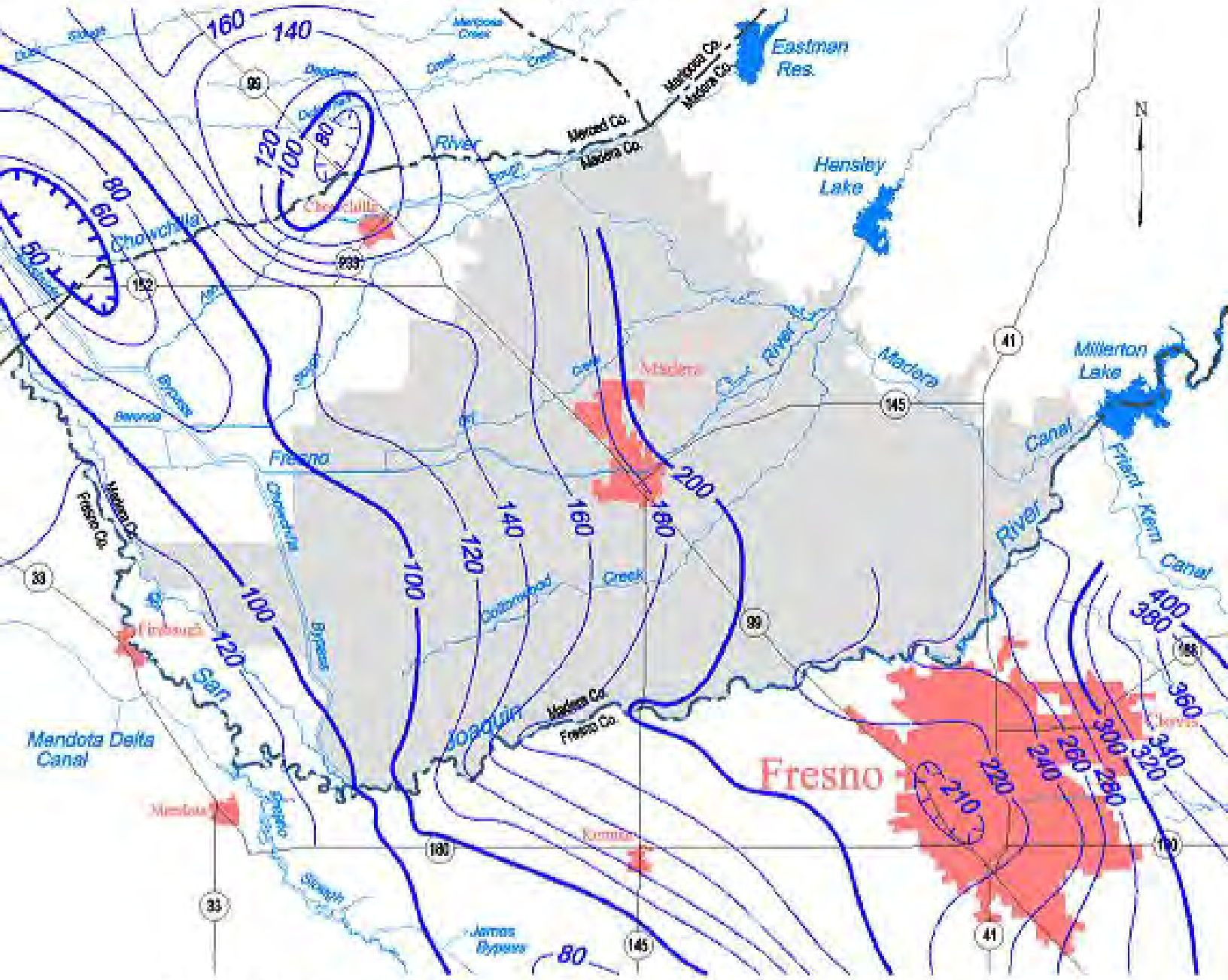
Madera Groundwater Basin

Spring 1976, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer

Scale of Miles

2 0 2 4 6 8

Disclaimer: Base map created from current USGS 1:24,000 and 1:100,000 maps. Some base map features may not have been present (i.e. roads, canals, reservoirs) for the water year shown.



Contours are dashed where inferred. Contour interval is 10 and 20 feet.

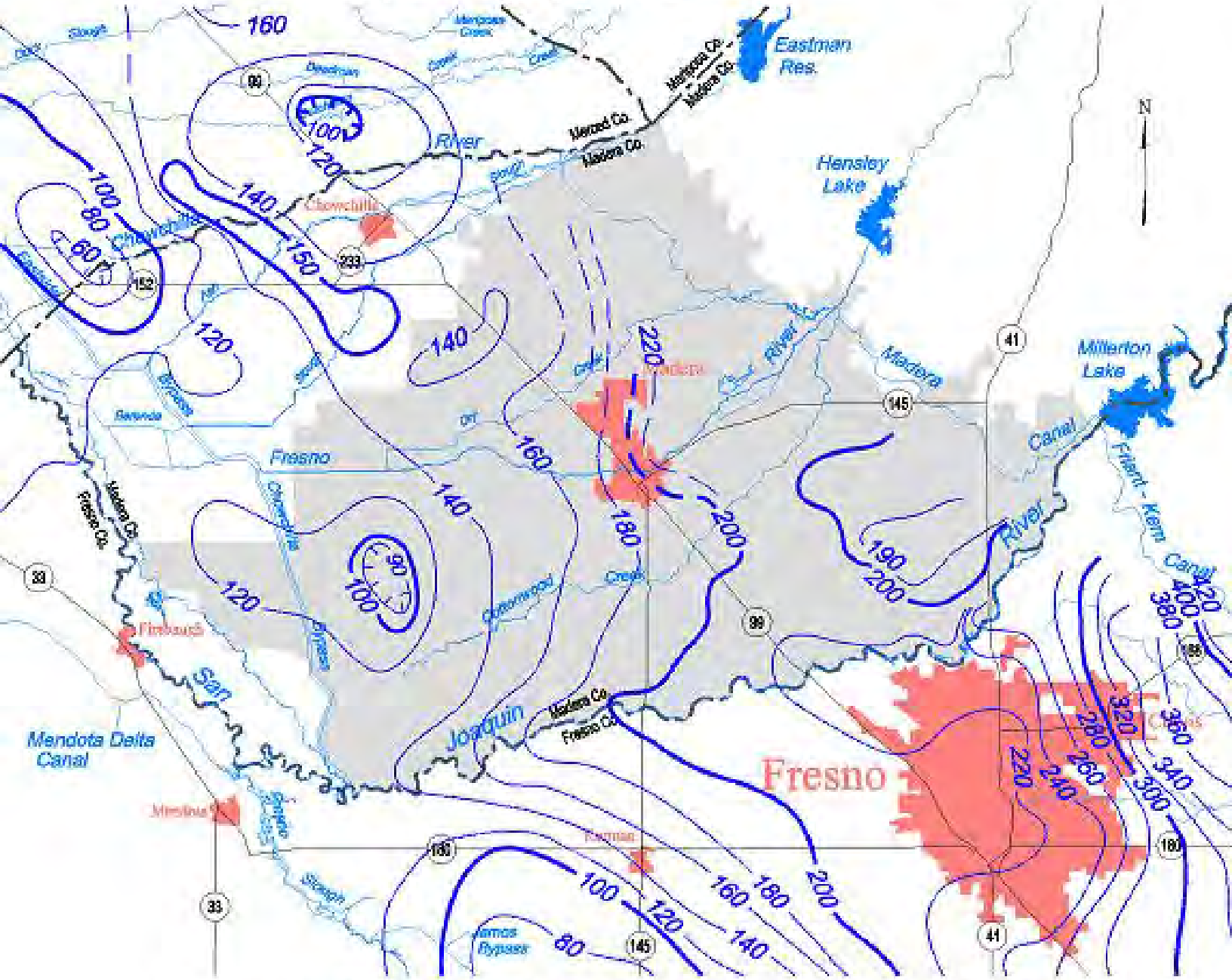
Madera Groundwater Basin

Spring 1984, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer

Scale of Miles

2 0 2 4 6 8

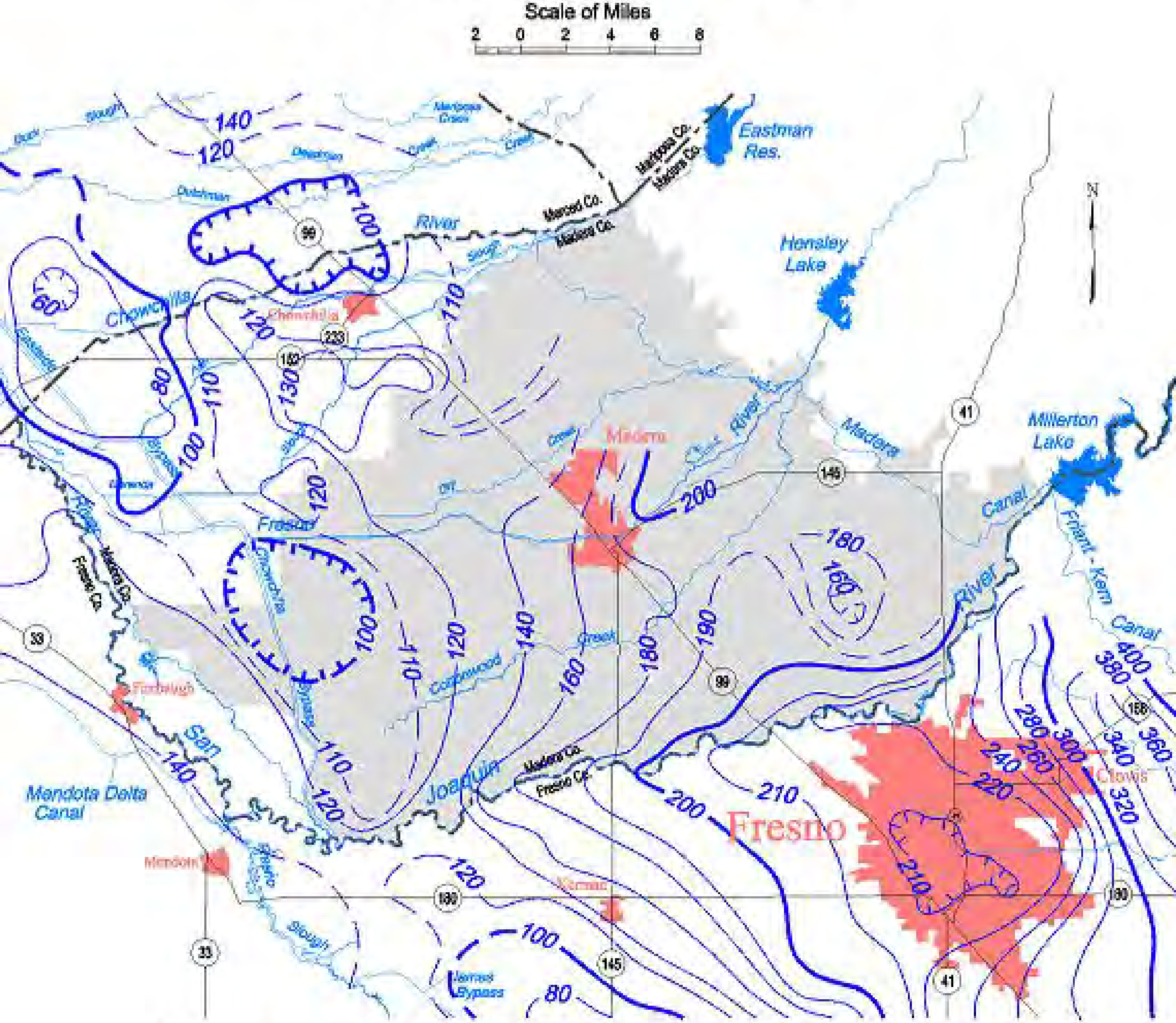
Disclaimer: Base map created from current USGS 1:24,000 and 1:100,000 maps. Some base map features may not have been present (i.e. roads, canals, reservoirs) for the water year shown.



Contours are dashed where inferred. Contour interval is 10 and 20 feet.

Madera Groundwater Basin

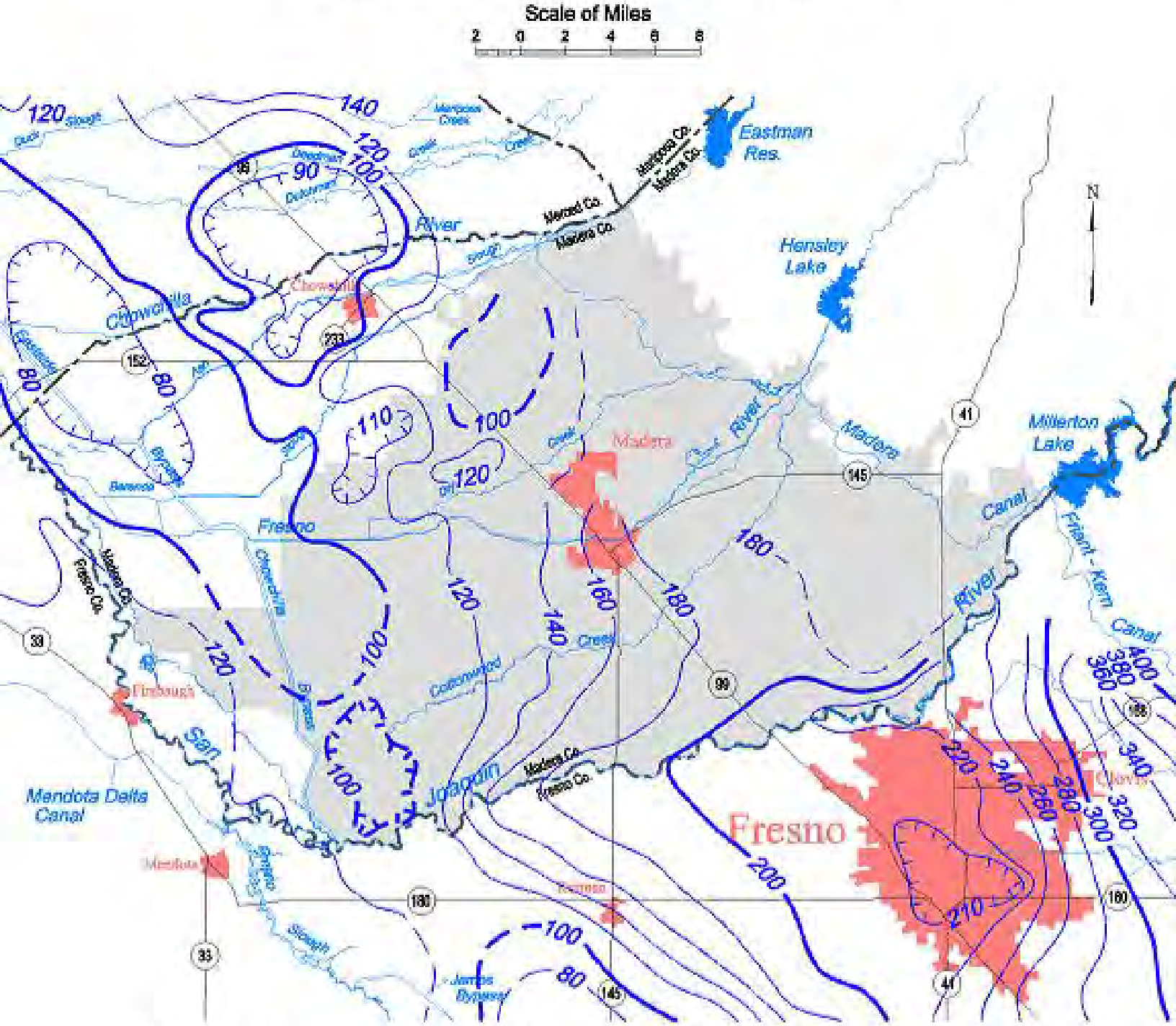
Spring 1989, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



Contours are dashed where inferred. Contour interval is 10 and 20 feet.

Madera Groundwater Basin

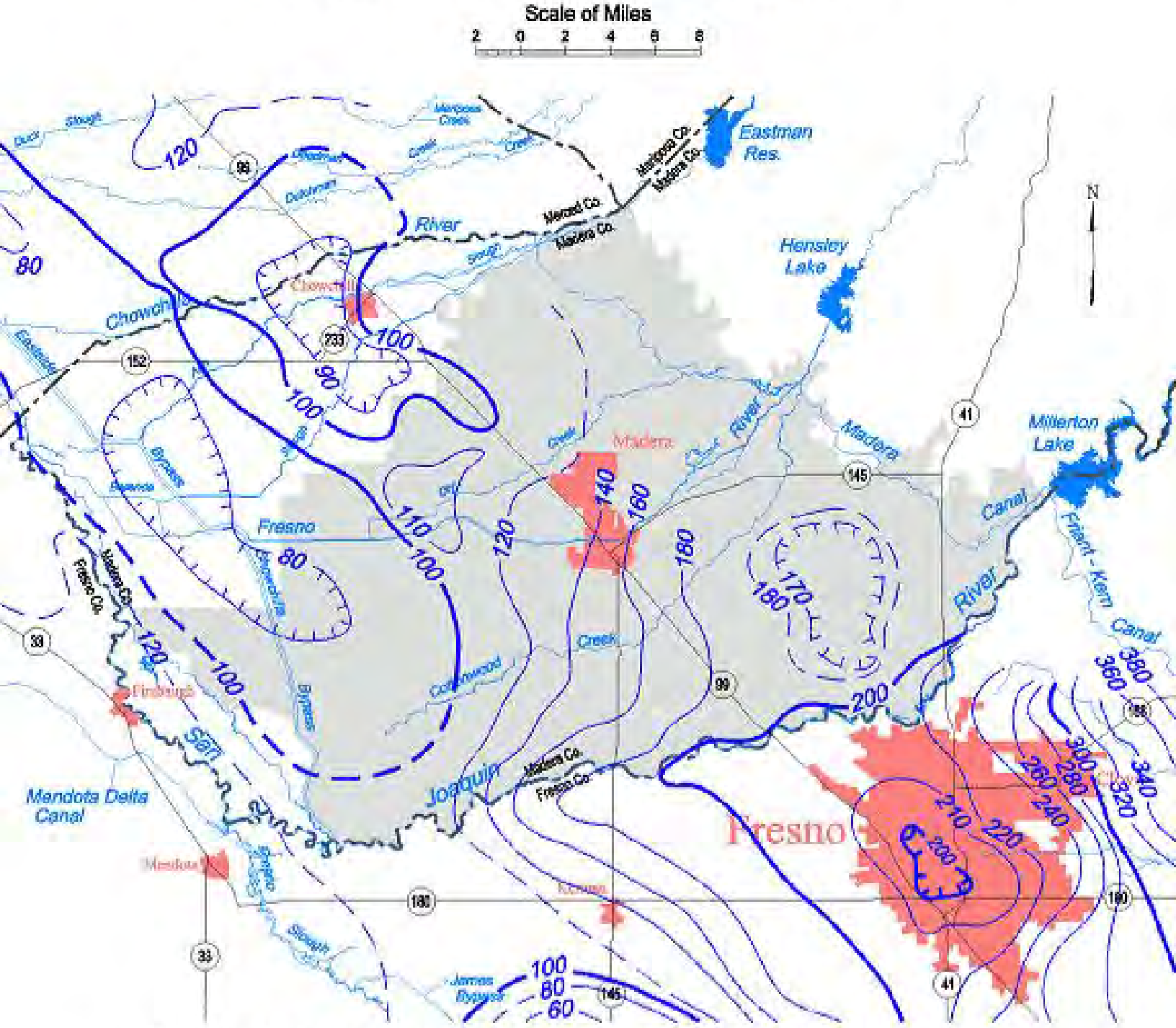
Spring 1990, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



Contours are dashed where inferred. Contour interval is 10 and 20 feet.

Madera Groundwater Basin

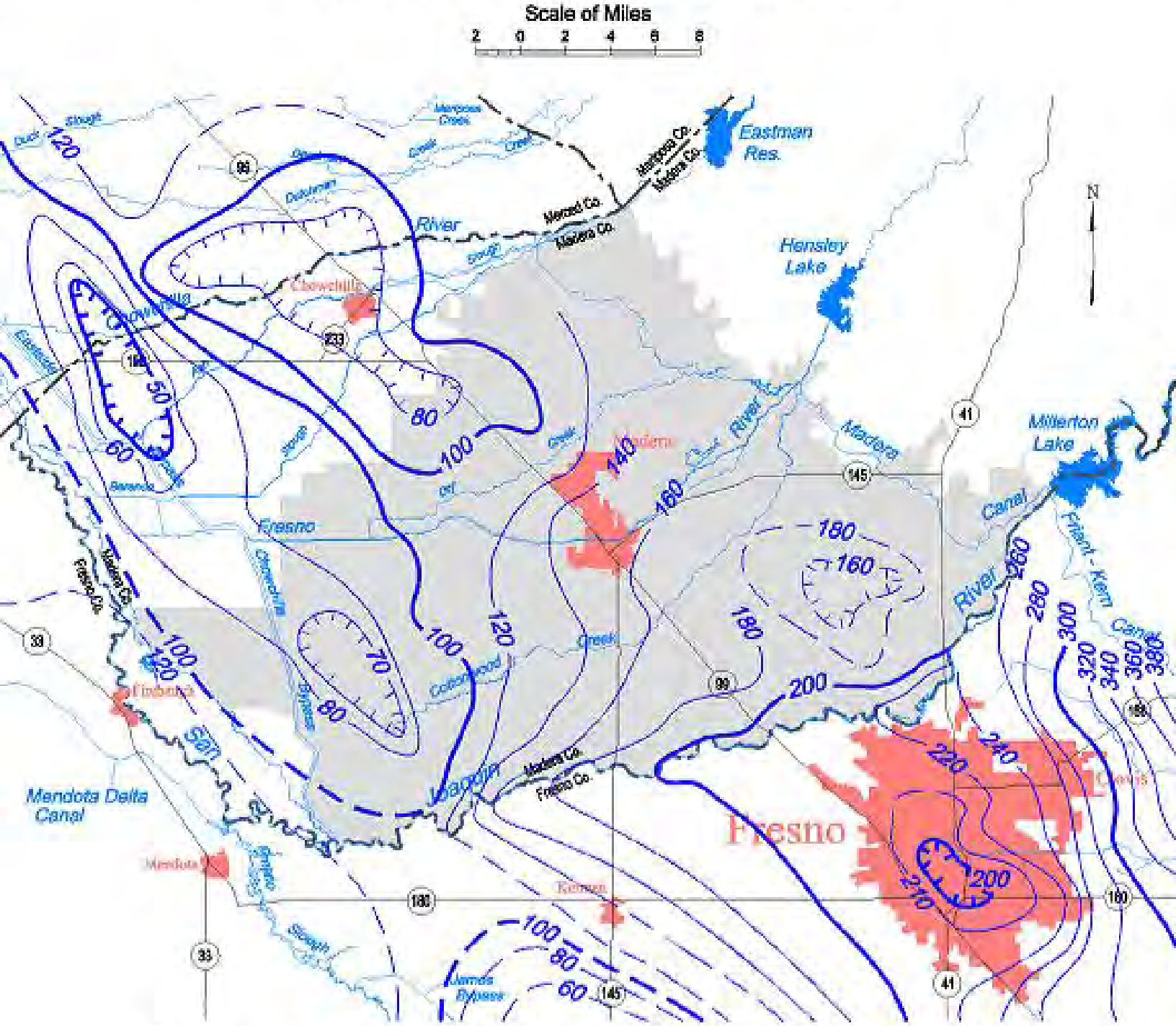
Spring 1991, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



Contours are dashed where inferred. Contour interval is 10 and 20 feet.

Madera Groundwater Basin

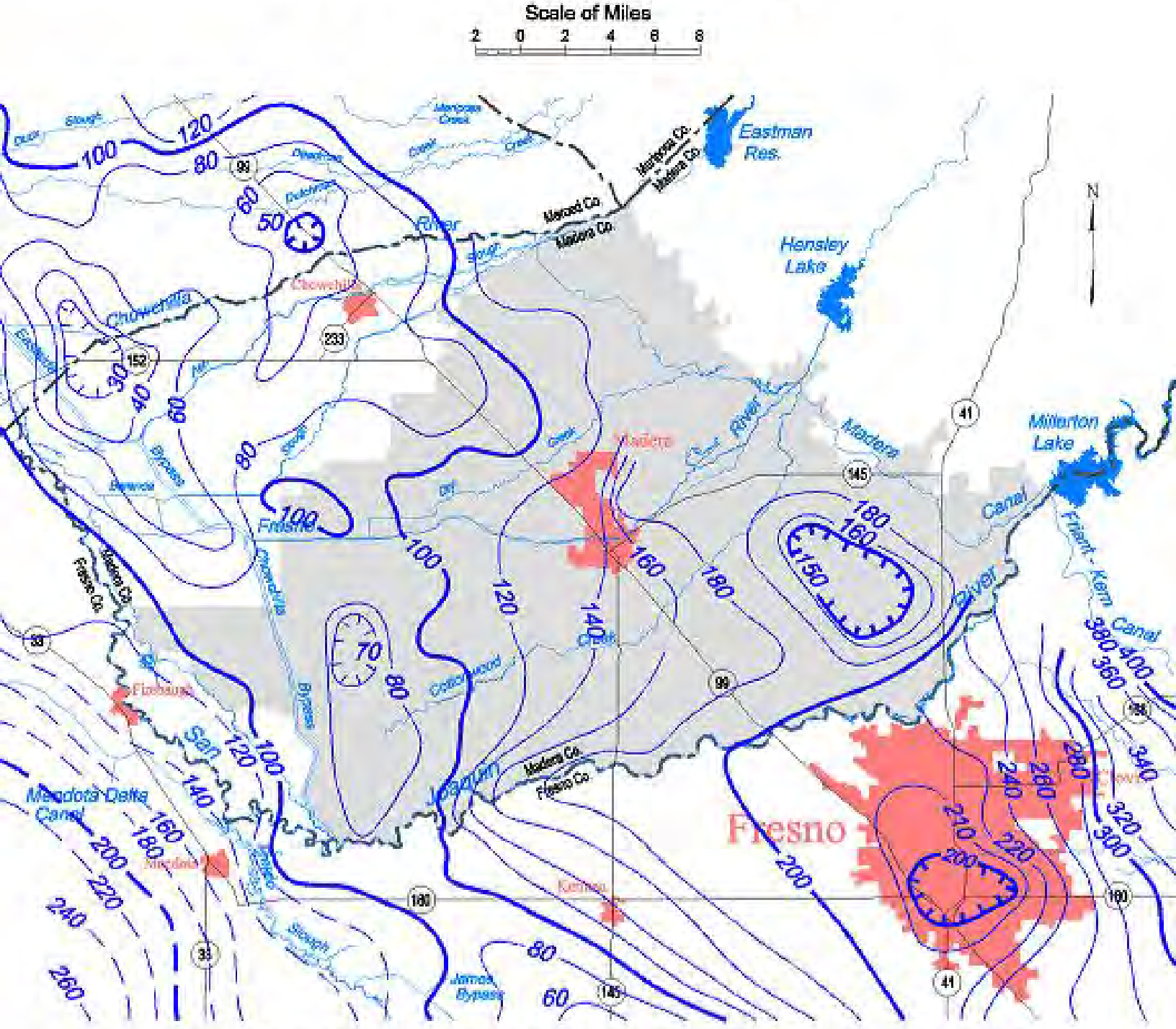
Spring 1992, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



Contours are dashed where inferred. Contour interval is 10 and 20 feet.

Madera Groundwater Basin

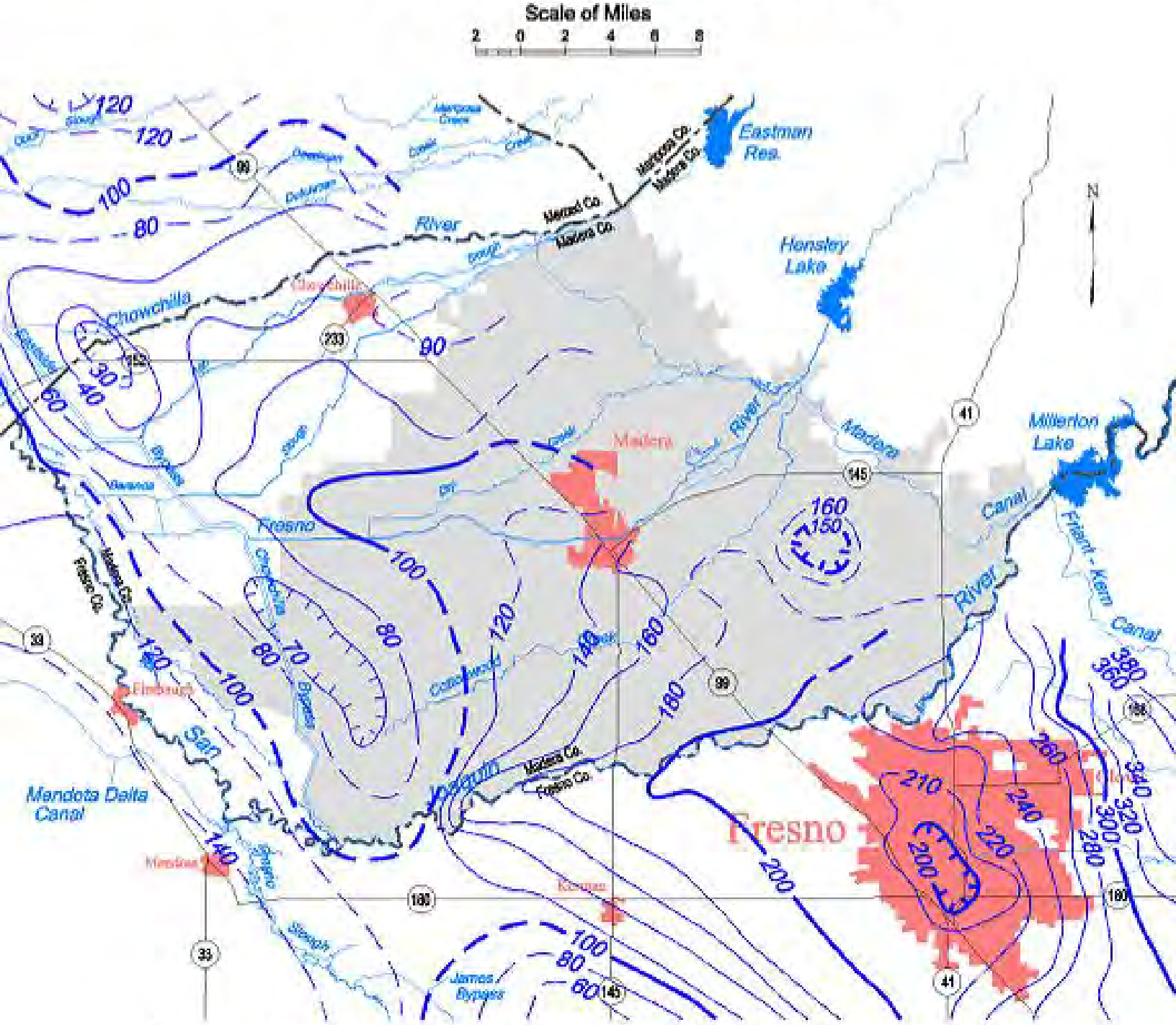
Spring 1993, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



Contours are dashed where inferred. Contour interval is 10 and 20 feet.

Madera Groundwater Basin

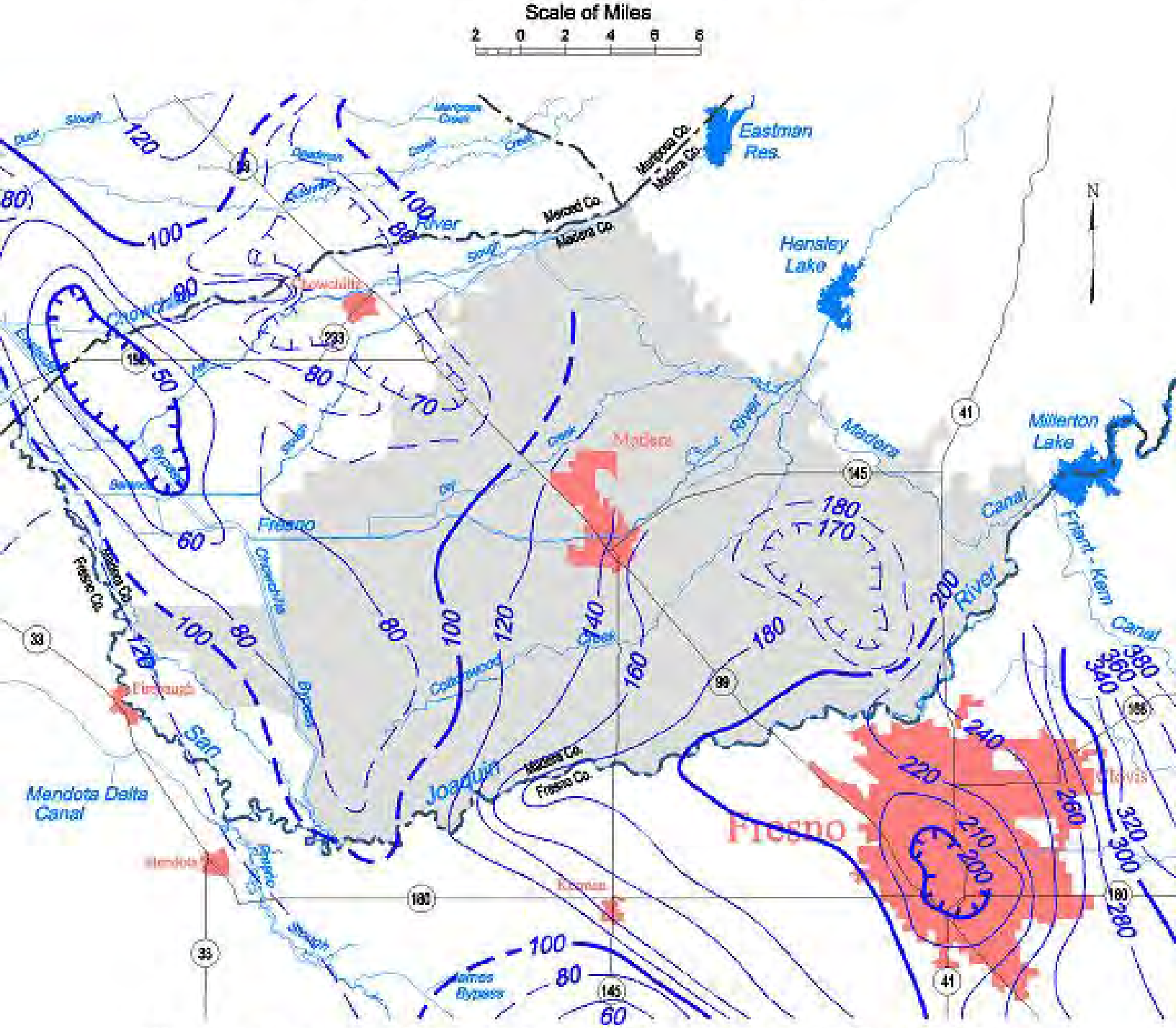
Spring 1994, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



Contours are dashed where inferred. Contour interval is 10 and 20 feet.

Madera Groundwater Basin

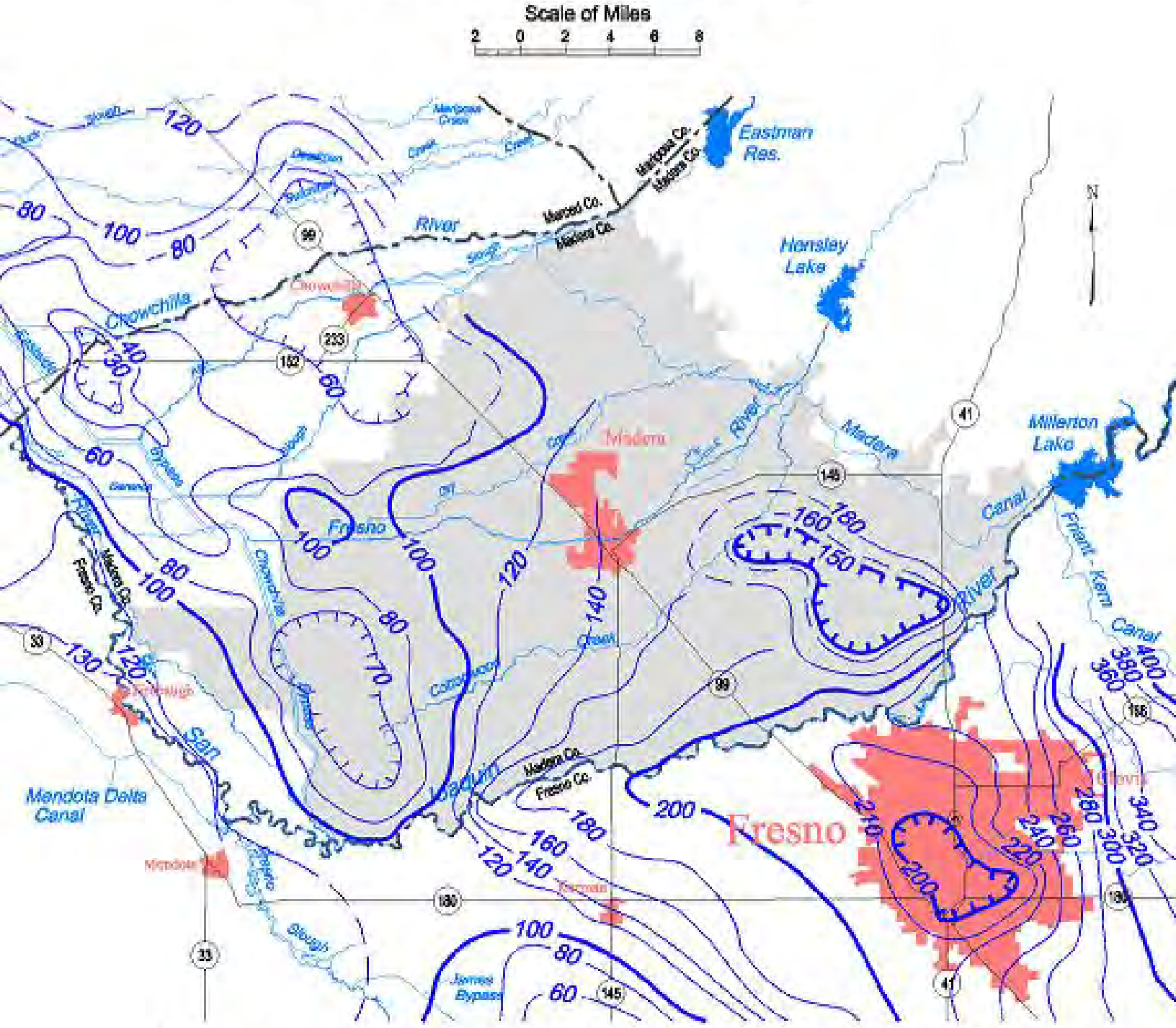
Spring 1995, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



Contours are dashed where inferred. Contour interval is 10 and 20 feet.

Madera Groundwater Basin

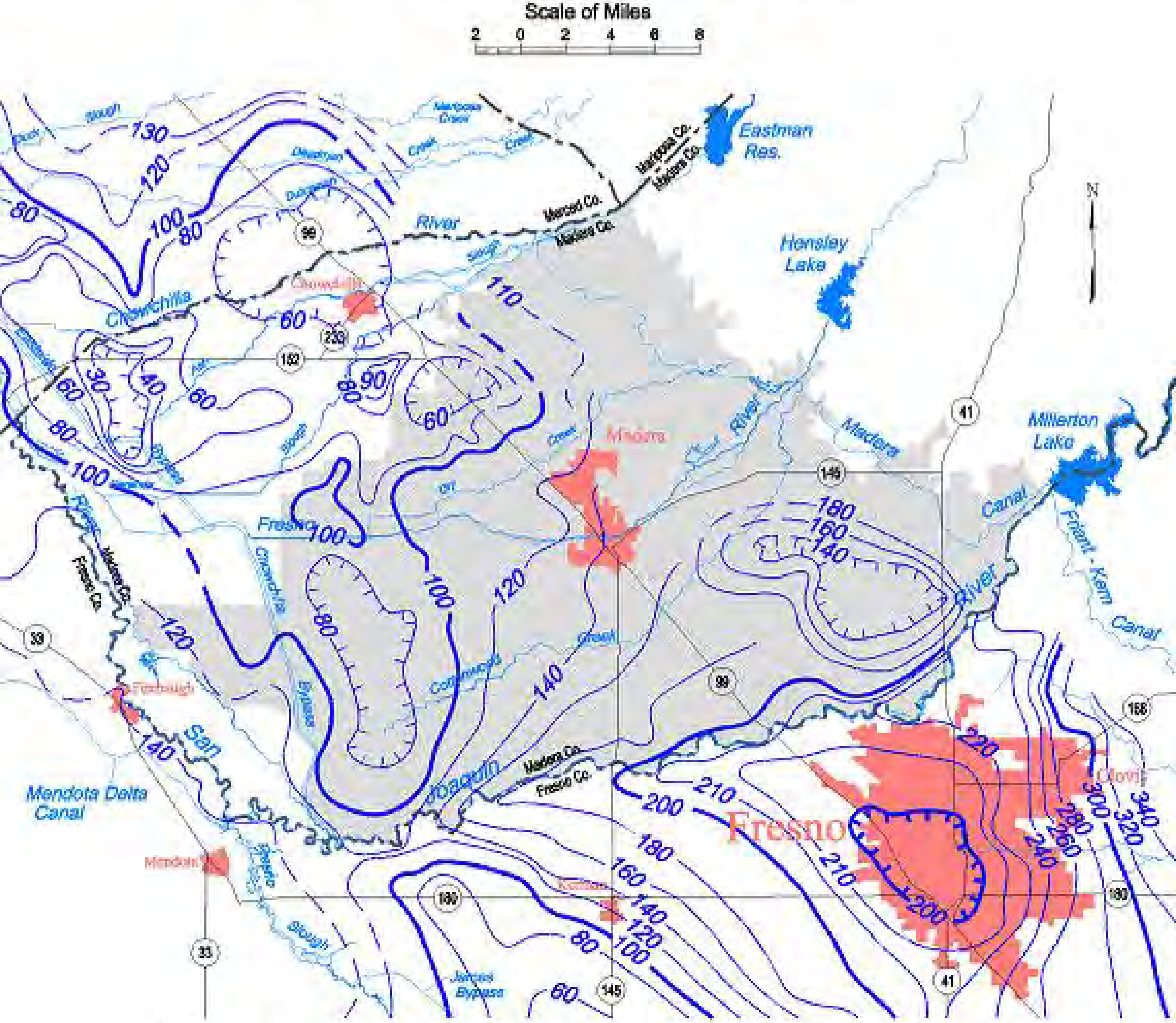
Spring 1996, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



Contours are dashed where inferred. Contour interval is 10 and 20 feet.

Madera Groundwater Basin

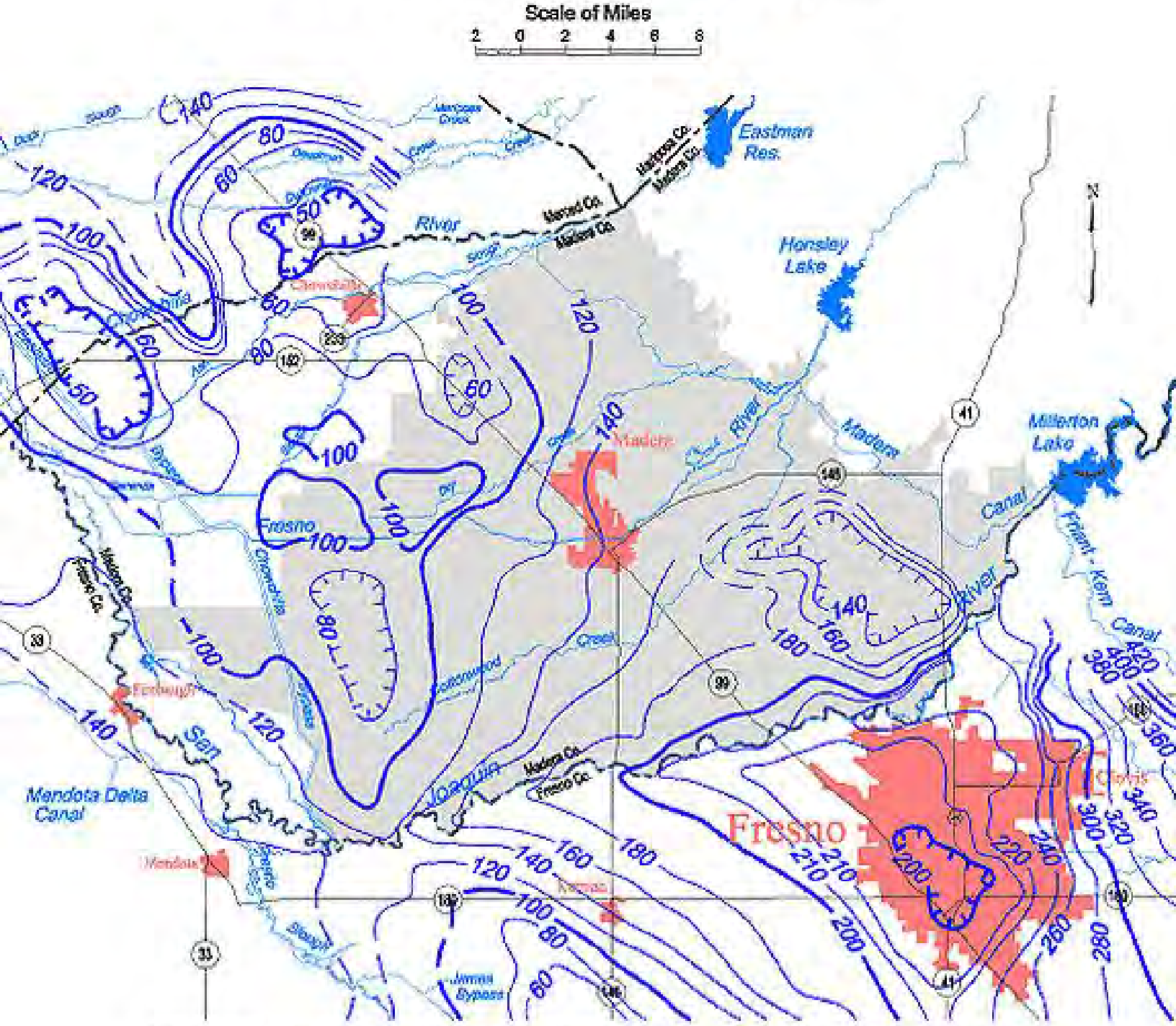
Spring 1997, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



Contours are dashed where inferred. Contour interval is 10 and 20 feet.

Madera Groundwater Basin

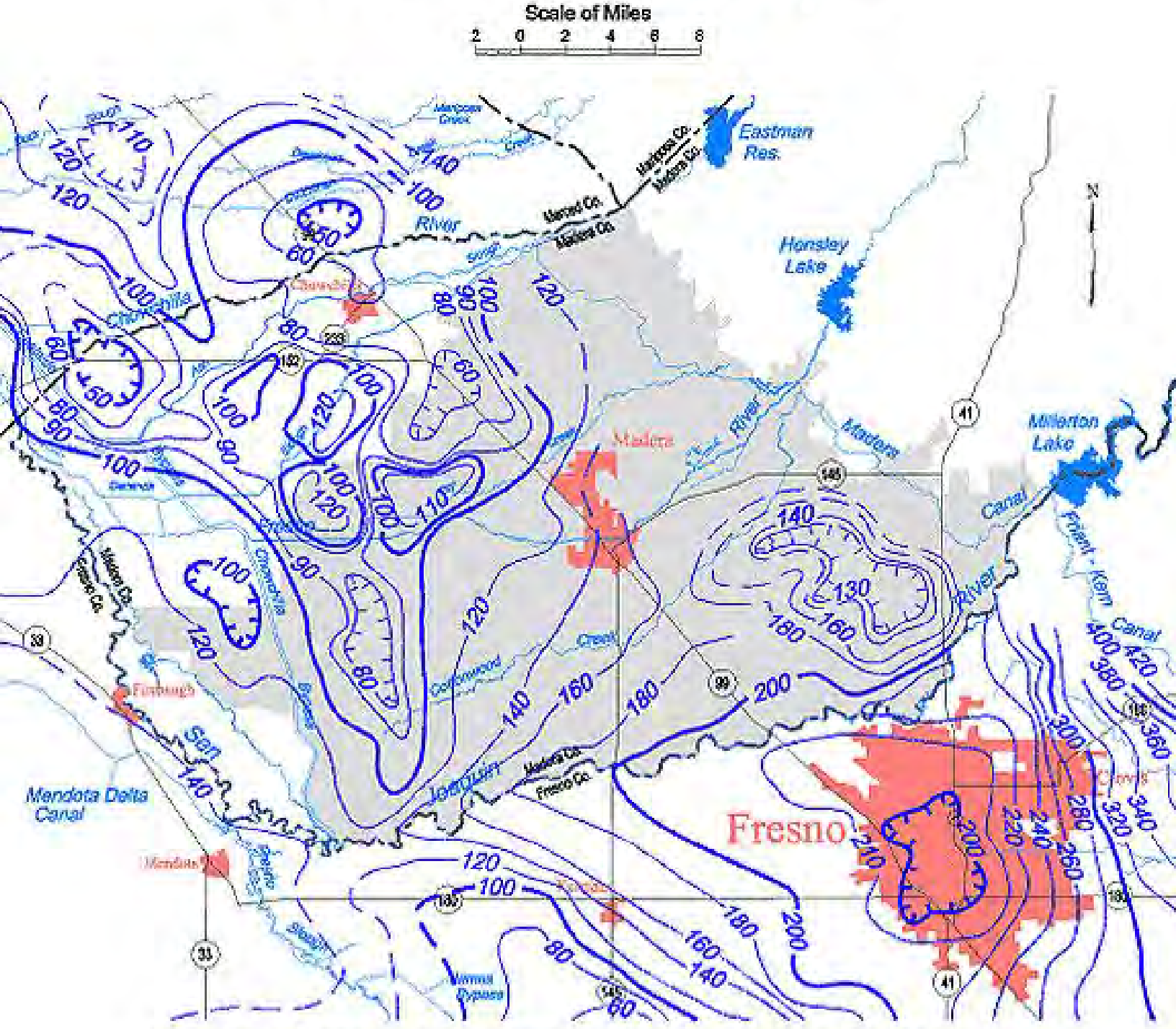
Spring 1998, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



Contours are dashed where inferred. Contour interval is 10 and 20 feet.

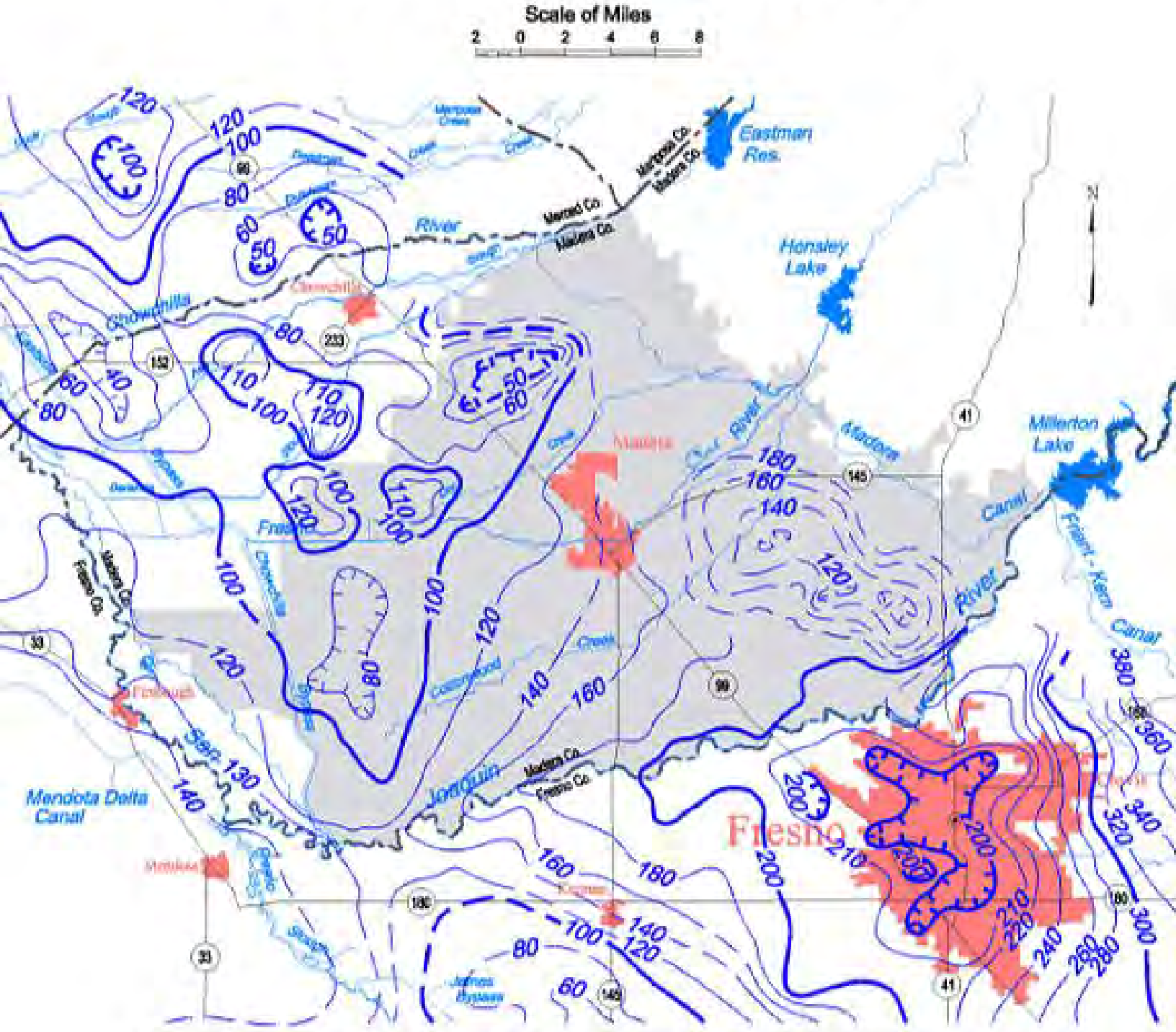
Madera Groundwater Basin

Spring 1999, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



Madera Groundwater Basin

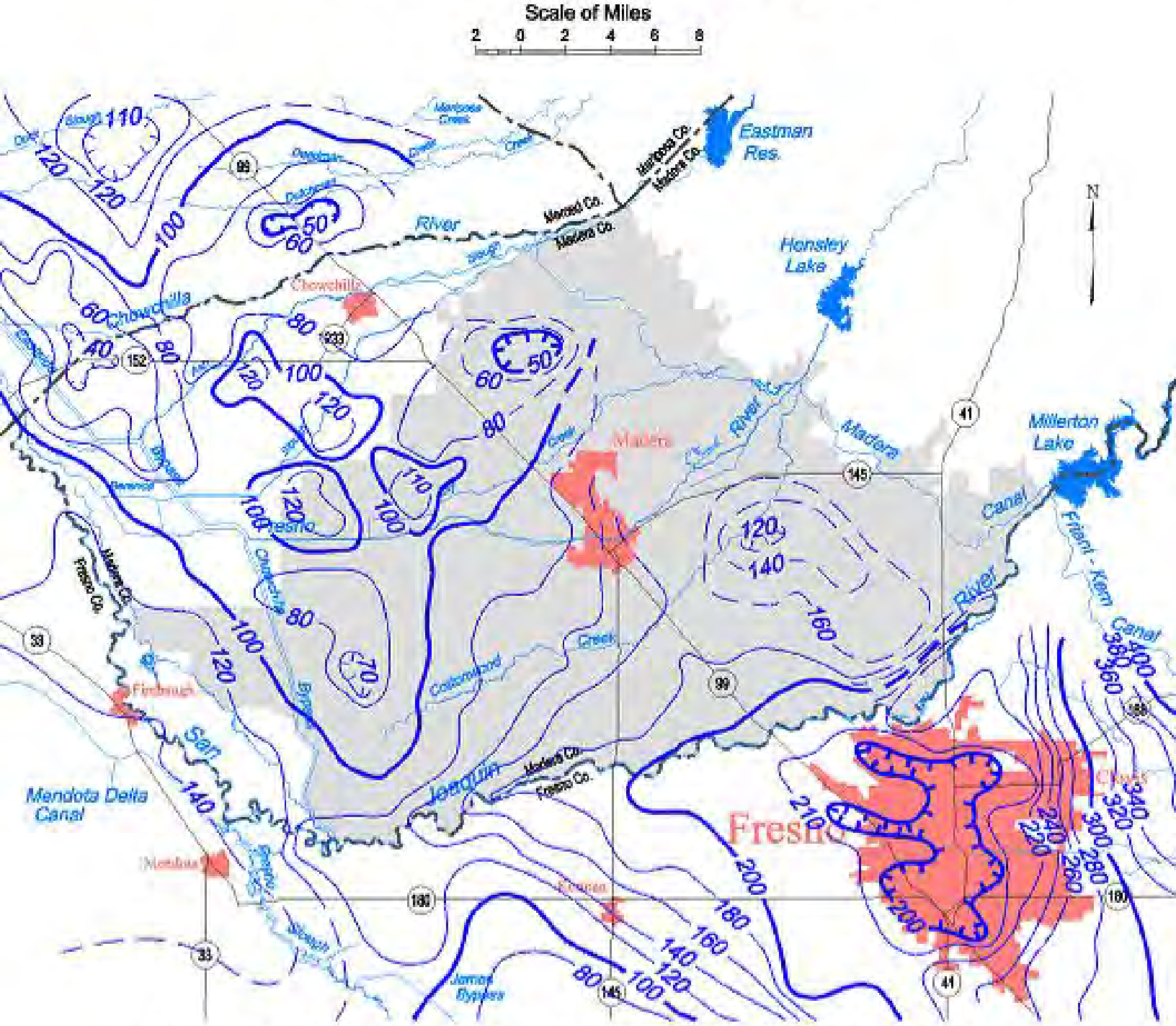
Spring 2000, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



Contours are dashed where inferred. Contour interval is 10 and 20 feet.

Madera Groundwater Basin

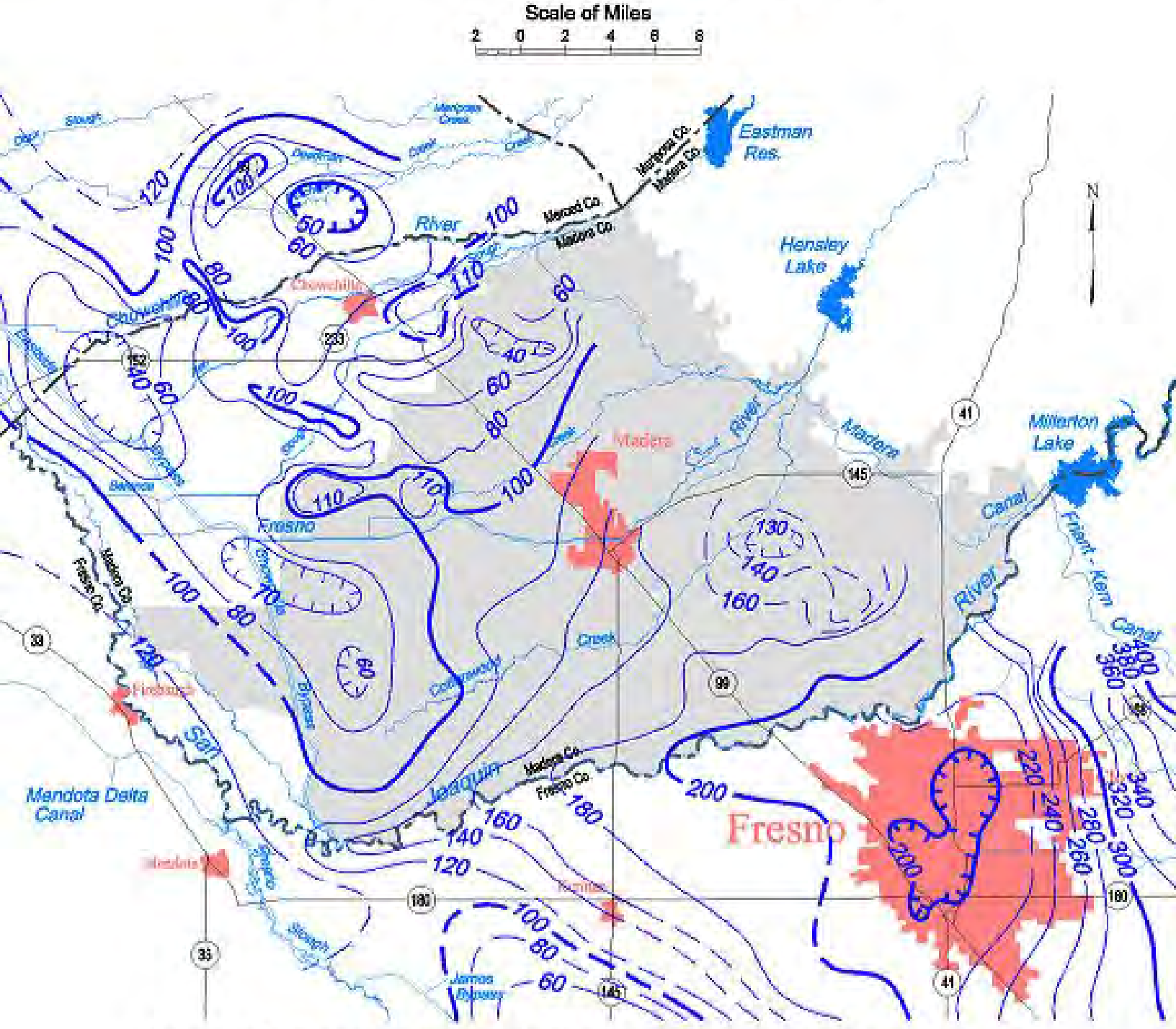
Spring 2001, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



Contours are dashed where inferred. Contour interval is 10 and 20 feet.

Madera Groundwater Basin

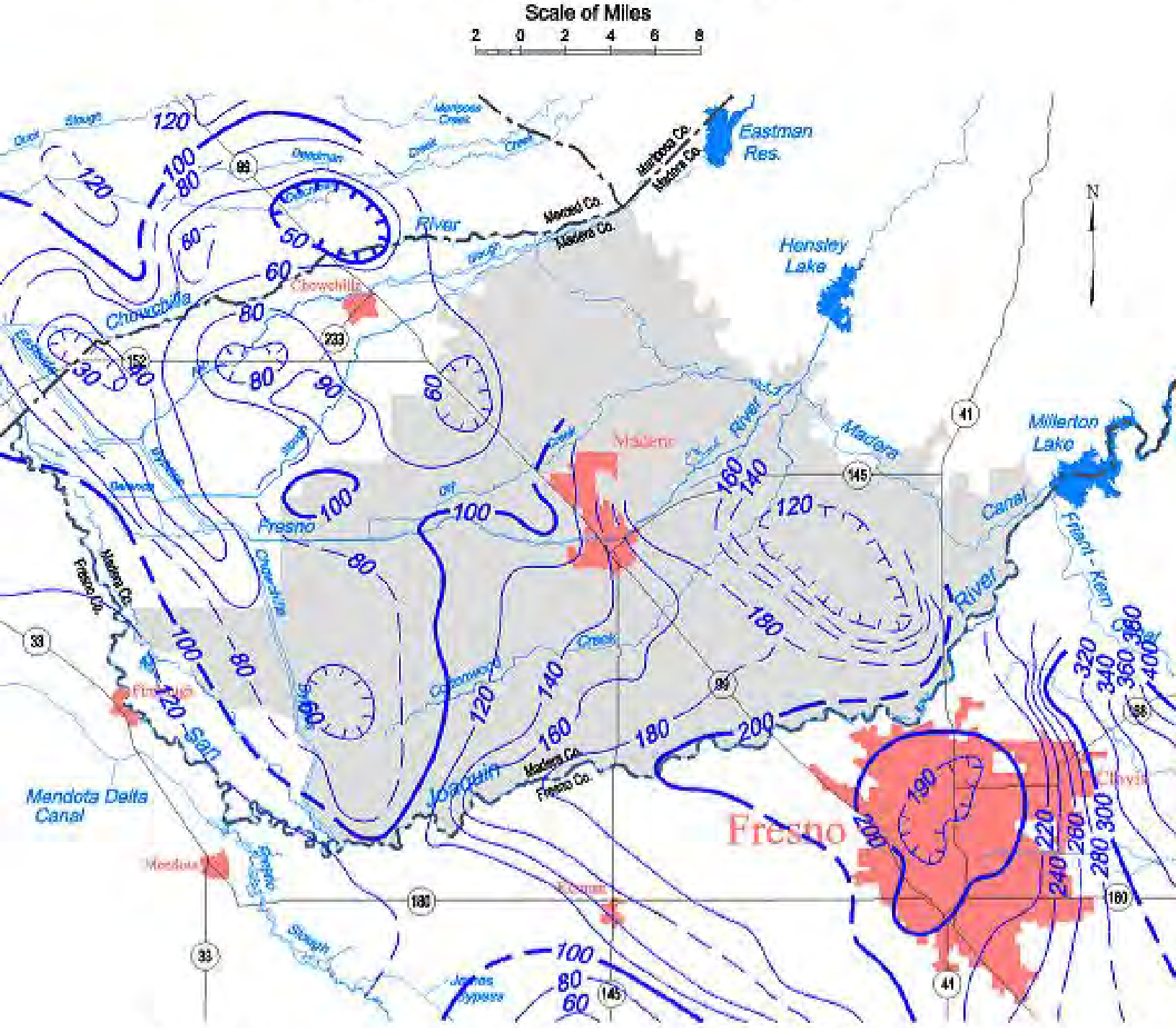
Spring 2002, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



Contours are dashed where inferred. Contour interval is 10 and 20 feet.

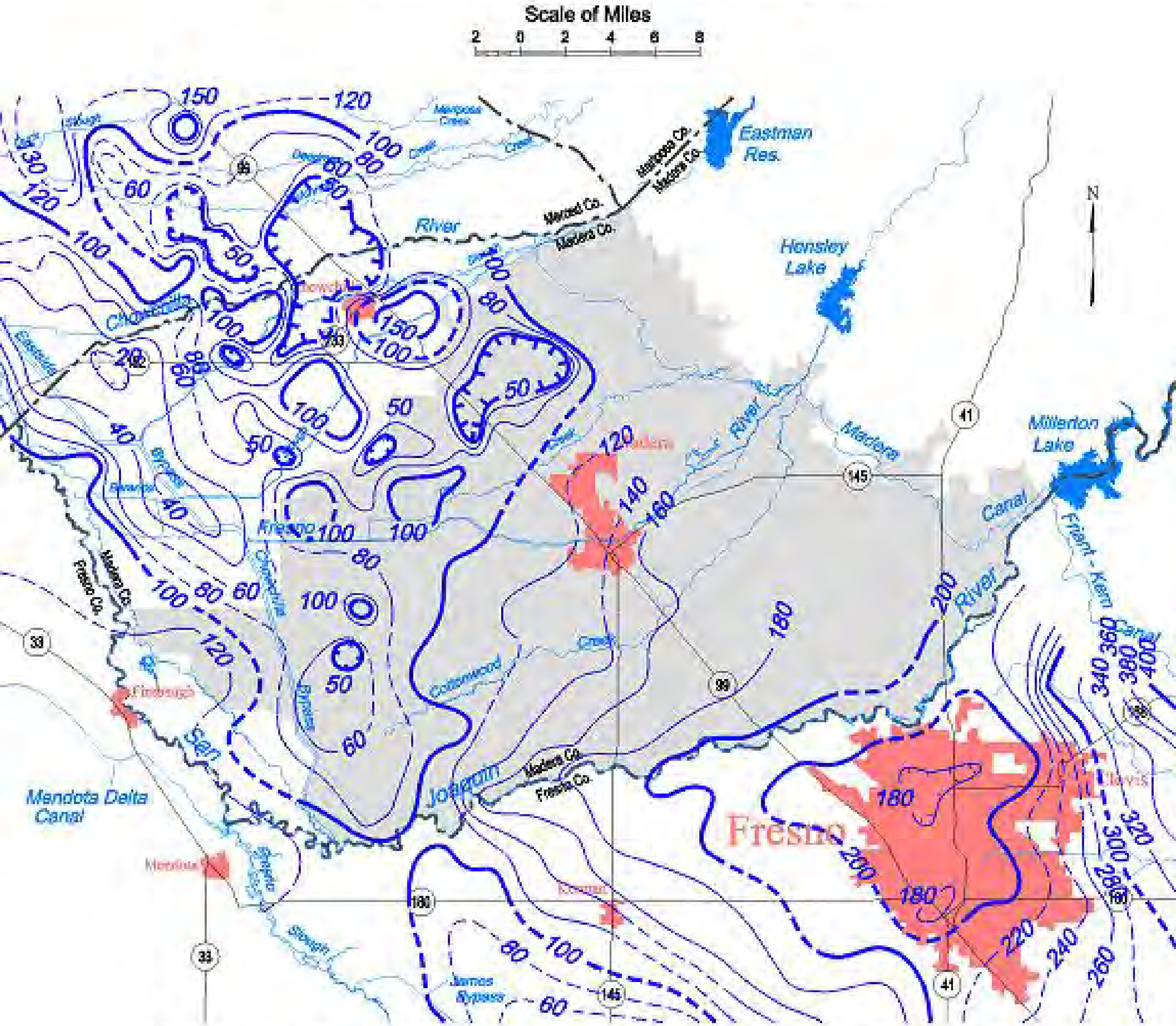
Madera Groundwater Basin

Spring 2003, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



Madera Groundwater Basin

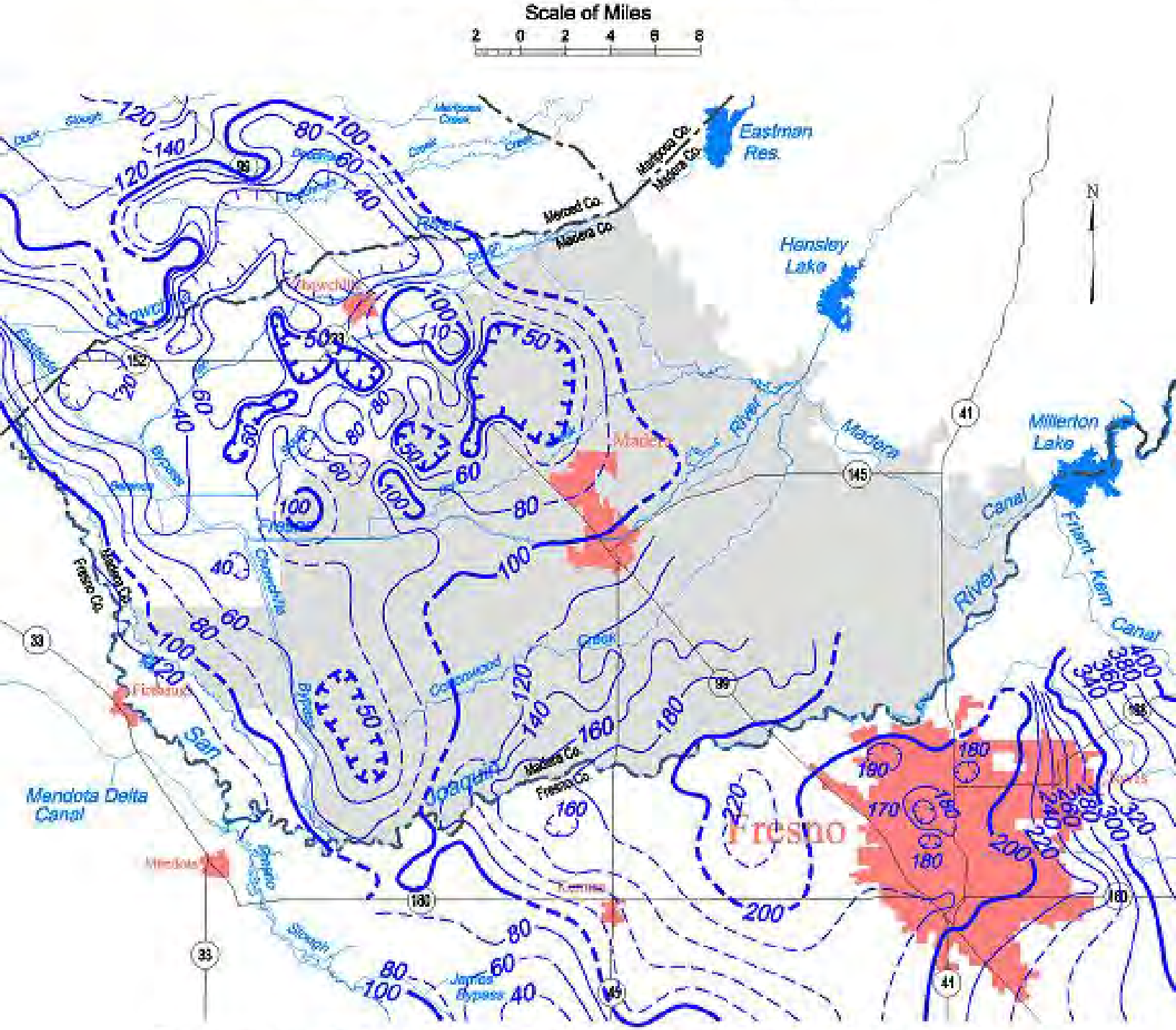
Spring 2004, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



Contours are dashed where inferred. Contour interval is 10 and 20 feet.

Madera Groundwater Basin

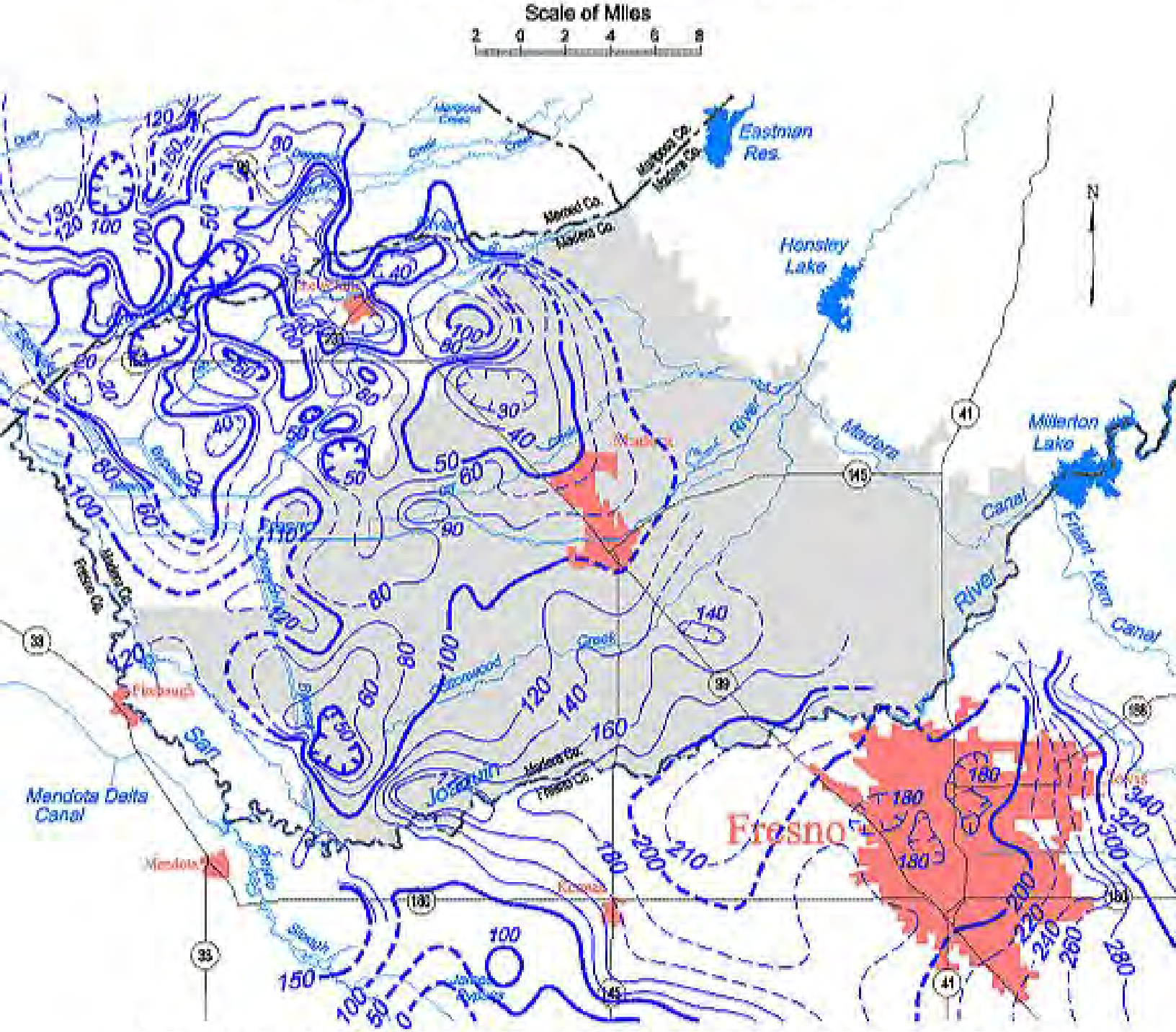
Spring 2005, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



Contours are dashed where inferred. Contour interval is 10 and 20 feet.

Madera Groundwater Basin

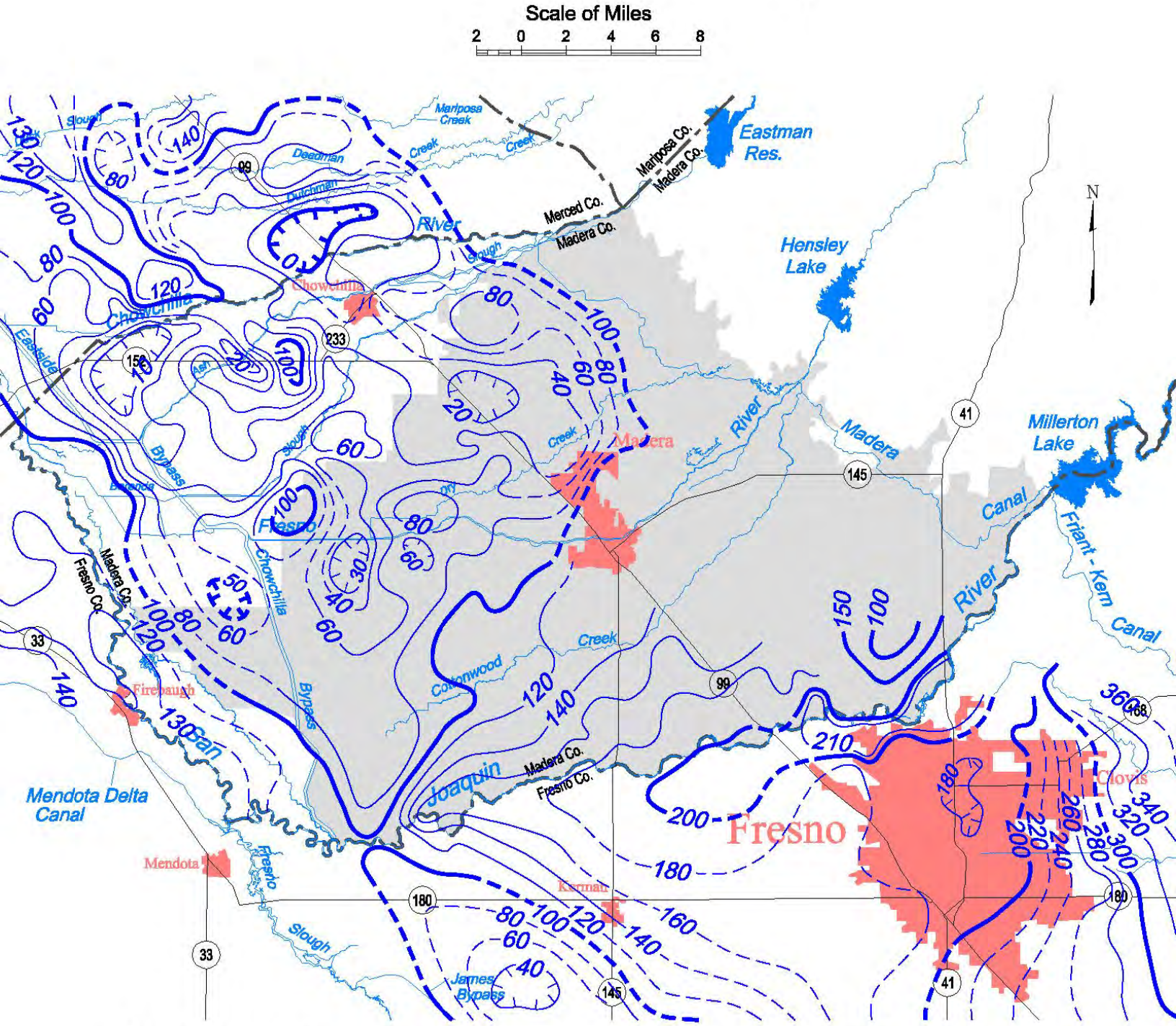
Spring 2006, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



Contours are dashed where inferred. Contour interval is 10, 20 and 50 feet.

Madera Groundwater Basin

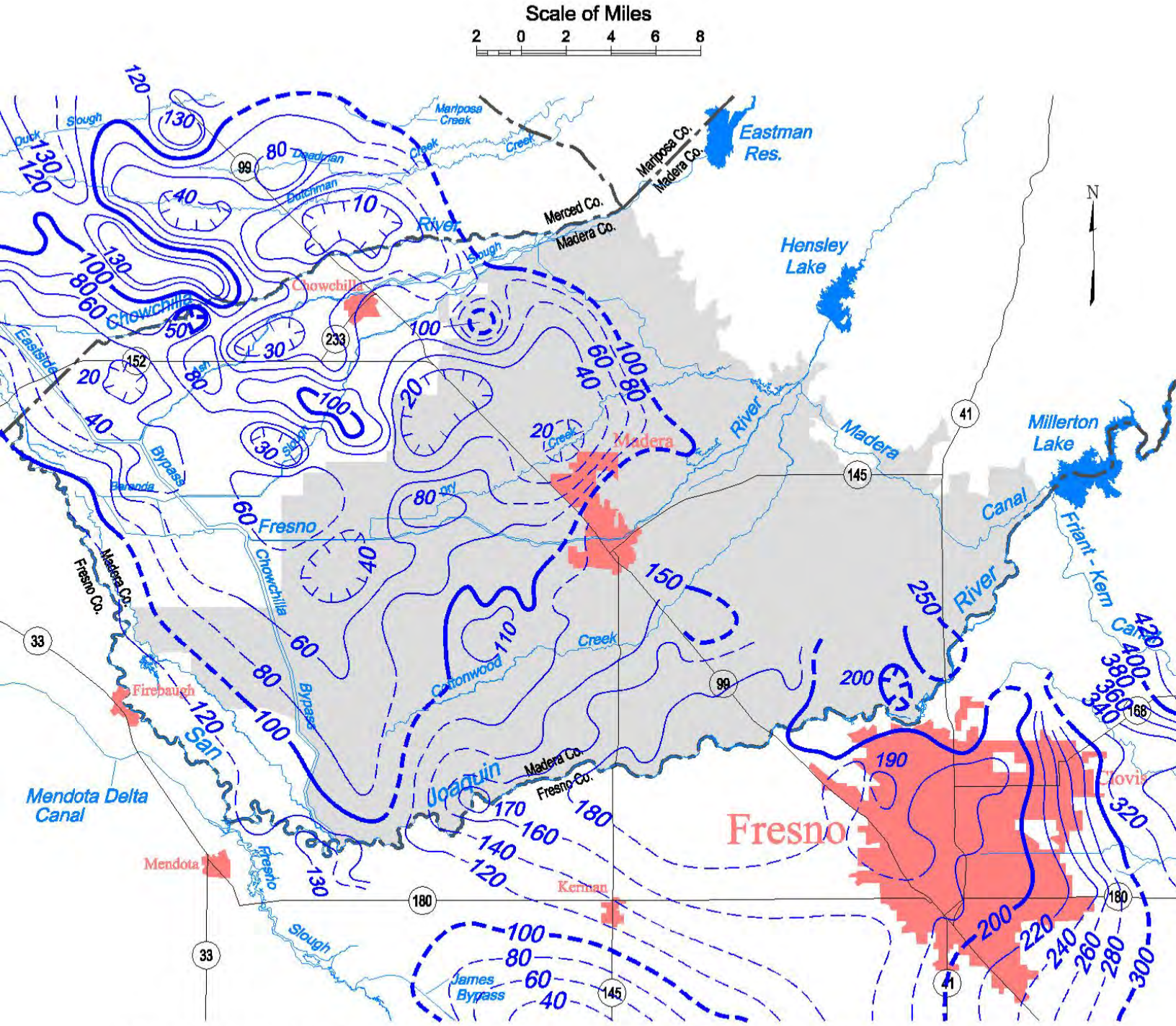
Spring 2007, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



Contours are dashed where inferred. Contour interval is 10, 20 and 50 feet.

Madera Groundwater Basin

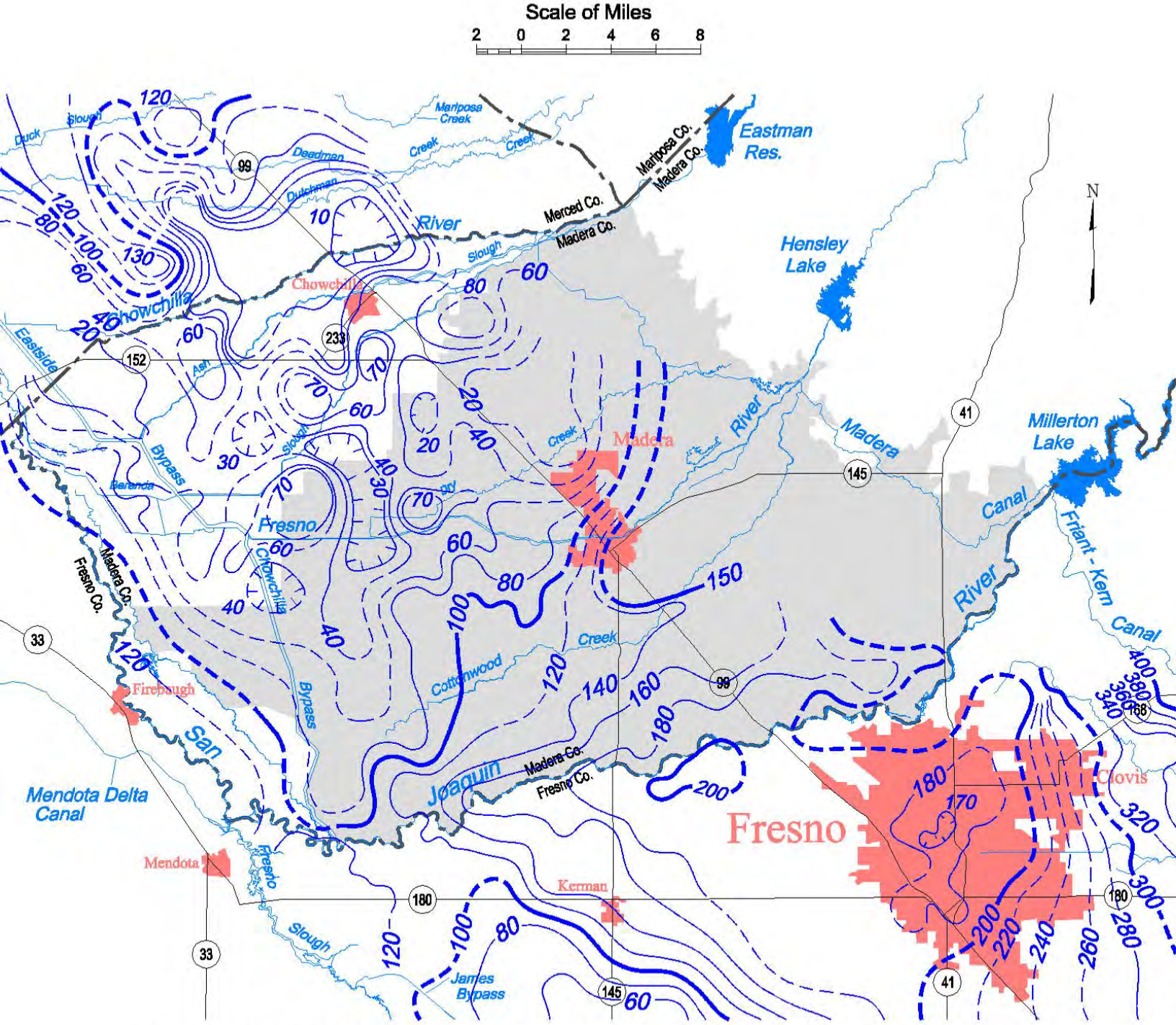
Spring 2008, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



Contours are dashed where inferred. Contour interval is 10, 20 and 50 feet.

Madera Groundwater Basin

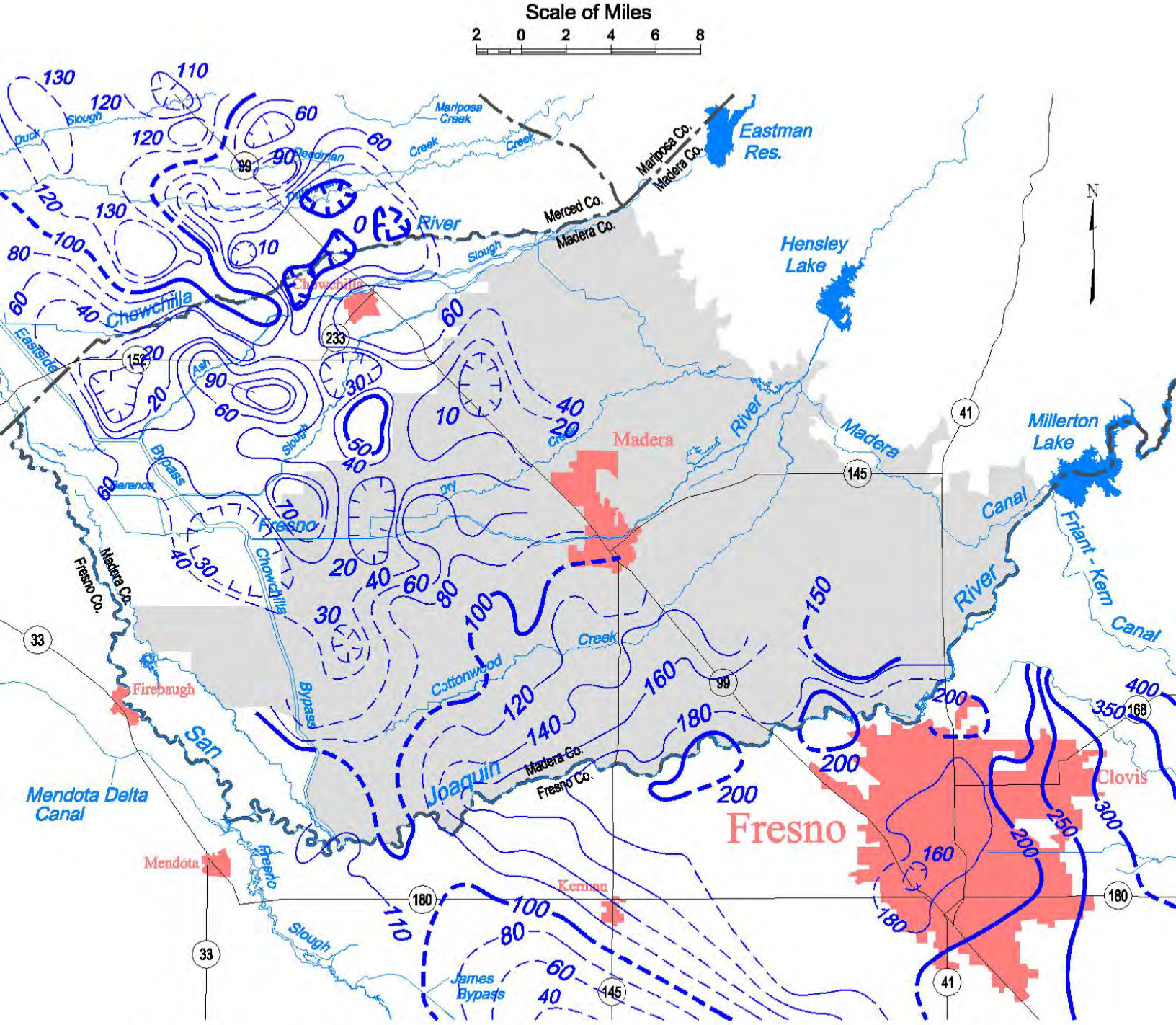
Spring 2009, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer



Contours are dashed where inferred. Contour interval is 10 and 20 feet.

Madera Groundwater Basin

Spring 2010, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer

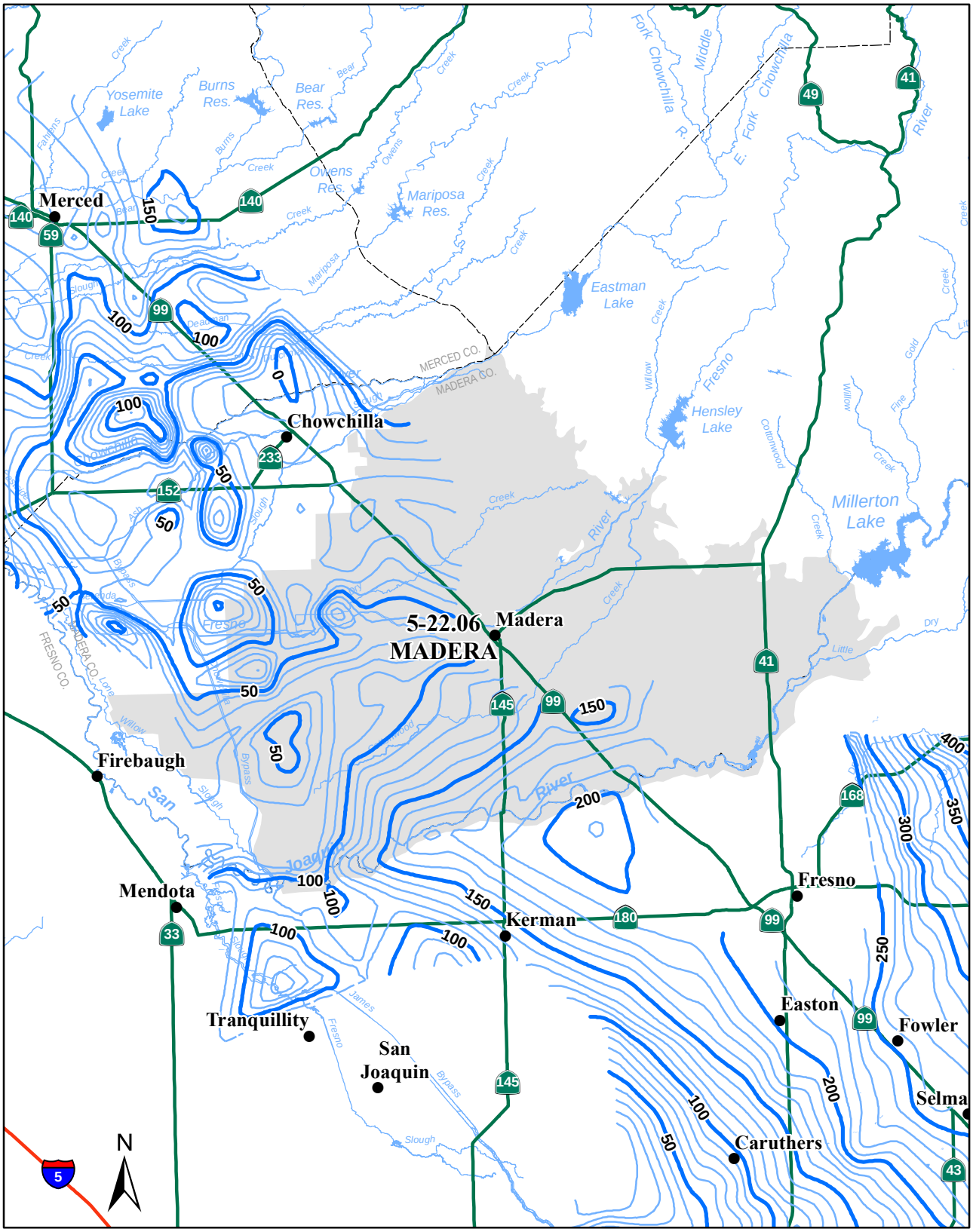


Contours are dashed where inferred. Contour interval is 10, 20 and 50 feet.

Madera Groundwater Basin 5-22.06

Groundwater Elevation Contours - Spring 2011

San Joaquin River Hydrologic Region



Lines of equal elevation of groundwater in feet above mean sea level.
Groundwater contours are a generalized representation of static water levels interpreted from wells measured in Spring 2011.
Water levels are interpreted to represent unconfined conditions.

South Central Region Office
A2.E.a-35