Plate 1. Hydrogeologic units of the High Plains aquifer in Bennett County, South Dakota.

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Division of Financial and Technical Assistance
Geological Survey Program

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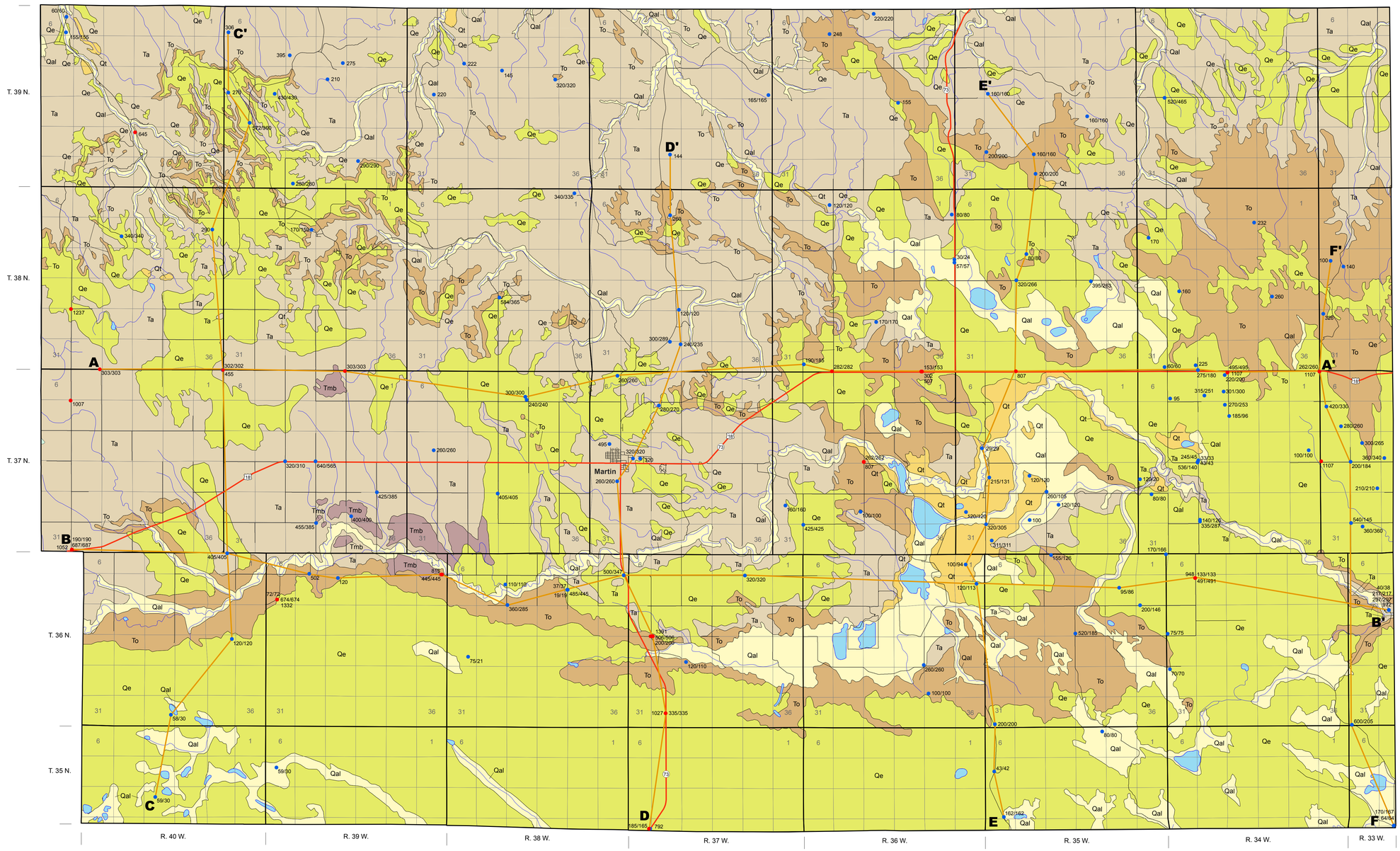

Qal Alluvium

Qe Eolian deposits and dune sands

Qt Terrace deposits

To Ogallala Group

Tmb Batesland Formation

Ta Arikaree Group

491/491 Test hole drilled for this study. Labels represent depth of test hole (first) and depth of installed monitoring well (second) in feet. No depth listed if no well was installed

120/113 Test hole drilled for other project or private well. Labels represent depth of test hole (first) and depth of installed monitoring well (second) in feet. No depth listed if no well was installed

A—A' Line of cross section. See Plate 2 for cross sections.

River or stream

Lake or reservoir

Major highway

Road

Township boundary

Section boundary

Hydrogeologic unit boundaries are generalized from geologic information compiled at a scale of 1:250,000

Scale: 1:100,000

0 1 2 3 4 5 6 Miles

0 1 2 3 4 5 6 Kilometers

N W E S

Plate 2. Hydrogeologic cross sections of the High Plains aquifer in Bennett County, South Dakota.

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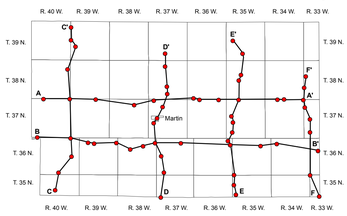
High Plains aquifer sediments

- Qal — Alluvium
- Qe — Eolian deposits and dune sands
- Qt — Terrace deposits
- To — Ogallala Group
- Tmb — Batesland Formation
- Ta — Arikaree Group
- Tw — White River Group
- Kp — Pierre Shale

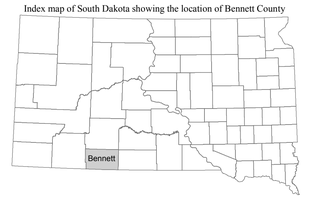
Geologic contact, dashed where inferred

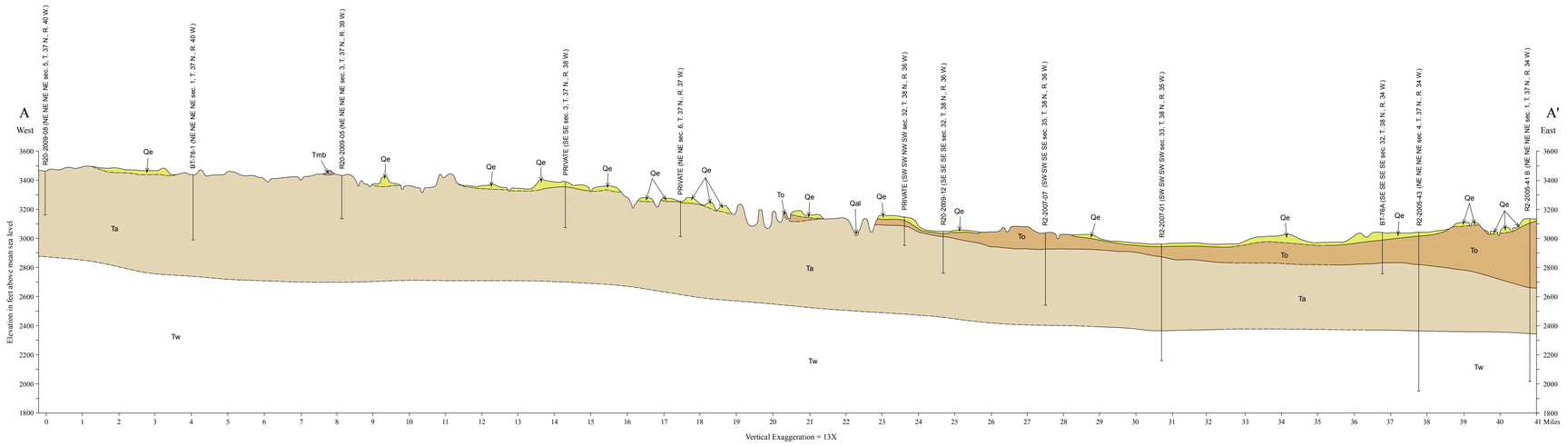
Test hole or well

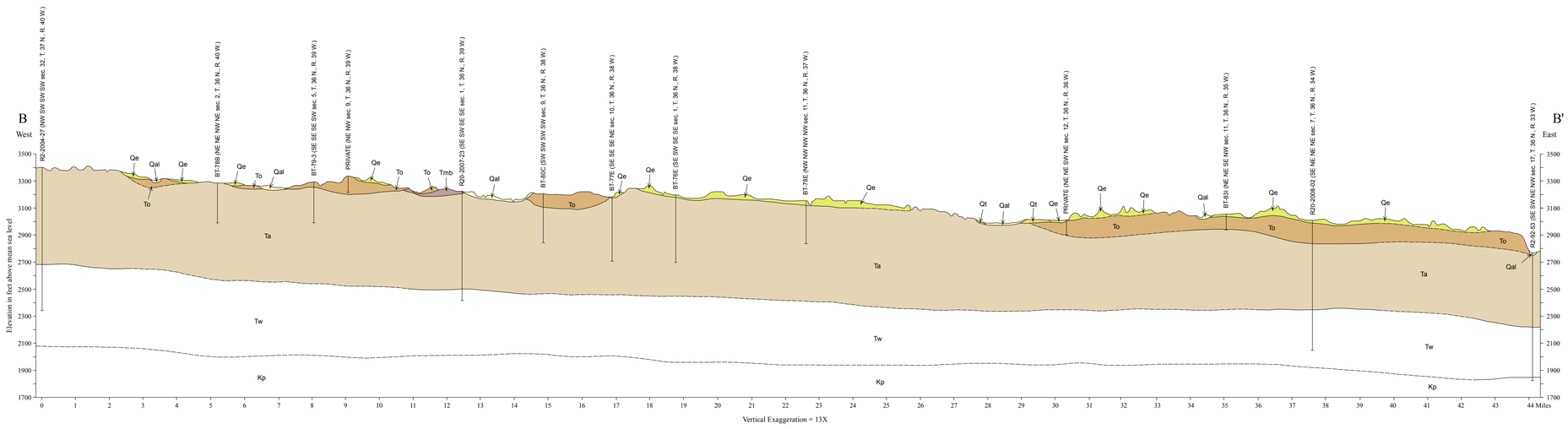
Location of cross sections in Bennett County

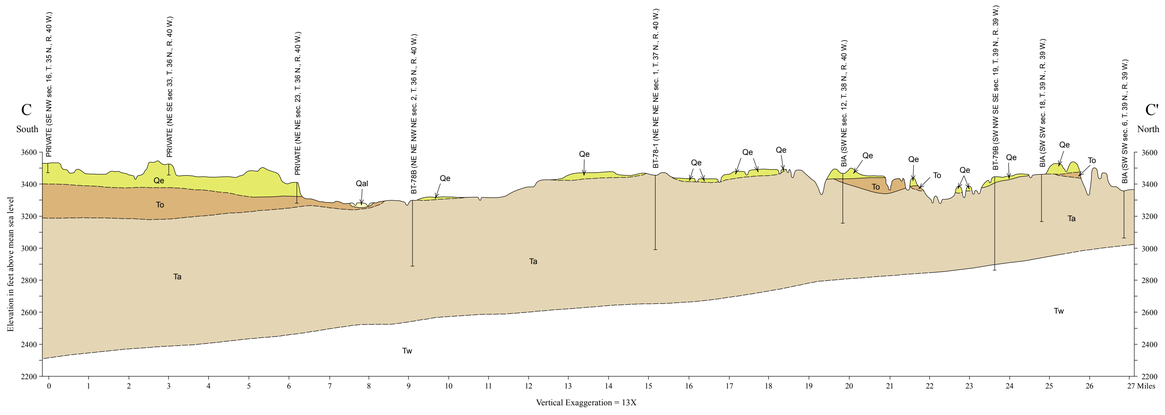


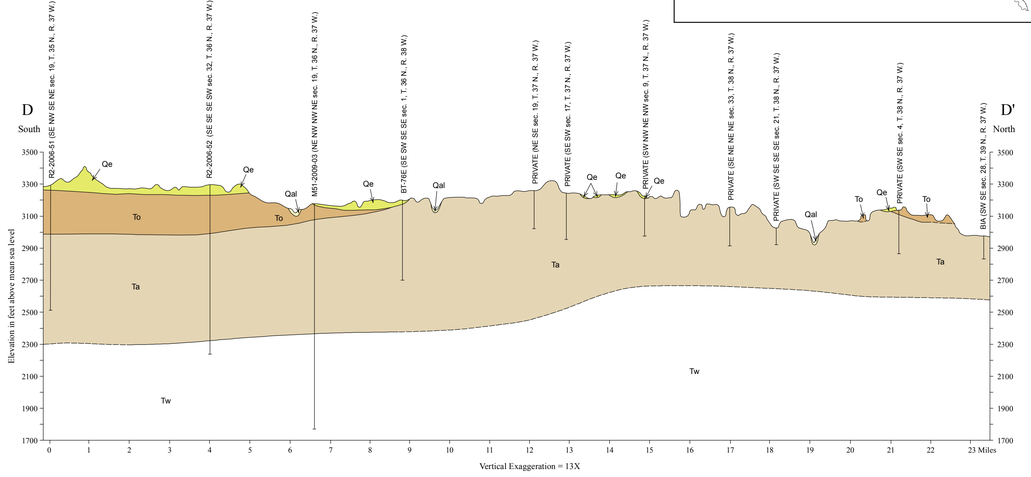
Index map of South Dakota showing the location of Bennett County

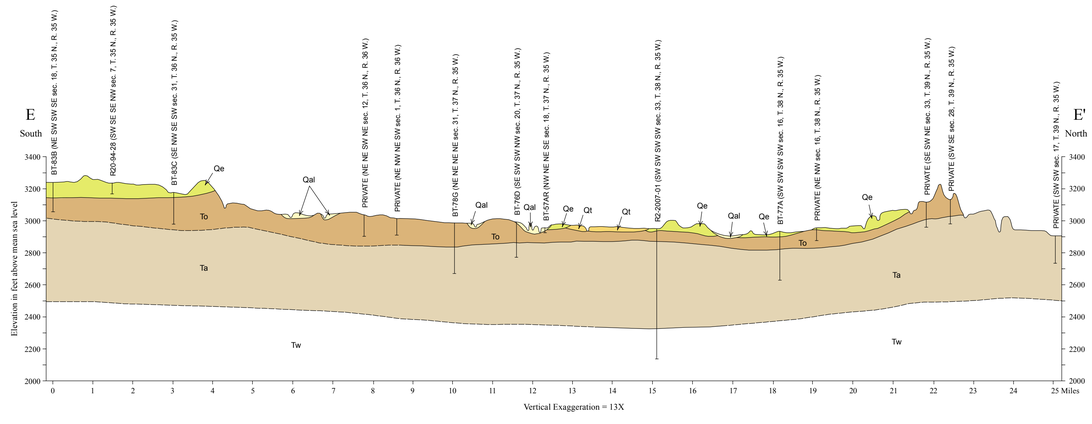












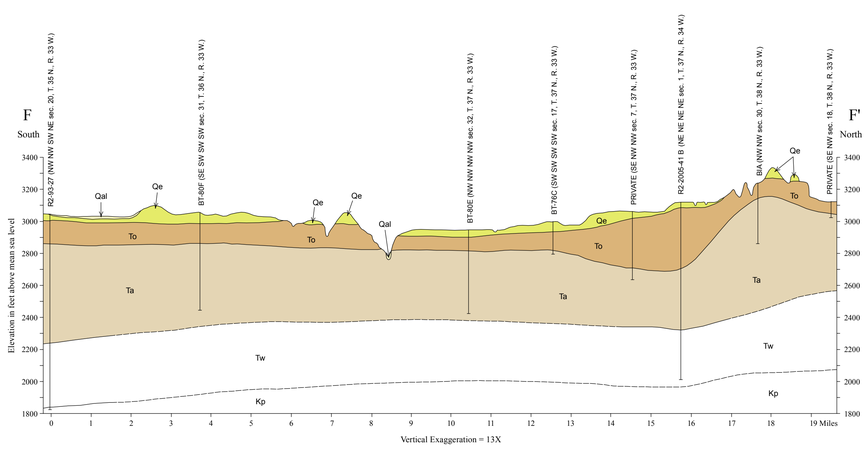


Plate 3. Saturated thickness of the High Plains aquifer in Bennett County, South Dakota.

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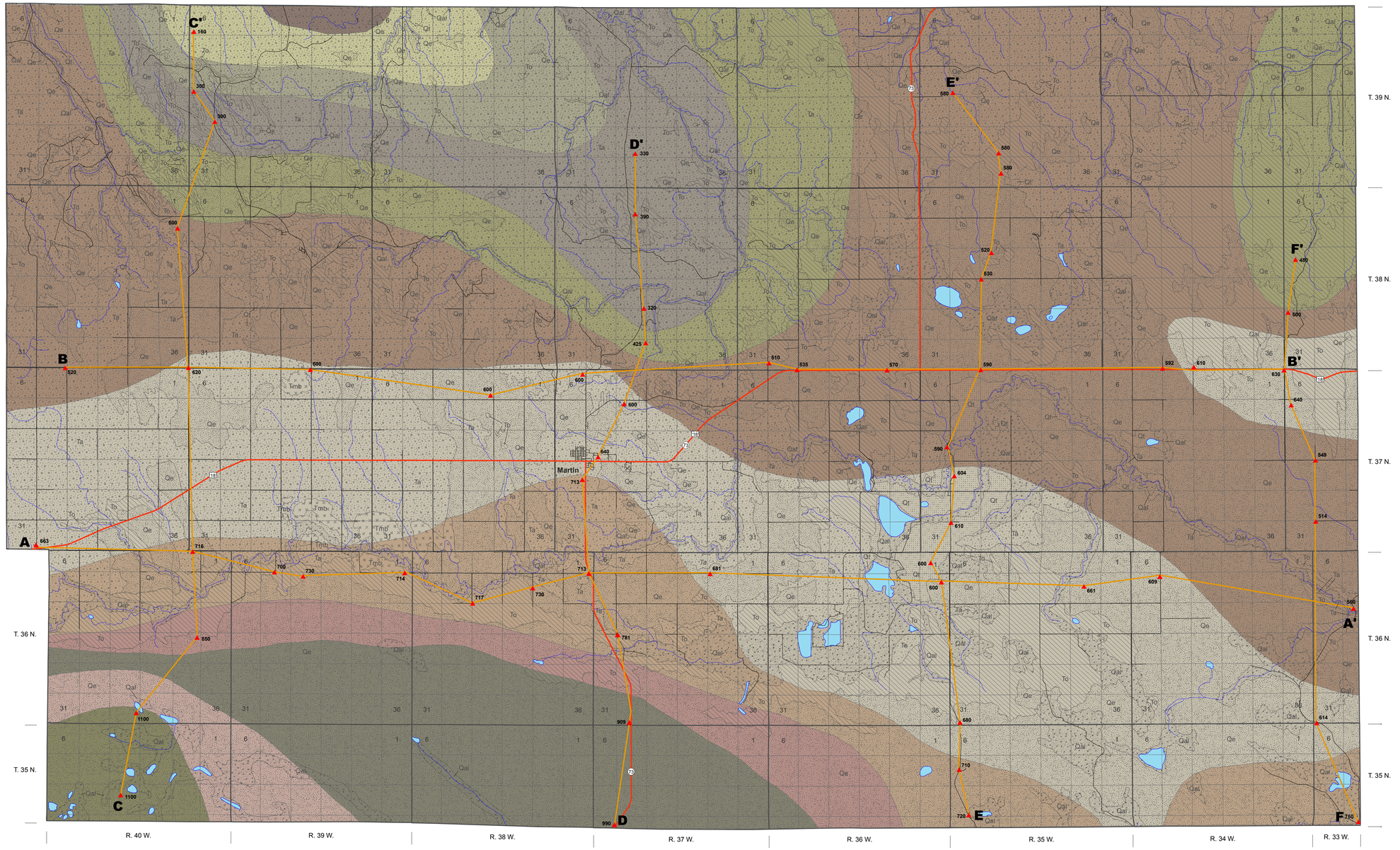

Hydrogeologic units of the High Plains aquifer

- Qal — Alluvium
- Qe — Eolian deposits and dune sands
- Qt — Terrace deposits
- To — Ogallala Group
- Tmb — Batesland Formation
- Ta — Arikaree Group

- 480 — Test hole or monitoring well. Label represents estimated saturated thickness, in feet
- River or stream
- Lake or reservoir
- A — A' Line of cross section. See plate 2 for cross sections
- Major highway
- Road
- Township boundary
- Section boundary

Hydrogeologic unit boundaries are generalized from geologic information compiled at a scale of 1:250,000

Saturated thickness

0-99	400-499	800-899
100-199	500-599	900-999
200-299	600-699	1000-1099
300-399	700-799	≥ 1100

Scale: 1:100,000

0 1 2 3 4 5 6 Miles

0 1 2 3 4 5 6 Kilometers

N W E S

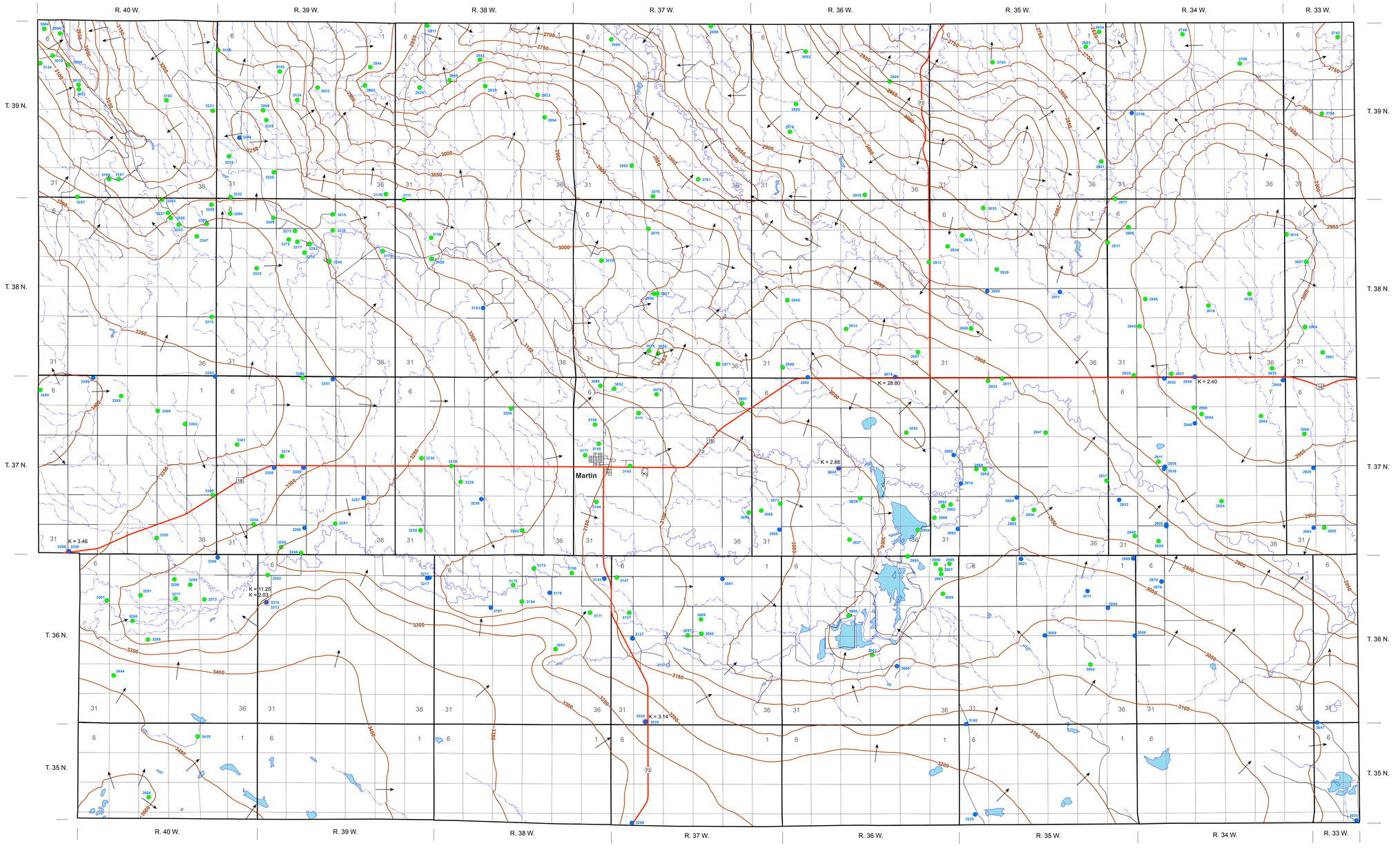

Plate 4. Water table contour map of the High Plains aquifer in Bennett County, South Dakota.

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2959 — Water Rights Program monitoring well or monitoring well installed for this study. Label represents water-table elevation in feet above mean sea level. Measurements taken September 2009 through April 2010

3049 — Monitoring well or private well used for U.S. Geological Survey project (Carter and Heakin, 2007). Label represents water-table elevation in feet above mean sea level

K = 2.80 — Monitoring wells used for pumping test. Label represents hydraulic conductivity in feet per day

3150 — Line connecting points of equal elevation on the water-table surface. Contour interval 50 feet

Ground water flow direction

River or stream

Intermittent stream

Slough or intermittent lake

Lake or reservoir

Spring

Major highway

Road

Township boundary

Section boundary

Hydrography drawn from U.S. Geological Survey 1:100,000 scale topographic maps

Scale: 1:100,000

0 1 2 3 4 5 6 Miles

0 1 2 3 4 5 6 Kilometers

N W E S

Plate 5. Distribution of major ions and total dissolved solids of the High Plains aquifer in Bennett County, South Dakota.

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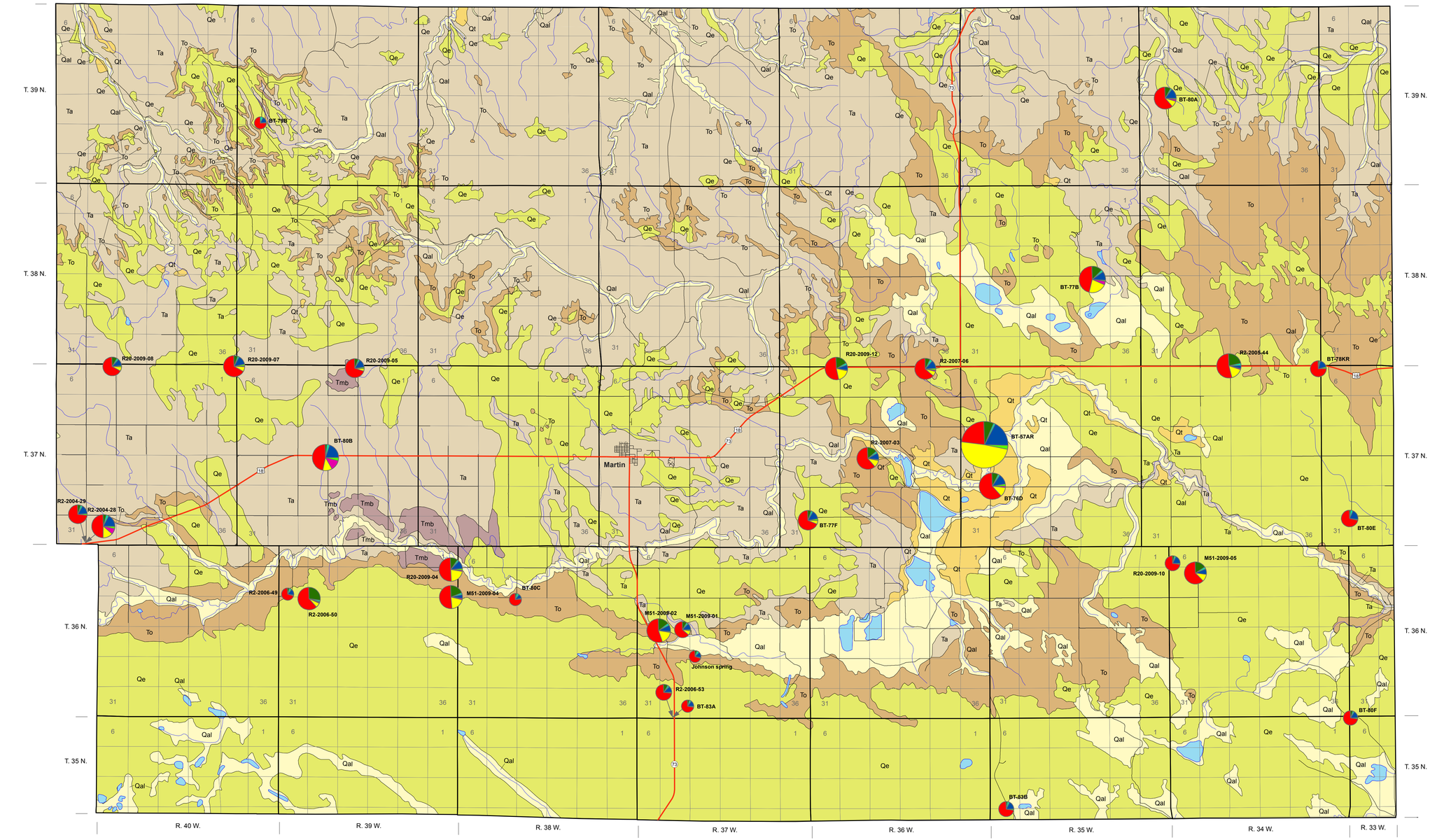

Hydrogeologic units of the High Plains aquifer

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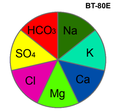

Pie chart illustrating proportions of major cations and anions. Label represents monitoring well or spring identifier. Size of pie chart is proportional to value of total dissolved solids in milligrams per liter

- River or stream
- Lake or reservoir
- Major highway
- Road
- Township boundary
- Section boundary

Hydrogeologic unit boundaries are generalized from geologic information compiled at a scale of 1:250,000

Scale: 1:100,000

0 1 2 3 4 5 6 Miles

0 1 2 3 4 5 6 Kilometers

N W E S