

## Legend

### Linear Features

- paleocurrent
- slickenline
- stretching lineation

### Planar Features

- bedding, horizontal
- bedding, inclined
- bedding, overturned
- bedding, vertical
- fault, inclined
- fault, vertical
- foliation, inclined
- foliation, vertical
- joint, inclined
- joint, vertical

### Fault Annotation

- Fault-unknown dip direct, (D-U),
- Fault-unknown dip direct, (U-D),
- normal fault, ball on downthrown side,
- normal fault, ball on downthrown side, queried
- strike slip fault, dextral,

### Faults

- fault, , certain
- fault, , approximate
- fault, , concealed
- fault, inferred, concealed
- fault, queried, approximate
- fault, queried, concealed
- fracture zone, , approximate
- fracture zone, , concealed
- fracture zone, queried, approximate

### Aeromagnetic Fault Interpretation

- (Grauch & Bankley, 2003, revised 2-23-2005)

### Folds

- anticline, , certain
- anticline, , approximate
- anticline, , concealed
- syncline, , certain
- syncline, , approximate
- syncline, , concealed
- monocline, , certain
- monocline, , approximate
- monocline, , concealed
- monocline, inflection, approximate
- monocline, anticlinal-hinge, approximate
- monocline, synclinal hinge, certain
- monocline, synclinal-hinge, approximate

### Cross Section Line

### Contacts

- geologic contacts
- gradational, horizontal
- gradational, vertical
- contact, inferred, concealed
- contact, queried, concealed
- gradational, horizontal, concealed
- gradational, vertical, concealed
- gradational, queried, concealed
- gradational, extent, approximate

### Geologic Units

- water reservoirs
- artificial fill/disturbed ground
- Quaternary valley-fill alluvium
- Quaternary sand dunes
- Quaternary colluvium sheetwash and talus
- Quaternary landslide deposits
- Quaternary stream terrace deposits
- Quaternary-Tertiary stream terrace deposits
- Quaternary Bandelier tuff
- Quaternary-Tertiary Ancha Formation
- Quaternary-Tertiary Tuelto gravel
- Tertiary colluvium
- Tertiary gravels
- Tertiary Cerros del Rio volcanics
- Tertiary Tesuque Fm-alluvial slope-coarse-upper
- Tertiary Tesuque Fm-alluvial slope-fine-upper
- Tertiary Tesuque Fm basin floor-upper
- Tertiary Tesuque Fm basin floor-middle
- Tertiary Tesuque Fm alluvial slope deposits: Lithosome A - middle-lower
- Tertiary Tesuque Fm alluvial slope deposits: Lithosome S - middle-lower
- Tertiary Bishops Lodge Member of the Tesuque Fm
- Tertiary Tesuque Fm mafic volcanic rocks
- Tertiary Espinosa Fm
- Tertiary intrusive rocks
- Tertiary Galisteo Formation-upper
- Tertiary Galisteo Formation-lower
- Tertiary Galisteo Fm undifferentiated
- Tertiary Diamond Tail Fm
- Cretaceous rocks undifferentiated
- Jurassic rocks undifferentiated
- Triassic rocks undifferentiated
- Paleozoic rocks undifferentiated
- Proterozoic rocks undifferentiated

### Ancha Fm-subdivided

- QTAas 15-60% coarse channels but QTasr-subsurface(?)
- QTasr
- Transition: QTasr - QTAas
- QTAas 1-30% coarse channels (transition: QTasr - QTAas in subsurface)
- QTAas >35% coarse channels
- QTAas 25-60% coarse channels
- QTAas 15-60% coarse channels
- QTAas 1-30% coarse channels
- QTAas 1-30% coarse channels but QTasr-subsurface
- Ancha strat section locations

The geologic map included with this report represents a compilation of current and recent New Mexico NMBGMR STATEMAP and EDMAP work in the southern Española Basin. Work in the basin is ongoing such that these maps/GIS data are subject to revision as new data and interpretations emerge.

### Geologic Mapping Credits:

**Geologic Map of the central-eastern part of the White Rock 7.5-minute quadrangle**  
Daniel J. Koning, October, 2002 (last revised January, 2003), scale 1:24,000, unpublished mapping.

**Geologic Map of the Horcado Ranch 7.5-minute quadrangle**  
Daniel J. Koning and Florian Maldonado, May 2001 (last revised January, 2003), 1:24,000, New Mexico Bureau of Mines and Mineral Resources, Open-file Geologic Map OF-GM 44, scale 1:24,000.

**Geologic Map of the Tesuque 7.5-minute quadrangle**  
Claudia L. Borchert, Steve Klotzsch, and Adam Read, 2003 (last revised January, 2003), 1:24,000, New Mexico Bureau of Mines and Mineral Resources, Open-file Geologic Map OF-GM 47, scale 1:24,000.

**Reconnaissance Geologic Map of the Agua Fria 7.5-minute quadrangle,**  
Daniel J. Koning, October, 2002 (last revised January, 2003), scale 1:24,000, unpublished mapping.

**Geologic Map of the Santa Fe 7.5-minute quadrangle**  
Adam S. Read, Daniel J. Koning, Gary A. Smith, Steve Raber, John Rogers, and Paul W. Bauer, 2000 (last revised, February 2003), 1:12,000, New Mexico Bureau of Mines and Mineral Resources, Open-file Geologic Map OF-GM 32, scale 1:12,000.

**Geologic Map of the Turquoise Hill 7.5-minute quadrangle**  
Daniel J. Koning, and R. Bruce Hallett, 2001, (last revised, January 2003), 1:24,000, New Mexico Bureau of Mines and Mineral Resources, Open-file Geologic Map OF-GM 41, scale 1:24,000.

**Geologic Map of the Seton Village 7.5-minute quadrangle**  
Adam S. Read, John Rogers, Steve Raber, Brad Rg, and Shari Kelley, 1999, (last revised, January 2003), New Mexico Bureau of Mines and Mineral Resources, Open-file Geologic Map NMBGMR OF-GM 23, scale 1:12,000.

**Geology of the Picture Rock 7.5-minute quadrangle**  
Steve R. Maynard and Alvin L. Eisenberg, 2002, New Mexico, New Mexico Bureau of Geology and Mineral Resources, Open-file Geologic Map OF-GM 51, scale 1:12,000.

**Geology of the Galisteo 7.5-min. Quadrangle**  
Alvin L. Eisenberg, 1999, New Mexico Bureau of Mines and Mineral Resources, Open-file Geologic Map OF-GM 30, scale 1:24,000.

Subdivisions of the Tesuque and Ancha Formations (basin-wide) — Daniel J. Koning

Most of the detailed geologic mapping work this compilation is based on was performed under the STATEMAP component of the USGS National Cooperative Geologic Mapping Program. The U.S. Geological Survey and the New Mexico Bureau of Geology and Mineral Resources (a division of New Mexico Tech) provided funding for geological mapping. The New Mexico Office of the State Engineer provided funding for the compilation effort as well as an ongoing hydrogeologic investigation.

Data depicted on this geologic map are based on reconnaissance field geologic mapping, compilation of published and unpublished work, and photogeologic interpretation. Locations of contacts are not surveyed, but are plotted by interpretation of the position of a given contact onto a topographic base map; therefore, the accuracy of contact locations depends on the scale of mapping and the interpretation of the geologists involved.

The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the State of New Mexico, or the U.S. Government. Cross-sections are constructed based upon the interpretations of the authors made from geologic mapping, and available geophysical (regional gravity and aeromagnetic surveys), and subsurface (drillhole) data. Cross-sections should be used as an aid to understanding the general geologic framework of the map area, and not be the sole source of information for use in locating or designing wells, buildings, roads, or other man-made structures.

## Plate 2: Geologic Map of the Southern Española Basin Showing Textural Subdivisions of the Ancha Formation

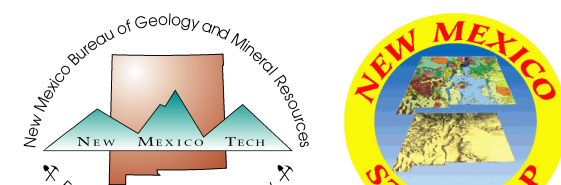
Daniel J. Koning and Adam S. Read  
December 1, 2004  
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**DRAFT**

This map is a work in progress  
and is subject to revisions as  
data and interpretation evolve.

This map is a plate from NMBG&MR Open File Report-481  
which is available on CD-ROM.

1:50,000



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