Geologic Map of the Seven Rivers Quadrangle, Eddy County, New Mexico

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Open-file Digital Geologic Map OF-GM 098

Scale 1:24,000

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Unit descriptions, Seven Rivers Quadrangle

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Qal-alluvium (Holocene)--Brown (7.5 YR 6/4), silt to sand, well sorted, subangular to subrounded, dominantly quartz with rare lithics, occupies draws and river channels and associated active floodplains. Little to no vegetation. Overlies or inset into all older units. Thickness 0-2m.

Qaes-alluvial and eolian deposits (Pleistocene (?) to Holocene)-Brown (7.5 YR 6/4), silty clay to silt to sand, well sorted, subangular to subrounded grains composed of 70% quartz and 30% carbonate and chert. Unit locally weathers into badlands and exhibits piping. Common veneer on nearly all Quaternary deposits in the map area and commonly overlies Psg and Pymg. Thickness ≤10 m.

Qas0-alluvial sand side canyon (Holocene)-- Light brown (7.5 YR 6/4), silt to fine-lower sand, subrounded to subangular, well sorted, massive, quartzose and lithic grains. Forms terrace ~2m above modern alluvium.

Qasm1-alluvial sand mainstem (Pleistocene (?) to Holocene)- Light brown (7.5 YR 6/4), silt to fine-lower sand, subrounded to subangular, well sorted, massive, quartzose and lithic grains, scattered pebbles and rare cobbles dispersed within matrix, rare calcic nodules and laminated drapes of dark red mud. Surface nearly always reworked into coppice dunes. Top of unit forms a terraces(T1) five meters above modern Pecos River and deposit is equivalent to flume sand in Carlsbad. May overlie or be inset into Qagm2. Thickness ≤10 m.

Qagsr1 or Qagr alluvial sand Seven Rivers or Rocky Arroyo (Pleistocene (?) to Holocene)- Light brown (7.5 YR 6/4), silt to fine-lower sand, subrounded to subangular, well sorted, massive, quartzose and lithic grains. Top of unit forms a terrace (T1) five meters above modern drainage. May overlie or be inset into Qag2 units. Thickness ≤10 m.

Qasp1 alluvial sand piedmont (Pleistocene (?) to Holocene)- White to pink (5 Y 8/1-5 YR 7/4), quartz sand and silt with mainstem pebbles, poorly exposed. Inset into or capping Qa2 deposits and caps the fill-cut T2. Laterally equivalent to Qasm1. Thickness 0-2 m.

Qaspm1 alluvial sand piedmont (Pleistocene (?) to Holocene)- Transitional deposit of Qasm1 and Qasp1.

Qagm2-alluvial gravel mainstem (Pleiostocene) Pink (5 YR 7/4) to red to tan, medium sand to pebble and small cobbles (<12 cm dia.) in sand and gravel lenses, subangular to well rounded, poorly to well sorted. Pebbles of chert, gray and maroon quartzite, metamorphic clast(?),smaller cobbles are carbonates, chert, quartzite, dolomite, limestone, metamorphic, schist, bull quartz, and basalt, and large pebbles and small cobbles are carbonate lithics. Gravel becomes sandy conglomerate where well cemented by calcite. Capped by calcrete layer (0-< 2 m thick)**.** Commonly overlies Permian units. Thickness 0-75 m.

Qagp2-alluvial sand and gravel piedmont (Pleistocene) Gray to yellow gravel, poorly sorted, angular to subrounded dolomite clasts. Sand composed of quartz and locally carbonate cemented, imbrication N40E. Piedmont deposit along east side of Seven Rivers Hills area. Thickness 0->~75 m.

Qagsr2 or Qagr alluvial gravel Seven Rivers or Rocky Arroyo (Pleistocene) Gray to yellow gravel, poorly sorted, angular to subrounded dolomite clasts. Sand composed of quartz and locally carbonate cemented. Thickness 0->~75 m.

Pymg---Yates Formation—mixed gypsiferous facies
Gypsum with minor dolomite, siltstone, and sandstone. Dolomite is pink to salmon to very light gray, massive to vesicular, and exhibits extensive chickenwire textures, rippenstein weathering, crinkly laminations, thinly bedded, teepee structures, green gypsiferous siltsone interbedded. . Gypsum locally fills void spaces in the dolomite, and was likely remobilized from this unit. Sandstone is yellow, locally silica cemented. Folded into domes and basins. This facies is only present in Rocky Arroyo in the SE part of the quadrangle. Contact with overlying gravels is sharp or covered. Thickness XX m.

Psd---(Yates Formation—mixed facies or) Azotea Tongue dolomite (of Kelley 1971)
Dolomite with interbedded siltstone, sandstone, and gypsum. Dolomite is thinly to thickly bedded, massive, yellow to light gray to pink to orange, vesicular, silty, clayey, very finely crystalline to sugary, undulose bedding, paper lams, crinkly lams, interbedded with thin to medium beds of pink dolomitic siltstone or green shale or yellow sandstone. Thickness XX m.

Psg---Seven Rivers Formation---thin- to medium-bedded, dolomite, commonly vesicular, tan-grey weathered, light grey fresh, massive to laminated, interbedded with m-scale intervals of red siltstone and very fine sandstone and gypsum, in cycles (m-scale), rippenstein and elephant skin weathering, interbedded with m-scale intervals of red siltstone and gypsum, in cycles (m-scale), very fine sand to silt, with ripple-cross lamination and local soft-sediment deformation (some due to gypsum mobilization) interbedded with white to yellow to green to gray to red, punky to crystalline massive gypsum (up to 2 m thick), crystals cm scale, some gypsum intervals lack siltstone and are interbedded with very thin dolomite beds, laminated to stromatolitic, gypsum nodules in siltstone intervals, many small folds (scale) and caverns characterize this unit, folds are commonly trough shaped, small-scale def is common in this unit, yet, large scale stratographic deformation is minimal—beds can be traced laterally for kms in the Seven Rivers Hills area, several scales of folding—m-scale, 10-m scale, and km scale, all low amplitude, 5-10 m scale cycles of interbedded gyp and siltstone and dol are characteristic of this unit. May be divisible into two units—a red siltstone rich, and siltstone poor unit. Upper contact with Psd may be an unconformity and is defined by a breccia zone several meters thick. Contact between Psg and Psd is common area for cave formation. Thickness XX m.

Pq—Queen Formation (Guadalupian)-- In cross section only.

Pg—Gray Formation (Guadalupian)— In cross section only.

Psa—San Andres Formation—(Leonardian to Guadalupian)—In cross section only.