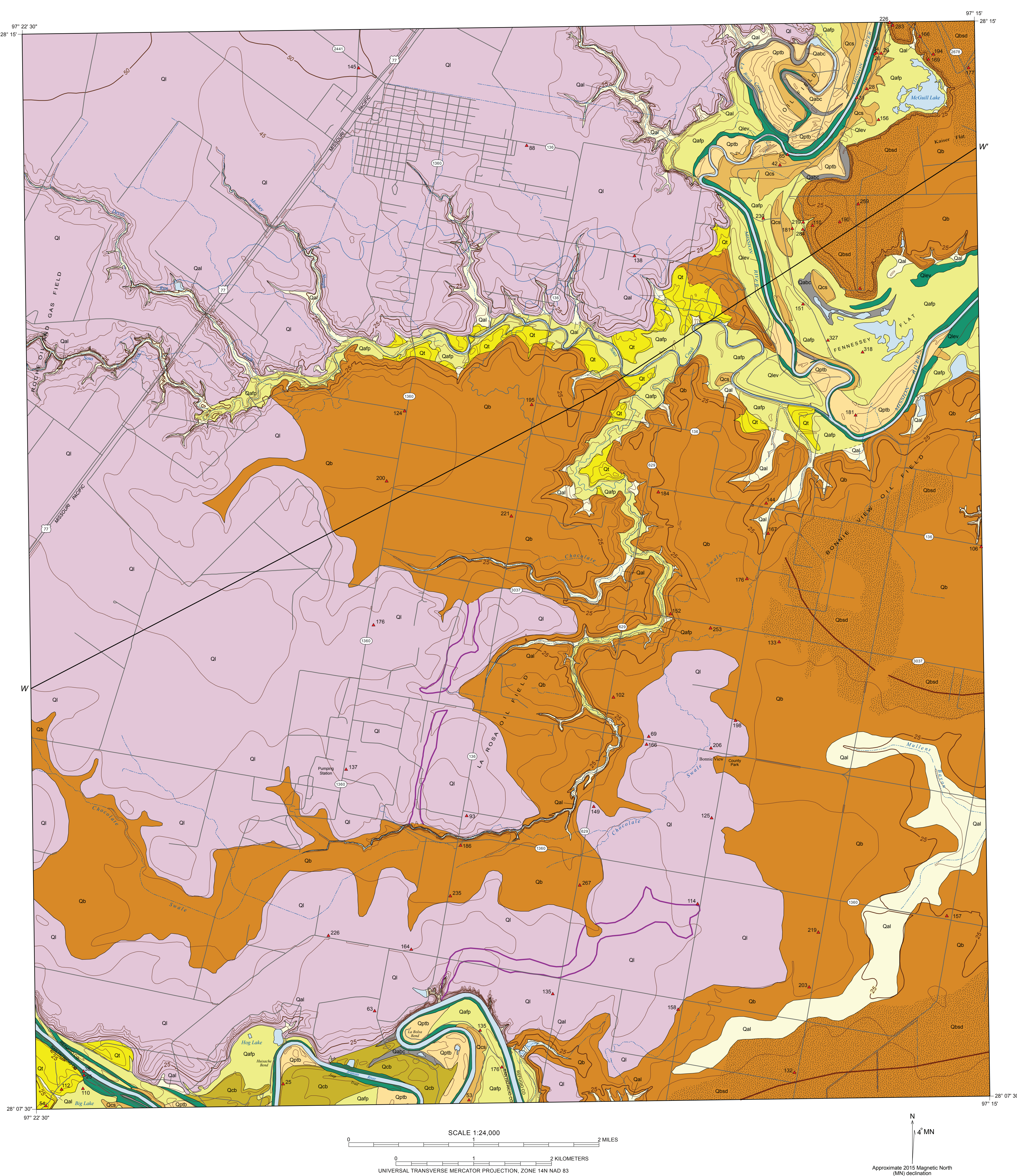




Explanation

Modern to Holocene

- Qal**—Alluvium of drainageways. Sand, clay, less gravel.
- Qalp**—Floodplain alluvium. Sand, clay less gravel. Includes undifferentiated minor levees, crevasse splays, tidal-channel levees, and active and abandoned stream channels.
- Qt**—Alluvium of young terraces. Sand, clay, less gravel.
- Qabc**—Abandoned-channel deposits. Mud and some sand.
- Qlev**—Levee deposits. Sand and mud. Low, narrow deposits subparallel and adjacent to stream and tidal channels.
- Qcs**—Crevasse-splay deposits. Sand and mud. Commonly fan-shaped deposits adjacent to stream channels and levees.
- Qptb**—Point-bar deposits. Sand and some mud.
- Qcd**—Clay dune. Clay, silt, sand, and organic matter. Located downwind of irregularly flooded areas such as ephemeral lakes and tidal flats.
- Qcb**—Channel-bar deposits. Sand. Bedload sediments deposited as an apron on levee and floodplain deposits during major floods, commonly on the downstream side of low-flow-stage meandering channels.

Pleistocene

- Qb**—Beaumont Formation. Clay, silt, sand, and minor gravel in fluvial-deltaic interdistributary and distributary setting. Includes stream-channel, point-bar, natural-levee, crevasse-splay, and backswamp deposits. Some coastal-marsh, mud-flat, and lagoon deposits. Stippled pattern indicates area of sand-rich channel-system facies, Qbsd, at the surface and shallow subsurface. Qbsd contacts are gradational and approximate.
- Qi**—Lissie Formation. Sand, silt, and minor gravel in fluvial-deltaic setting. Includes meanderbelt, levee, crevasse-splay, distributary sands, and floodplain and interdistributary mud.

MAP SYMBOLS

- Contact, dashed where approximate
- Elevation (ft), contour interval 5 ft
- Apparent electrical conductivity (in millisiemens per meter, or mS/m) of the ground, measured using a Geonics EM31 ground conductivity meter in the vertical dipole coil orientation. Value shown is a bulk conductivity from the surface to depths of 10 to 20 ft (McNeill, 1980 a and b).
- Road
- Selected ponded water and streams. Ponded water and channels of delta plain and floodplain include regularly flooded areas and intermittently flooded areas such as flats.
- Intermittent stream or canal
- Axis of Beaumont Formation sand-rich channel-system facies, Qbsd (approximate)
- Paleochannel of Lissie Formation

Photography used in the study is 1-m-pixel digital imagery, photographed in 2012 and 2015, obtained from Texas Natural Resources Information System (TNRIS). A 1-m-resolution digital elevation model (DEM) constructed from a 2014 and 2015 airborne-lidar survey was also used. Previous regional maps that cover this area include the 1:125,000-scale Environmental Geologic Atlas, Corpus Christi Sheet (Brown and others, 1976), the 1:125,000-scale map of Distribution of Wetlands and Benthic Macroinvertebrates (White and others, 1983), and the 1:250,000-scale Geologic Atlas of Texas, Beeville-Bay City Sheet (Aronow, 1975; revised 1987). Sand-rich facies, Qbsd, of the Beaumont Formation are adapted from review of 1:250,000-scale interpretations of the Beeville-Bay City Sheet (Aronow, 1975; revised 1987), study of soil maps (Guckian and Garcia, 1979; Guckian and others, 1988), field observations, and ground-based electromagnetic conductivity measurements taken for this study. The 1:250,000-scale interpretations of the Beeville-Bay City Sheet (Aronow, 1975; revised 1987) are displayed in digital data files developed by the Texas Water Development Board and U.S. Geological Survey as part of the 1:250,000-scale Statewide Digital Geologic Atlas of Texas created from hard-copy maps. Review of Paine (1991) provided useful subsurface information for the Quaternary deposits. Digital files for topography adopted to this map came from TNRIS for U.S. Geological Survey topographic quadrangle map, Woodsboro. Digital files of roads and railroads were also obtained through TNRIS. Water bodies were adapted from aerial photographs, lidar-derived DEMs, and the U.S. Geological Survey topographic maps. Sally Crofut provided access to Fennessy Ranch/Fennessy Conservation Center. Terry Blankenship and Selma Glasscock provided access to the Welder Wildlife Foundation area. Bureau of Economic Geology (BEG) staff Kutalmis Saylam, Tiffany Caudle, Aaron Averett, Ruth Costley, John Andrews, John Hupp, and Rebecca Brown acquired and processed airborne lidar data. Work for this map was supported partly by the U.S. Geological Survey National Geologic Mapping Program, with the assistance of STATEMAP award G14AC00209, and partly by the BEG STARR funds for geologic mapping and study of geologic hazards. This map is submitted with the understanding that the U.S. Government is authorized to reproduce and distribute reprints for governmental use. Views and conclusions contained in this map should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government. The authors disclaim any responsibility or liability for interpretations from this map or digital data or decisions based thereon.

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System	Series	Time Ma	Map and cross section units
Quaternary	Holocene	0.01	Qal
			Qalp
			Qt
			Qabc
			Qlev
			Qcs
			Qptb
			Qcd
			Qcb
	Pleistocene	1.8	Qb, Qbsd Qi

GEOLOGIC MAP OF THE WOODSBORO QUADRANGLE, ARANSAS AND MISSION RIVERS, AND COPANO BAY AREA, TEXAS GULF OF MEXICO COAST

Jeffrey G. Paine, Edward W. Collins, and Lucie Costard
2015

