

# EAST TEXAS LIGNITE BELT ENVIRONMENTAL GEOLOGY SHEET 7

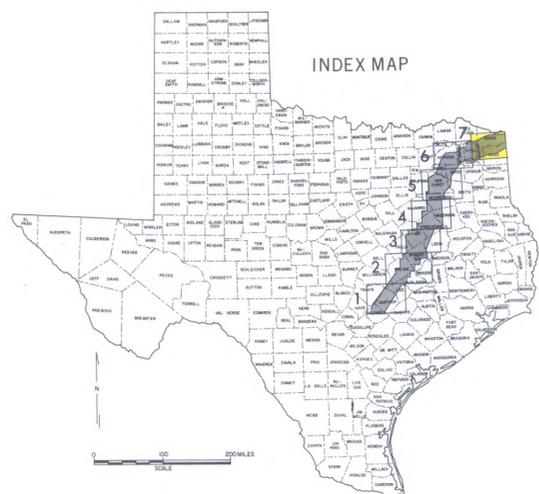
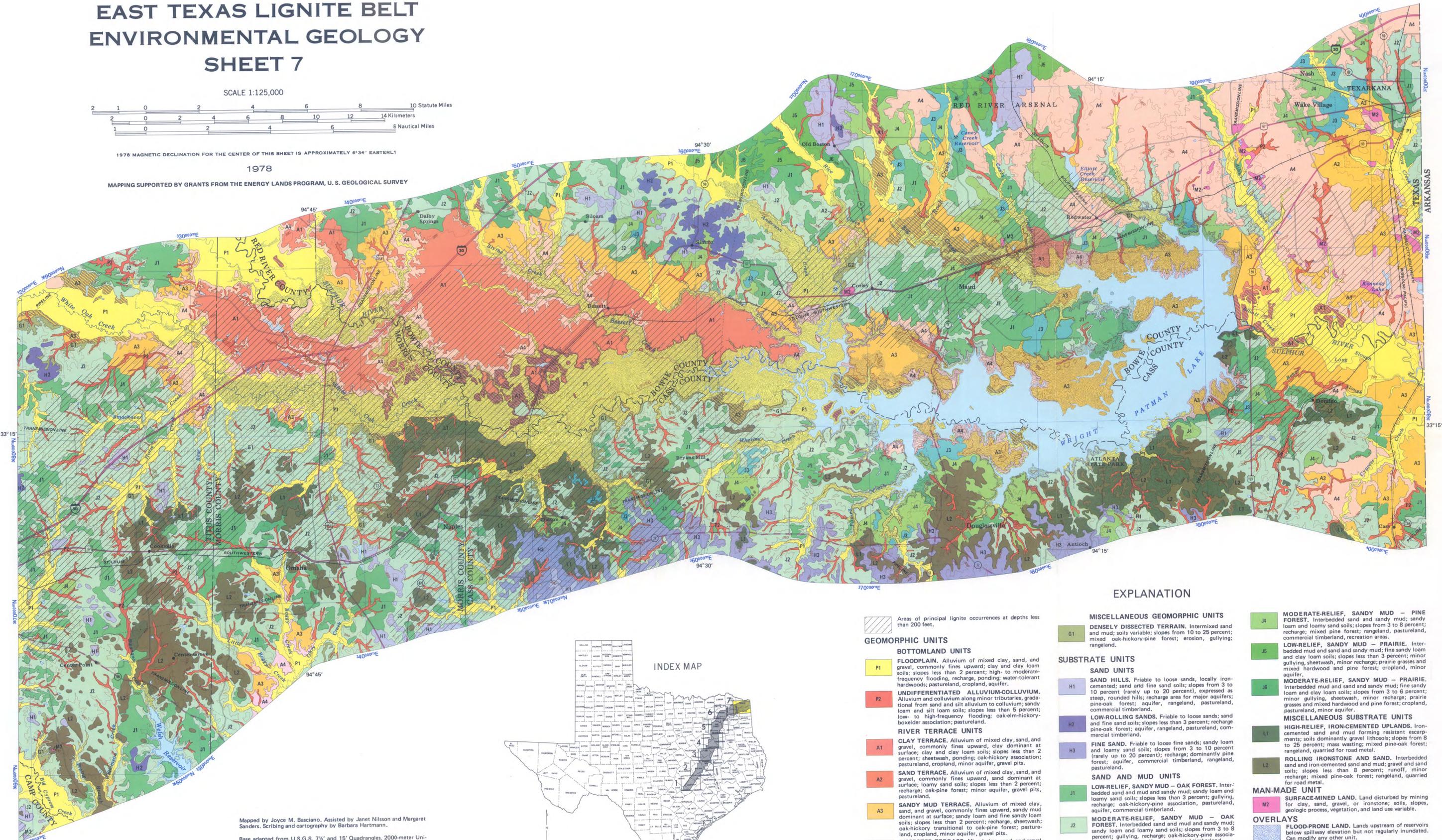
SCALE 1:125,000



1978 MAGNETIC DECLINATION FOR THE CENTER OF THIS SHEET IS APPROXIMATELY 6°34' EASTERLY

1978

MAPPING SUPPORTED BY GRANTS FROM THE ENERGY LANDS PROGRAM, U. S. GEOLOGICAL SURVEY



Mapped by Joyce M. Basciano. Assisted by Janet Nilsson and Margaret Sanders. Scribing and cartography by Barbara Hartmann.

Base adapted from U.S.G.S. 7 1/2' and 15' Quadrangles. 2000-meter Universal Transverse Mercator grid, zones 14 and 15, shown in blue.

Principal lignite occurrences from Kaiser, Johnston, and Bach, "Sand Body Geometry and the Occurrence of Lignite in the Eocene of Texas," The University of Texas at Austin, Bureau of Economic Geology Geological Circular 78-4, and Bureau of Economic Geology unpublished work maps.

## EXPLANATION

- Areas of principal lignite occurrences at depths less than 200 feet.
- GEOMORPHIC UNITS**
- BOTTOMLAND UNITS**
- P1 FLOODPLAIN.** Alluvium of mixed clay, sand, and gravel, commonly fines upward; clay and clay loam soils; slopes less than 2 percent; high- to moderate-frequency flooding, recharge, ponding; water-tolerant hardwoods; pastureland, cropland, aquifer.
- P2 UNDIFFERENTIATED ALLUVIUM-COLLUVIUM.** Alluvium and colluvium along minor tributaries, gradational from sand and silt alluvium to colluvium; sandy loam and silt loam soils; slopes less than 5 percent; low- to high-frequency flooding; oak-elm-hickory-bokelder association; pastureland.
- RIVER TERRACE UNITS**
- A1 CLAY TERRACE.** Alluvium of mixed clay, sand, and gravel, commonly fines upward, clay dominant at surface; clay and clay loam soils; slopes less than 2 percent; sheetwash, ponding; oak-hickory association; pastureland, cropland, minor aquifer, gravel pits.
- A2 SAND TERRACE.** Alluvium of mixed clay, sand, and gravel, commonly fines upward, sand dominant at surface; loamy sand soils; slopes less than 2 percent; recharge; oak-pine forest; minor aquifer, gravel pits, pastureland.
- A3 SANDY MUD TERRACE.** Alluvium of mixed clay, sand, and gravel, commonly fines upward, sandy mud dominant at surface; sandy loam and fine sandy loam soils; slopes less than 2 percent; recharge, sheetwash; oak-hickory transitional to oak-pine forest; pastureland, cropland, minor aquifer, gravel pits.
- A4 DISSECTED TERRACE.** Mixed clay, sand, and gravel of eroded terrace, includes some terrace edges; sandy loam, clay loam, and gravelly loam soils; rolling topography with slopes up to 5 percent; erosion and sheetwash; oak forest and pine forest, oak-hickory association on clayey soils; rangeland, pastureland, gravel pits.
- MISCELLANEOUS GEOMORPHIC UNITS**
- G1 DENSELY DISSECTED TERRAIN.** Intermixed sand and mud; soils variable; slopes from 10 to 25 percent; mixed oak-hickory-pine forest; erosion, gullying; rangeland.
- SUBSTRATE UNITS**
- SAND UNITS**
- H1 SAND HILLS.** Friable to loose sands, locally iron-cemented; sand and fine sand soils; slopes from 3 to 10 percent (rarely up to 20 percent); recharge, expressed as steep, rounded hills; recharge area for major aquifers; pine-oak forest; aquifer, rangeland, pastureland, commercial timberland, recreation areas.
- H2 LOW-ROLLING SANDS.** Friable to loose sands; sand and fine sand soils; slopes less than 3 percent; recharge pine-oak forest; aquifer, rangeland, pastureland, commercial timberland.
- H3 FINE SAND.** Friable to loose fine sands; sandy loam and loamy sand soils; slopes from 3 to 10 percent (rarely up to 20 percent); recharge; dominantly pine forest; aquifer, commercial timberland, rangeland, pastureland.
- SAND AND MUD UNITS**
- J1 LOW-RELIEF, SANDY MUD - OAK FOREST.** Interbedded sand and mud and sandy mud; sandy loam and loamy sand soils; slopes less than 3 percent; gullying, recharge; oak-hickory-pine association; aquifer, commercial timberland.
- J2 MODERATE-RELIEF, SANDY MUD - OAK FOREST.** Interbedded sand and mud and sandy mud; sandy loam and loamy sand soils; slopes from 3 to 8 percent; gullying, recharge; oak-hickory-pine association; pastureland, aquifer, commercial timberland.
- J3 LOW-RELIEF, SANDY MUD - PINE FOREST.** Interbedded sand and sandy mud; sandy loam and loamy sand soils; slopes less than 3 percent; recharge; mixed pine forest; rangeland, pastureland, commercial timberland.
- J4 MODERATE-RELIEF, SANDY MUD - PINE FOREST.** Interbedded sand and sandy mud; sandy loam and loamy sand soils; slopes from 3 to 8 percent; recharge; mixed pine forest; rangeland, pastureland, commercial timberland, recreation areas.
- J5 LOW-RELIEF, SANDY MUD - PRAIRIE.** Interbedded mud and sand and sandy mud; fine sandy loam and clay loam soils; slopes less than 3 percent; minor gullying, sheetwash, minor recharge; prairie grasses and mixed hardwood and pine forest; cropland, minor aquifer.
- J6 MODERATE-RELIEF, SANDY MUD - PRAIRIE.** Interbedded mud and sand and sandy mud; fine sandy loam and clay loam soils; slopes from 3 to 8 percent; minor gullying, sheetwash, minor recharge; prairie grasses and mixed hardwood and pine forest; cropland, pastureland, minor aquifer.
- MISCELLANEOUS SUBSTRATE UNITS**
- L1 HIGH-RELIEF, IRON-CEMENTED UPLANDS.** Iron-cemented sand and mud forming resistant escarpments; soils dominantly gravel litholsols; slopes from 8 to 25 percent; mass wasting; mixed pine-oak forest; rangeland, quarried for road metal.
- L2 ROLLING IRONSTONE AND SAND.** Interbedded sand and iron-cemented sand and mud; gravel and sand soils; slopes less than 8 percent; runoff, minor recharge; mixed pine-oak forest; rangeland, quarried for road metal.
- MAN-MADE UNIT**
- M2 SURFACE-MINED LAND.** Land disturbed by mining for clay, sand, gravel, or ironstone; soils, slopes, geologic process, vegetation, and land use variable.
- OVERLAYS**
- FLOOD-PRONE LAND.** Lands upstream of reservoirs below spillway elevation but not regularly inundated. Can modify any other unit.
- LOW TERRACE.** Terraces less than 10 feet above floodplain elevation; inundated during low-frequency high-magnitude floods; modified river terrace units only.
- OLD MINING AREA (underground)**