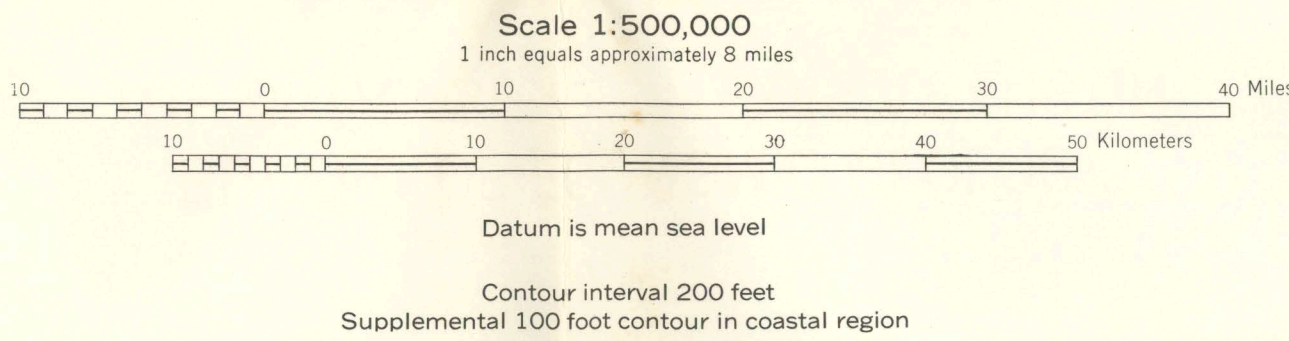


# LAND RESOURCES OF TEXAS

BUREAU OF ECONOMIC GEOLOGY  
THE UNIVERSITY OF TEXAS AT AUSTIN



Base compiled by the U.S. Geological Survey 1927 North American datum Lambert conformal conic projection based on standard parallels 29° and 42°  
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## EVALUATION OF LAND RESOURCE UNITS

UNITS	POTENTIAL RESOURCES* AND NATURAL SUITABILITY	RECOMMENDED USE CONSIDERATIONS	UNITS	POTENTIAL RESOURCES* AND NATURAL SUITABILITY	RECOMMENDED USE CONSIDERATIONS
A1 Recharge sand	groundwater development, sand and gravel extraction; rangeland, recreation, satisfactory foundation conditions	seal and monitor solid-waste disposal sites, widely disperse and monitor septic systems	D9 Karstic limestone and gypsum series	high-quality gypsum, crushed limestone, local groundwater development; range land, local cropland, satisfactory foundation conditions	limit solid-waste disposal, limit leachate, monitor septic systems, evaluate artificial groundwater recharge potential
A2 Pooled coastal aquifers	limited, shallow groundwater development; rangeland, recreation	seal and monitor solid-waste disposal sites, widely disperse and monitor septic systems, avoid damage to dunes and vegetation, design foundations to withstand storms	D10 Shallow salt domes	sulfur, salt, oil and gas	evaluate radioactive-waste disposal potential
A3 Edwards recharge zone	groundwater development; rangeland, recreation	land use in this area must comply with Texas Water Quality Board regulations	D11 Faults	sand, gravel, topsoil, local groundwater development; rangeland, recreation, wildlife preserve	evaluate potential for movement
A4 Secondary aquifers	groundwater development, dimension stone, crushed stone, timber in East Texas; rangeland, cropland, recreation, satisfactory foundation conditions	evaluate aquifer potential, monitor waste disposal sites and septic systems	E1 Flood-prone areas	sand, gravel, topsoil, local groundwater development; rangeland, recreation, wildlife preserve	erect structures above potential flood level, design foundations to withstand floods, maintain groundwater for flood waves, restrict waste disposal, protect buried cables and pipelines, evaluate artificial groundwater recharge and surface-water storage potential
B1 Massive limestone	dimension stone, crushed stone, high-quality limestone, lime, groundwater development; rangeland, satisfactory foundation conditions	seal and monitor solid-waste disposal sites, disperse and monitor septic systems, avoid solid-waste disposal in abandoned quarry pits	E2 Low- and cross-slope deposits	fill, topsoil; rangeland, cropland, recreation, wildlife preserve, protection from minor floods	design structures to avoid weakening levees and to withstand floods, avoid excessive denaturation, protect buried cables and pipelines, seal and monitor solid-waste disposal sites
B2 Thin-bedded limestone	crushed stone, road base material, local groundwater development; rangeland, satisfactory foundation conditions	seal and monitor solid-waste disposal sites, disperse and monitor septic systems, avoid solid-waste disposal in abandoned quarry pits	E3 Alluvial fans	potential local groundwater development	high flood potential
B3 Potential cement material	current material; rangeland, cropland, satisfactory foundation conditions	seal and monitor solid-waste disposal sites, disperse and monitor septic systems, avoid solid-waste disposal in abandoned quarry pits	E4 Playas	cropland, natural water ponding	avoid construction, monitor solid-waste disposal sites and facilities, protect buried cables and pipelines
B4 Caliche with soil cover	road base material; cropland, satisfactory foundation conditions		E5 Alluvial fans		avoid construction, restrict waste disposal
B5 Caliche	road base material; satisfactory foundation conditions		E6 Bluffs	recreational uses not requiring permanent structures	restrict waste disposal, avoid construction, limit excavation; subject to intense wind-storm activity and flooding in coastal zone
B6 Clay mud and sandstone	oil and lights, sand, clay, crushed stone (in limestone beds); rangeland, local cropland, solid-waste disposal*	reclaim mine areas	E7 Windblown sand	rangeland, wildlife habitat	seal and monitor solid-waste disposal sites, widely disperse and monitor septic systems
B7 Quaternary clay and lignite	seismic clay, lignite, local groundwater development; satisfactory foundation conditions, solid-waste disposal*	seal and monitor solid-waste disposal sites, monitor septic systems, reclaim mine areas	E8 Sand dunes	fore-land dunes provide a natural barrier to hurricane storm surge	avoid construction, restrict waste disposal, protect buried cables and pipelines, avoid excavation, avoid denaturation, prohibit vehicles
B8 Gypsum-limestone	iron ore extraction in northeast Texas, soil conditioner, road base material; rangeland, cropland, satisfactory foundation conditions	seal and monitor solid-waste disposal sites	E9 Clay dunes	wildlife habitat	avoid construction, restrict waste disposal, avoid denaturation
B9 Gypsum-anhydrite	gypsum; rangeland	concrete structures require special design, protect buried cables and pipelines	E10 Tidal flats and subaqueous tidal flats	recreation, fishing, navigation, maintaining natural circulation between Gulf and bay, other uses of fish and wildlife to nursery and feeding grounds in bays	design construction to maintain natural circulation, dredging of inlets will require frequent maintenance, prohibit waste disposal
B10 Conglomerates	sand, gravel, crushed stone; rangeland, satisfactory foundation conditions		E11 Windward flats and tidal flats	recreational uses not requiring permanent structures	restrict waste disposal, avoid construction, limit excavation, protect buried cables and pipelines; subject to rapid and sudden inundation and to moderate wind erosion
B11 Siliceous sand and gravel	sand, gravel, local groundwater development; rangeland, cropland, satisfactory foundation conditions	seal and monitor solid-waste disposal sites, widely disperse and monitor septic systems	E12 Bay-marsh sand and shoals	recreation, fishing	design piers or pilings to avoid disturbance of natural water flow and wind movement, restrict waste disposal, avoid construction, locally intense wave and current activity
B12 Tuffaceous sand and mud	barrenite, fuller's earth, volcanic ash, local uranium extraction, timber in East Texas; rangeland, solid-waste disposal*, local impoundment of water	protect buried cables and pipelines, design foundations and septic systems for expansive and contract soils, design septic systems for adequate drainage	E13 Mainland beaches	recreation	restrict waste disposal, designate traffic corridors, design piers and jetties to avoid disturbance of natural beach equilibrium, avoid construction
B14 Sand and mud with lignite and bentonite	lignite, bentonite, local groundwater development, timber in East Texas; rangeland, solid-waste disposal*, water impoundment	protect buried cables and pipelines, design foundations for expansive soils, avoid construction on clay slopes, protect buried cables and pipelines, design foundations for expansive soils on clay mud, design septic systems for adequate drainage	E14 Potential hurricane surge channels	recreational uses not requiring permanent structures, serve as ducts for storm surge	restrict waste disposal, avoid construction, restrict dredging or filling which may obstruct or limit biologic productivity
C1 Expansive clay mud	expansive aggregate; rangeland, cropland, solid-waste disposal*, impounding water	avoid construction on clay slopes, protect buried cables and pipelines, design foundations for expansive soils on clay mud, design septic systems for adequate drainage	F1 Fresh-water marsh	valuable wildlife habitat, sport fishing, hunting, nature study, high biologic productivity	preserve natural state, limit dredging, flooding, or filling, restrict waste disposal, restrict use of booms or in near marshes, avoid construction
C2 Impervious clay mud and hard limestone (undifferentiated)	rangeland, cropland, suitable foundation conditions*, solid-waste disposal*		F2 Swamp	valuable wildlife habitat, sport fishing, hunting, nature study, limited logging, high biologic productivity	preserve natural state, limit dredging, flooding, or filling, restrict waste disposal, restrict use of booms or in near marshes, avoid construction
C3 Limer mud	current material, road base material; rangeland		F3 Backwash to salt-water marsh	sport fishing, hunting, nature study, spawning grounds for shrimp and fish, very high biologic productivity	preserve natural state, limit dredging, flooding, or filling, restrict waste disposal, restrict use of booms or in near marshes, avoid construction
C4 Hard limestone and limy mud (undifferentiated)	crushed stone, road base material; rangeland, suitable foundation conditions, solid-waste disposal* impounding water	design septic systems for adequate drainage	F4 Marine grassland	hunting, fishing, crabbing, shell oystering, spawning and nursery grounds for fish, very high biologic productivity and species diversity	restrict waste disposal, avoid construction, restrict dredging or filling which may obstruct or limit biologic productivity
C5 Sand and mud (undifferentiated)	timber in East Texas, local groundwater development; rangeland, cropland, solid-waste disposal*, impounding water*	monitor solid-waste disposal sites	F5 Oyster reefs	oyster shell, fishing, harvesting of oysters, baiting, feeding grounds for fish, high biologic productivity	plan dredging of dead reef to maintain natural circulation and to avoid excessive turbidity or sand disposal that may damage living reef, restrict waste disposal
C6 Hard sandstone, mud, and mudstone (undifferentiated)	road base material; rangeland, satisfactory foundation conditions		G1 River-influenced bay	recreation, fishing, navigation, high biologic productivity	monitor to prevent release of wastes and contaminants, plan construction or disposal of spoil to avoid alteration of natural bay circulation
C7 Moderately hard sandstone	crushed stone		G2 Restricted bay	recreation, fishing, navigation, high biologic productivity	monitor to prevent release of wastes and contaminants, plan construction or disposal of spoil to avoid alteration of natural bay circulation
C8 Hard sandstone and mudstone (undifferentiated)	crushed stone		G3 Open bay	recreation, commercial and sport fishing, navigation, high biologic productivity	monitor to prevent release of wastes and contaminants, plan construction or disposal of spoil to avoid alteration of natural bay circulation
C9 Loose surficial sand	rangeland, cropland, satisfactory foundation conditions	seal and monitor solid-waste disposal sites, widely disperse and monitor septic systems, avoid denaturation	G4 Tidal-influenced open bay	recreation, commercial and sport fishing, navigation, high biologic productivity	monitor to prevent release of wastes and contaminants, plan construction or disposal of spoil to avoid alteration of natural bay circulation
C10 Gypsiferous red bed with dolomite	rangeland	avoid construction in collapse areas, protect buried cables and pipelines, design concrete structures to withstand corrosion	G5 Intermittent fans	recreation, fishing, spawning and feeding grounds for fish, high biologic productivity	maintain natural bay circulation, monitor to prevent release of wastes and contaminants
C11 Fractured, deeply dipping igneous rock	building stone, crushed stone		G6 Shoreface sand	recreation, fishing, baiting, navigation	design piers and piers to avoid disturbance of natural sediment movement, design structures to withstand storm conditions, restrict waste disposal
C12 Hard crystalline rock	recreation		H1 Surface-water storage areas	water supply, recreation, navigation, fishing, hunting	restrict waste disposal, avoid discharge of contaminants; strong tendency for concentrating blockades and other pollutants
D1 Desert mountain terrain and various lavatuffaceous rock	recreation		H2 Wildlife refuges, forests, and parks	recreation, wildlife preserve	government regulated, use with consideration of natural land resource units present
D2 Desert mountain terrain and various lavatuffaceous rock	recreation		H3 Urban areas		bulkhead shoreline margins, establish vegetation where possible before construction, restrict waste disposal, protect buried cables and pipelines
D3 Terraces	sand, gravel, local groundwater development; rangeland, cropland	may be subject to flooding; seal and monitor solid-waste disposal sites, widely disperse and monitor septic systems	H4 Made land and subaerial spoil	recreation, construction, fill material	special studies required, restrict waste disposal, establish marine vegetation where possible, protect buried cables and pipelines
D4 Inactive alluvial fan and deep wash deposits	sand, gravel, local groundwater development		H5 Subaqueous spoil	construction of offshore platforms and bridge abutments, fill material	
D5 Severely eroded land		highly susceptible to flooding and erosion			
D6 Undissected red beds	copper, uranium; rangeland				
D7 Dissected red beds	copper, uranium; rangeland				
D8 Basemap topography	road base material; rangeland	seal and monitor solid-waste disposal sites, widely disperse and monitor septic systems			

\*Location of commercial deposits may require extensive exploration and site evaluation and consideration of economic factors.

\*Detailed on-site investigation should provide location of all waste disposal facilities.