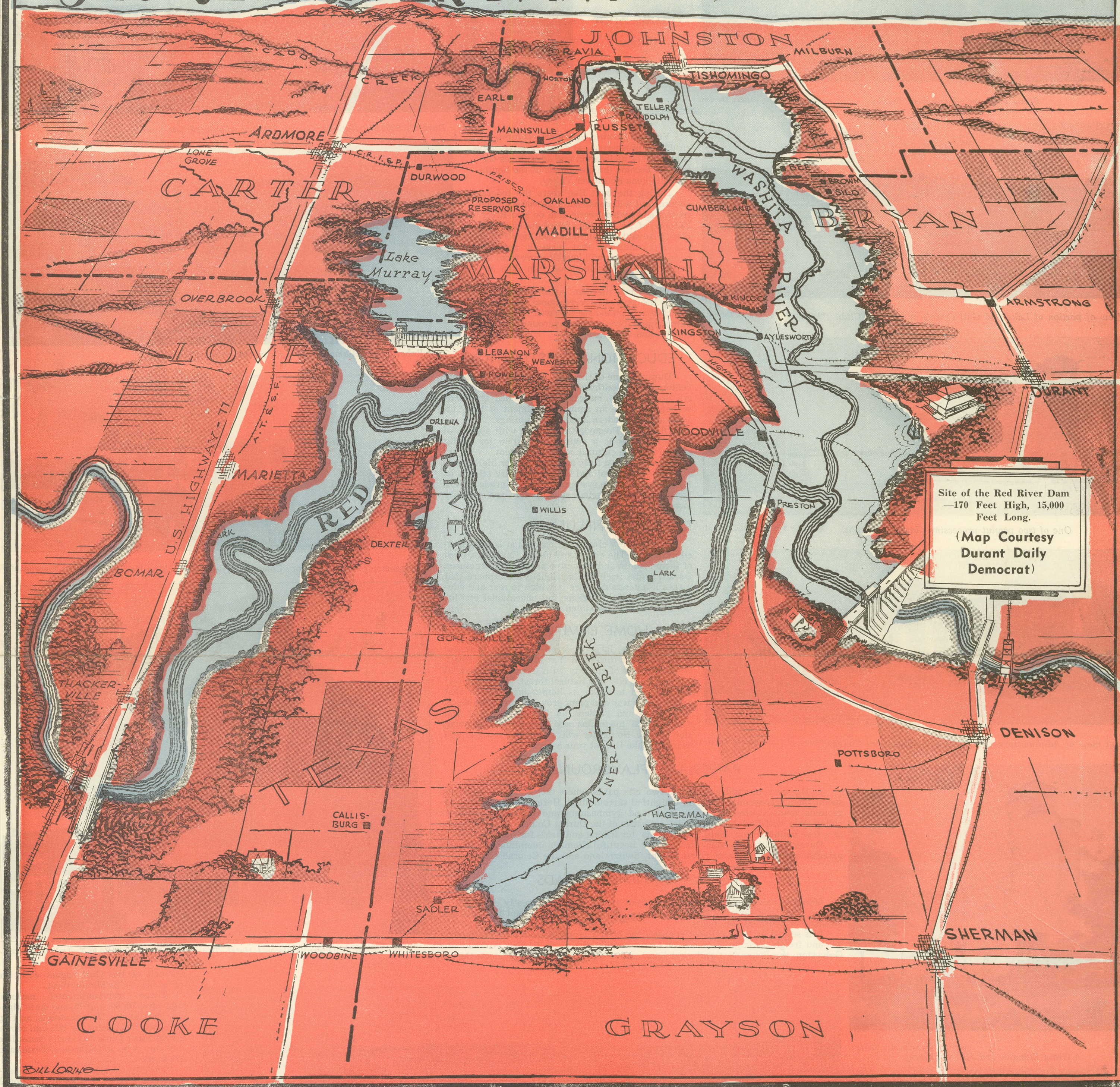# The RED RIVER DAM ~ AT DURANT, OKLA.

Site of the Red River Dam
—170 Feet High, 15,000 Feet Long.

(Map Courtesy Durant Daily Democrat)

BILL LORING

LOCATION OF DAM—Across Red River about 16 miles Southwest of Durant.

PURPOSE—Dual project for flood control and development of hydro-electric energy.

AUTHORITY—Flood Control Act, Public No. 761, 75th Congress, 3d Session, dated June 28, 1938.

SIZE OF RESERVOIR—At Elevation 617 (normal pool) reservoir will inundate 26,000 acres in Texas, 69,000 acres in Oklahoma, total 95,000 acres.

At elevation 640 (spillway crest) reservoir will inundate 35,900 acres in Texas, 91,700 acres in Oklahoma, total 127,600 acres.

At elevation 617, length of Red River arm is 44 miles; at elevation 640, 55 miles;

At elevation 617, length of Washita River arm is 29 miles; at elevation 640, 36 miles.

RESERVOIR STORAGE ALLOCATION—Dead and silt storage 1,020,000 acre feet (River bed to elevation 587.)

Power Regulation Storage 2,060,000 acre feet (Elev. 587 to 617).

Flood Storage 2,745,000 acre feet. (Elev. 617 to 640).

Total Storage below spillway crest 5,825,000 acre feet. Note: With outlets closed, 5 ft. of surcharge over spillway is required for discharge of 75,000 c.f.s., estimated channel capacity below dam, which gives additional 758,000 acre feet for flood storage.

FLOOD DISCHARGES—Record flood (1908) is Reservoir Design Flood, with peak discharge of 470,000 c.f.s. This flood is completely controlled below spillway crest.

Computed Spillway Flood—Based on the hypothetical maximum probable storm, the peak inflow is 1,350,000 c.f.s., which routed through the reservoir, gives a peak outflow over spillway of 750,000 c.f.s.

LAND PROTECTED—1908 flood—397,000 acres cleared land, 272,000 acres wooded land. Maximum flood 596,-000 acres cleared land, 531,000 acres wooded land.

RELOCATIONS—
Railroads—28.5 miles.
Highways—40 miles.
Communication Lines—18.5 miles.
Pipe Lines—3 miles.
Transmission Lines—24 miles.

TYPE OF DAM—Rolled-fill with upstream impervious section having slopes of 1 on 2.5 to 1 on 4.0; downstream slopes of 1 on 2 and 1 on 3.0; protected on upstream face with riprap from Elevation 570 to 670; on downstream face with rock toe and riprap from elevation 505 to elevation 560. Elevation of top of dam 670.

SIZE OF DAM—
Length of Main Dam—14,000 feet.
Length of Dike Extension—7,800 feet.
Maximum Height of Dam—165 feet.
Top Width—40 feet.
Base Width 1,145 feet.
Volume of Rock and Gravel Protection 761,000 cu.
Volume of Rock and Gravel Protection—761,000 cu. yds.

SPILLWAY—Design discharge of 1,000,000 c.f.s. with surcharge of 25 feet, ogee type, height 15 feet, length 2000 feet, concrete 55,000 cubic yards, excavation 6225,000 cubic yards. Crest elevation 640, elevation retaining walls—670 (max.) spillway channel, maximum width 2000 feet, contracted width 700 feet, paved for length of 3100 feet, with 30 inch concrete floor anchored to foundations, concrete 576,000 cubic yards.

OUTLET WORKS—Conduits—Provide diversion discharge of 88,500 c.f.s., at pool Elevation 563. Eight reinforced concrete conduits placed in open cut and backfilled, on Texas abutment, each 20 feet inside diameter and 1000 feet in length. Total concrete 82,-000 cubic yards, total reinforcing steel 12,000 tons.

Four conduits are to be subsequently used to regulate flood storage providing with reservoir at elevation 640 a discharge of 75,000 c.f.s., which is estimated channel capacity below dam.

Four conduits to be steel lined for subsequent use as power conduits. Total steel lining 3600 tons.

Intake Structures—Eight reinforced concrete towers supporting 16 tractor-type gates, 2 for each conduit, individually operated. Each gate is 9 feet wide by 19 feet high. Two emergency gates provided for operation by gantry crane. Total concrete in intake tower 46,400 cu. yds., and reinforcing steel 1800 tons. Total steel in gates 485 tons.

Stilling basin for flood control conduits; total concrete 37,000 cu. yds.

POWER INSTALLATION—Four units of maximum total capacity 132,000 kw. Generating voltage 13,800, 0.8 power factor. Energy output 274,000,000 kw.-hr. for average year, and 110,000,000 kw.-hr. for minimum year. Total cost of initial project including interest during construction $50,800,290.00

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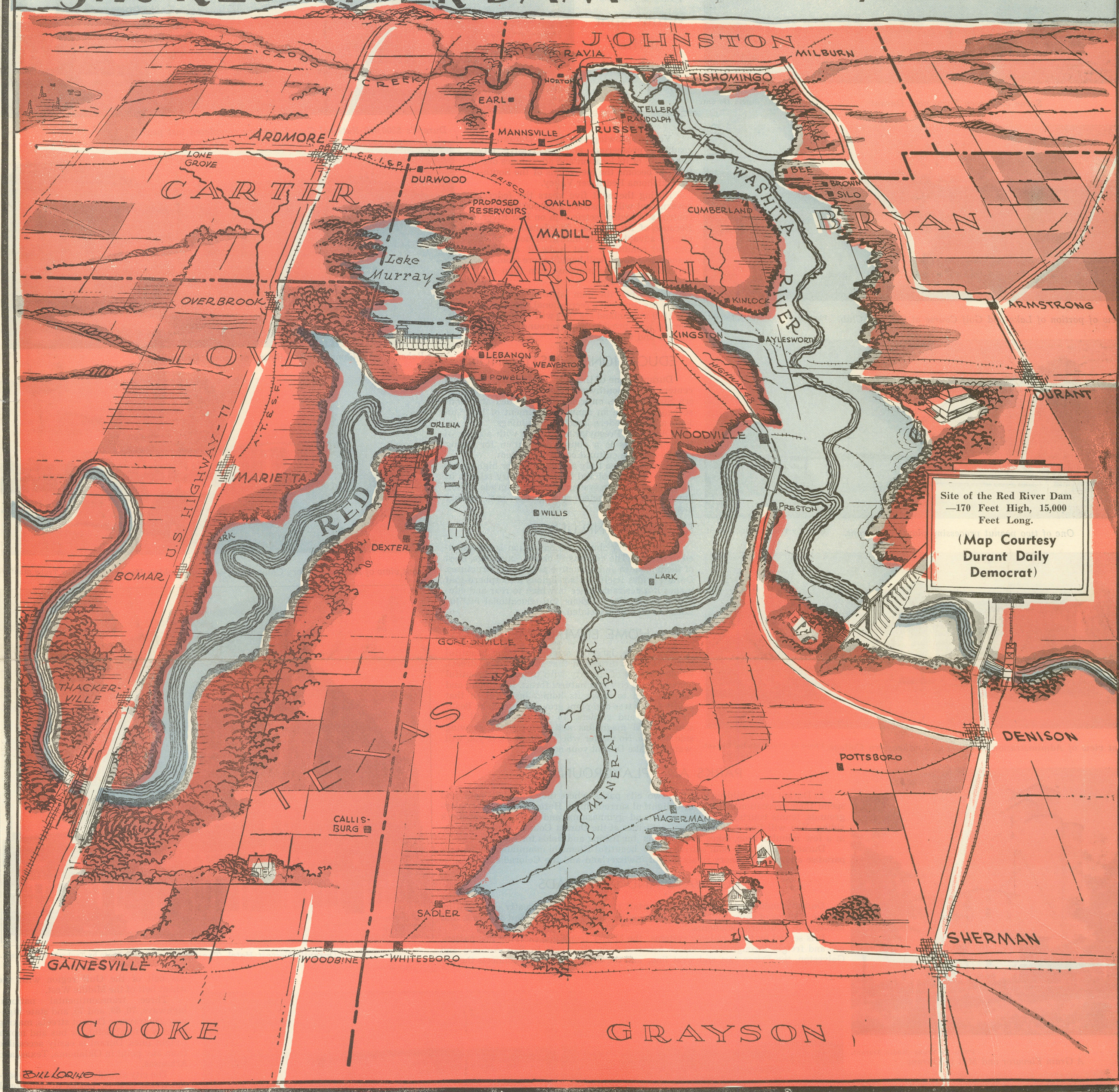
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