

Pertinent Data – Belton Dam and Lake
(See Exhibit A for Supplementary Pertinent Data)

LOCATION: In Bell County, R.M 16.7 on Leon River, Brazos River Basin, 3 miles north of Belton, Texas.

DRAINAGE AREA:

3,570 square miles
One inch of runoff 189,867 acre-feet

DAM:

Type: Rolled earth fill
Length (including spillway and dike): 5,524 feet
Maximum Height 192 feet
Top Width: 30 feet

SPILLWAY:

Crest Elev.: 631.3 feet NAVD88
Length: 1,300 feet
Type: Broad-crested Weir

POWER FEATURES: FC Act of 1954 authorized modification for hydropower at Belton upon impoundment of Proctor Lake. Previous studies determined hydropower to be infeasible; however, the Belton Recon Report dated Oct 1981 has indicated feasibility. The Belton Dam Feasibility Report Addition of Hydropower, dated January 1983, indicated that the provision of hydroelectric generating facilities at Belton Dam is feasible.

INFLOW:

Spillway Design Flood peak, cfs (1973 Study) 608,400
Spillway Design Flood volume, ac-ft (1973 Study) 3,910,000
Spillway Design Flood runoff, inches (1973 Study) 20.59
Probable Maximum Flood peak, cfs (1983 Study) 779,833
Probable Maximum Flood volume, ac-ft (1983 Study) 2,824,800
Probable Maximum Flood runoff, inches (1983 Study) 15.00

OUTFLOW:

Total routed peak outflow spillway, cfs 472,500
Probable Maximum Flood total, cfs (1983 Study) 513,238

OUTLET WORKS:

Type: One conduit with 3 gated inlets
Dimensions: 22 feet diameter
Invert Elev.: 483.3 feet NAVD88
Control: 3 broome-type gates, 7 feet x 22 feet

LOW-FLOW OUTLETS:

Type: One 3 feet by 3 feet gated outlet discharging into flood control conduit
Invert Elev: 540.3 feet NAVD88 (at intake to wet well)

Feature	Elev Feet* (NAVD 88)	Reser- voir Area (acres)	Reservoir Capacity			Total Spillway Capacity (cfs)	Outlet Works Capacity (cfs)			Low Flow Outlet Capacity (cfs)
			Accumu- Lative (ac-ft)	Runoff (inches)	Incre- mental (ac-ft)		1 gate:	2 gate:	3 gate	
Top of Dam	662.3									
Max. Design Water Surface(1983 Study)**	658.32	38,000	1,918,000	10.2		513,238	13,510	26,890	30,480	640
Top of Flood Control Pool and Spillway Crest (1983 Study)	631.3	23,620	1,097,600	5.78	640,000		12,300	24,600	27,900	590
Top of Conservation Pool (2003 Survey)	594.3	12,135	435,225	2.41	372,700		10,300	20,800	23,600	510
Invert at Lowest Intake (2003 Survey)	483.3	0	0							
Sediment Reserve					84,900***					
Total Storage					1,097,600					
Streambed (2003 Survey)	470.3									

*An elev. difference of 0.3 feet is the difference between NAVD88 and the original data that was provided in mean sea level (msl) for Belton Dam; ** In 1973 study, the maximum design water surface elevation is 657.2 feet NAVD88, the reservoir area is 37,340 acres and the reservoir capacity is 1,876,700 ac-ft.

*** Estimated 50 years of sediment storage below elevation 547.3 feet NAVD88.

AUTHORIZATION: Flood Control Act approved 24 Jul 46 (PL 79-526) (HD 88/81/1). Modified by Flood Control Act approved 3 Sep 54 (PL 83-780) (HD 535/81/2).

STATUS OF PROJECT: Construction began June 1949. Deliberate impoundment began 8 Mar 1954. Ultimate project conservation pool of elev. 594.3 deliberate impoundment began 1 May 1972. Project is complete and operational.

FINAL PROJECT COST (OCT 80):

Federal:	\$17,191,734.04
Non-Federal	<u>None*</u>
Total:	\$17,191,734.04

*NON-FEDERAL PARTICIPATION AND LOCAL COOPERATION:

Water supply storage contracts with the Brazos River Authority were approved on 15 Jan 58 and 13 Dec 60 for 96.78 percent (360,700 ac-ft) of the conservation storage space between elevations 540.3 and 594.3 feet NAVD88. BRA will pay \$5,124,999.77, in addition to their share of annual O&M cost, for this water supply storage space. Fort Hood Military Reservation is utilizing the remaining 3.22 percent (12,000 ac-ft) of the conservation storage space between the same elevations.

ANNUAL O&M COST (FY 14):

Federal:	\$3,003,200
Non-Federal:	<u>0</u>
Total:	\$3,003,200

COST ALLOCATION METHOD: Use of Facilities (pro rata)

LOCAL AGENCY: Brazos River Authority and Fort Hood

REMARKS:

After impoundment of Proctor Lake, the conservation pool elevation at Belton Lake was raised on 1 May 1972 from 569.3 to 594.3 feet NAVD88 which increased the total conservation storage from 125,700 ac-ft to 372,700 ac-ft and the dependable yield from 75.0 MGD to 104.7 MGD.

LAND ACQUISITION:

	: Guide Contour (NAVD 88)	: Area (Acres)
Fee Simple	605.3	24,241
Easement	642.3	6,574
Permit		<u>1,430</u>
Total		<u>32,245</u>

Dependable yield (w/ Proctor Lake)**: 162.0 cfs or 104.7 MGD

**Based on critical dry period from 1949-1956 and 50 years of sedimentation

FLOOD DATA:

Date	Peak Discharge*** (cfs)
Dec 1913 (Estimated)	76,000
Apr 1945	70,600
May 1957	112,000
Oct 1959	83,500
May 1965	147,000

Annual Visitation (10-year average, 2004-2014): 1,947,151

Shoreline at top of conservation pool: 136 miles

Bankfull channel capacities: Leon River to junction with Lampasas River (beginning of Little River): 10,000 cfs; Little River from junction with Leon River to Cameron, TX (junction of San Gabriel and Little River): 10,000 cfs near Rogers (1).

(1) The Leon River channel capacities of 10,000 cfs were from Design Memorandums documentation. During the flood of 2007, a 5,800 cfs release was at bank full capacity just downstream of the dam.

***Gaging Stations: Cowhouse Creek near Pidcoke, Leon River at Gatesville, Leon River near Belton, and Little River at Cameron.

BELTON DAM AND LAKE