OPTIONAL FORM NO. 10
MAY 1962 EDITION
GSA FPMR (41 CFR) 101-11.6

UNITED STATES GOVERNMENT

Memorandum

TO : R. E. Smith, Subdistrict Chief
Houston, Texas

DATE: June 16, 1972

FROM : C. R. Gilbert, Acting Chief, Water Resources
Surveillance and Research, WRD, Austin, Texas

SUBJECT: Brazos River near Richmond -- Rating

Reference is made to measurement card dated May 31, 1972, for subject station. This measurement plotted back on rating No. 5, whereas previous low-water measurements have been plotting about 0.4 foot to the right of this rating. Because of the importance of the discharge at this station in the operations of the Brazos River Authority and Corps of Engineers, we should keep them advised of any material changes in the rating.

In the future for each measurement made at this station, please provide the results to the Brazos River Authority and the Corps of Engineers, Fort Worth District, and advise them as to the numerical shift from rating No. 5. With this procedure it is hoped that these parties can facilitate their operations in the Brazos River basin.

C. R. Gilbert

CRG:fsp

cc: Mr. Burke Bryan, BRA, Waco
Mr. Jimmy Baggett, CE, Fort Worth

Added BRA, Col Joe Clema to Data Request Meas. list for Brazos - Richmond
6-26-72
Dale

I. D. Yost, District Chief, WRD
Austin, Tex. ATTENTION: C. R. GILBERT

Dec. 11, 1972

Robert E. Smith, Chief, Houston Subdistrict, WRD
Houston, Tex.

Brazos River at Richmond, Tex.

Enclosed is a copy of printout of subject station for June through August 1972. Sept. 1 through Nov. 16, 1972 had to be computed from A-35. Nov. 17 through Dec. 7 was estimated from National Weather Service reading from teletype.

SLJ/lah
Enclosures

Robert E. Smith

Ronald L. Malcolm, Research Hydrologist, WRD
Fluvial Transport Section, Denver, Colorado

Sept. 23, 1970

Robert E. Smith, Chief, Houston Subdistrict, WRD
Houston, Texas 77004

Request for data - Brazos River at Richmond, Tex.

Enclosed are prints of 9-211 (not so good) for 1969 water year, primary printout sheets, and an estimate of discharge which includes data requested by you for July 1, 1969 to June 15, 1970.

I trust these will satisfy your needs. If we can be of further service, please call.

EGK/lah
Enclosures

Emil G. Kaminski
Acting Chief, Houston Subdistrict

Brazos River at Richmond, Tex. 1970

	26	13,000 cfs
May	27	17,600
	28	14,600
	29	11,600
	30	10,400
	31	13,000
June	1	15,700
	2	13,800
	3	10,400
	4	8,900
	5	9,300
	6	10,000
	7	10,600
	8	11,200
	9	10,000
	10	8,900
	11	8,400
	12	8,100
	13	7,900
	14	6,900
	15	6,200

April 10, 1970

James M. Brooks
Department of Oceanography - Chemical
Texas A & M University
College Station, Texas

Dear Mr. Brooks:

Thank you for your letter requesting data from our gaging station Brazos River near Bryan, Tex.

The gage-heights at this station are recorded on a digital punch-tape recorder and the tapes are processed in Washington to compute a mean daily gage-height and mean discharge. These computations for the period requested should be available by the end of June and we will be happy to send you a copy as soon as possible thereafter.

The closest sediment station on the Brazos is our gaging station Brazos River at Richmond, Tex. on which we compute suspended sediment load.

I suggest that you use the data for the Richmond station, since discharge and sediment load are available at the same location. This information is available from our Houston office, 2320 LaBranch St., Room 174, Houston, Tex. 77004.

If we can be of further service, please notify us.

Sincerely yours,

Paul B. Rohne, Jr.
Engineer-in-Charge
Austin Field Unit

cc: District Chief
U.S. Geological Survey Houston w/encl.

FTS College Station
8-713-846-8821

823-0288
4/2/70 4:45 noon

Dept. of Oceanography---Chemical
Texas A&M University
College Station, Texas

Geological Survey
Federal Office Bldg.
300 E. 8th Street
Austin, Texas

Dear Sir:

I would like to know if I could obtain the water height of the Brazos River at your recording station near Bryan in Brazos County (lat 30°36'50'', long 96°29'10'', on the left bank 2.4 miles downstream from Little Brazos River) for the period beginning Feb. 13 and ending March 31. I would also like the same data for April when it becomes available. I would also like the flow rate at the various water heights.

assume 1970

I would also like to know the suspended load or bed load of the stream if you have the data for anywhere in the vicinity of Brazos County. This would be for the same period. If this information is available, I would like to know the pore size of the filter used in making the determination. I would also be interested in any other chemical data you have for the river over this period and around this vicinity.

I am a graduate student in Chemical Oceanography and need this information for my thesis. I am studying dissolved and particulate organic carbon in the Brazos River System as an indication of pollution. I need the river height data (particularly flow rate) so that I can compare how DOC and POC vary from day to day with this parameter. I need suspended

load because I am doing some work with how much organic carbon is tied up here. Any other chemical data would also be a help.

If you are not willing to look up this information for me I would be willing to come to Austin and do it myself if that is possible.

Sincerely

James M. Brooks

James M. Brooks

Perm. misc.

Trigg Twichell, District Chief, WRD
Austin, Tex.

March 2, 1966

Robert E. Smith, Engineer-in-Charge, WRD
Houston, Tex.

Brazos River at Richmond, Tex.

Enclosed is Final Cost and Time Report (Form A-59a) for subject station.

Enclosure
EGK/cje

E. G. Kaminski

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

RBB

TO : R. E. Smith, Engineer-in-Charge
Houston, Tex.

DATE: Feb. 4, 1966

FROM : W. H. Goines, Chief, Basic Data Operations
Austin, Tex.

SUBJECT: Transmittal of data

We are enclosing the original and four copies of the supplement to station description 8-1140. Brazos River at Richmond.

W. H. Goines

Enclosures (5)
/erc

EK

September 24, 1965

Fort Bend County
Control 27-7
U. S. Highway 59
Proposed Gaging Station on the Brazos River
at Richmond, Tex.

Mr. D. C. Greer
State Highway Engineer
Texas Highway Department
Austin, Texas 78701

Dear Mr. Greer:

Thank you for your letter of September 20, 1965, File No. D-5, granting our agency permission to install a bubble gage on the Brazos River at U. S. Highway 59.

Your District Engineer, Mr. W. E. Carmichael, Houston, Texas, will be contacted a few days in advance of the installation date in order that he may arrange for the necessary inspection.

Very truly yours,

Trigg Twichell

Trigg Twichell
District Chief

/mlb
cc: N. A. Bothmer, Austin
R. E. Smith, Houston

Perm mise

Trigg Twichell, District Chief, WRD
Austin, Tex.

Sept. 13, 1965

Robert E. Smith, Engineer-in-Charge, WRD
Houston, Tex.

Brazos River at Richmond, Tex.

Enclosed is "Major change in station equipment" report and four (4) photographs with negatives of newly constructed gage shelter at subject station.

EGK/cje
Enclosure

Robert E. Smith

August 27, 1965

Fort Bend County
Control 27-7
U. S. Highway 59
Brazos River at Richmond, Tex.

Mr. D. C. Greer
State Highway Engineer
Texas Highway Department
Austin, Texas 78701

Dear Mr. Greer:

This office is presently maintaining a streamflow gaging station on the Brazos River at U. S. Highway 59. The present recording equipment is housed in a metal shelter attached to the downstream side of the bridge pier.

We propose to remove the present shelter and install a bubble gage in a 4' x 6' galvanized shelter located near the west end of the bridge.

Your permission for the Geological Survey to make this installation in accordance with the attached plans dated August 24, 1965, will be very much appreciated.

Very truly yours,

A. G. Winslow

for Trigg Twichell
District Chief

Enclosure
cc. Highway Dept. (4)
M. A. Bothner
R. E. Smith

FORM CD-121 (9-22-59)
(PRES BY A.O. 206-10)

UNITED STATES GOVERNMENT

Memorandum

U.S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

REE

EL

TO : U. S. Geological Survey, Houston, Tex. DATE: October 24, 1963

In reply refer to:

FROM : WBAS, Houston, Tex.

SUBJECT: WB Form 531-4 - Richmond, Texas

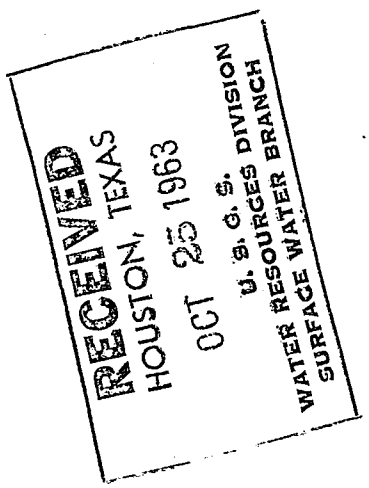
We are enclosing for your files a copy of our Station Description for Richmond, Texas.

Your cooperation in furnishing extra copies of your description for this station for other offices involved is appreciated.

C.B. Crooker

C. B. Crooker
Meteorologist

cc: USGS, Austin, Tex.



File Brazos-
Richmond
Per misc

File:

This plot was made in ans. to a request from the Tex. Hwy. Dept. (Mr. Martin Jones Ph. UN9-4571 Ext. 206).

The object was to determine the degree of scour in the main channel and around pier during large rises.

Three large rises were considered and the cross section plotted from meas. made before, during, and after the rise. (based on these limited obs.)

Conclusion - No significant scour occurs during the rises. The channel is fairly stable and does not move in and out with each sig. rise.

RES
5/23/63

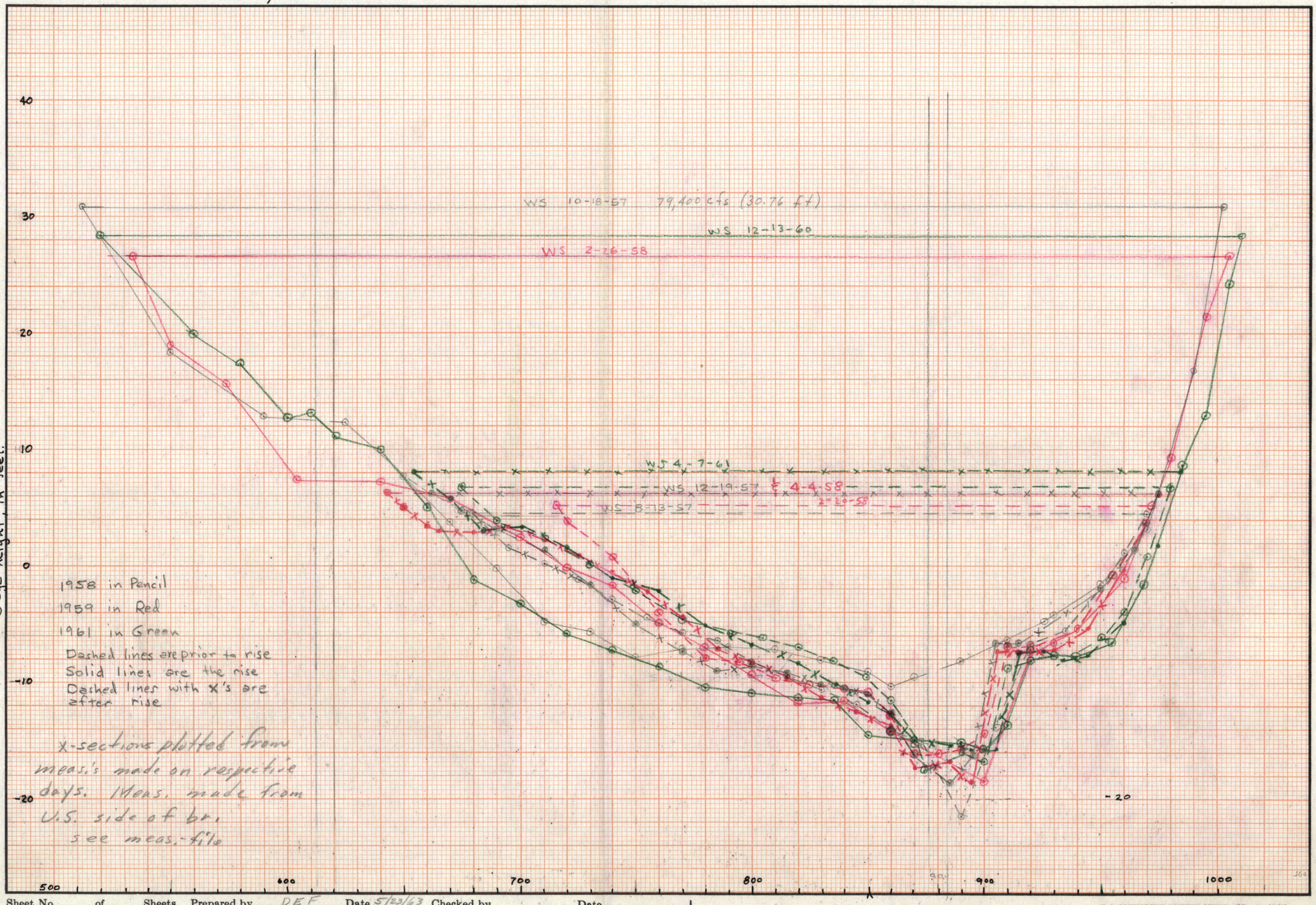
9-213-F
(March 1949)
Cross-Section—Double

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

File .....

File permanent misc.

Brazos River at Richmond, Tex



Sheet No. ..... of ..... Sheets. Prepared by DEF Date 5/23/63 Checked by ..... Date .....

FOLD

U. S. GOVERNMENT PRINTING OFFICE : 1951 - O - 941610

OPTIONAL FORM NO. 10
5010-104
UNITED STATES GOVERNMENT

Memorandum

File
~~Current~~
misc

TO : H. K. Hall, Engineer-in-Charge
Houston, Tex.

DATE: October 16, 1961

FROM : Trigg Twichell, District Engineer
Austin, Tex.

SUBJECT: Brazos River at Richmond, Tex.

In reply to your memo of October 11, 1961:

Enclosed are original sheets 7 and 8 of the bridge cross-section.

The capital investment of present (Jan. 1961) equipment was made by BWE-USGS. This information is given in the "Inventory of Texas Gaging Stations and Purpose of Record," which was revised January 1961.

By: W. H. Goines
Acting District Engineer

Encls. (2)
WHG/ej

Given to LCC
for Std Dessert
Review & file
10-17-61

File

IN REPLY REFER TO:
Brazos R-
Richmond

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Surface Water Branch
807 Brazos Street
Austin 14, Texas

September 18, 1961

Mr. W. E. Carmichael, District Engineer
District No. 12
Texas Highway Department
P. O. Box 1286
Houston 1, Texas

Attention: Mr. James L. Baker, District Designing Engineer

Gentlemen:

In reply to your letter of September 12, 1961, requesting that we send you copies of sheet 3 of our Compilation Report for Brazos River near San Felipe and at Richmond, we are sending you two copies of a table of flood peaks recently compiled for Brazos River at Richmond. We are making this substitution for the reason that table 3 does not show gage heights. A similar table for Brazos River near San Felipe is now being compiled and will be sent you as soon as it is finished.

In our files is a table showing flood data prepared by the Southern Pacific Lines. The following is shown for Wallis:

T.&N.O Readings below base of rail

Date	Reading
Dec. 9, 1913	0.8 ft above base of rail, highest known reading
June 1929	12.2 ft - crest of flood
May 26, 1935	19.9 ft do
Oct. 4, 1936	24.6 ft

If you need additional information, please contact Mr. Hal K. Hall, engineer-in-charge of our subdistrict office in Houston. His address is Room 201, Federal Land Bank Building, 430 Lamar Street, telephone CApitol 2-7201.

U. S. G. S.
WATER RESOURCES DIVISION
SURFACE WATER BRANCH
SEP 19 1961
HOUSTON, TEXAS
RECEIVED

Very truly yours,

Trigg Twichell
District Engineer

By: W. H. Goines
Acting District Engineer

Encls.
cc: H. K. Hall

BRAZOS RIVER BASIN

1140. Brazos River at Richmond, Tex.

(Published as "at Rosenberg" October 1922 to September 1931)

Location.--Lat 29°35', long 95°45', near right bank on downstream side of pier of bridge on U. S. Highway 59 in Richmond, Fort Bend County, 925 ft downstream from Texas and New Orleans Railroad Co. bridge and at mile 93.

Drainage area.--44,020 sq mi, approximately, of which 9,240 sq mi is probably noncontributing.

Gage.--Nonrecording prior to June 7, 1931; recording thereafter. January 1903 to June 1906 at site 925 ft upstream at datum 0.90 ft higher; at site 7.6 miles upstream at datum 4.0 ft higher 1913 to September 1931. Datum of gage is 40.94 ft above mean sea level, datum of 1929, Houston supplementary adjustment of 1943.

Stage-discharge relation.--Defined by current-meter measurements.

Bankfull stage.--35 ft (U.S. Weather Bureau).

Historical data.--Maximum stage since at least 1852, that of Dec. 10, 1913.

Remarks.--Flow partly regulated by upstream reservoirs since 1930. Gage heights furnished by U. S. Weather Bureau for water years 1915-31. Beginning 1944 loop curves were drawn to adjust for the change-in-stage effect. Boyer's method was used in 1953 and 1954 after which the loop-curve method was used again. Only annual peaks are shown.

FORM 9-219c
(April 1959)
PEAK DATA LIST

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

File . . . . . .

1140. Brazos River at Richmond, Tex.

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)
1884	May --, 1884	[a] 43.7	—
1885	June 13, 1885	[a] 44.7	—
1899	July --, 1899	[a] 45.6	—
1903	Mar. 7, 1903		[b] 66,600
1904	May 10,11,1904		[b] 47,600
1905	May 6, 1905		[b] 65,600
1906	June 9, 1906		[c] 37,300
1914	Dec. 9, 1913	[d] 56.4	—
1915	May 1, 1915	50.3	—
1916	May 6, 1916	30.7	—
1917	Oct. 24, 1916	6.9	—
1918	Apr. 17, 1918	15.0	—
1919	July 1, 1919	[e] 30.0	—
1920	Jan. 26, 1920	[f] 36.4	—
1921	Sept. 16, 1921	37.7	—
1922	May 9, 1922	49.8	—
1923	Apr. 15, 1923	29.35	54,900
1924	Dec. 16, 1923	33.0	64,800
1925	May 12, 1925	17.1	24,200
1926	Apr. 26, 1926	37.1	86,900
1927	June 25, 1927	22.4	42,500
1928	Oct. 5, 1927	20.6	36,800
1929	June 6, 1929	46.2	123,000
1930	May 23, 1930	36.8	78,800
1931	Oct. 10, 1930	27.6	52,100
1932	Feb. 24, 1932	31.85	80,500
1933	May 31, 1933	18.70	34,000
1934	Apr. 10, 1934	29.4	71,400
1935	May 27, 1935	36.12	90,900
1936	May 31, 1936	33.1	[g] 74,700
1937	Oct. 5, 1936	32.17	77,100
1938	Jan. 28, 1938	29.70	68,600
1939	May 21, 1939	20.52	41,900
1940	July 5, 1940	31.22	82,100
1941	Nov. 28, 1940	38.40	117,000
1942	May 1, 1942	32.42	79,400
1943	Oct. 22, 1942	22.17	45,500
1944	May 8, 1944	[h] 34.70	93,800
1945	Apr. 27, 1945	[i] 32.60	85,000
1946	May 20, 1946	[i] 30.1	82,500
1947	Aug. 28, 1947	[j] 22.06	51,000
1948	May 15, 1948	13.22	22,100

Sheet No. 1 of 3 Sheets. Prepared by WBM Date 2/1/61 Checked by SPS Date 2/10/61

U S GOVERNMENT PRINTING OFFICE : 1959 OP—506351

GPO 884849

FORM 9-219c
(April 1959)
PEAK DATA LIST

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

File

1140. Brazos River at Richmond, Tex.--Continued

Peak stages and discharges

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Apr. 30, 1949	21.49 [1]	56,000				
1950	Feb. 15, 1950	19.83 [1]	44,500				
1951	June 17, 1951	9.48	11,100				
1952	May 28, 1952	15.75	34,400				
1953	May 19, 1953	29.86 [1]	83,100				
1954	Oct. 30, 1953	15.59 [k]	32,400				
1955	May 23, 1955	12.76	19,300				
1956	May 6, 1956	12.25 [1]	17,900				
1957	May 5, 1957	37.13	119,000				
1958	Oct. 20, 1957	31.90	87,600				
1959	Apr. 19, 1959	19.19	39,200				
1960	Oct. 9, 1959	25.00	60,300				

 Prepared by WRM Date 2/1/61 Checked by SPS Date 2/10/61

U.S. GOVERNMENT PRINTING OFFICE : 1959 OF—806351
GPO 8 8 4 8 4 8 6 1

1140. Brazos River at Richmond, Tex.

a From Southern Pacific Railroad Co. at site 925 ft upstream, present datum.

b Maximum daily.

c Maximum daily for period Oct. 1, 1905 - June 30, 1906.

d Maximum stage of 48.2 ft occurred on Dec. 10, 1913 at point 1,000 ft upstream from present site and datum.

e Highest published by U. S. Weather Bureau; no gage readings from June to September except June 29, 30, July 1, 6, 24.

f Probably highest; no gage readings published by U. S. Weather Bureau October 1-18, 1919.

g Discharge of 74,700 cfs also occurred Dec. 9, 1935.

h Occurred May 10, 1944.

i Discharge computed by adjusting for rate-of-change in stage; peak stage occurs several hours later.

j Occurred January 21.

k Occurred Dec. 6, 1953.

m Discharge of 17,900 cfs also occurred Oct. 14, 1955.

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : Hal K. Hall, Engineer-in-Charge, Houston, Tex. DATE: May 14, 1958

FROM : Trigg Twichell, District Engineer, Austin, Tex.

SUBJECT: Equipment

Reid

Clarence Welborn will bring the special crane for the station Brazos River at Richmond to Houston. He is also bringing a 100 lb. weight and a current meter.

Please correct the station description for the Richmond station to mention the special crane and advise this office where it is stored.

The bridge at the Richmond station should be marked to show where soundings should not be attempted during floods. This information should also be on the cross-section and in the station description. A meter was damaged at the gage pier and another meter was lost. Presumably there is some under water hazard.

There is some question about the suitability of a sedan for a field car. Before mounting power equipment or altering the car, please advise this office of your plans.

You mentioned having 4 sets of flood measuring equipment. Three sets are mounted on vehicles. Is the fourth set power or hand equipment?

By: W. H. Goines
Acting District Engineer

WHG/djs

Gastons Service Station
200 - 90A.
Richmond Tex
Ph MO2-3460

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : H. K. Hall, Area Engineer,
Houston, Tex.

DATE: March 15, 1956

FROM : W. H. Goines, Acting District Engineer,
Austin, Tex.

SUBJECT: Brazos River at Richmond, Tex.

Records for this station are now being computed, levels of Nov. 16, 1954 were checked today, and we offer the following comments:

1. Mr. Sansom's analysis of bench marks appears sound in using BM 6 as base instead of BM 2.

2. Levels checking a wire-weight gage would be easier to follow if upon reaching the station the check-bar elevation by dial was set to agree with the given elevation (as given in station description). Otherwise corrections due to wire-weight drum slipping (mechanical errors which may only apply since the last visit) will be indicated with datum corrections. For example, levels of 11-16-54 found the check-bar reading by dial 58.72 and the given reading is 58.68 which indicates a mechanical error of -0.04 ft, no changes were made. Levels were run to bottom of weight and gage was found reading 0.03 ft high. Had the dial been set to the given reading, then the gage would have been found reading 0.01 low.

3. When levels tie in a bench mark that is not given in the station description then a complete description should be given of that bench mark. We have added the description of USC & GS BM T-804 to your level notes.

4. If a copy of these level notes (or the part pertaining to the wire-weight gage) was furnished to the Weather Bureau, a note to that effect should be on the level notes. Please advise if we should furnish the Weather Bureau a copy.

Please make the following changes to station description dated 3-9-45:

1. Page 1, last line under Establishment should read ...same datum, 40.94 feet, datum of 1929, Houston supplementary adjustment of 1943.

2. Page 2, mark BM 2 abandoned 11-16-54

3. Page 2, Elev. of BM 6 is 51.275 feet.

4. Page 3 (Sheet 2), first paragraph add "See Note 2"

5. Bottom of last page add - "Note 2 USC&GS BM T-804. About .4 mile east along U. S. Highway 59 from the courthouse at Richmond, Ft. Bend Co., at the bridge over the Brazos River in the south end of east abutment, 125 ft south of the centerline of the highway and about level with the highway. A standard disk stamped "T 804 1943". Elevation 90.033 feet, datum of 1929, Houston supplementary adjustment of 1943.

Elevation above datum of gage 49.09 ft.

Datum of gage is 40.94 ft, datum of 1929, Houston supplementary adjustment of 1943.

W. H. Goines

cc: HCPritchett
WHG/vh

STANDARD FORM NO. 64

File Misc. St 3N3

Office Memorandum • UNITED STATES GOVERNMENT

TO : H. K. Hall, Acting Area Engineer, Houston, Tex.

DATE: December 21, 1954

FROM : H. C. Pritchett, Acting District Engineer Austin, Tex.

SUBJECT: Levels Brazos River at Richmond, Tex.

A study of levels at subject station shows that the datum of gage above mean sea level should be 40.94 instead of 40.84. The elevation of P.S.T. 37-19 1925 from which sea level datum was obtained is now 93.907 ft datum of 1929, through medium of Houston supplementary adjustment of 1943. Analysis of the level summary since 1943 indicate that the elevation of RM 6 should be changed from 51.235 to the original elevation of 51.275 and this RM used as base for future levels. With the change in the sea level datum of gage, USC & GS BMT-804, RM 6 and RM 3, which should all be stable, indicate that RM 2 has settled and should not be used as base of future levels, also since the monument of RM 5 is broken it should not be used as base for future levels.

The conclusions from this analysis agree with those set forth in the second paragraph of J. M. Sansom's memorandum (Nov. 30, 1954).

H. C. Pritchett

H C Pritchett

RECEIVED
HOUSTON, TEX.
DEC 23 1954