FORTE & TABLADA

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May 20, 2019

Jose' R. Cot, Esq.
Hurley & Cot, APLC
One Canal Place, Suite 2750
365 Canal Street
New Orleans, LA 70130

RE: **Sunshine Bridge Clearance Investigation (Amended)**

Mr. Cot

At your request, I have reviewed the information provided to me by your office pertaining to clearances of the Sunshine Bridge located in Donaldsonville, Louisiana. The purpose of this review is to compare the information contained in these sources to the actual clearance of the bridge at the time it was impacted by Marquette Transportation Company. I relied primarily on the following documents for this effort:

Historical Bridge Plans and Permit Application Data:

- Original Bridge plans, date 1954;
- Approval of Location and Plans of Bridge, Submitted by South Louisiana Turnpike Commission, June 1955, and findings of fact. ("Permit");

Government Sources:

- 2015 Flood Control and Navigational Maps, USACE, Mississippi River Cairo, Illinois to Gulf of Mexico;
- Vessel Traffic Service Lower Mississippi River, USCG, User Manual, 2013;
- United States Coast Pilot, NOAA, 2018 Edition;

Miscellaneous Sources:

- Bridge Clearance Survey, Moffatt and Nichol/John Chance, 2016;
- Gauge Data 01220 U.S. Army Corp of Engineers (USACE);
- Information provided by LA DOTD regarding impact time frame.

Supplementing my document review was a detailed topographic survey performed by Forte and Tablada, Inc. on January 26, 2019, with preparation work performed by our survey crews the week of January 20, 2019.

Synopsis: The LA DOTD district staff indicated that the Sunshine Bridge had been impacted at approximately 1:55 AM on October 12, 2018. The impact location occurred near the western boundary of the West Navigation Span and on the downstream side of the Sunshine Bridge. The impact occurred at the lowest horizontal chord and to the lateral braces located between the L15 and L16 gusset plates. The terms L15 and L16 are locations or designations described in the original bridge plans which correspond to the "lower" gusset plate numbers 15 and 16. At the time of impact, the Mississippi River stage at the Donaldsonville USACE gauge was approximately 18.37 feet, obtained from the USASCE gauge website.

Historical Bridge Plans and Permit Application Data: The original bridge plans provide horizontal and vertical design clearances. The original plans indicate that the Main Navigation Span, designated as the "Channel Span" in navigational guidance provided by the USCG and NOAA, has a maximum horizontal clearance of 750 feet and minimum vertical clearance of 133 feet. As stated in the permit, the Sunshine Bridge was to have two navigational channels. The permit states that in addition to the Main Navigation Span is a West Navigation Span having a maximum horizontal clearance of 725 feet and a minimum vertical clearance of 105 feet on the westernmost boundary of the (West) navigational channel and 132 feet on the easternmost boundary of the (West) navigational channel. The reason for two vertical clearances in this span is due to the declining grade of the bridge as it approaches the west levee bridge approach. It is believed that the design clearance was based on a high river stage at Donaldsonville of 36 feet occurring during the 1927 flood.

Government Sources: Clearance data issued by the USCG and NOAA indicate a maximum horizontal clearance of 750 feet and a minimum vertical clearance of 135 feet in the Main Navigation Span. These sources also provide a maximum horizontal clearance of 725 feet and a minimum vertical clearance of 111 feet in the West Navigation Span. These minimum clearances are based on a high river stage of 36 feet. The USCG and NOAA provide an equation for determining clearance in each navigation span for a range of gauge values. The equations which are provided are as follows:

Main Navigation Span (Channel Span) Clearance = 171 feet minus Donaldsonville Gauge
West Navigation Span Clearance = 147 feet minus Donaldsonville Gauge

Topographic Survey: A topographic survey was performed on January 26, 2019 to compare the clearance guidance to the as-built bridge geometry at the time of impact. The survey utilized a combination of state-of-the-art survey equipment. Elevations and global position were established with a Trimble R10 GNSS Receiver, and additional primary control points were established from the control network developed and utilized during the bridge repair. These two additional control points were established with two 4-hour static GPS sessions and post-processed with OPUS. The static control point with the lowest standard deviation between GPS observations (Control Point 2 – 0.003' Standard Deviation) was held as the benchmark for the vertical clearance topographic survey. Digital levels were run from this control point to establish elevation on all other primary control points. After all primary control points were established, additional laser scanning control points were established on the Sunshine Bridge concrete piers located in the Mississippi River, by performing a conventional total station traverse. Redundant observations were taken at these points with a Trimble S7 total station and averaged for establishing control on the fenders. Laser scanning was performed with a FARO Focus S350 at each pier location to capture millions of data points, as well as the control points previously mentioned, which allow the laser scan data to be globally tied to the overall control network. The result is a geo-referenced point cloud which contains vertical elevation and horizontal position of a large expanse of the Sunshine Bridge. All vertical data was collected to the National American Vertical Datum of 1988 (NAVD 88 2010.00 EPOCH).

Water Surface Elevation and Datums: Stated previously, the Mississippi River stage at the time of impact was obtained from the USASCE gauge website for the Donaldsonville gauge station (number 01220). This gauge is located approximately 6.14 miles upstream of the bridge. In preparation of the survey which occurred on January 26, 2019, multiple water surface elevations were obtained at the gauge location and at

the Sunshine Bridge to understand the hydraulic gradient of the Mississippi River. Observations revealed an average gradient of approximately 1.4 feet of elevation difference, or drop, between the upstream gauge location and the Sunshine Bridge. Some variability is observed in the amount of elevation gradient for an extremely high river stage. For the stage of the Mississippi River at the time of the impact, there is ample data to suggest 1.4 feet of elevation gradient between the Donaldsonville gauge and the Sunshine Bridge. Therefore, the Donaldsonville gauge stage at the time of impact would be 1.4 feet higher than the stage of the river at the bridge and would result in a river stage of 16.97 feet at the Sunshine Bridge. Finally, the river stage value must be shifted vertically to be assigned to the survey datum. For this location, a shift of -1.03 feet was necessary to translate the river stage to river elevations per NAVD 88, 2010.00 EPOCH. Although the USACE gauge website suggest a -0.88 feet shift to translate the river stage to river elevation, the minor difference between values is expected and attributable to different survey equipment and GPS/GNSS real-time networks utilized by the USACE and Forte and Tablada, Inc. Thus, the water surface elevation at the Sunshine Bridge at the time of impact on October 12, 2018 was 15.94 feet (NAVD 88 2010.00 EPOCH).

Comparison of Government Sources to the Topographic Survey: The USCG and NOAA guidance provides the following vertical clearance based on the Donaldsonville gauge stage at the time of impact:

Main Navigation Span (Channel Span) Clearance = 171 feet – 18.37 feet = 152.63 feet
West Navigation Span Clearance = 147 feet – 18.37 feet = 128.63 feet

As determined by the topographic survey performed by Forte and Tabalda, Inc., the vertical clearance based on the water surface elevation of 15.94 feet at the bridge at the time of impact is as follows:

Main Navigation Span (Channel Span) Clearance = 153.52 feet
West Navigation Span Clearance = 128.80 feet

Of significance, the clearance between the water surface to the bottommost surface of the lowest horizontal chord between the L15 and L16 gusset plates near the impact location was approximately 133.03 feet. It is believed that the impact occurred above the bottom surface of this member based on damage photographs, suggesting that the height of the vessel from the water surface would have exceeded 133.03 feet.

A summary drawing has been prepared and is affixed to this report to provide further clarification of these clearance comparisons with respect to their locations on the bridge.

Commentary Surrounding the Impact of the Sunshine Bridge: The information provided by the USGC and NOAA is quite accurate when compared to the topographic survey. For the West Navigation Span, the clearance derived by the equation is within 0.17 feet of the actual survey measurements, with the USCG and NOAA clearance equation providing slightly less clearance than what was measured by the topographic survey. For the Main Navigation Span (Channel Span), the calculated clearance is within 0.89 feet of topographic survey measurements and is similarly conservative. This allows us to conclude that the vessel which impacted the Sunshine Bridge was, at a minimum, 4.4 feet taller than what is provided in the guidance for the West Navigation Span. The data suggest that the vessel could have cleared the bridge in the Main Navigation Span with approximately 20 feet of residual clearance above the crane.

Summary of Main Findings: Utilizing the guidance provided by the USCG and NOAA, which was confirmed

to be accurate through a detailed survey performed on January 26, 2019 by Forte and Tablada, Inc., the calculated vertical clearances are greater than the vertical clearances provided in the original bridge plans and permit. The vessel which impacted the bridge was more than 4.4 feet taller than the USCG and NOAA clearance guidance for the west navigation span.

Please do not hesitate to call if there are any aspects of this report that require clarification. It has been my pleasure to be of service in this matter.

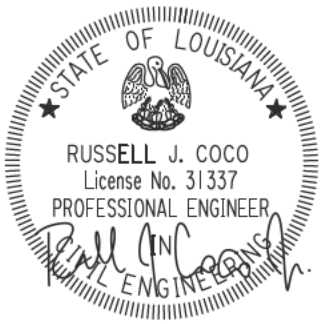
(Amendment) Request for Additional Information per Public Hearing: The previously referenced summary drawing depicting clearance comparisons has been amended to include "Detail C" and to provide additional horizontal dimensions on the "Profile View" (drawing dated 5/20/2019). This arises from a request for additional measurements to the navigational light located in the West Navigation Span. Using the same methodology to determine other measurements, the clearance to the bottom of the navigational light is 140.84 feet. This light is approximately 264.02 feet measured horizontally from the impact location.

Sincerely,

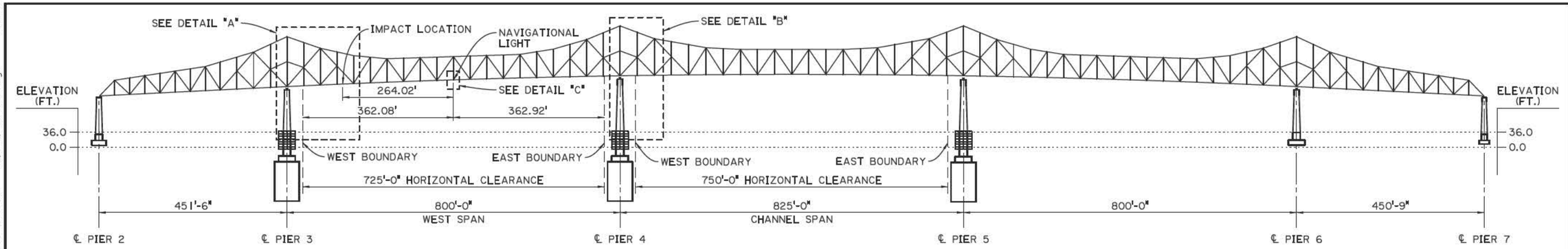
[redacted]

Russell J. Coco, Jr. P.E., MBA

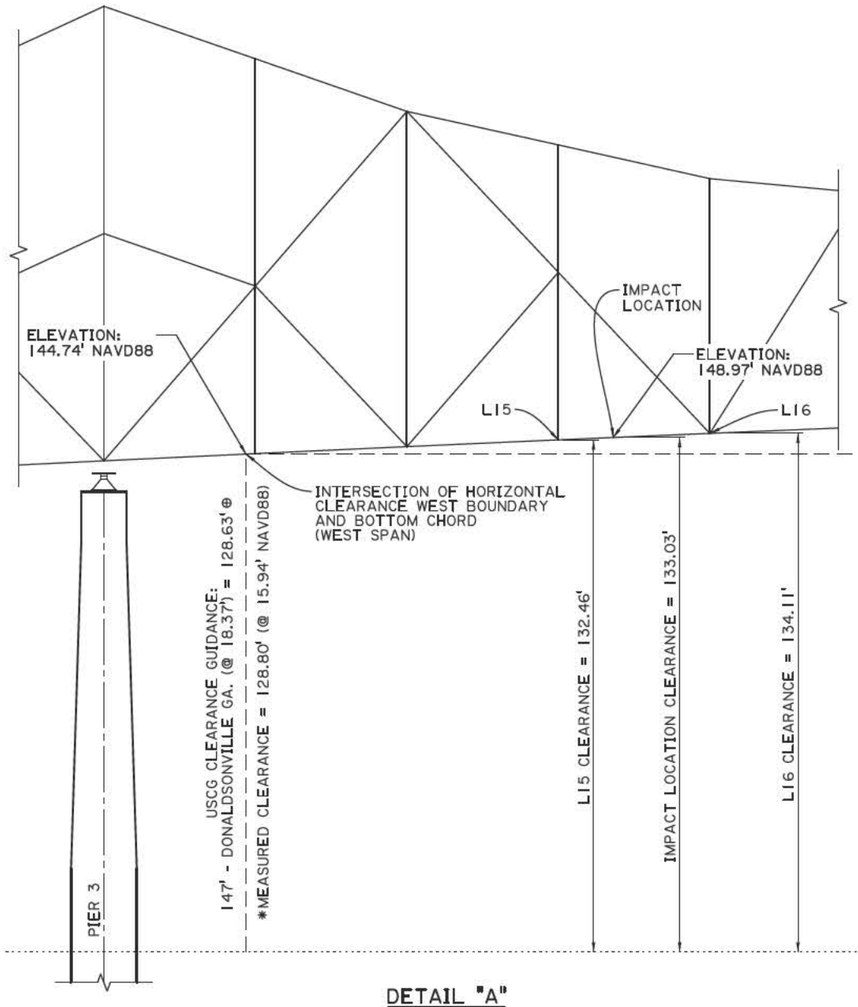
enclosures



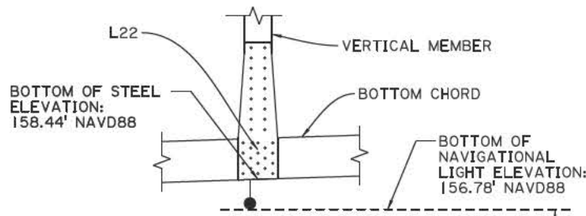
5/20/19



PROFILE VIEW FROM DOWNSTREAM
(NOT TO SCALE)

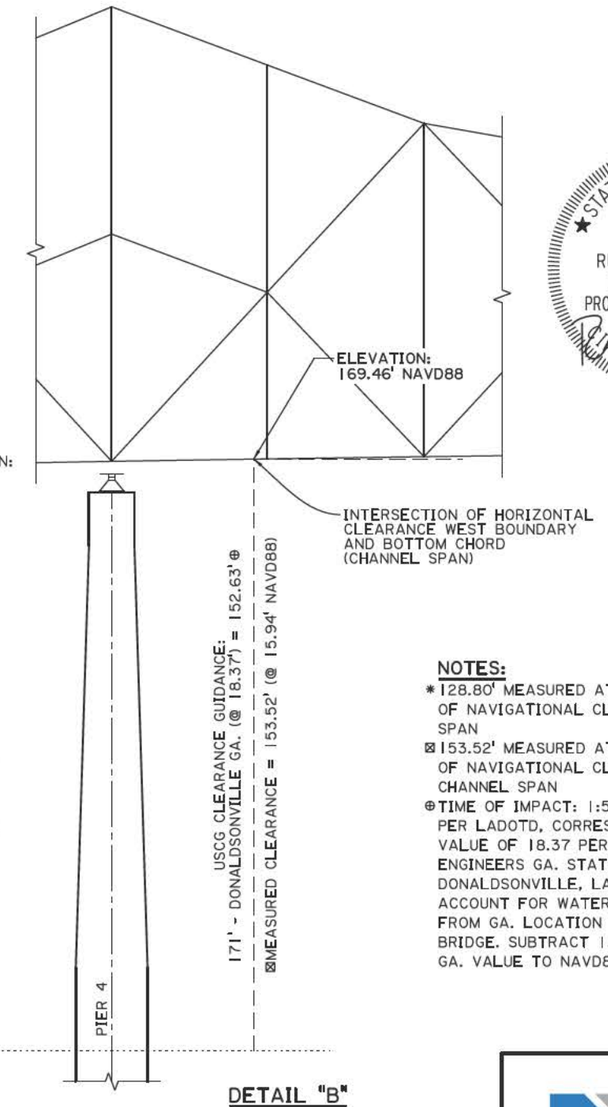


DETAIL "A"
VERTICAL CLEARANCES
NEAR IMPACT LOCATION AT TIME OF IMPACT
(NOT TO SCALE)



DETAIL "C"
NAVIGATIONAL LIGHT
WEST SPAN
(NOT TO SCALE)

⊕ WATER ELEVATION AT BRIDGE AT TIME OF IMPACT: 15.94' (NAVD88)



DETAIL "B"
VERTICAL CLEARANCE
CHANNEL SPAN
(NOT TO SCALE)

NOTES:
* 128.80' MEASURED AT WEST BOUNDARY OF NAVIGATIONAL CLEARANCE IN WEST SPAN
⊠ 153.52' MEASURED AT WEST BOUNDARY OF NAVIGATIONAL CLEARANCE IN CHANNEL SPAN
⊕ TIME OF IMPACT: 1:55 AM 10/12/2018 PER LADOTD, CORRESPONDING GA. VALUE OF 18.37 PER CORPS OF ENGINEERS GA. STATION 01220 AT DONALDSONVILLE, LA. SUBTRACT 1.4' TO ACCOUNT FOR WATER SURFACE DROP FROM GA. LOCATION TO SUNSHINE BRIDGE. SUBTRACT 1.03' TO CALIBRATE GA. VALUE TO NAVD88 (2010) DATUM.

STATE OF LOUISIANA
RUSSELL J. COCO
License No. 31337
PROFESSIONAL ENGINEER
5/20/19

FORTE & TABLADA

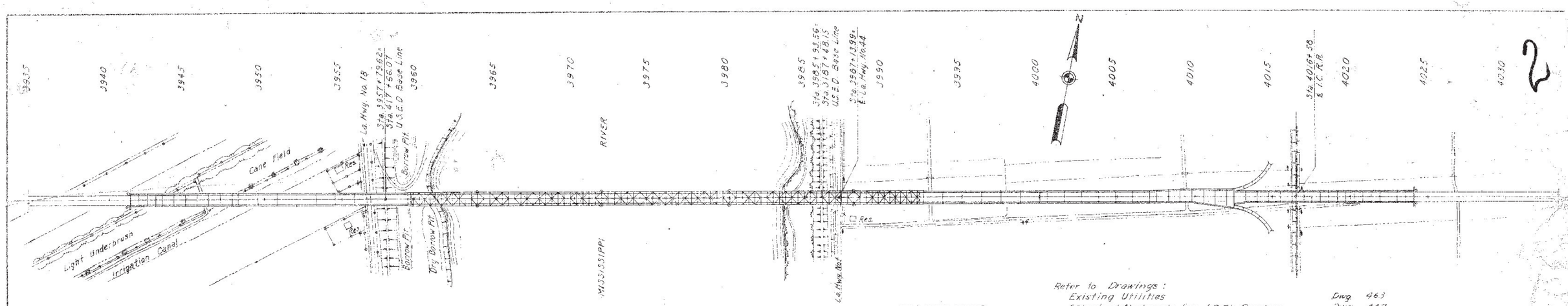
DOTD BRIDGE DESIGN

BRIDGE CLEARANCE
SUNSHINE BRIDGE (LA HWY. 70)
OVER MISSISSIPPI RIVER

NO.	DATE	REVISION OR CHANGE ORDER DESCRIPTION	BY
1	05/10/2019	NAVIGATIONAL LIGHT CLEARANCE	R.J.C.

SHEET NUMBER
PARISH
CONTROL SECTION
STATE PROJECT
DESIGNED
CHECKED
DETAILED B.BOLLICH
CHECKED R.J.COCO
REVIEWED
SERIES # 1 OF 1

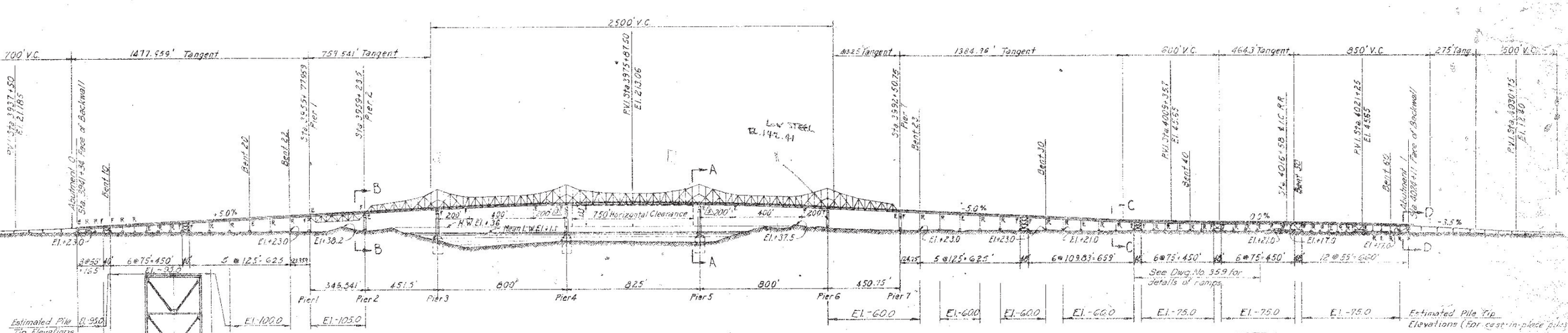
R:\2018\181406 - Sunshine Bridge Monitoring\12.0 Survey\CAD\Bridge Clearances\Sunshine Bridge Impact Section Vertical Clearances - 05/16/2019C.dgn 10:25



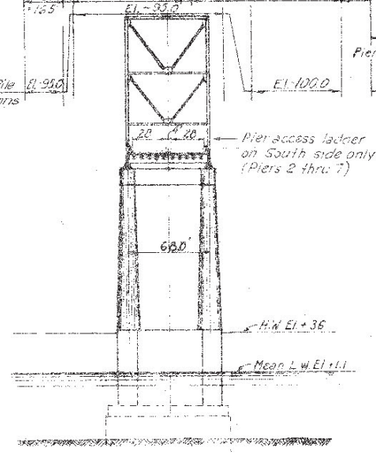
PLAN
Scale: 1" = 300'-0"

Refer to Drawings:

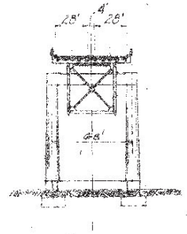
Existing Utilities	Dwg. 463
Standard Abutments for 60 Ft. Roadway	Dwg. 447
Approach Bent Footings	Dwg. 462
Pier Access Ladders & Handrails	Dwgs. 470, 471
Bridge Grounding System	Dwg. 509
Standard Abutments for 20 Ft. Roadway	Dwg. 511



ELEVATION
Scale: 1" = 300'-0"



SECTION A-A



SECTION B-B
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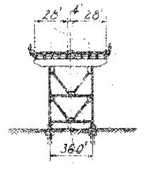

SECTION C-C
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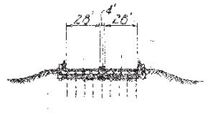

SECTION D-D
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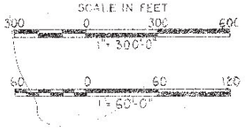


NOTE:
1. For General Notes, See Drawing 358.
2. All the superstructure including deck, shoes, masonry plates, and anchor bolts, steel bents and navigation lights are to be furnished by others.
3. Profile Grade is located at top of road surface at E of 28' roadway.

Revisions	Date	Description	
3	8-31-62	Changed fixed shoe from Pier 5 to Pier 4	R.L.D.
2	5-29-62	Pile type and tip elevation changed	R.L.D.
1	1-10-62	Ramps added and bridge length changed	R.L.D.

ASCENSION-ST. JAMES BRIDGE AND FERRY AUTHORITY
DONALDSONVILLE BRIDGE
AND APPROACHES
MISSISSIPPI RIVER BRIDGE
GENERAL PLAN
PALMER AND BAKER ENGINEERS, INC.
CONSULTING ENGINEERS
NEW ORLEANS, LA. WASHINGTON, D. C. MOBILE, ALA. GUAYAQUIL, ECUADOR BIRMINGHAM, ALA. BOGOTA, COLOMBIA
APPROVED: [signature] Date: January 10, 1962

Design J.A.K.	Super.	CONTRACT NO.	DRAWING
Drawn J.A.K.	Submitted [signature]	L-166-1	
Checked F.W.K.	Date January 10, 1962		

SHT. 350

NEW ORLEANS DISTRICT
823
Mississippi River
NEW ORLEANS, LA.
PERMIT SECTION
R-55-A-250

APPROVAL OF LOCATION AND PLANS OF BRIDGE

Whereas *by Title V of an act of Congress approved August 2, 1946 entitled General Bridge Act of 1946 (Public Law 601—79th Congress) the consent of Congress was granted for the construction, maintenance, and operation of bridges and approaches thereto over the navigable waters of the United States;*

And whereas *section 502(b) of said act provides that: "The location and plans for such bridges shall be approved by the Chief of Engineers and the Secretary of the Army before construction is commenced, and, in approving the location and plans of any bridge, they may impose any specific conditions relating to the maintenance and operation of the structure which they may deem necessary in the interest of public navigation, and the conditions so imposed shall have the force of law;"*

And whereas *the* SOUTH LOUISIANA TURNPIKE COMMISSION *has submitted plans and a map of the location of a bridge to be constructed across* MISSISSIPPI RIVER *in* St. James Parish *in the State of* Louisiana;

Now therefore, *This is to certify that the location and attached plans are hereby approved by the Chief of Engineers and by the Secretary of the Army, pursuant to the above-mentioned act of Congress, subject to the following conditions:*

1. The district engineer in charge of the locality within which the bridge is to be built may supervise its construction in order that said plans shall be complied with.

2. All work shall be so conducted so that the free navigation of the waterway shall not be unreasonably interfered with and the present navigable depths shall not be impaired. The channel or channels through the structure shall be promptly cleared of all falsework, piling, or other obstructions placed therein or caused by the construction of the bridge, to the satisfaction of the said district engineer, when in his judgment the construction work has reached a point where such action should be taken, and in any case not later than ninety *days after the bridge has been opened to traffic.*

3. The approval hereby granted shall cease and be null and void unless t actual construction of the bridge be commenced within 2 *year(s) a completed within* 4 *years from the date of this instrument.*

6/24/55
Copy to USCG

4. No deviation from the approved plans shall be made either before or after completion of the structure unless the modification of said plans has previously been submitted to and received the approval of the Chief of Engineers and of the Secretary of the Army.

5. Construction of falsework and the driving of test piles is hereby authorized, provided that the construction thereof shall not be commenced until the plans have been submitted to and approved by the district engineer in charge of the locality.

6. Suitable fenders shall be built and maintained at the two navigation span piers in accordance with plans to be submitted to and approved by the district engineer in charge of the locality before construction of said fender or fenders is commenced.

7. Any lights displayed on the bridge structure other than those prescribed by law and under the jurisdiction of the United States Coast Guard and the Administrator, Civil Aeronautics Administration, shall be of such intensity and color and so hooded as not to impair the visibility from vessels operating through this reach during periods of darkness.

8. If and when directed by the district engineer, the grantee shall install and maintain radar reflecting units, the number, type and location to be to the satisfaction of the District Engineer.

9. The grantee will be required to provide suitable mattresses or other type of bank and river bed protection around all piers between the levees during and after construction. The building, placing and maintenance of such protection works shall be subject to approval of the district engineer, and no such work shall be started until plans have been approved by the district engineer.

10. The grantee will be responsible that drift is not permitted to accumulate against bridge piers or fender systems so as to endanger the bridge or become a hazard or obstruction to navigation.

11. The grantee will promptly comply with any future regulations of instructions affecting the work hereby authorized if and when issued in accordance with law by any department of the Federal Government for the aid or protection of aerial navigation.

IN WITNESS WHEREOF I have hereunto set my hand by direction of the Chief of Engineers this 8th day of June, 1955

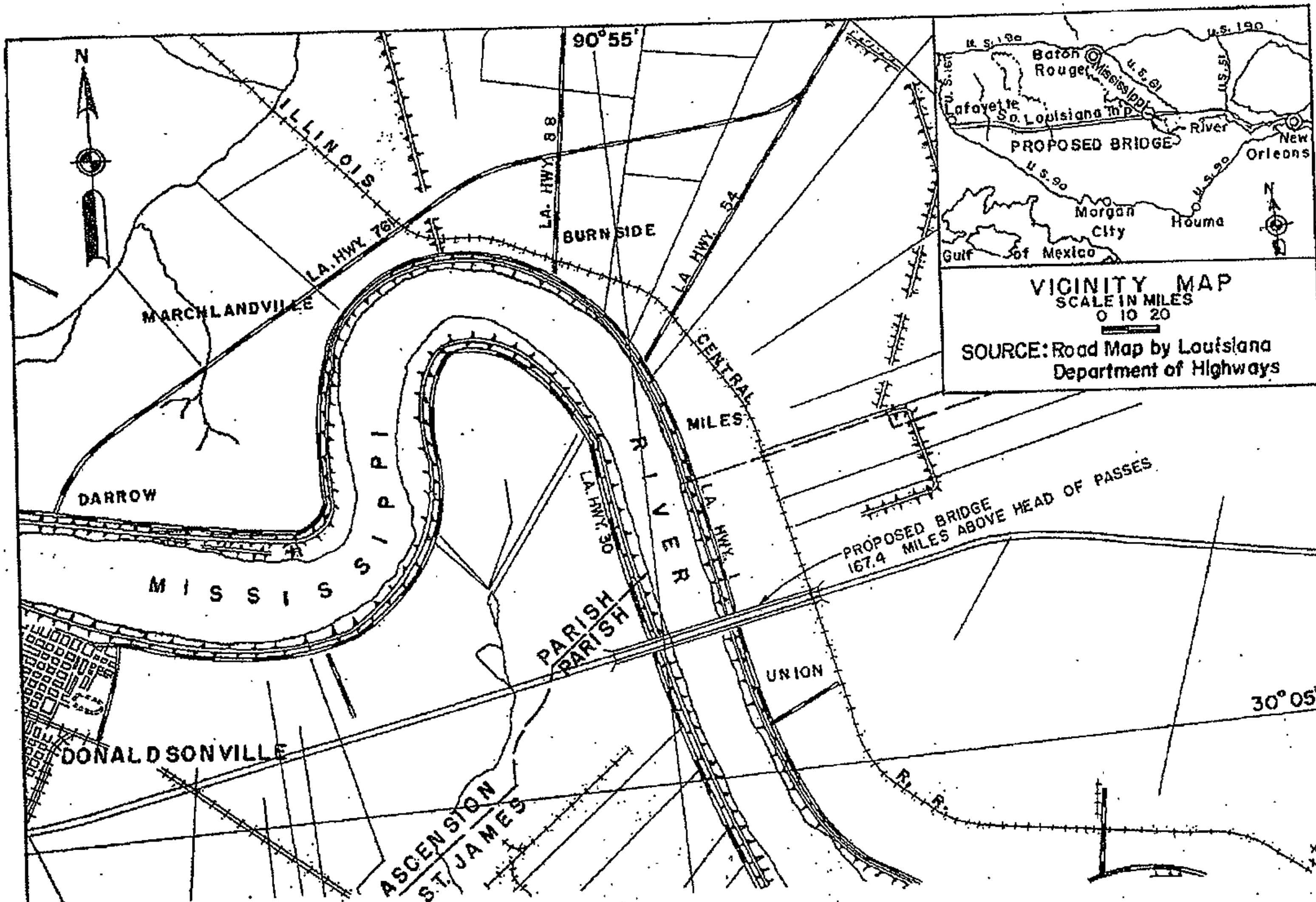
[redacted]

E. C. ITSCHNER
Brigadier General, USA
Assistant Chief of Engineers
for Civil Works

IN WITNESS WHEREOF I have hereunto set my hand by direction of the Assistant Secretary of the Army (Logistics and R&D) this 13 day of June 1955

[redacted]

SHERRY B. MYERS
Lt. Col., JAGC
Chief, Legal Branch
OASA (Logistics and R&D)



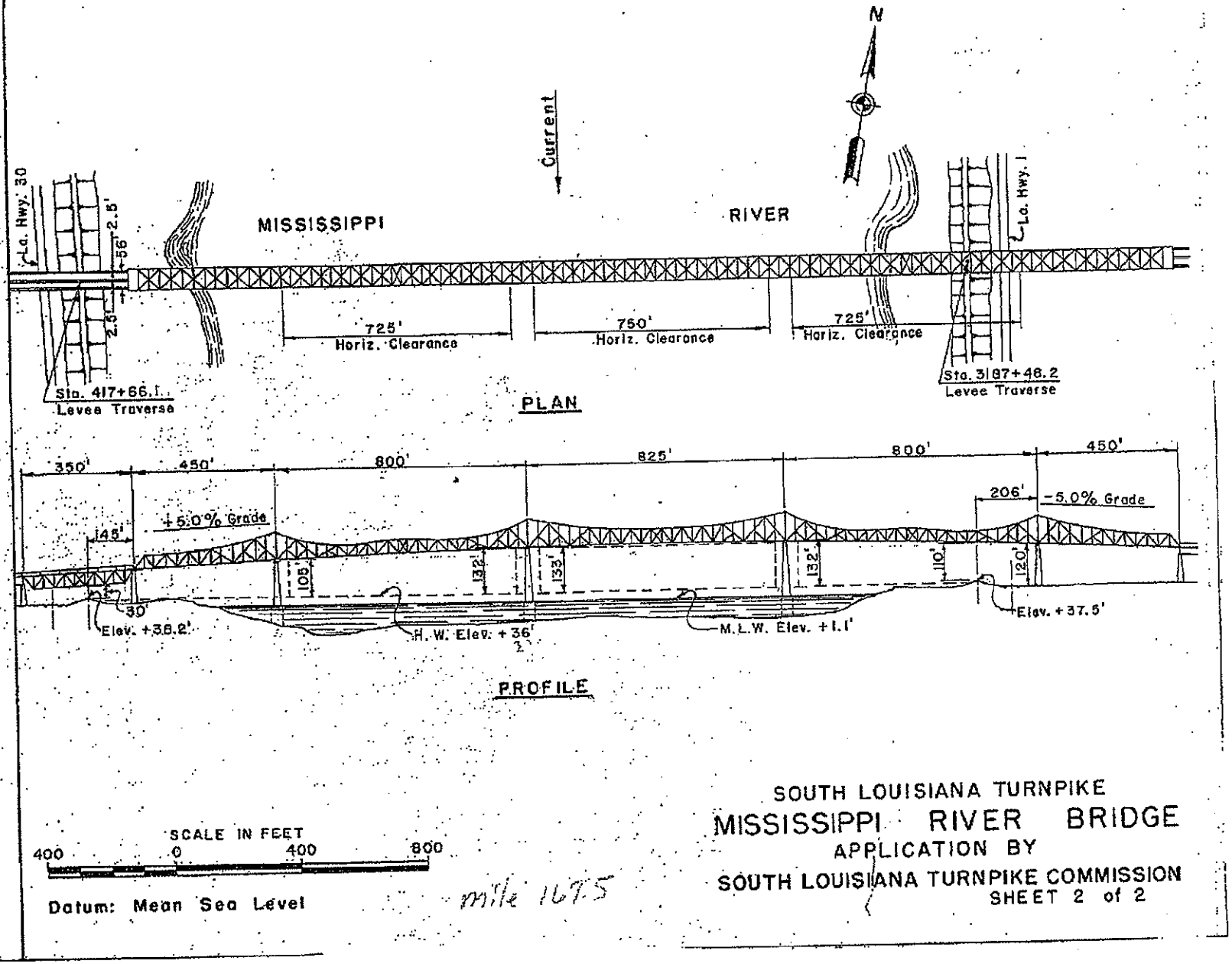
LOCATION PLAN
SCALE IN MILES
0 1 2 Miles

SOURCE: Donaldsonville Quadrangle by Mississippi River Commission.

Mile 167.5

SOUTH LOUISIANA TURNPIKE
MISSISSIPPI RIVER BRIDGE
APPLICATION BY
SOUTH LOUISIANA TURNPIKE COMMISSION
SHEET 1 of 2

DOTD/D&SMarine 001288



DOTD/D&SMarine 001289

FINDINGS OF FACT

on

Application of the South Louisiana Turnpike Commission for approval of plans of a bridge to be constructed across the Mississippi River, St. James Parish, Louisiana.

The plans as submitted for approval provide for a high level fixed steel span highway bridge 3,325 feet in length, supported on six concrete piers, three of which are located in the Mississippi River. There are two main spans over the channel. The main navigation span is 825 feet center to center of piers and the other span is 800 feet center to center of piers. The location of the piers is almost symmetrical with the axis of the channel. Horizontal clearance through the main navigation span is 750 feet between fenders - vertical clearances 133 feet above high water elevation of 36.0 feet and 167.9 feet above mean low water of 1.1 feet mean sea level. The distance between fenders of the other span is 725 feet. The bridge is similar to the Huey P. Long Bridge near New Orleans which is the governing bridge for ocean-going vessels.

Navigation past the site of the proposed bridge consists of ocean-going vessels and barge or river traffic. The navigation span provides ample clearance for the normal sailing lane of this traffic which is parallel to the axis of the channel. Navigation should have no difficulty in passing through the navigation span of the proposed bridge.

The proposed bridge will have no adverse effect on navigation, flood heights or drift and no objection or protest against its construction has been received.

2015 Flood Control and Navigation Maps
Mississippi River
Cairo, Illinois to the Gulf of Mexico
Mile 953 A.H.P. to mile 22 B.H.P.

Prepared and produced under the direction of the
PRESIDENT, MISSISSIPPI RIVER COMMISSION, U. S. ARMY CORPS OF ENGINEERS

U. S. Army Corps of Engineers
Memphis District
167 North Main Street
Memphis, TN 38103-1894
901-544-4109
www.mvm.usace.army.mil

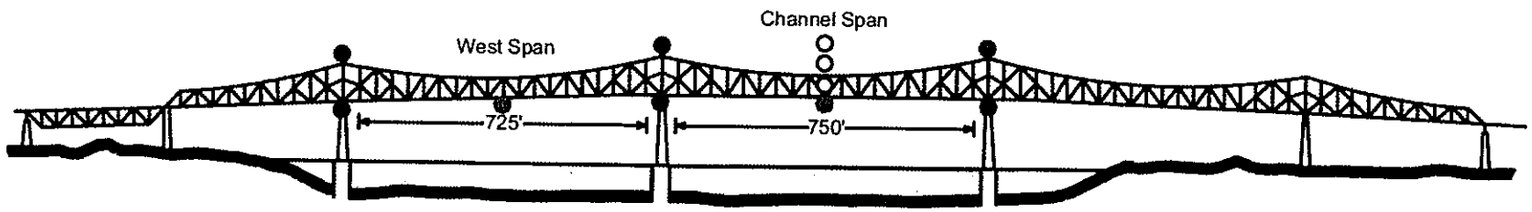
U. S. Army Corps of Engineers
Vicksburg District
4155 E. Clay Street
Vicksburg, MS 39183
601-631-5129
www.mvk.usace.army.mil

U.S. Army Corps of Engineers
New Orleans District
P. O. Box 60267
New Orleans, LA 70160-0267
504-862-2201
www.mvn.usace.army.mil

The 2015 Navigation Book has been designed to promote safe navigation for both deep-draft and shallow-draft vessels up and down the Lower Mississippi River, Gulf of Mexico to Cairo, IL. The U. S. Army Corps of Engineers encourages book users to submit corrections, additions, or comments for improving this chart to the Geospatial Coordinator, Mississippi Valley Division, 1400 Walnut St., Vicksburg, MS 39181.

Louisiana
West Bank

Louisiana
East Bank



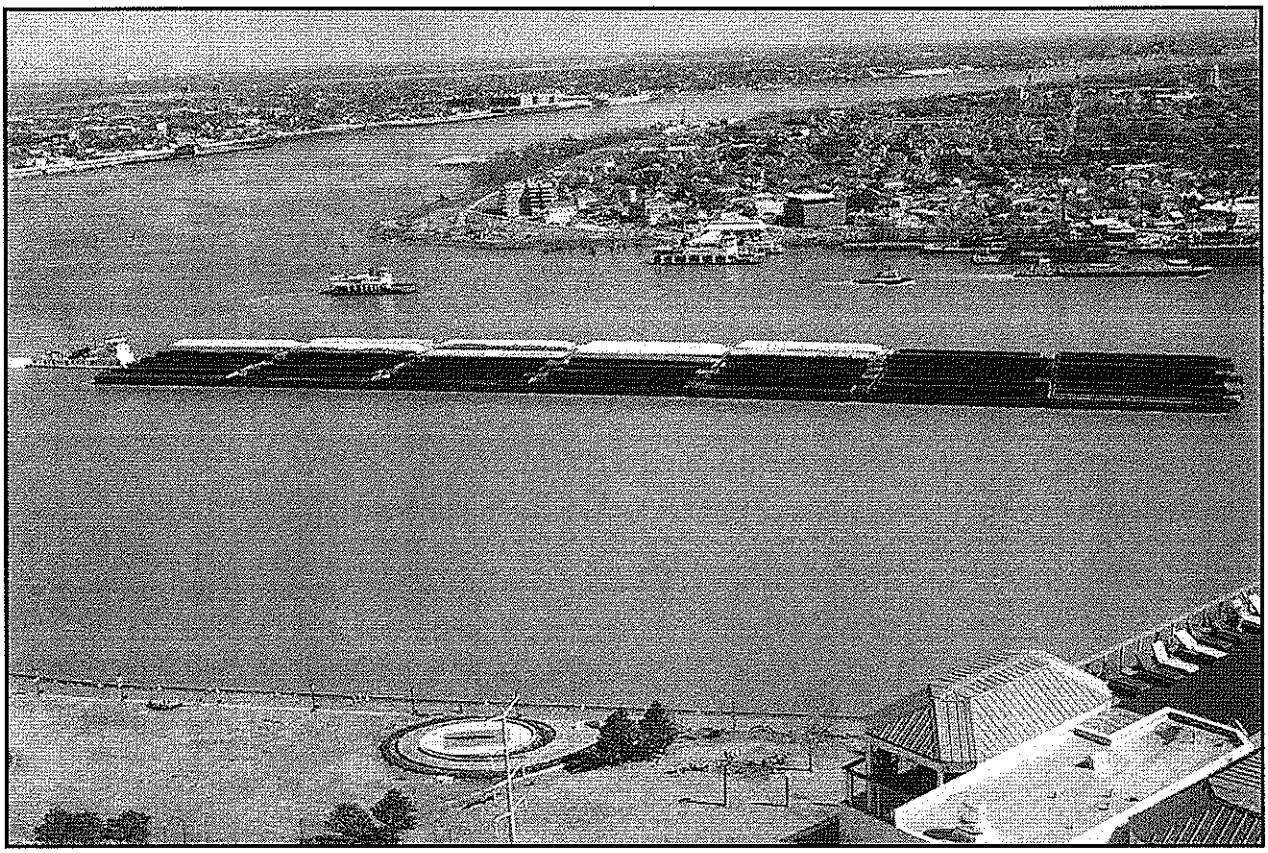
Channel Span
Vertical Clearance = 171' - Donaldsonville Gage
Minimum Vertical Clearance = 135' at Donaldsonville Gage = 36'

West Span
Vertical Clearance = 147' - Donaldsonville Gage
Minimum vertical Clearance = 111' at Donaldsonville Gage = 36'

NOT TO SCALE
VIEW LOOKING UPRIVER

LA State Highway 70 - Sunshine Bridge
Burnside, LA
Lower Mississippi River
Mile 16.4 AHP
Clearance Data

Vessel Traffic Service
Lower Mississippi River



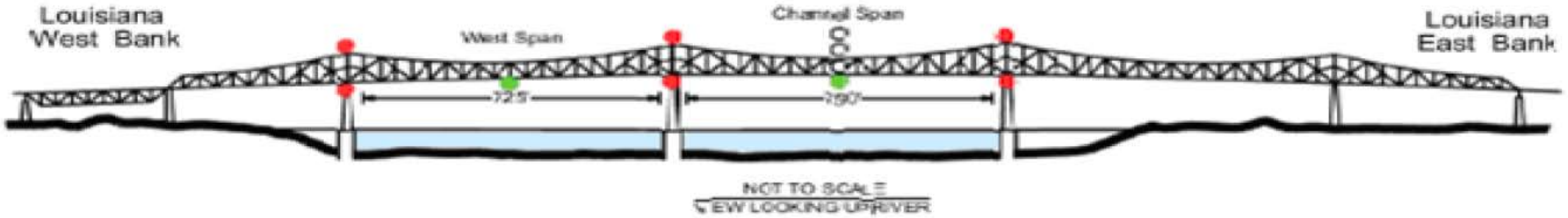
User Manual

Third Edition 2013

U.S. COAST GUARD

Available for self printing at:
http://homeport.uscg.mil

SUNSHINE BRIDGE: (167.4)



Channel Span

- Vertical Clearance = 171’ minus Donaldsonville Gage
- Minimum Vertical Clearance = 135’ at Donaldsonville Gage = 36’

West Span

- Vertical Clearance = 147’ minus Donaldsonville Gage
- Minimum Vertical Clearance = 111’ at Donaldsonville Gage = 36’

UNITED STATES Coast Pilot®

5

Gulf of Mexico, Puerto Rico and Virgin Islands

2018 (46th) Edition

This edition cancels the 45th Edition and includes all previously published corrections.

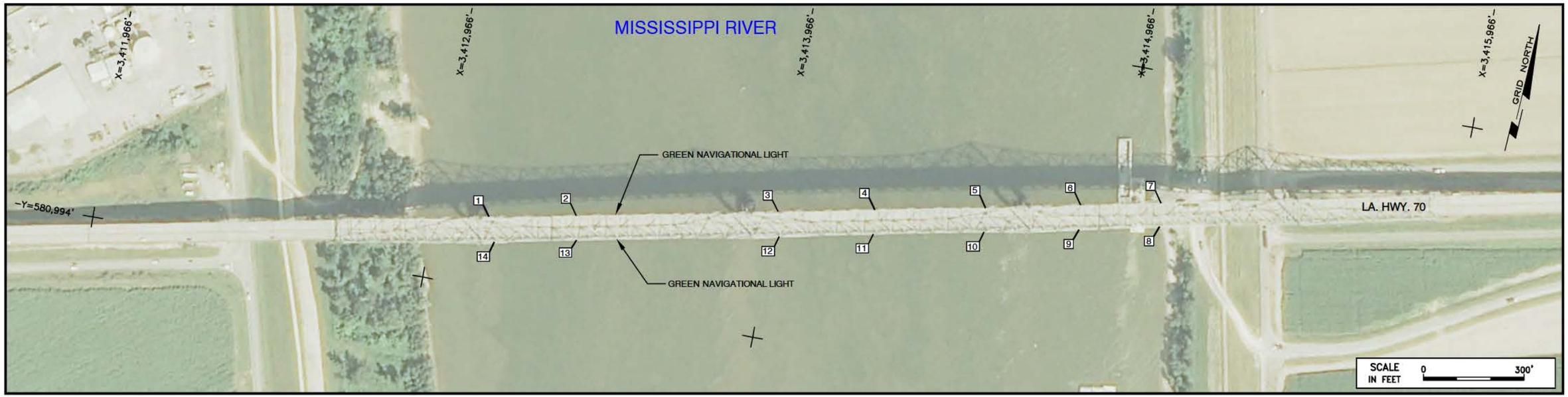
Weekly updates to this edition are available at:
nauticalcharts.noaa.gov/publications/coast-pilot/index.html
They are also published in the National Geospatial-Intelligence Agency (NGA) U.S. Notice to Mariners.

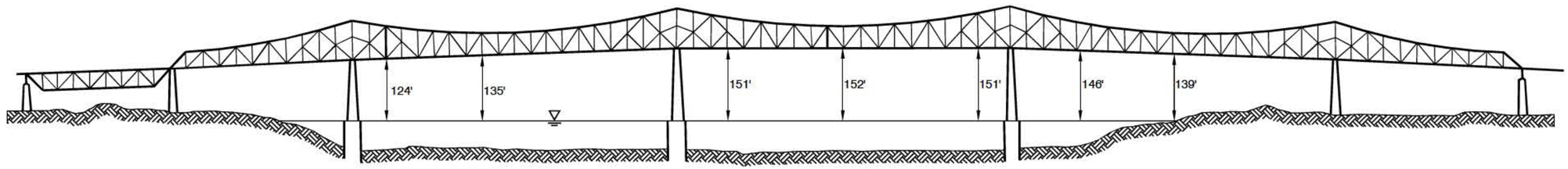
U.S. Department of Commerce
Wilbur L. Ross, Jr., Secretary of Commerce

National Oceanic and Atmospheric Administration (NOAA)
RDML Timothy Gallaudet, Ph.D., USN Ret., Assistant Secretary of Commerce for Oceans and Atmosphere and Acting Under Secretary of Commerce for Oceans and Atmosphere

National Ocean Service
Nicole R. LeBoeuf, Deputy Assistant Administrator for Ocean Services and Coastal Zone Management

(330) Just above **Union**, about 167.4 mile AHP, the **Sunshine/SR 70 Bridge** has a fixed span with a vertical clearance of 133 feet and a horizontal clearance of 750. The lower limit of the Port of Baton Rouge is about 0.8 mile above the bridge. Shell Oil Co. and SRI has two wharves on the east side of the river 168.2 miles AHP. The lower wharf (30°06'32"N., 90°54'40"W.) has 820 feet of berthing space with platforms, 40 to 50 feet alongside and a deck height of 35 feet. The upper wharf (30°06'41"N., 90°54'44"W.) has 900 feet of berthing space with dolphins, 40 feet alongside and a deck height of 32 feet.





VIEW FROM DOWNSTREAM
NOT TO SCALE

CLEARANCE DATA

UPSTREAM

POINT	ELEVATION	VERTICAL CLEARANCE
1	144.00'	124.80'
2	154.78'	135.58'
3	170.27'	151.07'
4	172.17'	152.97'
5	170.71'	151.51'
6	165.84'	146.64'
7	158.96'	139.76'

DOWNSTREAM

POINT	ELEVATION	VERTICAL CLEARANCE
8	158.86'	139.66'
9	165.72'	146.52'
10	170.70'	151.50'
11	172.14'	152.94'
12	170.40'	151.20'
13	154.76'	135.56'
14	144.85'	125.65'

NOTES:

1.) WATER SURFACE ELEVATION = 19.2' ON 2/17/16.

2.) ELEVATIONS ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM 88 (NAVD88).

3.) MEAN GAUGE ELEVATION = 20.6' (NAVD88) ON 02/17/16 TAKEN FROM MISSISSIPPI RIVER AT DONALDSONVILLE, LA (01220).

Proj. Mgr.: RHC
Revised:
Printed: 4/1/16

MOFFATT & NICHOL

BRIDGE CLEARANCE SURVEY SUNSHINE BRIDGE (LA. HWY. 70)

MISSISSIPPI RIVER (MILE 167.4)
ST. JAMES PARISH, LOUISIANA

JOHN CHANCE
LAND SURVEYS, INC.

GEODETIC DATUM: NAD83
PROJECTION: LOUISIANA SOUTH
GRID UNITS: US SURVEY FEET

SCALE AS SHOWN

Job No.: 16-0029 | Date: 3/11/16 | Drwn: AXG | Chart: 1 Of: 1

Dwgfile: L:\2016\160029\CAD\E160029_SunshineBridge

Historic Data For Mississippi River at Donaldsonville (01220)

Stream Name: Mississippi River
Gage Zero: 0 Ft. NGVD29
Flood Elevation: 27.00 Ft.
Record High Elevation : 36.01 Ft.

Longitude: -90.95889400
Latitude: 30.10306900
River Mile: 175.4
Record High Elevation Date: 05/15/1927

Location of Gage:

Mississippi River mile 175.4 on right descending bank at the Bayou Lafourche fresh water pumping plant.

Adjustment for vertical datum **NAVD88: -0.82 ft.**
(e.g. for data relative to NAVD88 subtract 0.82 ft.)

LWRP 2007 (Low Water Reference Plane) has been defined with respect to NAVD88, corrections valid as of Sept 20, 2011.

** Raw data, subject to change **

Download Data

08:00 Central

Date / Time	Elevation (Ft)
10/12/2018 08:00	18.40
10/13/2018 08:00	18.30
10/14/2018 08:00	18.22
10/15/2018 08:00	17.94
10/16/2018 08:00	17.70
10/17/2018 08:00	17.33
10/18/2018 08:00	17.23