



Historic Bridge Management Plan for the Big Bayou Sara Bridge

Recall Number: 055730

Structure Number: 61632510101511

Parish: West Feliciana

Route: LA 66

Crossing Description: Big Bayou Sara



Prepared for

**Louisiana Department of
Transportation and
Development**

Prepared by

**Mead
& Hunt**

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June 2017

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Executive Summary

The Big Bayou Sara Bridge (Recall No. 055730) is located in West Feliciana Parish, Louisiana, and is owned by the State of Louisiana. The bridge was completed in 1949, and was determined eligible for the National Register of Historic Places (National Register) in 2013. It is significant for its Warren truss configuration comprised of diagonals to withstand tensile and compressive forces and polygonal top chord.

The bridge carries two lanes of Louisiana Highway (LA) 66 across the Big Bayou Sara in West Feliciana Parish. The 10-span structure is 714 feet, 6 inches in length. It consists of five main 100-foot, riveted, pony, steel truss spans, with two 40-foot, steel I-beam spans to the east and three 40-foot, steel I-beam spans to the west. The truss main spans feature a Warren truss configuration with a polygonal top chord. The trusses are connected with rivets and ribbed bolts. A concrete railing is located along the approach spans and a metal railing is located along the main truss spans. The bridge is classified as fracture critical because it contains steel members in tension.

The bridge is scheduled for rehabilitation in 2017 including rehabilitation of the truss span members, cleaning and painting the structure, replacement of the approach span steel girders and main truss span stringers, removal and replacement of the existing concrete deck and approach slabs, modifications to the existing end bents, and scour protection. The rehabilitation project is being conducted in consultation with the Louisiana State Historic Preservation Office (LASHPO). Because any existing conditions noted in this Historic Bridge Management Plan (Plan) will be addressed in the 2017 rehabilitation project, the recommendations in this Plan (see Section 5) focus on future preventative maintenance activities.

The bridge is in overall fair condition and appears to adequately serve its purpose of carrying vehicular traffic over the waterway. With proper maintenance and rehabilitation in 2017, the Big Bayou Sara Bridge can continue to serve in its present capacity for 20 years or longer.

Any work on the bridge should proceed according to recommendations in this Plan, which adhere to the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (Secretary's Standards), the *Management Plan for Historic Bridges Statewide* (Statewide Historic Bridge Plan), and the *Programmatic Agreement among the Federal Highway Administration, the Louisiana Department of Transportation And Development, the Advisory Council on Historic Preservation, and the Louisiana State Historic Preservation Officer Regarding Management of Historic Bridges in Louisiana* (PA).

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1. Introduction

This Plan, used in conjunction with the Statewide Historic Bridge Plan, provides guidance on the approach to preservation activities for the Big Bayou Sara Bridge (Recall No. 055730), identified as a Preservation Priority Bridge. Completion of individual management plans for Preservation Priority Bridges and the Statewide Historic Bridge Plan fulfills terms of the PA, which was executed on September 21, 2015.

The PA provides the basis and procedures for the management of historic bridges in Louisiana and outlines the procedures for the treatment of historic bridges, including Preservation Priority Bridges. In accordance with the PA, an owner seeking state or federal funding for Preservation Priority Bridges will be required by the Louisiana Department of Transportation and Development (LADOTD), in cooperation with the LASHPO and the Federal Highway Administration (FHWA), to follow the procedures outlined in this Plan and the Statewide Historic Bridge Plan.

The Statewide Historic Bridge Plan outlines the overall approach to bridge preservation through a discussion of the collaboration of the historian and engineer, guidance on assessing preservation needs, and resources and technical guidance on maintenance and rehabilitation activities that are broadly applicable to historic bridges. A glossary of common engineering and historical terms is included in the Statewide Historic Bridge Plan.

This Plan for the Big Bayou Sara Bridge compiles and summarizes the specific historic and engineering information for this Preservation Priority Bridge. It documents the existing use and condition of the bridge, along with assessments of the preservation needs, including cost estimates. Preservation can be accomplished in two manners: preventative maintenance and rehabilitation. Maintenance includes cyclical or condition-based activities that, along with regular structural inspections, are directed toward continued structure serviceability. Rehabilitation activities are near- or long-term steps that need to be taken to preserve and in some cases restore a bridge's structural condition and serviceability. In assessing preservation activities for each Preservation Priority Bridge, a design life of 20 years was considered, which is consistent with the duration of the PA. This Plan provides the bridge owner, and other interested parties, with detailed information related to the historic nature of the bridge and the necessary background to make an informed planning decision. Recommendations within this Plan should be reviewed in 10 years following completion of the Plan to identify any needed updates or revisions.

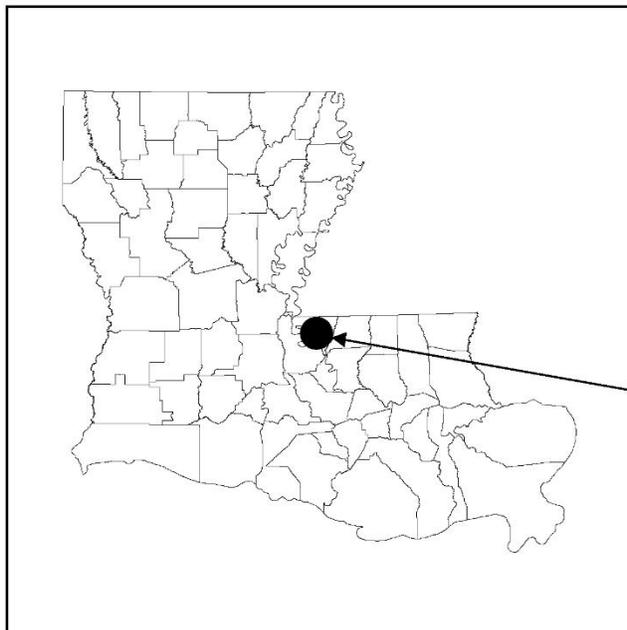
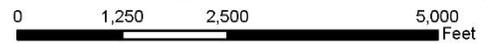
Existing bridge data sources typically available for Louisiana bridges were gathered for this Plan, and field investigation confirmed the general structural condition and character-defining features of the subject bridge. These sources include:

- The current LADOTD Bridge Inspection Report, and any other similar inspection reports
- Original bridge construction plans, any rehabilitation plans, and record as-built plans, as available
- Existing historical and documentary material related to the historic bridges

Recommendations within this Plan are consistent with the Secretary's Standards. The Secretary's Standards are basic principles created to help preserve the distinct character of a historic property and its site, while allowing for reasonable change to meet new engineering standards and codes. The Secretary's Standards recommend repairing, rather than replacing, deteriorated features whenever possible. A version of the Secretary's Standards that is specific to historic bridges is included in the Statewide Historic Bridge Plan. Following these standards is a requirement of the PA.

A bridge historian and bridge engineer from Mead & Hunt, Inc. (Mead & Hunt) jointly prepared this Plan under contract to the LADOTD. The LADOTD, FHWA, and LASHPO reviewed and provided input into the final Plan.

2. Location Map



PROJECT LOCATION
Bridge Number: 055730
Structure Number: 61632510101511
West Feliciana Parish
Route: LA 66
Crossing Description: Big Bayou Sara

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3. Historic Data

A. Identifying information

Structure Number: 61632510101511

Recall Number: 055730

LASHPO Number: 63-00548

Bridge Name: Big Bayou Sara Bridge

Date of Construction: 1949

Main Span Type: Pony truss – Warren truss

Contractor: W.R. Aldrich & Co., Baton Rouge, Louisiana

Designer/Engineer: Louisiana Department of Highways (LDH); steel for the truss was fabricated by the Bethlehem Steel Company, Chicago, Illinois

B. Description of bridge

The Big Bayou Sara Bridge carries two lanes of LA 66 across the Big Bayou Sara in West Feliciana Parish. The average daily traffic (ADT) across the bridge is approximately 1,770 vehicles. The 10-span structure consists of five main 100-foot, riveted, pony steel truss spans, with two 40-foot, steel I-beam spans to the east and three 40-foot, steel I-beam spans to the west. The bridge is classified as fracture critical because it contains steel members in tension. The bridge is currently load (weight) posted for 15 to 25 tons (15T-25T).¹

The total length of the bridge is 714 feet, 6 inches. The bridge is described as follows, from east to west. Spans 1 and 2 are 40-foot, steel I-beam spans. Spans 3 through 7 are 100-foot, steel truss spans. The distance between the centerline of bearing to centerline of bearing for each truss span is 2 feet 6 inches and the distance between the centerline of joint of the approach span and the centerline of bearing for the truss span is approximately 1 foot, 2-1/2 inches. Spans 8 through 10 are 40-foot, steel I-beam spans. The distance between the end of the steel I-beam span and the end/begin bridge is approximately 1 foot.

The truss main spans feature a Warren truss configuration with a polygonal top chord. A Warren truss is distinguished by the diagonal members that are alternatively in tension and compression and visually create a “W.” It can be constructed in a number of different configurations, including with a polygonal

¹ The load posting will be removed after the 2017 rehabilitation project.

(curved) top chord, which is the case for the Big Bayou Sara Bridge. The truss has 10-foot-wide panels and an overall height of 12 feet, 6 inches. The truss members are connected with rivets and ribbed bolts, and conform to the 1940 Louisiana *Standard Road and Bridge Specifications*.

The bridge approach spans have four stringers, supported laterally by steel diaphragms. The floor system of the main truss spans are comprised of stringers and floorbeams. The five main truss bridge spans are supported by six 15-foot-tall, reinforced-concrete wall bents. An approximately 2 foot by 1 foot reinforced-concrete “riser” is found on piers 1 and 6. The riser provides support and transition between the approach span I-beam and the truss. The main truss span piers are founded on reinforced-concrete piles that were driven between 70 and 90 feet into the river bed. Approach spans are supported by three reinforced-concrete “intermediate bents.” These bents are comprised of four concrete columns founded on concrete piles topped with a reinforced-concrete cap. Reinforced-concrete abutments are found at either side of the approach spans and are founded on concrete piles.

The bridge provides two traffic lanes, one in each direction, with a 24-foot clear roadway width as measured between faces of the concrete curbs. A concrete railing is located along the approach spans and a metal railing is located along the main truss spans. The words “Big Bayou Sara” and “1949” are stamped into concrete at each end of the concrete railing.

C. History and significance

The Big Bayou Sara Bridge was constructed on the Bains-Angola Highway, or Louisiana State Route 124 (now LA 66), in 1949. The bridge replaced an earlier 651-foot, steel, pin-connected Pratt truss with a 15-foot roadway. In March 1948 a number of the Pratt truss spans washed away in flash floods. The heavy rains also washed out a number of other bridges along State Route 124, cutting off access to the nearby Angola penitentiary.² Almost immediately after the flooding, the LDH began preparing plans for the replacement of the Pratt truss with a wider truss bridge, along with two other bridges that washed out.³

LDH engineers chose to replace the existing narrow, pony Pratt truss crossing with a pony Warren truss with a polygonal top chord. LDH engineers, under the supervision of project engineer George Stevenson, designed the Warren truss using previously developed standard plans. The trusses were constructed using Standard Plan S-L-T 39 for a “100 FT Riveted Truss Span, 24 FT Concrete Roadway” by the Louisiana Highway Commission (LHC, predecessor to the LDH), from 1937 (revised in 1946). The approach spans were constructed using Standard Plan S.C-59-15 REV, for a “20’ to 80’ Fixed I-beam Spans (Silicon), 24’ Roadway, 1’-6” Sidewalks, 6 ½” Concrete Slab.” The plans were revised from previous standard plans by the LDH in January 1947.

² “Angola bridges Are Washed Out.” *The Times Picayune New Orleans*, March 4, 1948.

³ Louisiana Department of Highways, *Fifteenth Biennial Report Statistical and Technical Supplement for the Period of January 1, 1938 to December 31, 1949, Inc.* (Baton Rouge, La.: Louisiana Department of Highways, 1949), 22.

Standard plans were commonly developed by state highway departments nationwide as an effort to streamline the bridge design process. The LDH, like in most other states in the nation, began designing standard plans in the early years after the department's founding. The department developed standard plans for almost every type of bridge in the state, including I-beam spans, truss bridges, movable bridges, culverts, and concrete slabs. The first known pony Warren truss standard plan developed by the department occurred in 1920; it is believed that approximately 16 standard pony Warren truss plans were developed between 1920 and 1937 with revisions to some of the plans into the mid-twentieth century for continued department use.⁴

By July 1948 the LDH completed design work and requested contracting bids for the bridge's construction. According to the department's monthly engineering publication *Louisiana Highways*, the bid included the construction of five 40-foot, I-beam spans and five 100-foot truss spans, with a 24-foot clear roadway, and all of the grading, graveling, and paving on the bridges. The 11-month project was estimated to cost \$285,000.⁵ Later that month *Louisiana Highways* published that the construction project was awarded to W.R. Aldrich & Co., with the low bid of \$291,056.⁶ Steel fabrication for the bridge was undertaken by the Chicago plant of the Bethlehem Steel Corporation.⁷ The project was completed near the end of 1949 for a total of \$320,161.⁸

To combat bridge scouring by the turbulent waters of Big Bayou Sara, the LDH constructed "retards" along the banks of the newly constructed bridge. The retards were constructed of timber piles driven into the river bed that were back-filled with sandbags, brush, and debris. The LDH placed the retards near the banks of the bayou at an angle and pointing downstream. In design, the angled piles would force the channel to the center of the river away from the bridge abutments. Additionally, the retards would form eddies behind the piles that would deposit silt and debris along the banks rather than around the bridge abutments.⁹ The timber retards for the Big Bayou Sara Bridge were completed in concurrent with the bridge in late 1949 for \$47,102.¹⁰

This Warren pony truss bridge has significance as an important example of a truss type. Its engineering significance is demonstrated in the Warren truss configuration comprised of diagonals to withstand tensile

⁴ Archived and digitized state standard bridge plans are available at the LADOTD office, Baton Rouge, La.

⁵ "Big Bayou Sara bridge Up for Bids on July 7," *Louisiana Highways* (July 1948): 6.

⁶ "Highway Contracts in July Totaled Over One Million," *Louisiana Highways* (August 1948): 3.

⁷ Louisiana Department of Highways, Big Bayou Sara Bridge and Approach plans "The Final Estimate, State Project No. 251-01-08," 1948-1949, Plan sheets available on microfilm from the LADOTD, General Files, Baton Rouge, La.

⁸ Louisiana Department of Highways, *Fifteenth Biennial Report, Statistical and Technical Supplement for the Period of January 1, 1938 to December 31, 1949, Inc.* (Baton Rouge, La.: Louisiana Department of Highways, 1949), 22.

⁹ See the photograph spread of the newly installed retards for the Big Bayou Sara Bridge on pages 4 and 5 of *Louisiana Highways* (February 1950).

¹⁰ *Fifteenth Biennial Report Statistical and Technical Supplement for the Period of January 1, 1938 to December 31, 1949*, 22.

and compressive forces and its polygonal top chord. The structure retains integrity and continues to convey significant design features of the Warren truss type. This bridge is eligible for the National Register under *Criterion C: Design/Engineering*.

D. Character-defining features

Character-defining features are prominent or distinctive aspects, qualities, or characteristics of a historic property that contribute significantly to its physical character. Features may include materials, engineering design, and structural and decorative details. Elements of the bridge that are not identified as character-defining features may be historic fabric. Historic fabric is material in a bridge that was part of original construction. It is important to consider both character-defining features and the bridge's historic fabric when planning any work.

The Big Bayou Sara Bridge has one character-defining feature: its Warren pony truss spans (described below). Other elements that represent historic fabric but are not considered to be character-defining are the approach spans, the deck and truss floor system, substructure elements, and the bridge's simple steel railing. The following item is the character-defining feature of this bridge:

Feature 1: Design and construction of steel Warren truss spans

This feature includes the five main Warren truss spans measuring a total of 500 feet. The Warren truss features diagonal members to withstand both tensile and compressive forces, added verticals for bracing, and a polygonal top chord.



Character-defining Feature Photo 1: Design and construction of steel Warren truss spans. The Warren truss features diagonal members to withstand both tensile and compressive forces, added verticals for bracing, and a polygonal top chord.



Character-defining Feature Photo 2: Design and construction of steel Warren truss spans. The Warren truss features diagonal members to withstand both tensile and compressive forces, added verticals for bracing, and a polygonal top chord.

The following images illustrate other bridge features that are historic fabric, meaning they are part of original construction but are not considered to be character-defining features:



Historic Fabric Photo 1: Steel I-beam approach spans.



Historic Fabric Photo 2: Truss floor system and bridge substructure.



Historic Fabric Photo 3: Simple metal railing on the truss main spans.

4. Engineering Data

A. Existing conditions

(1) Structural observations

The following conditions are described as noted from the field visit February 4, 2016, and previous inspection reports. Rehabilitation for the bridge is scheduled for 2017; plans have been prepared and address noted conditions.

The Big Bayou Sara Bridge is in overall fair condition and appears to adequately serve its purpose of carrying vehicular traffic over the waterway. The bridge is currently load (weight) posted at 15 to 25 tons (15T-25T), with signs indicating this at each end of the bridge.¹¹

Approach spans

The superstructure is in fair condition. The reinforced-concrete deck is in satisfactory condition with map cracking, minor pop-outs and exposed aggregate on the riding surface of the concrete deck, heavy debris on the shoulders, and water staining from the scupper holes on the sides of the concrete deck slab. In spans 8 through 10 the underside of the deck and curbs has transverse cracking and minor spalling at the top flange of the exterior girders and exposed reinforcing on the underside of the curbs. There is transverse and longitudinal cracking throughout the top of deck. The steel I-beams are in fair condition. The steel I-beam girders exhibit minor chalking and corrosion throughout. The bottom flange of the I-beams in span 10 exhibit section loss at the abutment. The open deck joints are in satisfactory condition. The joints at the abutments are vertically misaligned. The concrete railing is in good condition. The concrete railing exhibits minor flaking and cracking of the concrete on the top of the railing on the eastside. The movable and fixed bearings are in satisfactory condition with paint failure and surface corrosion.

The end bents are in satisfactory condition. There is erosion at both end bent 1 and end bent 5, extending the entire width of the bent and approximately 18 inches under the bent, which is exposing the footing piles. In addition, there is extensive debris build-up on the top of the concrete bent seats, which has led to minor bottom flange corrosion. End bent 5 has heavy vegetation growth in front of it. The reinforced-concrete cap and column intermediate bents are in good condition and only exhibit minor water staining and vegetation on the columns and debris build-up on the caps. The concrete slope protection at end bent 5 is in fair condition with heavy vegetation growth.

Main truss spans

The superstructure is in fair condition. The reinforced-concrete deck is in fair condition with map cracking and exposed aggregate on the riding surface of the concrete deck, heavy debris on the shoulders, and water staining from the scupper holes on the sides of the concrete deck slab. The

¹¹ The load posting will be removed after the 2017 rehabilitation project.

underside of the deck exhibits transverse cracking and minor spalls, with exposed reinforcing. There is transverse and longitudinal cracking throughout the top of deck. The steel superstructure is in fair condition. The entire steel superstructure (through truss, stringers, and floorbeams) are exhibiting paint failure and surface corrosion. The stringers exhibit minor to 100 percent section loss on the flanges and webs. The lattice bracing on the underside of the top chord has moderate corrosion with section loss. Additionally, the nuts at the splice plates for the truss exhibit moderate corrosion and section loss. The bottom chord has corrosion at the connection plates caused from debris build-up on the members and the gusset plates are exhibiting corrosion with pack rust. There are two types of joints through the truss spans: open joint and finger joint, both of which are in good condition. The open joints are free of debris and the finger joints have minimal debris build-up. The metal railing is in satisfactory condition with paint failure and minor corrosion throughout. The movable and fixed bearings are in satisfactory condition with paint failure and surface corrosion.

The reinforced-concrete piers are in fair condition. All piers exhibit debris build-up on the caps, water staining, and moss growth. Piers 1, 2, 4, 5, and 6 exhibit large scour holes at the base of the piers. Pier 4 additionally exhibits undermining of the pier and exposing the footing piles. At this location the channel is flowing under the pier footing. All piers have numerous vertical hairline cracks with efflorescence.

(2) Non-structural observations

The approach slabs are in fair condition; both have been overlaid with asphalt. The asphalt is cracking and there is heavy raveling and potholes at end bent 1 and minor settlement at end bent 5. The guardrail blocking on the approach slab is corroding and the west side of the guardrail is damaged due to vehicle collision.

(3) Serviceability observations

The ADT across the bridge is 1,770 vehicles. The bridge clear roadway width of 24 feet provides for two lanes of traffic, one in each direction. The bridge adequately handles this traffic volume. The vertical geometry of the bridge is good. Horizontally, the bridge is located between two sharp curves. The railing on the bridge is concrete railing on the sidewalk in spans 1, 2, and 8 through 10, and steel channel attached to the truss with steel posts in spans 3 through 7.

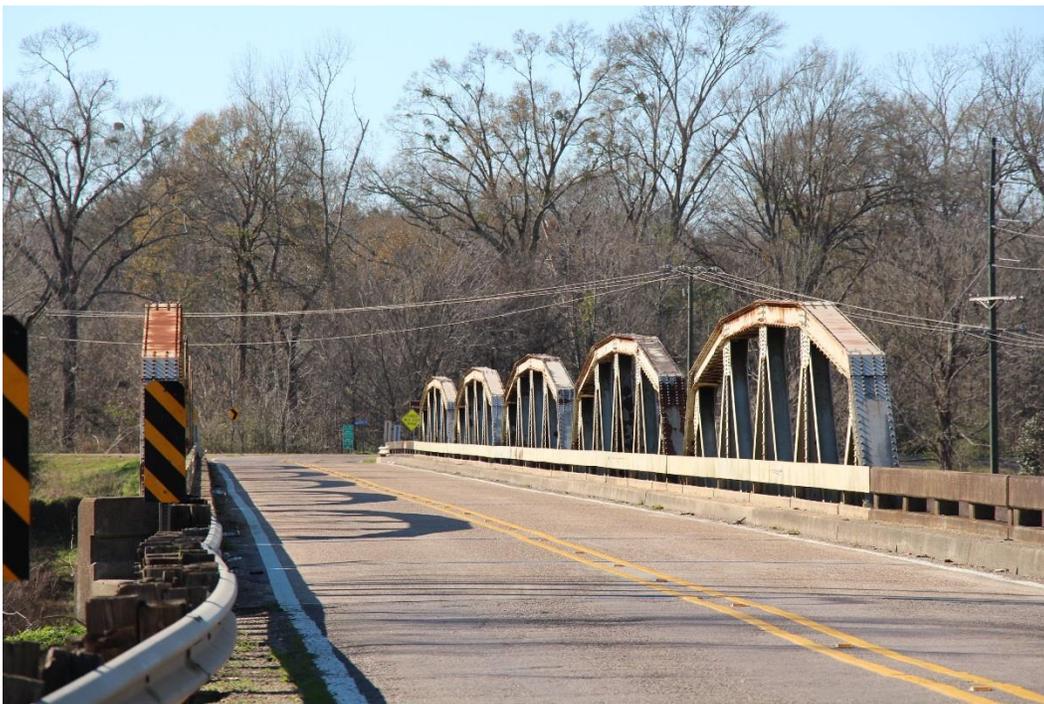
B. Sources of information

| | |
|---------------------------------------|--|
| Plans available: | Yes, available at the LADOTD Bridge Section office |
| Inspection report date: | March 14, 2016 |
| Fracture critical report date: | (included as part of routine inspection report) |
| Underwater inspection report: | None ¹² |
| Date of site visit: | February 4, 2016 |

¹² This bridge has never received an underwater inspection and is not flagged as requiring one.



Condition Photo 1: Overview of the truss spans from the top of deck, looking east.



Condition Photo 2: Overview of the truss spans from the top of deck, looking west.



Condition Photo 3: Elevation view of the bridge, looking east.



Condition Photo 4: Typical open deck joint with no debris on the approach spans.



Condition Photo 5: The finger joint at pier 4.



Condition Photo 6: Typical transverse cracking on top of concrete deck.



Condition Photo 7: Underside of the deck and curb, spalled with exposed reinforcing steel, typical.



Condition Photo 8: Typical debris on shoulder and vegetation growth at a deck drain.



Condition Photo 9: Typical gusset plate connection exhibit paint system failure and corrosion.



Condition Photo 10: Typical rust/corrosion and paint system failure on steel truss.



Condition Photo 11: Typical rust and paint system failure on the floorbeam.



Condition Photo 12: Main truss span lateral brace connection rusted and section loss.



Condition Photo 13: Erosion at end bent 1.



Condition Photo 14: Typical approach span intermediate bent.



Condition Photo 15: Typical condition of end bent 5.



Condition Photo 16: Vertical crack end bent 5 seat with efflorescence.



Condition Photo 17: Typical vegetation growth on the concrete slope protection at end bent 5.



Condition Photo 18: Heavy decay to timber guardrail posts on the approach spans, typical.

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5. Recommendations

This Preservation Priority Bridge should remain in use and can meet current and projected transportation needs for the next 20 years or more. Maintenance and rehabilitation activities should be completed in a manner consistent with the long-term preservation of this historic bridge. The Statewide Historic Bridge Plan provides additional guidance and approaches to completing maintenance and rehabilitation activities that adhere to the Secretary's Standards. Work should be conducted under the supervision of a qualified professional historian, as defined in the PA. The bridge engineer, or the bridge engineer's supervising engineer, should have demonstrated expertise in historic bridge projects and must have completed the LADOTD's historic bridge training. When developing plans and specifications for a project, the bridge engineer should follow the recommendations below.

Under the terms agreed upon in the PA, the bridge owner may undertake certain activities that are considered to be best practices without additional consultation or public notification. These activities are documented in Attachment 5 of the PA and are limited to the activities specifically noted. All recommended preventative maintenance and rehabilitation activities for this bridge are included in Attachment 5 and are not expected to alter character-defining features or historic fabric of the bridge. Some cyclical or condition-based maintenance items are noted below under Rehabilitation because they are expected to be completed as part of an overall rehabilitation project for this bridge. These activities may need to be completed as conditions dictate to promote long-term preservation of this historic bridge. Recommendations within this Plan should be reviewed in 10 years following completion of the Plan to identify any needed updates or revisions.

The opinions of probable costs provided below are in 2016 dollars. The costs were developed without benefit of preliminary rehabilitation plans and are based on the above identified tasks using engineering judgment and/or gross estimates of quantities and historic unit prices and are intended to provide a programming level of estimated costs. Refinement of the probable costs is recommended once preliminary plans have been developed. The estimated preservation costs include a 10% contingency and 7% mobilization allowance of the preservation activities, excluding soft costs. Actual costs may vary significantly from those opinions of cost provided herein. Engineering design, historical consultation, and construction administration costs are not included as these may be provided by the owner or consultants.

This bridge is scheduled for rehabilitation in 2017 including rehabilitation of the truss span members, replacement of the approach span steel girders and main truss span stringers, removal and replacement of the existing concrete deck and approach slabs, modifications to the existing end bents, and scour protection. As a result, existing conditions noted will be addressed and therefore this plan focuses on future preventative maintenance activities.

A. Preventative maintenance

The following are recommendations for cyclical maintenance. Because these activities are routinely done, the cost is not included in the cost estimate. There are no condition-based maintenance recommendations at this time, based on the bridge condition as observed during the site visit and as documented in available information.

1. Remove vegetation from substructure units regularly.
2. Clean debris from concrete deck travelling roadway surfaces, as necessary.
3. Clean debris from the substructure units, as necessary.

B. Rehabilitation

Rehabilitation plans have been prepared for work to be done in 2017; therefore, no rehabilitation recommendations have been made.

C. Identification of any anticipated design exceptions

No design exceptions were noted, nor are any design exceptions recommended.

Appendix A. Historic Inventory Form

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Louisiana Historic Bridge Inventory

Recall Number: 055730

Structure Number: 61632510101511

SHPO Number: 63-00548

Bridge Name: BIG BAYOU SARA

Location Data:

District: 61

Parish: West Feliciana

Feature Crossed: BIG BAYOU SARA

Facility Carried: LA0066

Location: LA0066

City, Village or Town (if applicable):

Status: Open

Bridge Owner: State of Louisiana

Latitude: 30.84475

Longitude: -91.406639

Structural Data:

Bridge Type: Steel Low Truss (Pony Truss)

Year Built: 1949

Main Span Configuration (if applicable): Warren truss

Maximum Span Length (feet): 103

Number of Spans: 5

Overall Structure Length (feet): 718

Approach Span Type (if applicable): Steel stringer/multi-beam or girder

Posted Load: 20-35

Current ADT: 002100

Design and Construction Data:

Engineer or Builder:

Unknown

Bridge Plaque:

None

National Register of Historic Places Evaluation:

This Warren pony truss bridge has significance as an important example of a truss type. Its engineering significance is demonstrated in the Warren truss configuration comprised of diagonals to withstand tensile and compressive forces and polygonal top chord. The structure retains integrity and continues to convey significant design features of this bridge type. This bridge is eligible for listing in the National Register under *Criterion C: Design/Engineering*.

Within/Adjacent to Known Historic District: N/A

National Register Historic District Name: N/A

National Register Determination: Previously determined eligible

National Register Determination Date: 2012

Surveyor: Mead & Hunt, Inc.

Date Surveyed: 2013



Louisiana Historic Bridge Inventory

Recall Number: 055730

Structure Number: 61632510101511

Bridge Name: BIG BAYOU SARA

Parish: West Feliciana

Bridge Owner: State of Louisiana

Feature Crossed: BIG BAYOU SARA

Facility Carried: LA0066

Photographs:



Appendix B. Select Plan Sheets

The full plan set for the 2017 rehabilitation of the Big Bayou Sara Bridge is available from the Louisiana Department of Transportation and Development

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GENERAL NOTES

SCOPE OF WORK

THIS PROJECT CONSISTS OF REHABILITATION OF THE PONY TRUSS SPAN MEMBERS, REPLACEMENT OF STEEL GIRDERS AND STRINGERS, REMOVAL AND REPLACEMENT OF THE EXISTING CONCRETE DECK, AND MODIFICATIONS TO THE EXISTING ABUTMENTS OF LA 66 BRIDGE OVER BIG BAYOU SARA. THE WORK ELEMENTS INCLUDE:

1. REMOVE THE EXISTING CONCRETE BARRIERS FROM THE APPROACH SPANS (SPANS 1 THRU 2 AND 8 THRU 10) AND THE EXISTING STEEL BARRIER ON THE PONY TRUSS SPANS (SPANS 3 THRU 7).
2. REMOVE THE EXISTING APPROACH SLABS AND CONCRETE DECK FROM ALL SPANS.
3. REMOVE AND REPLACE THE EXISTING STEEL GIRDERS AND BEARINGS IN THE APPROACH SPANS AND THE EXISTING STEEL STRINGERS IN THE PONY TRUSS SPANS.
4. WELD SHEAR CONNECTORS TO EXISTING FLOOR BEAMS AND STRENGTHEN EXISTING TRUSS MEMBERS.
5. MODIFY THE EXISTING ABUTMENTS TO ACCOMMODATE THE NEW VERTICAL ALIGNMENT AND APPROACH SLABS.
6. CAST NEW CONCRETE DECK AND APPROACH SLABS.
7. CLEAN AND PAINT ALL EXISTING STEEL MEMBERS. PAINT NEW STEEL MEMBERS. REMOVE ANY REMAINING DEBRIS FROM NEW AND EXISTING SUPERSTRUCTURE AND EXISTING SUBSTRUCTURE. APPLY SPECIAL SURFACE FINISH TO EXISTING CONCRETE SUBSTRUCTURES.

CONSTRUCTION SPECIFICATIONS:

CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, 2006 EDITION, EXCEPT AS SUPPLEMENTED OR AMENDED BY THE PLANS, SUPPLEMENTAL SPECIFICATIONS AND/OR SPECIAL PROVISIONS.

DESIGN SPECIFICATIONS:

ALL STRUCTURAL DETAILS INCLUDED WITHIN THESE PLANS ARE DESIGNED IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SEVENTH EDITION, 2014 AND LADOTD BRIDGE DESIGN AND EVALUATION MANUAL, VERSION 2014, AND BRIDGE DESIGN TECHNICAL MEMORANDUMS 1 THRU 44, AS APPLICABLE.

DEAD LOAD:

THE BRIDGE IS DESIGNED FOR THE CALCULATED WEIGHT OF THE STRUCTURE PLUS A FUTURE WEARING SURFACE EQUAL TO 25 PSF. THE WEIGHT OF THE STEEL AND CONCRETE RAILING WILL BE EVENLY DISTRIBUTED TO ALL STRINGERS.

LIVE LOAD:

THE DESIGN VEHICLE FOR THIS PROJECT IS THE AASHTO HL-93.

THERMAL LOAD:

THERMAL MOVEMENT AND FORCES ARE BASED ON A MODERATE CLIMATE, ZONE II WITH A TEMPERATURE RANGE FROM 0°F TO 120°F. THERMAL MOVEMENT AND FORCES ARE BASED ON A MEAN TEMPERATURE OF 68°F.

DIMENSIONS:

ALL DIMENSIONS ARE GIVEN AT NORMAL TEMPERATURE (68°F) AND ARE HORIZONTAL UNLESS OTHERWISE NOTED. ALL DIMENSIONS GIVEN FOR THE STRUCTURE ARE BASED ON THE AS-BUILT PLANS SUPPLEMENTED BY A LIMITED FIELD SURVEY. CURRENT FIELD CONDITIONS MAY DEVIATE FROM THE TYPICAL AND THEORETICAL DIMENSIONS SHOWN ON THE PLANS. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS REQUIRED FOR THE PROPER PERFORMANCE OF WORK AND SHALL BE SOLELY RESPONSIBLE FOR FABRICATION AND FIT OF HIS WORK.

PLAN STATIONS AND ELEVATIONS:

BRIDGE FINISH GRADE ELEVATIONS, STATIONS AND DIMENSIONS WERE TAKEN FROM THE AS-BUILT PLANS. ALL PLAN STATIONS, ELEVATIONS, DIMENSIONS, GRADES, AND SLOPES SHALL BE VERIFIED BY THE CONTRACTOR. ANY DISCREPANCIES BETWEEN THE FIELD SURVEY AND THE PLANS SHALL BE BROUGHT TO THE PROJECT ENGINEER'S ATTENTION.

CONCRETE:

ALL SUPERSTRUCTURE CONCRETE TO BE CLASS AA(M) CONCRETE. ALL SUBSTRUCTURE CONCRETE SHALL BE CLASS A(M) CONCRETE UNLESS OTHERWISE SPECIFIED IN THE PLANS. CHAMFER ALL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED. NO DEDUCTIONS SHALL BE MADE IN THE CONCRETE QUANTITIES FOR CHAMFERS 1/2" OR LESS.

STEEL AND CONCRETE RAILING:

ALL STEEL AND CONCRETE IN THE RAILING TO BE PAID PER LINEAR FOOT INCLUDING THE REINFORCING BARS THAT PROJECT INTO THE RAILING. STEEL RAILING SHALL BE MEASURED FROM CENTERLINE TO CENTERLINE OF JOINTS. A MINIMUM OF THREE (3) DAYS SHALL ELAPSE FROM THE CASTING OF THE DECK OR THE DECK CONCRETE SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI BEFORE PLACEMENT OF REINFORCING STEEL AND FORMS FOR RAILING. THE DECK SLAB SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI BEFORE POURING RAILING CURB.

REINFORCING STEEL:

REINFORCING STEEL SHALL BE GRADE 60 BILLET STEEL CONFORMING TO ASTM A615. DIMENSIONS RELATED TO REINFORCING STEEL FABRICATION ARE OUT TO OUT OF BAR AND DIMENSIONS RELATED TO REINFORCING STEEL SPACING ARE CENTER TO CENTER OF BAR, UNLESS OTHERWISE NOTED. THE MINIMUM CLEAR COVER FROM THE SURFACE OF THE CONCRETE TO THE FACE OF ANY DEFORMED REINFORCING BAR SHALL NOT BE LESS THAN THE FOLLOWING:

TOP OF SLAB = 2 1/2"
 BOTTOM OF SLAB = 1 1/2"

ALL OTHER REINFORCING STEEL CLEAR COVER SHALL BE 2" UNLESS OTHERWISE NOTED IN THE PLANS. SEE DOTD'S STANDARD PLAN SWBS-100 FOR BAR SUPPORTS FOR REINFORCING STEEL.

FINISH OF CONCRETE:

ALL SURFACES SHALL BE FINISHED IN ACCORDANCE WITH SUBSECTION 805.13, CONCRETE SURFACE FINISHES, OF THE LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, 2006. ALL EXPOSED SUBSTRUCTURE CONCRETE SHALL RECEIVE A CLASS 2A SPECIAL SURFACE FINISH. ALL WORK AND MATERIALS REQUIRED TO COMPLETE THE APPLICATION OF THE CLASS 2A SPECIAL SURFACE SHALL BE PAID FOR UNDER ITEM NS-805-00006, CLASS 2A, SPECIAL SURFACE FINISH FOR EXISTING CONCRETE, PER SQUARE FOOT.

EXISTING REINFORCING STEEL PREPARATION:

EXISTING REINFORCING STEEL TO BE SPLICED SHALL BE STRAIGHTENED AND CLEANED IN SUCH A MANNER THAT WHEN NEW CONCRETE IS POURED, THE REINFORCEMENT WILL BE FREE OF OLD CONCRETE, DIRT, LOOSE RUST, PAINT, OIL, GREASE, OR OTHER BOND INHIBITING MATERIAL.

BEARINGS:

BOTH FIXED AND EXPANSION BEARINGS FOR ALL APPROACH SPAN STRINGERS SHALL BE STAINLESS STEEL REINFORCED, ELASTOMERIC BEARING PADS.

BRIDGE JOINTS:

STRIP SEAL JOINTS SHALL BE USED BETWEEN ALL SPANS EXCEPT WHERE LINK SLABS ARE SPECIFIED.

CONSTRUCTION JOINTS:

WHERE CONSTRUCTION JOINTS ARE USED, NOT LESS THAN SEVEN (7) DAYS SHALL HAVE ELAPSED BETWEEN ADJACENT POURS. THE VERTICAL SURFACES OF THE CONSTRUCTION JOINTS BETWEEN ADJACENT POURS SHALL BE COATED PRIOR TO SUCCEEDING POURS WITH A TYPE II EPOXY RESIN SYSTEM IN ACCORDANCE WITH SUBSECTION 805.06(B)(2) OF THE STANDARD SPECIFICATIONS AT THE TIME OF POURING OF THE CONNECTION. EPOXY IS TO BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. THIS WORK SHALL BE INCIDENTAL TO THE SLAB POUR AND WILL BE PAID UNDER ITEM 805-04-00100, "CLASS AA(M) CONCRETE".

STRUCTURAL METALWORK:

ALL CHANNEL SHAPES, EDGE ANGLES, BENT PLATES, ANGLE HANGERS, COVER PLATES, AND BRACES SHALL CONFORM TO AASHTO M270, GRADE 36 AND ALL ROLLED STRUCTURAL STEEL SHAPES SHALL CONFORM TO AASHTO M270, GRADE 50 UNLESS OTHERWISE NOTED. ALL STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH SECTION 807 OF THE STANDARD SPECIFICATIONS. ALL FIELD CONNECTIONS SHALL BE BOLTED CONNECTIONS. BOLT SPACING SHALL BE IN ACCORDANCE WITH THE DESIGN SPECIFICATIONS AND AS SHOWN IN THE PLANS. BOLTED CONNECTIONS SHALL BE MADE WITH 3/4" DIAMETER HIGH TENSILE STRENGTH BOLTS CONFORMING TO ASTM A325 WITH ONE WASHER BENEATH THE TURNING ELEMENT UNLESS OTHERWISE NOTED. PAYMENT FOR STRUCTURAL METALWORK WILL BE MADE UNDER ITEM 807-08-00100, "STRUCTURAL METALWORK", PER LUMP SUM, UNLESS OTHERWISE NOTED.

BRIDGE INDEX TO SHEETS

| SHEET NO. | DESCRIPTION |
|-----------|--|
| 101 - 103 | GENERAL NOTES AND INDEX |
| 104 | SUMMARY OF ESTIMATED BRIDGE QUANTITIES |
| 105 | BRIDGE GENERAL PLAN |
| 106 - 108 | FRAMING PLANS |
| 109 - 111 | STEEL SPAN DETAILS |
| 112 - 116 | SPAN PLANS |
| 117 - 118 | SPAN TYPICAL SECTIONS |
| 119 - 121 | EXISTING STRUCTURE MODIFICATIONS |
| 122 - 124 | STEEL & CONCRETE RAILING |
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| 126 | SCOUR PROTECTION |
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| 128 | DETOUR BRIDGE FOOTING PLAN |
| 129 - 130 | SOIL BORING LOGS |
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| 143 | FR-01 |
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TOTAL SHEETS IN BRIDGE PLAN SET: 56

PRESENCE OF LEAD PAINT:

THE CONTRACTOR IS HEREBY WARNED THAT THE CURRENT PAINT COATING OF THE EXISTING STRUCTURE CONTAINS LEAD PAINT. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LEAD REMOVAL AND DISPOSAL REGULATIONS.

ENVIRONMENTAL COMPLIANCE:

PRIOR TO THE COMMENCEMENT OF ANY WORK, THE CONTRACTOR SHALL OBTAIN A COPY OF THE ENVIRONMENTAL CLEARANCE DOCUMENT AS WELL AS COPIES OF ALL PERMITS AND AGREEMENTS OBTAINED BY DOTD. THE CONTRACTOR SHALL THOROUGHLY EXAMINE AND COMPLY WITH ALL REQUIREMENTS SET FORTH IN THOSE DOCUMENTS. SPECIAL ATTENTION SHOULD BE GIVEN TO THE STATEWIDE BRIDGE CLEANING PERMIT AS IT RELATES TO DEMOLITION OF THE EXISTING CONCRETE DECK AND THE SURFACE FINISH APPLICATION TO THE SUBSTRUCTURE.

HISTORIC BRIDGE PRESERVATION:

DUE TO THE HISTORIC STATUS OF THIS STRUCTURE, PRESERVATION OF ITS ORIGINAL MEMBERS AND CONSTRUCTION TECHNIQUES ARE DEEMED NECESSARY. THEREFORE, THE CONTRACTOR SHALL BE REQUIRED TO PREVENT DAMAGE TO THE EXISTING STRUCTURE. ANY DAMAGE THAT RESULTS FROM NOT TAKING NECESSARY PRECAUTIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

EXISTING RIVET REPLACEMENT:

THE CONTRACTOR SHALL BE REQUIRED TO INSPECT ALL EXISTING RIVETS WHICH ARE TO REMAIN FOR DAMAGES. THOSE WHICH SHOW EXCESSIVE SECTION LOSS OR PROVIDE INSUFFICIENT CLAMPING STRENGTH AS DETERMINED BY THE PROJECT ENGINEER, SHALL BE REMOVED AND REPLACED WITH A ROUND HEADED BOLT CONFORMING TO ASTM F 1852. PAYMENT SHALL BE MADE UNDER ITEM NS-807-00010, "BOLT-RIVET REPLACEMENT (STRUCTURAL STEEL)", PER EACH. A QUANTITY OF 100 HAS BEEN ASSUMED FOR THESE PLANS.



WEST FELICIANA
 PARISH
 CONTROL SECTION
 251-01
 STATE PROJECT
 H.002281

DESIGNED BY: B. KEVER
 CHECKED BY: J. PORTER
 DETAILED BY: B. KEVER
 CHECKED BY: J. PORTER
 REVIEWED BY: M. SHAHAWY
 SERIES # 1 OF 3

NO. DATE REVISION OR CHANGE ORDER DESCRIPTION BY

LA 66: BIG BAYOU SARA BRIDGE REHAB.

GENERAL NOTES & BRIDGE INDEX TO SHEETS

DOTD
 DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

SDR
 ENGINEERING CONSULTANTS, INC.



GENERAL NOTES

GALVANIZED STEEL AND HARDWARE:

ITEMS SPECIFIED TO BE HOT DIP GALVANIZED SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A153 AND/OR A123. ALL MISCELLANEOUS HARDWARE, ANCHOR BOLTS, WASHERS, NUTS, AND BOLTS USED WITH THE ITEMS ARE TO BE MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B695. DAMAGED GALVANIZED SURFACES THAT ARE NOT TO BE ENCASED IN MORE THAN 3 INCHES OF CONCRETE SHALL BE REPAIRED WITH AN APPROVED, COLD-APPLIED, GALVANIZING COMPOUND FROM THE QUALIFIED PRODUCTS LIST OR OTHER APPROVED METHOD OF REPAIR.

BOLTED CONNECTIONS:

ALL BOLTED CONNECTIONS SHALL BE FRICTION TYPE USING HIGH STRENGTH BOLTS CONFORMING TO ASTM A325 TYPE 1, UNLESS OTHERWISE NOTED IN PLANS. ALL ROUND STATIC THREADED RODS SHALL CONFORM TO ASTM A36. BOLT SPACING SHALL BE IN ACCORDANCE WITH THE DESIGN DRAWINGS AND THE REQUIREMENTS OF DESIGN SPECIFICATIONS, UNLESS OTHERWISE SHOWN. BOLTED CONNECTIONS SHALL BE MADE WITH 3/4" DIAMETER HIGH STRENGTH BOLTS, UNLESS OTHERWISE SHOWN. NUTS (ASTM A563) AND WASHERS (ASTM F436) WITH FINISHES CORRESPONDING TO TYPE 1 BOLTS SHALL BE USED. ASTM F959 TYPE 325-1 DIRECT TENSION INDICATOR (DTI) WASHERS SHALL BE USED IN ALL HIGH STRENGTH CONNECTIONS FOR TENSION VERIFICATION. ONE DTI WASHER PLACED BENEATH THE TURNING ELEMENT WILL BE REQUIRED AT EACH HIGH STRENGTH BOLT.

ANCHOR BOLTS:

ANCHOR BOLTS SHALL BE ASTM F1554 GRADE 36, UNLESS OTHERWISE NOTED. ANCHOR BOLTS SHALL BE EITHER CAST-IN-PLACE OR SET IN A PREFORMED HOLE WITH A NON SHRINK GROUT FROM QPL 47. GROUT MUST HAVE A COMPRESSIVE STRENGTH EQUAL TO OR GREATER THAN THAT OF THE SURROUNDING CONCRETE. ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE HOT DIP GALVANIZED AND SHALL BE PAID UNDER ITEM 807-08-00100, STRUCTURAL METALWORK, PER LUMP SUM.

PAINT SYSTEMS:

ALL STEEL COMPONENTS TO BE PAINTED SHALL BE PAINTED WITH AN APPROVED ZINC PAINT FROM THE APPROVED MATERIALS LIST IN ACCORDANCE WITH SECTION 811 OF THE STANDARD SPECIFICATIONS. THE EXTERIOR COAT OF THE CHOSEN PAINT SYSTEM SHALL BE COLOR NUMBER 17178 (ALUMINUM/SILVER) FROM FEDERAL CODE 595.

WELDING:

WELDING SHALL COMPLY WITH SECTION 815 OF THE LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, 2006 EDITION. ALL WELDS THAT ARE TO BE MADE ON ANY STRUCTURAL STEEL MEMBER SHALL BE ONLY AS SHOWN IN THE STRUCTURAL STEEL SHOP DRAWINGS AND ARE SUBJECT TO APPROVAL BY THE BRIDGE DESIGN ENGINEER. "ALL WELDS" IS DEFINED AS ANY WELD PLACED FROM INITIATION OF FABRICATION TO FINAL ACCEPTANCE INCLUDING FABRICATION, TRANSPORTATION, ERECTION, AND CONSTRUCTION. ALL WELDS SHALL BE CONTINUOUS. FIELD WELDING WILL ONLY BE ALLOWED AS SHOWN IN THE PLANS. ELECTROSLAG WELDING WILL NOT BE PERMITTED. ALL GROOVE WELDS SHALL BE COMPLETE PENETRATION WELDS. TACK WELDING OF LIFTING EYES, BAR CHAIRS, OR ANY OTHER MISCELLANEOUS ITEMS TO GIRDERS IS STRICTLY PROHIBITED. ALL STRUCTURAL STEEL MEMBERS SHALL BE SHIELDED FROM WELD SPLATTER AND ARC STRIKES DURING ANY FIELD WELDING.

ERECTION:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE EXISTING TRUSSES, FLOOR BEAMS, AND STRINGERS DURING THE CONSTRUCTION PROCESS WHICH INCLUDES DEMOLITION OF EXISTING MEMBERS, FABRICATION, TRANSPORTATION, AND ERECTION OF PROPOSED MEMBERS AS WELL AS DURING PLACEMENT OF THE CONCRETE DECK. THE CONTRACTOR WILL BE REQUIRED TO PROVIDE BRACING FOR THE TRUSSES, FLOOR BEAMS, AND STRINGERS AS NECESSARY TO ENSURE THAT THE STRUCTURE IS HELD IN PROPER ALIGNMENT DURING THE ERECTION AND POURING SEQUENCES. DETAILED ERECTION DRAWINGS OUTLINING THE PROCEDURE, EQUIPMENT USED, AND POURING SEQUENCES SHALL BE SUBMITTED TO THE BRIDGE DESIGN ENGINEER FOR REVIEW AND APPROVAL.

ERECTION DRAWINGS AND SHOP DRAWINGS:

ALL ERECTION DRAWINGS AND SHOP DRAWINGS SHALL BE IN ACCORDANCE WITH SECTION 801.03 OF THE LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, 2006 EDITION. CHANGES IN QUANTITIES DUE TO ERECTION PROCEDURES WILL BE AT NO ADDITIONAL PAY.

WOODEN FORMWORK REQUIREMENT:

IN ORDER TO PRESERVE THE HISTORICAL APPEARANCE OF THE BRIDGE, THE CONTRACTOR WILL BE REQUIRED TO USE WOODEN FORMWORK FOR ALL CONCRETE PLACEMENT. THE COST OF THE WOODEN FORMWORK SHALL BE INCLUDED IN THE ASSOCIATED CONCRETE PAY ITEM USED.

YEAR PLATE:

DATE OF CONSTRUCTION IS REQUIRED ON THE STRUCTURE FOR ONCOMING LANES. SEE DOTD'S STANDARD DETAIL YP-01. LOCATION OF YEAR PLATE TO BE DETERMINED BY LADOTD TO SATISFY REQUIREMENTS OF A HISTORICAL BRIDGE.

GUARD RAIL:

SEE DOTD'S STANDARD PLAN GR-200 FOR DETAILS.

CAMBER AND DEFLECTION:

NO CAMBER IS REQUIRED FOR THE STEEL BEAMS FOR THIS PROJECT. HOWEVER IF NATURAL MILL CAMBER EXISTS, THE BEAMS SHALL BE FABRICATED AND INSTALLED WITH THE CONVEX FLANGE AS THE TOP FLANGE.

SALVAGEABLE/UNSAVAGEABLE MATERIALS:

THERE ARE NO SALVAGEABLE MATERIALS FOR THIS PROJECT. ALL UNSALVAGEABLE MATERIALS SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF BEYOND THE LIMITS OF THE RIGHT OF WAY. THE CONTRACTOR SHALL NOT STOCK PILE MATERIAL ON THE BRIDGE.

EPOXY INJECTION OF CRACKS:

ALL CRACKS TO BE FILLED WITH AN APPROVED EPOXY INJECTION SYSTEM FROM THE APPROVED MATERIALS LIST. EPOXY INJECTION SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURES SPECIFICATIONS.

AS-DESIGNED BRIDGE RATING TABLE

| STRUCTURE NAME | STRUCTURE NO. | RECALL NO. | VEHICLE | SUPERSTRUCTURE | SUBSTRUCTURE | NOTES |
|-----------------------|----------------|------------|---------------|----------------|--------------|-------|
| BIG BAYOU SARA BRIDGE | 61632510101511 | 055730 | HL-93 (INV) | 1.22 | N/A | |
| | | | HL-93 (OPR) | 1.58 | N/A | |
| | | | LADV-11 (INV) | 0.94 | N/A | |
| | | | | | N/A | |
| | | | | | N/A | |
| | | | | | N/A | |



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| SHEET NUMBER | 102 | PARISH | WEST FELICIANA | CONTROL SECTION | 251-01 | STATE PROJECT | H.002281 |
| DESIGNED | CHECKED | DETAILED | CHECKED | REVIEWED | SERIES # | OF | 3 |
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| REVISION OR CHANGE ORDER DESCRIPTION | | | | | | | |
| NO. | DATE | | | | | | |
| GENERAL NOTES | | | | | | | |
| LA 66: BIG BAYOU SARA BRIDGE REHAB. | | | | | | | |
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FINAL PLANS

GENERAL NOTES

LIMITS OF CLEANING AND PAINTING:

THE LIMITS OF CLEANING AND PAINTING FOR THIS BRIDGE ARE FROM ABUTMENT TO ABUTMENT AS SHOWN ON THE GENERAL PLAN AND AS SHOWN ON THE BRIDGE FRAMING PLAN.

GENERAL PAINTING REQUIREMENTS:

THE CONTRACTOR IS TO PAINT ACCORDING TO SUPPLEMENTAL SPECIFICATION "CLEANING, PAINTING, AND DISPOSAL (NEAR WHITE FINISH)" ON ALL EXISTING STEEL MEMBERS TO REMAIN WITHIN THE LIMITS DESCRIBED ABOVE.

THE CONTRACTOR MAY USE, BUT IS NOT LIMITED TO THE USE OF MECHANICAL MEANS OR SPECIALIZED EQUIPMENT TO CLEAN THE SURFACE.

CLEANING AND PAINTING OPERATIONS ON THE STRUCTURE AND WITHIN THE CONTAINMENT SHALL BE CONDUCTED FROM TOP TO BOTTOM AND IN A LINEAR FASHION FROM ONE END OF THE CONTAINMENT TO THE OTHER IN THE SAME DIRECTION AS THE AIR FLOW WITHIN THE CONTAINMENT. CLEANING AND PAINTING SHALL BE SCHEDULED SO THAT DUST AND SPRAY FROM THE CLEANING PROCESS WILL NOT FALL ON WET OR NEWLY PAINTED SURFACES.

THE CONTRACTOR SHALL SUBMIT A PROPOSED SEQUENCE OF CLEANING AND PAINTING OPERATIONS TO THE PROJECT ENGINEER FOR REVIEW AND ACCEPTANCE PRIOR TO COMMENCEMENT OF ANY WORK.

DEBRIS ACCUMULATION AND PROJECT HOUSE KEEPING:

ANY DISCHARGE, SPILLING, LEAKING, POURING, EMITTING, OR DUMPING OF ANY ABRASIVE BLAST MEDIA (SPENT OR UNSPENT), PAINT CHIPS, DIRT, DEBRIS, LEAD CONTAMINATED MATERIALS, FUEL, OIL, PAINTS, OR SOLVENTS THAT ARE GENERATED AS A RESULT OF ANY OF THE CONTRACTOR'S ACTIVITIES THAT RESULT IN ANY ACCUMULATION WITHIN THE CONTRACTOR'S EQUIPMENT AND MATERIALS STORAGE YARD SHALL BE CLEANED UP IMMEDIATELY. FAILURE TO DO SO WILL RESULT IN IMMEDIATE SUSPENSION OF ALL WORK OF THE PROJECT AT THE DISCRETION OF THE PROJECT ENGINEER.

PAINT REMOVAL CONTAINMENT:

THE FREQUENCY AND PROXIMITY OF WORKERS, THE PUBLIC, AND ENVIRONMENTALLY SENSITIVE RECEPTORS TO THE PROJECT SITE REQUIRES A HIGH LEVEL OF EMISSION CONTROL. THE DESIGN AND EFFECTIVE PERFORMANCE OF THE ENCLOSURE OR THE VACUUM SHROUDING AND THE AIR FLOW AND DUST FILTERING EQUIPMENT REQUIRED IS THE RESPONSIBILITY OF THE CONTRACTOR.

CONTAINMENTS IF EMPLOYED SHALL BE CONSTRUCTED AND CONFIGURED SUCH THAT ONCE AN AREA HAS BEEN CLEANED AND ANY COATING APPLIED, THIS AREA MUST BE EXCLUDED FROM ANY FUTURE CONTAINMENT AREA, OR PORTION THEREOF. THE CONTRACTOR SHALL NOT BE PERMITTED TO VENTILATE A CONTAINMENT OR PORTION THEREOF THROUGH AN AREA THAT HAS BEEN PREVIOUSLY COATED TO PREVENT DEPOSIT OF THE DUST ON THE PAINTED SURFACES.

THE CONTRACTOR SHALL SUBMIT TO LADOTD FOR REVIEW AND ACCEPTANCE A DETAILED PLAN FOR PLACEMENT AND REMOVAL OF THE CONTAINMENT.

IN THE EVENT THE NATIONAL WEATHER SERVICE ISSUES A TROPICAL STORM OR HURRICANE WARNING FOR THE PROJECT AREA, THOSE COMPONENTS OF THE CONTAINMENT SYSTEM THAT MAY CAUSE OVERSTRESS OF ANY BRIDGE MEMBER OR THE SPAN AS A WHOLE, OR THAT MAY BECOME DETACHED SHALL BE REMOVED IMMEDIATELY FROM THE STRUCTURE. THE ITEMS THAT REQUIRE REMOVAL IN THIS CASE SHALL BE IDENTIFIED IN THE CONTAINMENT PLAN THAT IS SUBMITTED TO LADOTD. THE REMOVAL AND REINSTALLATION SHALL BE AT NO DIRECT PAY AND SHOULD BE INCLUDED IN THE BID FOR ITEM NS-800-00020 "CLEANING, PAINTING, AND DISPOSAL (NEAR WHITE FINISH)"

CLEANING, PAINTING, AND DISPOSAL (NEAR WHITE FINISH):

FOR THE BRIDGE STRUCTURAL STEEL DESIGNATED WITH "CLEANING, PAINTING, AND DISPOSAL (NEAR WHITE FINISH)" THE PAINT SYSTEM SHALL BE AN ORGANIC ZINC RICH SYSTEM FROM LADOTD'S QPL 78.

THE CONTRACTOR SHALL BE LIMITED TO ONE (1) COATING MANUFACTURER FOR THE ENTIRE PROJECT. THE COLOR OF EACH COAT SHALL CONTRAST WITH ADJACENT COATS.

CLEANING AND PAINTING SHALL BE IN ACCORDANCE WITH SECTION 811 AND THE SUPPLEMENTAL SPECIFICATIONS. APPROXIMATE AREA OF EXISTING STEEL TO BE PAINTED = 43,885 SF (FOR INFORMATIONAL PURPOSES ONLY), TO BE PAID FOR UNDER ITEM NS-800-00020, CLEANING, PAINTING, AND DISPOSAL (NEAR WHITE FINISH), PER LUMP SUM.

REMOVAL OF ABANDONED WATER LINE:

THE CONTRACTOR SHALL VERIFY PRIOR TO REMOVAL WITH THE UTILITY COMPANY THAT THE WATERLINE ATTACHED TO THE BRIDGE IS ABANDONED. ALL LABOR, MATERIALS, AND INCIDENTALS ASSOCIATED WITH THE REMOVAL OF THE WATER LINE SHALL BE PAID FOR UNDER ITEM 202-02-00030, REMOVAL OF ABANDONED WATER LINE FROM BRIDGE, PER LINEAR FOOT.

PILES:

ALL PILE REQUIREMENTS INCLUDING SIZE, TYPE, LOCATION, AND MAXIMUM DESIGN LOAD SHALL BE AS DESCRIBED IN THE CONTRACT DOCUMENTS. THE MINIMUM PILE EMBEDMENT LENGTH WILL BE THE EMBEDMENT LENGTH AS SHOWN IN THE PRODUCTION PILE DATA TABLE, UNLESS OTHERWISE DIRECTED BY THE GEOTECHNICAL ENGINEER.

PILE DRIVING EQUIPMENT APPROVAL:

ALL PILE DRIVING EQUIPMENT SHALL BE APPROVED USING THE WAVE EQUATION HAMMER APPROVAL METHOD IN ACCORDANCE WITH ARTICLE 804.05(C)(2) OF THE LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES.

DYNAMIC MONITORING:

PILE DRIVING ANALYZER (PDA) MONITORING WILL BE REQUIRED AT BENTS 5, 6, AND 7. ALL COSTS AND DELAYS ASSOCIATED WITH PDA MONITORING SHALL BE INCLUDED UNDER ITEM NO. 804-14-00100, DYNAMIC MONITORING ASSISTANCE.

MONITOR PILES:

THE FIRST PLUMB PILE DRIVEN AT EACH BENT INDICATED ON THE PILE DATA TABLE SHALL BE MONITORED WITH THE PILE DRIVING ANALYSER (PDA). AT THE DIRECTION OF THE GEOTECHNICAL ENGINEER, A ONE DAY RESTRIKE MAY BE REQUIRED AT EACH MONITOR PILE.

PILE CAPACITY VERIFICATION (BENTS 5, 6, AND 7):

PILE CAPACITY FOR BENTS 5, 6, AND 7 SHALL BE BASED ON DRIVING CRITERIA ESTABLISHED FROM PILE DATA AND WAVE EQUATION ANALYSIS.

PILE CAPACITY VERIFICATION (ALL OTHER BENTS):

PILE CAPACITY FOR ALL OTHER BENTS SHALL BE BASED ON MODIFIED GATES DYNAMIC FORMULA:

$$R = \frac{(1.75 \sqrt{E_r} \log(10Nb)) - 100}{2}$$

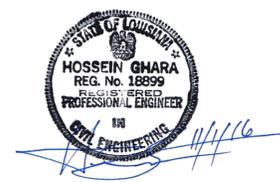
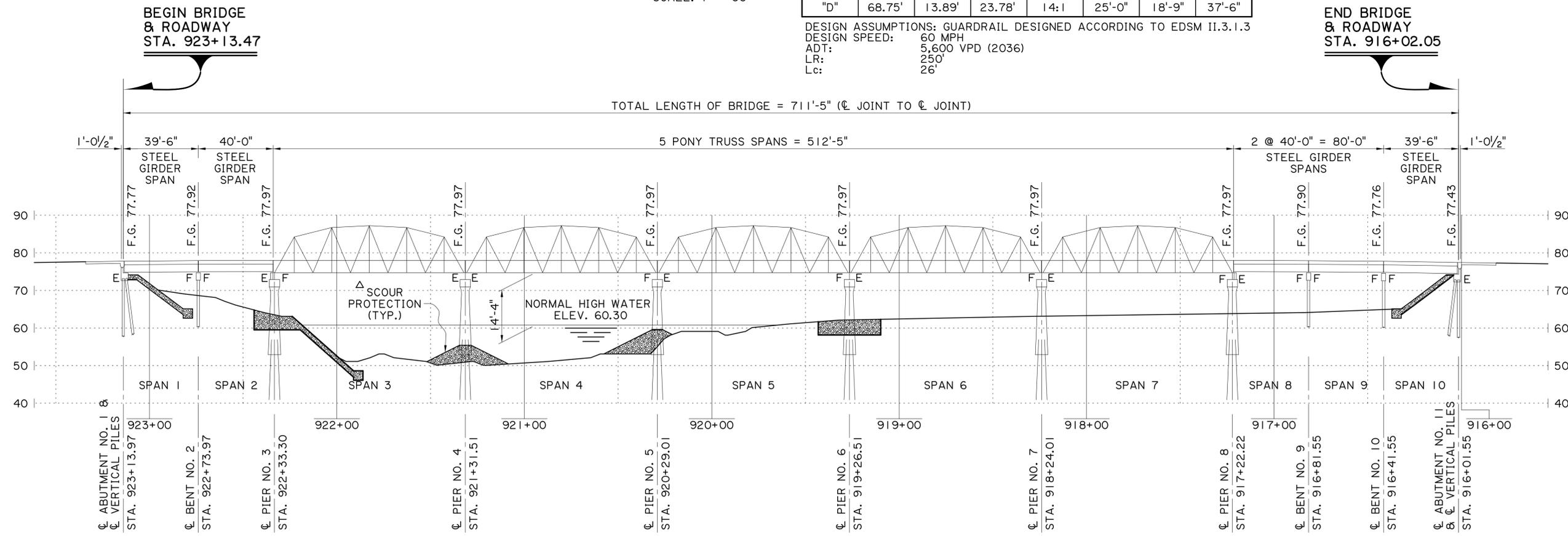
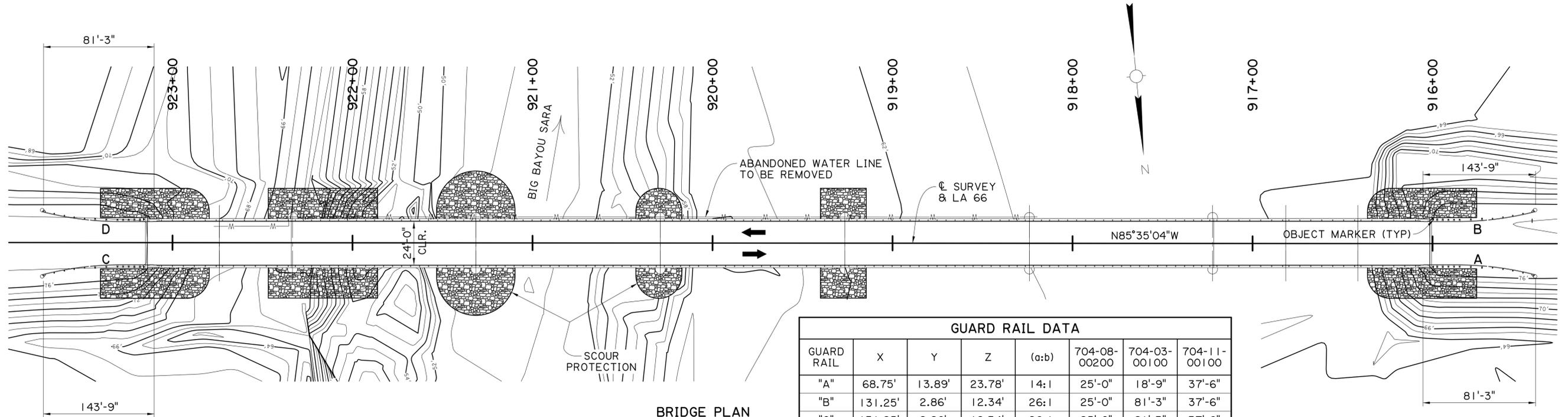
R = PILE BEARING CAPACITY (TONS)
 E_r = MANUFACTURER'S RATED ENERGY AT THE FIELD OBSERVED RAM STROKE (FOOT - POUNDS)
 N_b = NUMBER OF HAMMER BLOWS/INCH



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|--------------------------------------|-----------|----------------|-----------|-----------------|---------------|
| SHEET NUMBER | 103 | WEST FELICIANA | PARISH | CONTROL SECTION | STATE PROJECT |
| DESIGNED | CHECKED | DETAILED | CHECKED | REVIEWED | SERIES # |
| B. KEVER | J. PORTER | B. KEVER | J. PORTER | M. SHAHAWY | 3 OF 3 |
| REVISION OR CHANGE ORDER DESCRIPTION | | | | | |
| NO. | DATE | BY | | | |
| 1 | | | | | |
| GENERAL NOTES | | | | | |
| LA 66: BIG BAYOU SARA BRIDGE REHAB. | | | | | |
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FINAL PLANS



GENERAL PLAN
 L.A. 66: BIG BAYOU SARA BRIDGE REHAB.

DESIGNED BY: B. KEVER
 CHECKED BY: J. PORTER
 DETAILED BY: M. HAMBY
 CHECKED BY: J. PORTER
 REVIEWED BY: M. SHAHAWY
 SERIES # 1 OF 1

PARISH: WEST FELICIANA
 CONTROL SECTION: 251-01
 STATE PROJECT: H.002281

REVISION OR CHANGE ORDER DESCRIPTION: BY: DATE: NO.

SHEET NUMBER: 105

LA DOT logo

SDR ENGINEERING CONSULTANTS, INC.