

STATE OF LOUISIANA

US 90 (I-49 SOUTH) ALBERTSON'S PARKWAY TO AMBASSADOR CAFFERY DESIGN-BUILD PROJECT

LAFAYETTE PARISH

**STATE PROJECT NO. H.010620
FEDERAL AID PROJECT NO. H010620**

REQUEST FOR PROPOSALS

PART 3 - DESIGN REQUIREMENTS AND PERFORMANCE SPECIFICATIONS



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1.0 GENERAL

1.1 PURPOSE

This Part 3 – Design Requirements and Performance Specifications establishes basic design and performance requirements to be used in the design and construction of the Project.

Section 2.0 provides direction on certain aspects of design applicable throughout the Project and the requirements to be followed for the design in the event a Project element or component is not covered by a performance specification.

Section 3.0 includes both the broad design and performance parameters, usually in the form of recognized standards, under which components and elements of the Project are to be designed and the specifically defined design and performance requirements relative to the Project.

2.0 DESIGN REQUIREMENTS

Design is to be directed toward minimum feasible costs for design, construction, and maintenance expense and minimum disruption of local access and communities.

2.1 SCOPE

The design requirements, both broad and flexible as defined by standards and references and Project specific as defined under Section 2.6, are contained in each performance specification and govern the design of that Project element. Each performance specification lists the precedence of the design requirements.

In the case where a Project element or component is not covered by a performance specification, the design shall be governed by the most recent edition of the Louisiana Department of Transportation and Development's (LA DOTD) Standard Specifications for Roads and Bridges, including, supplemental specifications, and all other applicable engineering codes and standards, including those of the various federal, state, and local jurisdictions. The LA DOTD's Standard Specifications for Roads and Bridges including supplemental specifications shall take precedence over all other standards except those fixed by legislation, unless the LA DOTD's Chief Engineer specifically approves an exception.

2.2 PROCEDURES

2.2.1 Format

The Design-Builder shall prepare Design Plans and Project Specifications for the Project to the LA DOTD's guidelines for general content and format and in accordance with the Contract.

2.2.2 Deviations

Deviations may be made within the framework of these design requirements to meet the requirements of this Section 2.0 and the performance specifications to meet the requirements of a particular problem. However, any deviation, discrepancy, or unusual solution requires Approval by the LA DOTD's Project Manager before it can be included in the design. It is the responsibility of the Design-Builder to identify, explain, and justify any deviation from the

established criteria and to secure the necessary Approval from the LA DOTD's Project Manager as described in the Project's management plan.

2.3 SUPPORTING ENGINEERING INFORMATION

2.3.1 Surveying

Existing Mobile and Aerial LiDAR survey information is contained in Part 5 - Engineering Data.

2.3.2 Geotechnical

Existing geotechnical data is contained in Part 5 - Engineering Data. The Design-Builder shall conduct additional geotechnical investigations, analyses, design, and construction in accordance with the Geotechnical Performance Specification (*see* Appendix A to this Part 3 – Design Requirements and Performance Specifications).

2.3.3 CADD

CADD formatting for Design and As-Built Plans shall conform to the LA DOTD's CADD drafting standards and CADD design standards.

2.3.4 Traffic Data

See Part 5 - Engineering Data.

2.4 DESIGN CODES AND MANUALS

In addition to these requirements listed in this Section 2.0 and the performance specifications, the Designer must comply with all other applicable and currently effective engineering codes and standards, including those of the various federal, state, and local jurisdictions.

If codes, standards, and/or manuals are specified herein for the design of an element of the Project, then the edition(s) in effect at the date of issuance of the Request for Proposal (or date of subsequent addendum revising the code or manual) shall be applicable to the Project. Responsibility for design remains with the Design-Builder in accordance with the terms and conditions of the Contract. If a code, manual, or standard is subsequently modified, the Design-Builder shall notify the LA DOTD of such modification(s) and request the LA DOTD's decision regarding application of the modification(s). If the LA DOTD directs the Design-Builder to comply with the modifications and any change in the cost or time of performance results, such change shall be covered by a change order.

Specific codes and standards include, but are not limited to, the following:

- A) LA DOTD Design Guidelines for Freeways (F2 Roadway Classification);
- B) AASHTO A Policy on Geometric Design of Highways and Streets (Green Book), Fifth Edition, 2004;
- C) AASHTO Roadside Design Guide, Third Edition, 2006; and

D) Manual of Uniform Traffic Control Devices (MUTCD), 2009 Edition with revisions number 1 and 2.

E) Louisiana Construction Quality Assurance Program (CQAP), 2013

2.5 HISTORIC PRESERVATION

Historic preservation shall comply with the environmental documents and the Environmental Mitigation and Compliance Performance Specification (*see* Appendix A to this Part 3 – Design Requirements and Performance Specifications).

2.6 PROJECT-SPECIFIC DESIGN PARAMETERS

Project-specific design parameters are included under their appropriate and respective performance specifications. Project-specific design parameters may include, but are not limited to, design parameters specific to the Project, such as, bridge loadings, design life, design speed, forecasted traffic volumes, number of lanes and lane widths, stopping sight distance, horizontal curvature, superelevation, vertical curves, horizontal and vertical alignments, grades, roadside clear zone width, and minimum main span clearances.

2.7 SAFETY CONSIDERATIONS

2.7.1 Geometrics

Safety geometrics are included in the applicable performance specifications in Appendix A to this Part 3 – Design Requirements and Performance Specifications.

2.8 DESIGN EXCEPTIONS OR NON-STANDARD FEATURES

Design exceptions shall only be considered by the LA DOTD when the exception supports an alternative technical concept or on a case-by-case basis, at specific locations, where the Design-Builder demonstrates that substantial benefits to the Department and the public would accrue from the Design-Builder’s recommendation. Design exceptions or the use of non-standard features will require the approval of LA DOTD and the FHWA.

3.0 PERFORMANCE SPECIFICATIONS

The performance specifications included in this Part 3 – Design Requirements and Performance Specifications establish requirements that the Design-Builder’s Work shall achieve. The performance specifications are intended to provide clear requirements for how the finished product is to perform while allowing the Design-Builder considerable flexibility in selecting the design, means, materials, components, and construction methods used to achieve the specified performance.

3.1 STANDARDS AND REFERENCES

Standards and references are cited within the performance specifications. The following distinction between “standards” and “references” apply. Standards constitute a further elaboration of the requirement. References constitute advisory or information material, provided for the Design-Builder’s benefit, that need not be followed but in some cases provide acceptable

solutions already in use by the LA DOTD. In some cases, specific parts of the reference are cited in performance specifications as requirements.

3.2 LIST OF PERFORMANCE SPECIFICATIONS

The following is a list of the performance specifications contained in Appendix A to this Part 3 – Design Requirements and Performance Specifications:

- A) Roadway Geometrics
- B) Drainage
- C) Geotechnical
- D) Pavement Structure
- E) Structures
- F) Maintenance of Traffic
- G) Public Information
- H) Lighting
- I) Permanent Signage
- J) Environmental
- K) Burlington Northern Santa Fe Railroad (“BNSF”) overpass
- L) Utilities
- M) Maintenance During Construction
- N) Project Office and Field Office
- O) Right-of-Way

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REQUEST FOR PROPOSALS

PART 3 - PERFORMANCE
SPECIFICATIONS

APPENDIX A



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ROADWAY GEOMETRICS PERFORMANCE SPECIFICATION

1.0 INTRODUCTION

The Design-Builder shall design and construct roadways and related work, including main roadways, crossroads, intersections, ramps, travel lanes, shoulders, barriers, transitions and all other roadway-related facilities as required by this specification and by the project scope, required for the safe operation of the new roadways. The design shall provide a workable solution to the project's needs. The roadway and bridge geometry shall meet the Goals established herein, as well as all Standards for Roadway design as outlined within this specification.

The Design-Builder may, however, find ways to improve this geometry. Any innovative alternatives that increase benefits and/or savings to the Department and/or the Design-Builder are encouraged and will be evaluated accordingly.

2.0 PERFORMANCE GOALS

The roadway designs required by this section shall be performed and completed such that the roadways and other features are designed and constructed in a manner that is equal to a standard of care which is practiced by engineers performing successful designs for LA DOTD. All roadway geometries shall be designed in accordance with the Standards listed and referenced in this Roadway Performance Specification. The objective of this design work is to result in constructed project facilities within specified criteria while allowing the Design-Builder the flexibility to make changes that produce benefits or savings to the LA DOTD or the Design-Builder without impairing essential functions and characteristics of the Project, including, safety, traffic operations, desired appearance, and maintainability. The primary performance goals for the Project include the following:

- A) Interstate roadway and related features designed & constructed to desirable AASHTO Interstate standards (LA DOTD F2 Standards), as applicable and LA DOTD UA2 Standards for LA 182 and frontage roads (including turnarounds).
- B) Design of horizontal alignment that is typical of desirable AASHTO Interstate standards and that produces horizontal curves with radii of at least 1,100 feet in length;
- C) Use of horizontal reverse curvature, if necessary, only at the Southern end of the project;
- D) Provide a safe facility for the traveling public;
- E) Permanent signage that is clearly visible, provides clear direction and information for users, and complies with all applicable MUTCD and LA DOTD requirements;

- F) Permanent pavement markings that give sufficient illumination and reflectorization in daytime and at night and comply with all applicable MUTCD and LADOTD requirements;
- G) Provide driver safety and awareness features (i.e. Rumble strips/stripes);
- H) Smooth horizontal and vertical ride for the traveling public;
- D) Where necessary provide Roadway and median barriers that meet MASH, Test Level 4 requirements and provide a functional and safe environment for the public and maintenance crews, as well as provide adequate glare screening;
- J) Adequate sight distance provided for curves and at intersections; and
- K) Provide shoulder drains for US 90/I-49 pavements.

3.0 STANDARDS AND REFERENCES

Standards and references specifically cited in the body of this Roadway Performance Specification establish DOTD's Standards and suggested Reference guidelines. Should the requirements in any standard or reference conflict with those in another, the standard or reference highest on the lists presented below shall govern. Listed under References are guidelines that the Design-Builder may use in addressing the project requirements as deemed appropriate. It is the Design-Builder's responsibility to obtain clarification of any unresolved ambiguity prior to proceeding with design or construction.

3.1 STANDARDS

- A) LA DOTD Design Guidelines for Freeways (F2 Roadway Classification).
- B) LA DOTD Design Guidelines for Urban Arterials (UA2 Roadway Classification)
- C) AASHTO POLICY ON Design Standards – Interstate System.
- D) Manual on Uniform Traffic Control Devices (MUTCD)
- E) LA DOTD Engineering Directives and Standards Manual (EDSM)
- F) AASHTO Policy on Geometric Design of Highways and Streets (Desirable Values).
- G) AASHTO Roadside Design Guide
- H) LADOTD Standard Plans
- I) LA DOTD Standard Specification For Roads and Bridges 2006 Edition and as currently Supplemented

- J) LADOTD Software and Deliverable Standards for Electronic Plans (http://www.altivasoft.com/ladotd/PDFs/DOTD_Software_Standards_for_Electronic_Plans.pdf)

3.2 REFERENCES

- A) LA DOTD Roadway Design Procedures and Details¹
- B) A Guide to Constructing Operating and Maintaining Highway Lighting Systems
- C) Highway Capacity Manual.
- D) FHWA Code of Federal Regulations (CFRs)
- E) Louisiana Standard Specifications for Roads and Bridges and Supplemental Specifications
- F) LA DOTD Highway Specifications Workbook
- G) LA DOTD Special Details
- H) AASHTO Manual for Assessing Safety Hardware (MASH).
- I) Louisiana Standard Specifications for Roads and Bridges Section No.725

¹ Section 2.3 EXCEPTIONS TO DESIGN STANDARDS AND POLICIES. Delete the first paragraph in its entirety and replace with the following:

“Every effort shall be made to meet the approved LA DOTD Design Standards for all roadway or bridge projects. Exceptions to design standards shall only be considered when the exception supports an alternative technical concept or value engineering or on a case-by-case basis, at specific locations, where the Design-Builder demonstrates that substantial benefits to the Department and the public would accrue from the Design-Builder’s recommendation. However, no assurance is made that such Design Exceptions will be approved. All Design Exception Requests shall be submitted in accordance with the Louisiana DOTD Design Exception Request Process utilizing the “Design Exception/Design Waiver Form.”

4.0 SCOPE

The Design-Builder shall design all roadway geometrics including, but not limited to, horizontal alignments, vertical alignments, superelevation, median barriers, permanent pavement markings, rumble strips/stripes, and all other required roadway features. Within the project limits the design and construction of this project will be a six-lane divided interstate, associated ramps, frontage roads, highways (LA 182) and shoulders, in accordance with the requirements of the Request for Proposal.

The Design-Builder shall be responsible for establishing the final stationing for the Project. The Design-Builder shall clearly document any changes to the alignment and stationing of the centerline and maintain a complete record of all such changes for LA DOTD reference. The Design-Builder is required to show the final build-out in the Definitive Design Plans.

5.0 REQUIREMENTS

5.1 Design Criteria

- A) The roadway design criteria shall be in accordance with Section 3.1 of this Specification.
- B) Ramp modifications and ramp design will be in accordance with LA DOTD Standard plans SC-01 and SC-02.
- C) Highway guardrail design shall be in accordance with LADOTD Standard Plans GR-200, GR-201 and GR-202.

5.2 Permanent Pavement Markings

- A) 1½" black contrast backing will be required for white centerline pavement striping used on concrete pavements.
- B) All requirements for pavement markings shall be in accordance with Manual on Uniform Traffic Control Devices (MUTCD), LADOTD Standard Plan PM Series and the 2006 LA DOTD Standard Specifications for Roads and Bridges as Supplemented.

5.3 Rumble Strips

- A) Rumble strips are required at the edges of the innermost and outermost travel lanes and according to LA DOTD special details.

5.4 Median Barriers

- A) Median Barriers are required if the final median width (travel lane to travel lane) is less than 68 feet.
- B) Required median barriers will be concrete and constructed at a location beyond the 12-foot width of the inside shoulder section and on a reinforced concrete footing independent of the roadway/shoulders.
- C) Median Barriers shall meet the requirements of AASHTO Manual for Assessing Safety Hardware (MASH) Test Level 4.
- D) Median Barriers shall not be less than 54" in height.
- E) Cable barriers shall not be allowed.
- F) Incidental concrete paving shall be provided within the median if median width between the barrier rails is equal to or less than 20 feet.

5.5 Frontage Roads will be UA-2 Design and provide travel lanes that are 11 feet wide (minimum).

5.6 Other Roadways will be assigned in accordance with Highway Functional Classification Maps from the Office of Planning and Programming and appropriate DOTD Design Guidelines.

DRAINAGE PERFORMANCE SPECIFICATION

1.0 INTRODUCTION

The Design-Builder shall provide drainage facilities designed to safely and efficiently handle stormwater runoff, and to satisfy environmental commitments. The Design-Builder shall abide by the standards in this Performance Specification and elsewhere in the Design-Build Contract as they pertain to drainage facilities, including NPDES and other permit requirements. The Design-Builder shall obtain clarification of any unresolved ambiguity prior to proceeding with design and/or construction.

2.0 PERFORMANCE GOALS

The Design-Builder shall meet the following performance goals, (in the sole determination of the LA DOTD):

- A) Cross drain pipes must be sized to accommodate 50-year design peak discharge using SCS Method and, selected material must have 70-year service life.
- B) Side drain pipes must be sized to accommodate 5-year design peak discharge. If the channel is providing an outfall or the major approach channel for a cross drain, side drain pipes must be sized to accommodate 50-year design peak discharge and, selected material must have 30-year service life.
- C) Hydraulic design that does not create design exception requirements.
- D) Hydraulic design that improves and corrects existing deficiencies such as over topping of existing LA 182 east of the BNSF railroad.
- E) Effective drainage throughout the project limits.
- F) Drainage structures extended beyond clear zone.

3.0 STANDARD PERFORMANCES

The Design-Builder shall plan, design, construct, and implement drainage in accordance with this Drainage Performance Specification and the requirements of the following standards. Standards and references specifically cited in the body of this Performance Specification establish requirements that have precedence over all others. In this Drainage Performance Specification, if the requirements in any standard conflicts with those in another, the standard highest on the list will govern. Listed under references are guidelines that the Design-Builder may use in addressing the requirements as the Design-Builder sees fit. It is the Design-Builder's responsibilities to obtain clarification of any ambiguity within this Performance Specification prior to proceeding with design and/or construction.

3.1 STANDARDS

The standards for this Drainage Performance Specification are contained in the Engineering Directives and Standard Manual (EDSM), Louisiana Department of Transportation and Development <http://webmail.dotd.LA.gov/ppmemos.nsf>. Standards are listed in descending order of precedence. In case of conflict between or among standards, the order of precedence established by the LA DOTD will govern. See the table below for applicable EDSMs.

| EDSM Reference | Title | Comment |
|-----------------------|---|--|
| II-2.1.1 | Design Policy for Cross Drains, Side Drains, Underdrains, Storm Drains | The (3-20-07) “Revised Pipe Policy” will have precedence over any conflicting requirements |
| II-2.1.6 | Procedures for Determining Coating And Thickness Requirements for Metal Pipe | |
| II-2.1.8 | Shoulder Drainage Systems | New US 90 pavement only. |
| II-2.1.12 | Pavement Structure Design | |
| II-2.1.13 | Procedure for determining Type of Plastic Pipes, Permissible Usage, Quality Control and Installation Requirement. | |
| III-1.1.4 | Form No. 4206 Right of Entry | |
| III-1.1.13 | Encroachments | |
| III-1.1.23 | Development of a Traffic Control Plan | |
| III-2.5.1 | Construction Joints Bridges and Structures | |
| III-2.6.3 | Conduit Backfill Requirements | |
| IV-2.6.3 | Communication Cable Installation on Highway Structures | |
| IV-2.1.9 | Pipeline Crossings and the Use of Thermoplastic Pipe | |
| V-1.1.1 | Policy for Using Embankment Materials with swell potential | |

3.2 REFERENCES

The version of the following references in effect on the Proposal due date may apply:

- A) The Louisiana Department of Transportation and Development's Roadway Design Procedures and Details.
- B) The Louisiana Department of Transportation and Development's Hydraulics Manual.
- C) The Louisiana department of Transportation and Development's User's Manual for Hydraulics Programs.
- D) The FHWA HEC-18 and HEC-20 For Scour Analysis

4.0 SCOPE

The design and construction of all drainage and other culvert facilities must adequately address runoff control, safety, functionality, erosion mitigation, durability, ease of maintenance, maintenance access, and current uses. All ditches, outfalls, and pipe crossings must be designed to address all performance goals as well as functionality, headwater, discharge, design storm, minimum cover, and pipe/RCB size.

5.0 PERFORMANCE MEASURES

LA DOTD shall be satisfied if the drainage design and materials meet the performance goals and that the design and system provide effective drainage throughout the project limits.

6.0 REQUIREMENTS

- A) Plastic pipe will not be allowed except in the application as described in the referenced Revised Pipe Policy (EDSM II-2.1.1).

GEOTECHNICAL PERFORMANCE SPECIFICATION

1.0 INTRODUCTION

The Design-Builder shall conduct geotechnical investigations, analyses, design, and construction in accordance with all applicable criteria and standards cited herein and in accordance with this Geotechnical Performance Specification.

2.0 APPLICABLE STANDARDS AND REFERENCES

The geotechnical investigation and design shall be in accordance with this Geotechnical Performance Specification and the relevant requirements of the following standards unless otherwise stated in this Performance Specification. Standards and references specifically cited in the body of this Geotechnical Performance Specification establish requirements that shall have precedence over all others. Should the requirements in any standard conflict with those in another, the standard highest on the list presented below shall govern. The Design-Builder may use References as guidelines in addressing the requirements. It is the Design-Builder's responsibility to obtain clarification of any unresolved ambiguity prior to proceeding with design or construction. Items listed as standards or references in this Geotechnical Performance Specification shall be the most recent version available at the time of issuance of the Request for Proposal (RFP).

2.1 STANDARDS

- A) AASHTO LRFD Bridge Design Specifications, 4th Edition, 2007 with 2008 and 2009 Interim Revisions;
- B) AASHTO LRFD Bridge Construction Specifications, 2nd Edition with applicable Interim Revisions;
- C) Louisiana Standard Specifications for Roads and Bridges, except Section 804; and
- D) Revised Section 804 of the Louisiana Standard Specifications for Roads and Bridges (Revised for LRFD).

2.2 REFERENCES

- A) Subsurface Investigations, FHWA-HI-97-021, 1997;
- B) Drilled Shafts: Construction Procedures and Design Methods Manual, FHWA IF-99-025, 1999;
- C) Design and Construction of Driven Pile Foundations, Volumes 1 and 2, FHWA HI-95-038, 1998;
- D) Soils and Foundation Workshop Manual, FHWA;

- E) Earth Retaining Structures, FHWA-NHI-99-025, 1999;
- F) LA DOTD Approval Procedure for Supplier-Based Wall Systems; April 2, 1988
- G) Prefabricated Vertical Drains, Vol. No. 1, FHWA- RD-86-168, 1986;
- H) XSTABL, Version 5, Interactive Software Designs, Inc. 1994 or PCSTABL4;
- I) LA DOTD MSEW Design Guide, Pavement and Geotechnical Services Section;
- J) Mechanically Stabilized Earth Walls and Reinforced Soil Slopes Design and Construction Guidelines, FHWA NHI-00-0043, 2001;
- K) Corrosion/Degradation of Soil Reinforcements for Mechanically Stabilized Earth Walls and Reinforced Soil Slopes, FHWA Demonstration Project 82 Ground Improvement, FHWA NHI-00-044, 2000;
- L) Geosynthetic Design and Construction guidelines, FHWA HI-95-038, current edition;
- M) Geotechnical Instrumentation Manual, FHWA HI-98-034, 1998;
- N) Advanced Technology for Soil Slope Stability, Volume 1: Slope Stability Manual FHWA-SA-94-005, 1994;
- O) LA DOTD Bridge Design Manual, including memorandums and any revisions;
- P) LA DOTD Special Provisions and Supplemental Specifications;
- Q) LA DOTD Standard Drawings; and
- R) Soil Borings.

3.0 REQUIREMENTS

3.1 GEOTECHNICAL PLANNING REPORT

The Design-Builder shall prepare a Geotechnical Planning Report for the Project and submit the Geotechnical Planning Report within 60 days from Notice to Proceed for review and written comment. The Geotechnical Planning Report shall include a detailed method statement describing the general philosophy and methods of design and construction and the rationale for selection of the proposed construction methods for all geotechnical and foundation aspects of the Project. The method statement shall indicate how material and design details are chosen to match selected construction methods, construction details, and the soil and groundwater environment for the site.

The Design-Builder shall provide details of equipment and methods proposed for foundation and earthwork construction and demonstrate how they are consistent with the design approach and

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assumptions. The details presented shall demonstrate compliance with the Geotechnical Performance Specification requirements and shall demonstrate an understanding of the ground conditions and Project constraints as defined within this Contract.

The Design-Builder shall submit the following technical information with the Geotechnical Planning Report:

- A) Description of geology and various ground types to be encountered along the alignment;
- B) A description of the geotechnical information that was collected and analyzed in developing the interpretation used to develop the Design-Builder's Proposal and pricing for the Project;
- C) Assessment of the engineering properties of all soil types, including the expected average and range of soil strengths and deformation properties;
- D) Recommended design parameters (preliminary) for all soil types;
- E) Anticipated ground behavior and categorization of ground during excavation, filling, and foundation and retaining structure construction;
- F) Support of excavation and groundwater control considerations;
- G) A narrative describing how any interpretation was derived from the geotechnical data;
- H) Consideration for, discussion of, and rationale for protection of existing structures, bodies of water, and environmentally or historically sensitive areas; and
- I) Any pertinent geotechnical data used as a basis for selection, design, and installation of the proposed foundation elements.

The Geotechnical Planning Report shall define the engineering and design approach that will be followed in order to develop technically and environmentally acceptable and durable foundations, cut and fill slopes, retaining structures, and geotechnical designs for the Project. The Geotechnical Planning Report shall discuss all aspects of the required geotechnical effort and design and analysis, including the following:

- 1) Additional Subsurface investigations;
- 2) Determination of geotechnical and foundation design parameters;
- 3) Erosion control measures and design and analysis;
- 4) Embankment and fill settlement and slope stability analysis;
- 5) Retaining wall design and analysis;

- 6) Planned field testing programs, including pile and drilled shaft integrity and load testing and ground improvement testing;
- 7) Ground improvement or treatment of in-situ soils;
- 8) Selection, design, and analysis of foundation systems;
- 9) Lateral and vertical earth pressures;
- 10) Instrumentation and monitoring programs; and
- 11) Expected serviceability and durability of proposed solutions.

The Geotechnical Report shall be prepared and signed and sealed by a Licensed Professional Engineer registered in the State of Louisiana meeting the qualification requirements in Appendix 108C – Key Personnel Qualifications and Requirements.

3.2 SUBSURFACE INVESTIGATION AND DATA ANALYSIS

3.2.1 General

A systematic subsurface investigation of the Project site has been performed by the LA DOTD. Information generated from the completed investigations conducted by the LA DOTD has been provided to the Design-Builder for evaluation of the subsurface conditions along the alignment and for concept level design of the various structures. The Design-Builder shall conduct additional investigations in accordance with the scope specified herein and any additional investigations the Design-Builder deems necessary to establish the geotechnical conditions and to perform all geotechnical and foundation design and analyses.

These additional investigations and testing shall be conducted in accordance with the reference items identified in Section 2.2.

The Design-Builder shall form its own interpretation of the existing geotechnical data and satisfy itself as to the nature of the ground and sub-soil, the form and nature of the site, and nature of the Work that may affect its detailed design, construction method, and tools. LA DOTD neither assumes nor implies any other warranty regarding the data provided, other than that the information was obtained at locations and depths indicated and to the accuracy of the data at the time of testing.

The additional investigations to be performed by the Design-Builder shall supplement the data provided by the LA DOTD. The Design-Builder shall determine the number and location of additional investigations in accordance with the requirements presented in Table 10.4.2-1 of the AASHTO LRFD Bridge Design Specifications (herein after AASHTO Specifications). Subsurface investigation requirements not covered in the AASHTO Specifications are presented in Table 3.2.1. Existing investigation borings may be combined with the additional investigations to comply with the requirements presented in Table 3.2.1. Cone Penetration Test soundings may be considered as an alternative to all borings where the Design-Builder considers it appropriate provided that a sufficient number of borings are performed at Cone Penetration Test sounding

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location to develop reliable correlation between the boring and Cone Penetration Test results. The Design-Builder shall provide the results of investigations to the LA DOTD in a memo as follows:

- A) The logs of borings,
- B) Cone Penetration Test soundings,
- C) the field records of any field investigations; and
- D) Laboratory test results.

Table 3.2.1 Minimum Requirements for Additional Investigations

| Geotechnical Feature | Minimum Investigation Locations |
|----------------------|---|
| Roadways | The spacing of borings or Cone Penetration Tests along the roadway alignment shall not exceed 200 feet. The spacing and location of the borings shall be selected considering the geologic complexity and soil/rock strata continuity within the Project area with the objective of defining the vertical and horizontal boundaries of distinct soil units within the Project limits. |
| Embankments and Cuts | The spacing between borings shall be no greater than 200 feet. At critical locations, provide a minimum of three borings in the transverse direction to define the existing geological conditions for stability analysis. |
| Culverts | A minimum of one boring at each culvert with embankment height greater than five feet. Additional borings shall be provided for long culverts or in areas of erratic subsurface conditions. |

Note: Except as specified herein, LA DOTD and AASHTO standards shall be followed with respect to planning and performing subsurface exploration programs.

3.3 FOUNDATION DESIGN

Maximum pile loads, foundation embedment and geotechnical design for Project structures shall conform to AASHTO Specifications, 4th Edition. The Design-Builder shall not use screw piles or existing foundations. Timber piles and spread footing foundations shall not be used for bridge foundations, but may be considered for support of retaining walls in accordance with Section 3.4 of the Geotechnical Performance Specification.

The LRFD method shall be used to design the foundations. Foundation types that are not included in the AASHTO Specifications shall be allowed, if the Design-Builder provides the properly calibrated resistance factors for Louisiana soils based on the calibration methods presented in NCHRP 507. All backup of the calibration shall be submitted for review and approval. LA DOTD may reject the resistance factors at its discretion.

3.3.1 Deep Foundations

Allowable pile loads for piles fully laterally supported shall not exceed the values Listed in the LADOTD Bridge Design Manual (herein after Bridge Design Manual).

Pile bent structures shall meet buckling requirements as per the Bridge Design Manual. The Design-Builder shall consider non-axial pile loads and shall analyze pile bent structures considering slenderness limitations to determine if they are acceptable.

For shaft penetration considerations, the geotechnical support capacity of the drilled shafts shall be determined and shall be verified by appropriate number of field load tests in accordance with Section 2.1 B) of this Performance Specification and acceptable to LADOTD.

Concrete for drilled shafts shall be in accordance with Class S Concrete as specified in the LA DOTD Standard Specifications for Roadways and Bridges (herein after Standard Specifications), except that, a) the minimum concrete strength shall be 3,800 psi, b) the coarse aggregate shall be Grade P, but with a maximum size of $\frac{3}{4}$ inch, and c) the slump shall be between 7 and 9 inches.

The center to center spacing of drilled shafts and piles shall be at least three times the larger diameter (drilled shaft or pile) of the adjacent foundation elements. This spacing requirement applies to both between the new foundations and between the new and existing foundations. At the locations where the available space does not allow for the space of foundations to meet this requirement, the Design-Builder shall design the foundation so that interaction between the closed spaced foundations does not induce more than 1/8 inch of movement of the existing foundation.

3.3.2 Vertical Capacity

Deep foundations shall be analyzed for axial compression and uplift resistance, using static analysis methods in accordance with AASHTO Specifications. A resistance factor consistent with the level of construction control (i.e., test piles, wave equation, and dynamic monitoring) and site variability shall be applied to the ultimate capacity in accordance with AASHTO Specifications. The capacity shall be verified by appropriate number of field tests as specified in the AASHTO Specifications. The effectiveness of base preloading, if used for drilled shafts, shall be demonstrated by Osterberg load tests conducted both prior to and following preloading operations, with the number of Osterberg load tests determined in accordance with Article 3.3.7 of this Geotechnical Performance Specification.

3.3.3 Settlement

The design of deep foundations shall consider the total and differential settlement tolerances of the proposed structures. Settlement and differential settlement shall not exceed the design tolerances, or the tolerances specified in the Bridge Design Manual, whichever is less. Settlement induced by the deep foundation group in the subsoil shall be evaluated. In addition, settlement of the individual deep foundation elements shall also be evaluated.

The foundation at the BNSF railroad crossing should be designed to reduce the impact to the existing bridge foundation. The Design-Builder shall show that the new foundation shall induce no more than 1/8 inch of additional settlement of the existing foundation using appropriate method. This settlement value shall be verified by instrumentation at the existing foundation.

3.3.4 Downdrag (Negative Skin Friction)

The design of deep foundations shall consider the effect of downdrag (negative skin friction) from ongoing ground settlement, construction dewatering, variable groundwater conditions, placement of fill or embankments, and/or pile installation. Downdrag loads shall be determined by considering the load transfer distribution along the deep foundation element as well as the group layout. Appropriate load factors in accordance to the AASHTO Specifications shall be applied to evaluate the foundation behavior.

3.3.5 Lateral Load Capacity

Deep foundations shall be designed to adequately resist the lateral loads transferred to them from the structure without exceeding the allowable deformation of the structure or overstressing the structure or foundation elements.

Where the lateral resistance of the soil surrounding the piles is inadequate to resist the applied loads, the use of batter piles may be considered. Where battered piles are proposed, the battered piles shall not encroach on property outside the Right-of-Way (ROW). Battered drilled shafts shall not be used.

3.3.6 Wave Equation Analyses

The constructability of a pile design and the development of pile driving criteria shall be performed using a wave equation computer program. The use of dynamic pile driving formulas will not be an acceptable method for developing driving criteria or performing drivability studies to determine hammer energy requirements.

3.3.7 Deep Foundation Testing and Monitoring

Field testing shall be performed for deep foundations to evaluate foundation capacity and integrity, to verify design assumptions, to determine foundation installation characteristics, to evaluate the pile driving system performance, and to establish foundation depths. The foundation testing and monitoring shall include indicator, monitor, and test piles or drilled shafts; dynamic testing; static load testing; non-destructive integrity testing; and Quality Control (QC) testing. All foundation testing shall be performed by the Design-Builder, using testing personnel or Subconsultants, qualified and experienced in performing and interpreting the required foundation testing.

A pile driving analyzer shall be used to determine if each hammer is delivering the energy required by the design. Dynamic pile testing and static load testing shall be performed in accordance with the Bridge Design Manual and the Standard Specifications, except as specified herein. Dynamic testing shall be performed on all test piles, indicator piles and monitoring piles. Not less than five percent of the production piles shall be used as monitoring piles.

Static load tests shall be performed on piles in accordance with the Bridge Design Manual and the revised Section 804.11 of the Standard Specification (revised for LRFD), except as specified herein. Static load tests shall be performed at each of the locations representative of the different subsurface conditions, pile types, pile capacities, and pile depths. The number and locations of these other load test piles shall be determined by the Design-Builder and included in their cost estimate and planning report.

Osterberg Load Cell tests shall be performed on drilled shafts at each of the locations representative of different subsurface conditions, drilled shaft capacities, and drilled shaft diameter and depths in accordance with 2.1 D) of this Performance Specification. The number and locations of these other load test shafts shall be determined by the Design-Builder.

Integrity testing consisting of Crosshole Sonic Logging shall be performed on all drilled shafts. The testing shall be performed in accordance with Section 814.19 of the Standard Specifications.

Prior to the start of construction activities, the Design-Builder shall prepare and submit a detailed description of the proposed foundation testing and monitoring programs to the LA DOTD for their review and comment. The description shall include specifications and plans presenting the type, purpose, number, location, and procedures for each test and the recording and reporting procedures. Testing and monitoring of deep foundations shall be in accordance with the applicable LA DOTD, ASTM, and AASHTO specifications.

3.3.8 Drilled Shaft Foundations

Drilled shaft foundations may be considered. In addition to the structural requirements, the design of the drilled shaft foundations will consider minimizing the impact to the existing foundations. The new drilled shaft foundation shall be designed to cause no more than 1/8 inch of settlement to the existing foundations. The Design-Builder shall show the calculations and monitor the settlement during construction and one year post construction to verify the achievement of the design objectives.

3.4 RETAINING WALL DESIGN

Retaining walls may consist of mechanically stabilized earth (MSE) walls, cast-in-place concrete cantilever walls, or other types of walls suitable to the required application and all performance requirements. Wall types that shall not be used for permanent applications are identified in the Structures performance Specifications. All walls shall be designed for a minimum service life of 75 years for general case and for a minimum service life of 100 years when the walls support structure loads.

MSE walls used for the Project shall include only those wall systems included on the LA DOTD's list of qualified wall systems. The Design-Builder may propose a MSE wall system that is not currently included on the LA DOTD list of qualified wall systems, but it will be necessary to submit all information required by LA DOTD regarding the proposed wall system and for LA DOTD to add the proposed wall system to the LA DOTD list of approved wall systems before the proposed wall system can be used for the Project. (See Section 2.2 of this Performance Specification)

Design of MSE walls shall be in accordance with procedures presented in the FHWA's "Mechanically Stabilized Earth Walls and Reinforced Soil Slopes Design and Construction Guidelines" (referenced in Section 2.2). Design of other types of retaining walls shall conform to current engineering practice as defined in the AASHTO Standard Specifications for highway Bridges indicated in Section 2.1 as applicable to the specific type of wall used.

3.4.1 Design Loads

3.4.2 Vertical Loads

The loads used in the design of permanent Work shall be in accordance with the requirements of the relevant design codes and Standards, except where herein modified or augmented.

Estimation of live loads due to pedestrian, or highway traffic shall be in accordance with the requirements of AASHTO LRFD Specifications.

Loads due to soils or backfill shall be derived using the maximum values of the saturated densities. Only where it can be clearly demonstrated that the fill is well drained, and will remain well drained in the future, shall any reduction in the degree of saturation be allowed. The submerged densities shall be used for soil unless the location is above the standing water table.

3.4.3 Lateral Pressure

Lateral earth pressures shall be estimated on the basis of the anticipated movement of the structure. For yielding retaining structures, Rankine's active pressure theory shall be used. However, for unyielding structures, where the movement of the structures is not sufficient to mobilize active pressures, and/or where compacted backfill is placed behind the structure, the lateral pressure on the structures shall be evaluated on the basis of anticipated movements, site-specific subsurface conditions and construction methods. The pressure on unyielding structures shall not be less than at-rest pressure. The design of the retaining structures shall be based on the maximum lateral pressures that will develop behind the structures.

Hydrostatic pressure induced by the groundwater table, when present, shall be included in the lateral pressures. Additional hydrostatic pressures and variations in groundwater conditions due to flooding and rapid drawdown conditions shall be considered in the design of the retaining structures.

3.4.4 Deep Foundations

Deep foundations for retaining walls shall be designed in accordance with Subsection 3.3.

3.4.5 Shallow Foundations

Shallow foundations for retaining walls are permitted where there is a suitable bearing stratum near the surface. But shallow foundations shall not be used where scour or erosion could undermine or adversely impact the performance of the foundation.

Shallow foundations shall be analyzed for bearing capacity in accordance with AASHTO Specifications. Punching and local failure of the footing shall also be evaluated. Walls shall be proportioned so that the resultant of all forces acting falls within the middle third of the footing base.

Analyses shall be conducted to estimate the total and differential soil settlement, induced by the foundation loads. The analyses shall consider immediate settlement for granular soils and immediate settlement, primary consolidation and secondary compression for cohesive soils. Shallow foundations shall be designed to maintain wall settlements (total and differential) within the applicable tolerances specified in the FHWA Manual on Earth Retaining Structures (Reference E in Section 2.2.).

3.4.6 External and Internal Stability

Both external and internal stability analyses shall be conducted in accordance with the AASHTO Specifications.

3.5 FILL/EMBANKMENT DESIGN

3.5.1 Excavation and Embankment

Excavations and embankment construction shall be in accordance with the requirements of Section 203 of the Standard Specifications for Roads and Bridges. Embankment cross sections shall be in accordance with the requirements of the Roadway Performance Specification.

3.5.2 Slope Stability

Particular attention shall be given to the design of all soil and rock embankment side slopes, whether temporary or permanent. The analyses shall consider the effects of deterioration and loss of soil resistance due to local climatic and construction conditions. All slopes shall be designed to minimize erosion by rainfall and runoff. Adequate drainage and erosion control provisions should be incorporated in the design and construction of the embankments in accordance with Subsection 3.9.

Slope stability analyses shall be conducted using a suitable computer program acceptable to LA DOTD. Circular and wedge type failures shall be analyzed for potential occurrence for each embankment configuration and slope. The evaluation of global slope stability shall consider potential seepage forces and any weak deposits and seams that are adversely impacted by water flow. The minimum factors of safety for static load conditions shall be 1.3 for non-critical slopes and 1.5 for critical slopes (at bridge abutments, wingwalls and existing structures) for permanent embankment slopes. The minimum factor of safety for a rapid drawdown condition shall be 1.1. For non-permanent embankment and earthwork slopes, the minimum safety factor shall be 1.3 under static load conditions.

3.5.3 Settlement

Analyses shall be conducted to estimate the soil settlement induced by the embankment loads. Immediate settlement in granular soils and both immediate and consolidation settlements in cohesive soils shall be considered. Embankments shall be designed to keep estimated total long

term settlements limited to one inch during a period of 75 years after completion of the pavement construction. Differential settlement both within fill sections and across fill/structure interfaces shall be limited to 1/300. Embankment settlement shall be monitored and assessed during the duration of the Contract to verify that the specified settlement criteria will be achieved.

3.6 REINFORCED SOIL SLOPE (RSS) DESIGN

The design procedures and considerations for reinforced soil slopes shall conform to the requirements of the FHWA Mechanically Stabilized Earth Walls and Reinforced Soil Slopes Design and Construction Guidelines, [see Section 2.2(I)]. Performance requirements are presented in Table 3.6 as follows:

Table 3.6 Minimum Factors of Safety for Design of RSS

| Failure Mode | Minimum Safety Factor |
|----------------------------|-----------------------------------|
| External Stability: | |
| Sliding | 1.5 |
| Local Bearing Capacity | 1.5 |
| Global Slope Stability | 1.5 |
| General Bearing Capacity | 3.0 |
| Settlement | See Subsection 3.5.3 |
| Internal Stability: | |
| Compound Failure | 1.5 |
| Slope Stability | 1.5 |
| Rupture Strength | > Allowable Reinforcement Tension |
| Pull-out Resistance | 1.5 (granular soils) |
| Pull-out Resistance | 2.0 (cohesive soils) |

Adequate drainage provisions, slope protection and erosion control provisions shall be incorporated into the RSS designs in accordance with requirements of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes Design and Construction Guidelines and as required in Subsection 3.9.

3.7 SOIL IMPROVEMENT

The use of soil improvement to increase soil strength and reduce compressibility in order to increase the safety factors for external and internal stability and reduce settlements to the allowable range specified herein will be allowed in the design. It shall be necessary to demonstrate their suitability for local conditions and installation methods. Techniques such as vertical drains, surcharge, stone columns, vibrocompaction, lime columns, cement columns, deep soil mixing, rammed aggregate pier, and grouting may be included in the design in order to expedite consolidation of the subsoils, where it is required to increase bearing capacity or reduce post-construction settlements.

All soil improvement systems shall be designed using current practice and procedures. The performance of all ground improvement techniques shall be verified with a pre-production field testing program developed to demonstrate that the proposed methods and design will provide the ground improvement level required to satisfy the performance requirements specified herein.

3.8 SOIL CUT SLOPES

Geotechnical analyses of soil cut slopes shall be performed to assess soil slope stability along new and existing soil cuts.

Potential circular and wedge type failure modes shall be analyzed for each soil cut and each slope and orientation. Geotechnical analysis of soil cut slopes shall be performed using suitable computer programs approved by LA DOTD (see Section 2.2, Reference G). A minimum factor of safety of 1.5 or greater shall be assured.

3.9 EROSION CONTROL AND DRAINAGE

Slopes in both cut and fill areas are subject to erosion and deterioration through the action of water, wind and freeze/thaw cycles. Numerous existing slopes along the Project alignment have been significantly affected by erosion. Erosion control and drainage measures shall be evaluated, considered and designed for all new and existing slopes. Erosion of slopes presents a significant maintenance issue and stability problem on slopes. Soil strata that are susceptible to erosion shall be mapped and delineated for all existing and new fills and cuts. Slope protection measures shall be evaluated on site-specific conditions, such as surface and subsurface conditions, cut geometry, and susceptibility of erosion or deterioration. Each cut and fill slope that requires erosion control and drainage measures shall be evaluated for the following:

- A) Reduction of Water Flow across Slope;
- B) Slope Revegetation;
- C) Slope Armor;
- D) Subsurface Water Control.

3.10 CONSTRUCTION INSTRUMENTATION MONITORING PROGRAM

The Design Builder shall prepare a geotechnical instrumentation program to monitor settlement, lateral movement of temporary and permanent embankments, cuts and structures during construction. Consideration shall be given to extending instrumentation monitoring for a period after completion of construction when long-term performance issues are a concern. For foundations placed within 3 diameters (the larger of the adjacent pile, pile group, or drilled shaft) of the foundation element, the Design-Builder shall provide settlement monitoring for the new and the existing foundations during construction and one year post construction to verify the design objectives are met. The Design-Builder shall prepare a report detailing the proposed program of instrumentation and monitoring, establishing threshold values of monitored parameters, and describing the response plans that will be implemented when threshold parameters are exceeded. Upon acceptance of the instrumentation plan, threshold values and

response plan, the Design-Builder shall provide, install and monitor the instrumentation during and after construction and interpret the data. Construction instrumentation monitoring reports shall be submitted to the LA DOTD not less than every two weeks. Corrective actions shall be taken where the instrumentation data so warrant.

The design shall protect adjacent structures and utilities against damage due to the construction of the permanent Work. Limiting values of movement (horizontal and vertical) and distortion on each structure and utility within the zone of influence of the Work shall be established and submitted to LA DOTD for review. Instrumentation shall be used to monitor all preload embankments to verify the effectiveness and duration of the surcharge loading. Vibration monitoring shall be performed in accordance with the requirements in the Environmental Mitigation and Compliance Performance Specification. The extent of the monitoring program will depend on the size and type of the facilities.

A detailed monitoring program shall be prepared for each structure, utility and embankment affected by the Work, subject to review by LA DOTD. The instrumentation and monitoring program shall include appropriate types and quantities of monitoring instruments capable of measuring horizontal and vertical movements, soil pore water pressures, vibrations, and noise, as applicable.

The design and distribution of instrumentation shall demonstrate an understanding of the need, purpose and application of each proposed type.

3.11 AS-BUILT PLANS

As-Built Plans shall include foundation detail sheets signed and sealed by the Geotechnical Engineer; a Licensed Professional Engineer registered in the State of Louisiana. These sheets shall include appropriate information necessary to detail the design and construction of foundations. Examples of such information to be provided include the following:

- A) Pile data tables;
- B) Pile lengths;
- C) Pile tip elevations; and
- D) Pile cutoff elevations.

**PAVEMENT STRUCTURE
PERFORMANCE SPECIFICATION**

1.0 INTRODUCTION

This Pavement Structure Performance Specification outlines performance goals and measures that the Design-Builder shall utilize in constructing pavement sections such that the pavement will perform under the conditions (climate and loading) for the specified periods. The pavement structure design to be used for the project has been developed by the LA DOTD and is included as Section 6.1 of this Performance Specification. These criteria apply to all pavements to be constructed as a part of the Project, and must result in the construction of a pavement structure that will be acceptable to the Federal Highway Administration (FHWA).

2.0 PERFORMANCE GOALS

The design of the Pavement Structures is provided by LA DOTD as outlined in this Performance Specification. The goals for the construction of the pavements are as follows:

- A) New base courses for new pavements to be carried through the shoulders; and
- B) Performance of adequate dust abatement during construction.

3.0 STANDARDS AND REFERENCES

The Design-Builder shall construct pavement structures in accordance with this Performance Specification and the requirements of the following standards. Standards and references specifically cited in the body of this Performance Specification establish requirements that have precedence over all others. In this Performance Specification, if the requirements in any Standard conflict with those in another, the Standard highest on the list will govern. The Design-Builder may use References as guidelines in addressing the requirements. It is the Design Builder's responsibility to obtain clarification of any ambiguity within this Performance Specification prior to proceeding with design or construction.

3.1 STANDARDS

The standards for this Performance Specification are listed in descending order of precedence. In case of conflict between or among standards, the order of precedence established by the LA DOTD will govern.

- A) AASHTO Guide for Design of Pavement Structures (1993); and
- B) The Louisiana Department of Transportation and Development's Supplemental Specifications;
- C) The Louisiana Department of Transportation and Development's Standard Plans;

- D) Louisiana Department of Transportation and Development's Standard Specifications for Roads and Bridges 2006 Edition;
- E) The Louisiana Department of Transportation and Development's Testing Procedures Manual;
- F) The Louisiana Department of Transportation and Development's Qualified Products List (QPL); and
- G) ASTM E274, Standard Test method for Skid Resistance of Paved Surfaces Using a Full-Scale Tire.

3.2 REFERENCES

The version of the DARWin Pavement Design Software in effect on the Proposal due date shall apply.

4.0 SCOPE

The Design-Builder shall construct pavements which are designed to accommodate 20 years of projected traffic. The Design-Builder shall provide pavement structures based on the pavement structure designs provided by the LA DOTD and according to the criteria set forth in this Performance Specification that gives due consideration to surface and subsurface drainage as well as the elimination of trapped water.

5.0 PERFORMANCE MEASURES

The parameters that will be used by the LA DOTD to evaluate performance of all newly constructed and rehabilitated pavements at Final Acceptance for this Project are identified in Sections 5.1 through 5.4.

These parameters will be evaluated by the Design-Builder in coordination with the LA DOTD, both during construction and at Final Acceptance.

5.1 RIDE QUALITY

Ride quality will be evaluated by the Design-Builder for newly constructed flexible travel lanes using an inertial profiler (or equivalent substitute device as outlined in LA DOTD's Standard Specifications for Roads and Bridges 2006 Edition Sections 502 and DOTD-TR 644. The IRI of each Category of asphalt surface must meet or be lower than the 100% pay column of Table 502-8A of the Standard Specifications for Roads and Bridges 2006 Edition as Supplemented.

Ride quality will be evaluated by the Design-Builder for newly constructed rigid travel lane wheel paths using an 25-foot California Type profilograph in accordance with Standard Specifications for Roads and Bridges 2006 Edition Sections 601 and DOTD-TR 641. The PI of each Category of Concrete Pavement surface must meet or be lower than the 100% pay column of Table 601-1E of the Standard Specifications for Roads and Bridges 2006 Edition as Supplemented.

5.2 SKID RESISTANCE

Final Acceptance will require a value of skid resistance greater than 34 for new pavement. Test method will be ASTM E274, “Standard Test Method for Skid Resistance of Paved Surfaces Using a Full-Scale Tire.”

5.3 STRUCTURAL CAPACITY

LA DOTD shall be satisfied that the structural capacity of the pavement will provide 20 years of satisfactory service. The structural capacity (thickness and strength) of pavement sections must be evaluated during the construction phase through the Design-Builder’s approved Quality Control Management Plan and the Construction Quality Assurance Program. . The thickness, strength quality of materials and placement will be evaluated to ensure compliance with the approved design.

5.4 MATERIAL QUALITY

The LA DOTD shall be satisfied that the materials used meet or exceed the project specifications and shall be satisfied that the all requirements of the CQAP have been performed and met.

6.0 NEW CONSTRUCTION TYPICAL SECTIONS

The Design-Builder has the option to construct either rigid and/or flexible new pavements on this project. All Mainline Pavement and all other existing JCP or overlaid JCP is to be removed and should roadway geometry dictate, replaced with new pavement.

| Matrix of Pavement Options for US 90 (I-49 South) (Mainline and all mainline ramps) New Construction** | | |
|---|-----------------------|--------------------------|
| | Rigid Pavement | Flexible Pavement |
| JPCP thickness (inches) | 12* | - |
| SMA Wearing Course (inches) | - | 2 |
| Superpave AC Wearing Course (Level 2) (inches) | - | |
| Superpave AC Binder Course (Level 2) (inches) | | 10 |
| Class II Base Course (stone or recycled concrete) (inches) | 4 | 4 |
| Class II Base Course (Soil Cement) (inches) | 8.0 | 8.0 |
| Subgrade Layer (treated) (inches) | 12 | 12 |

*Based on Modulus of Rupture of 600 psi

** See attached color coded diagram (color code green)

| Matrix of Pavement Sections for LA 182 from St. Etienne Road to approximately 500 ft. past LA 96; all new frontage roads and frontage road ramps and connectors (New Construction)** For East Side Frontage road see Matrix Below | | |
|--|-----------------------|--------------------------|
| | Rigid Pavement | Flexible Pavement |
| JPCP thickness (inches) | 10.0* | |
| SMA Wearing Course (inches) | | |
| Superpave AC Wearing Course (Level 2 F) (inches) | | 2.0 |
| Superpave AC Binder Course (Level 2) (inches) | | 8.0 |
| Class II Base Course (stone or recycled concrete) (inches) | 4.0 | 4.0 |
| Class II Base Course (Soil Cement) (inches) | 8.0 | 8.0 |
| Subgrade Layer (treated) (inches) | 12 | 12 |

*Based on Modulus of Rupture of 600 psi

** See attached color coded diagram (color code yellow)

| Pavement Section for LA 182 from Albertson's Parkway to St. Etienne Road and the East side Frontage road (New Construction)** | | |
|--|-----------------------|--------------------------|
| | Rigid Pavement | Flexible Pavement |
| JPCP thickness (inches) | N/A | |
| SMA Wearing Course (inches) | | |
| Superpave AC Wearing Course (Level 2 F) (inches) | | 2.0 |
| Superpave AC Binder Course (Level 2) (inches) | | 3.0 |
| Class II Base Course (stone or recycled concrete) (inches) | | 4.0 |
| Class II Base Course (Soil Cement) (inches) | | 8.0 |
| Subgrade Layer (treated) (inches) | | 12.0 |

** See attached color coded diagram (color code purple)

7.0 REHABILITATION OF EXISTING (TO REMAIN IN PLACE) PAVEMENTS

Albertson's Parkway and Nazaire Road (See attached color coded diagram – orange color code): Rutting measurement shall be taken and recorded at 100 foot intervals of each lane within the project limits prior to beginning of construction. Towards the end of construction these rutting measurements shall be taken at the same locations as previously taken. Should average rutting measurements during the time between the first and second series of measurements increase by more 50% then the Design-Builder shall mill 2 inches and overlay with 2 inches of Superpave AC Wearing Course (Level 2 F) Asphalt for this portion of roadway.

Existing portion of Eastern Frontage that begins near Old Farm Road and ends in a dead end (See attached color coded diagram – orange color code): The Design-Builder shall mill off 2.0 inches of Asphalt and replace with 2.0 inches of Superpave AC Wearing Course (Level 2 F) Asphalt after patching the base and remaining milled surface as necessary.

8.0 FINAL ACCEPTANCE

There will be no defects in any pavement structures constructed under this project at Final Acceptance.

[Insert Color Coded Diagram]

STRUCTURES PERFORMANCE SPECIFICATION

1.0 INTRODUCTION

The Design Builder shall design and construct permanent structures such as permanent bridges, retaining walls, box culvert drainage structures, and any major sign structures in accordance with the criteria established in this Structures Performance Specification.

The completed structure shall provide functionality, durability, ease of inspection and maintenance, safety, and pleasant aesthetics.

1.1 SCOPE

The design and construction of this project will be a six lane (divided or undivided) interstate facility with inside and outside shoulders in accordance with the performance specifications. The new structures will be built completely within state owned right-of-way. The Design-Builder shall design and construct all structures to account for and include, but not limited to, all applicable loads, bridge geometry, bridge decks, bridge joints, bridge bearings, bridge railings, bridge drainage, approach slabs, substructure and superstructure, retaining walls, lighting attachment blisters and/or sign attachment blisters as needed and all other required bridge components and features.

The structure related objective of this Project is to provide constructed facilities within the specified criteria while allowing the Design-Builder the flexibility to develop innovative solutions that benefit the LA DOTD and the Design-Builder while providing the essential functions and characteristics of the project, including safety, traffic operations, desired appearance and maintainability.

The project includes the following new bridge structures:

- US 90 (I-49) mainline six-lane divided bridges over Albertson's Parkway, F-2 design guideline.
- US 90 (I-49) mainline six-lane divided bridges over BNSF Railroad, F-2 design guideline.

2.0 PERFORMANCE GOALS

- A) Provide safe structures to the traveling public.
- B) Provide a 75-year service life for all new structures.
- C) Provide smooth ride for the traveling public on the bridge and for the transition from the roadway surface to the bridge surface.
- D) Provide structures designed for all applicable loads.

- E) Provide structures that allow easy access for bridge inspections and maintenance.
- F) Design and construct structures that allow for the proposed future build-out of the corridor as depicted in the Part 4 of this RFP.
- G) Provide structures that preserve and enhance the environment, and are inherently aesthetically pleasing through a balanced layout and design details that enhance the aesthetic value of the complete transportation facility.

3.0 STANDARDS AND REFERENCES

The design and construction of structures shall be in accordance with this Structures Performance Specification and the relevant requirements of the following standards, unless otherwise stipulated in this performance specification. Standards and references specifically cited in the body of the Structures Performance Specification establish requirements that shall have precedence over all others. Should the requirements in any standard conflict with those in another, the standard highest on the list shall govern. Listed under references are guidelines that the Design-Builder may use in addressing the requirements as the Design-Builder sees fit. It is the Design-Builder's responsibility to obtain clarification of any unresolved ambiguity prior to proceeding with design or construction. Items listed as standards or references in this Structures Performance Specification shall be the most recent version available at the time of issuance of the Request For Proposals (RFP).

3.1 STANDARDS

- LA DOTD Minimum Design Guidelines for Freeways (F-2 Roadway Classification) for mainline I-49 and Urban Arterial (UA-2) for the Frontage Roads.
- LA DOTD Bridge Design Manual Fourth English Edition Version 1.4 and LADOTD LRFD Bridge Design Manual First Edition Version 2008.1 and all technical memoranda and any revisions issued by the State Bridge Engineer prior to the date of this RFP;
- LA DOTD Standard Bridge Plans, Standard Bridge Details, and Standard Permanent Sign Details including any revisions issued by the State Bridge Design Engineer prior to the date of the issuance of this RFP.
- AASHTO LRFD Bridge Design Specifications, U.S. Units, 6th Edition, with 2013 Interim Revisions.
- AASHTO LRFD Bridge Construction Specifications, Third Edition, 2010 with 2010, 2011 and 2012 Interims;
- AASHTO The Manual for Bridge Evaluation, 3rd Edition, with 2011 and 2013 Interims;

- LADOTD Policy and Guidelines for Bridge Rating and Evaluation 2012 and all technical memoranda and any revisions issued by the State Bridge Engineer prior to the date of this RFP;
- AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals, 6th Edition;
- AASHTO A Policy on Geometric Design of Highways and Streets, 6th Edition;
- AASHTO Roadside Design Guide, 4th Edition, 2011;
- LA DOTD Standard Specifications for Roads and Bridges and supplemental specifications;
- AASHTO/AWS D1.5 2010 Bridge Welding Code, 6th edition with 2011 and 2012 Interims;
- FHWA Hydraulic Engineering Circular No. 21, 1993, FHWA-SA-92-010, “Design of Bridge Deck Drainage”; and
- LADOTD Software and Deliverable Standards for Electronic Plans http://www.dotd.la.gov/highways/project_devel/design/electronic_standards.aspx

3.2 REFERENCES

- LA DOTD as-built plans for existing BNSF RR bridges;
- AASHTO Guide Specifications for Bridge Temporary Works, 1st Edition, with 2008 Interim Revisions;
- AASHTO Construction Handbook for Bridge Temporary Works, 1st Edition, with 2008 Interim Revisions;
- ACI 305 R-99, Hot Weather Concreting;
- ACI 207.1 R-99, Mass Concrete;
- The Environmental Documents for the Project;
- NCHRP Report 314, Guidelines for the use of weathering steel in Bridges, 1989;
- The Railroad Permit for the Project; and
- LA DOTD Traffic data (ADT, etc.)

4.0 REQUIREMENTS

4.1 MATERIAL

As a minimum, all material shall satisfy the requirements listed in LA DOTD Standard Specifications for Roads and Bridges, 2006 Edition including supplemental specifications. All materials not meeting Contract requirements will be addressed through a Non-Conformance Report procedures as outlined in the Contract Documents.

4.2 DESIGN PARAMETERS

4.2.1 General

The structures shall be designed and detailed using the customary English Units. Design shall be in accordance with the latest AASHTO LRFD Bridge Design Specifications, LADOTD Bridge Design Manual English Edition and LA DOTD LRFD Bridge Design Manual including technical memoranda and any revisions issued by the State Bridge Engineer prior to the date of issuance of the Request for Proposals (RFP). LADOTD Bridge Design Manual, LADOTD LRFD Bridge Design Manual and Technical Memoranda can be downloaded from LA DOTD Bridge Design Section Website.

4.2.2 Loads and Forces

The following load factors shall be used for ductility and importance.

Ductility Factor $\eta_D = 1.00$

Operational Importance Factor $\eta_I = 1.05$

The value of the Redundancy Factor, η_R , follow Chapter 1 of LA DOTD LRFD Bridge Design Manual to select the required load factor.

4.2.2.1 Dead Loads

Add 25 psf dead load for a future wearing surface to all bridge structures. Metal stay in place forms may be used only on the BNSF structure(s). If these forms are used, the additional dead load due to the stay in place forms shall be included in the design of the structure. The top 1/2" of the roadway concrete slab for bridge decks shall be considered non-structural, but will be accounted for as dead load.

4.2.2.2 Live Loads

Bridges shall be designed for the Louisiana Design Vehicle Live Load 2011 (LADV-11) as per the LA DOTD Bridge Design Technical Memorandum. For fatigue use ADT and traffic data provided by LA DOTD.

4.2.2.3 Vehicle Collision Force

Unless protected according to Section 3.6.5 of AASHTO LRFD Bridge Design Specifications, the structures located within a distance of 30 feet to the edge of the roadway, shall be designed for an equivalent static load of 600 kips in accordance with Section 3.6.5 of AASHTO LRFD Bridge Design Specifications.

4.2.3 Load Rating

Load rate all as-built bridges in accordance with AASHTO Manual Bridge Evaluation and LA DOTD Policy and Guidelines for Bridge Rating and Evaluation and LA DOTD Bridge Design Technical Memorandums.

4.2.4 Environment

The Design-Builder will be responsible for determining the corrosion level required for structural design.

4.3 AESTHETICS

Bridge aesthetics shall be considered to compliment the surroundings. As a minimum, bridge aesthetics shall meet the requirements of Section 2.5.5 of AASHTO LRFD Bridge Design Specifications and page 3(34) of DOTD Bridge Design Manual. If weathering steel is used, the requirements listed in NCHRP Report 314, Guidelines for the Use of Weathering Steel in Bridges, shall be followed.

4.4 BRIDGES

4.4.1 Geometry

BNSF Railroad Structure(s): The typical sections for the F-2 mainline US 90/I-49 mainline structure(s) consists of 6 total 12 foot travel lanes with 12 foot outside and 12 foot inside shoulders. Cross slope shall be 2.5%. The minimum vertical clearance shall be 16'-6" for highway traffic. The minimum vertical clearance shall be 23'-6" for Railroad crossing or as per the BNSF Design guidelines and the LA DOTD/BNSF MOU. The horizontal clearances shall be as per Chapter 3, Normal Highway Clearances, of LA DOTD Bridge Design Manual or as per the Railroad permit agreement requirements whichever is greater. Crash walls for bridge piers shall be provided for as per the MOU RR permit agreement requirements

Albertson's Parkway Structure(s): The typical section for the F-2 mainline US90/I49 structure(s) over Albertson's Parkway consists of 6 total 12 foot travel lanes with 12 foot outside and 12 foot inside shoulders. Cross slope of the deck(s) shall be 2.5%. The future build out within the corridor as depicted in Part 5 of this RFP shall be considered in the design of the super and sub structure(s). The minimum horizontal main span clearance shall be 130 feet or greater. Future widening of Albertson's Parkway shall also be considered in the design. If pier protection is required, concrete barrier shall be used (thrie beam is not allowed).

4.4.2 Type

Bridge type will not be restricted to those traditionally used by the LA DOTD. Other types and components may be used, but will be allowed only if they have been accepted for general use by other United States State Department of Transportation authorities and the Design-Builder can demonstrate that its design of the bridge type and components will perform according to these specifications.

Experimental bridge types, timber bridges, masonry bridges, and structural plate arches are not permitted. Pre-cast concrete flat slab bridges will not be allowed. The Design-Builder shall minimize the number of expansion joints through the use of continuous superstructure units.

4.4.3 Maintenance Requirements/Inspection Access

All bridge superstructures, joints, and bearings shall be designed to provide easy access for long-term inspection.

4.4.4 Hurricane Preparedness

The Design-Builder shall have a plan to address securing and protection of the structure elements and the project site during a hurricane event. The Design-Builder shall provide a copy of the plan within 90 days of NTP to LA DOTD for review and comment.

4.4.5 Components

4.4.5.1 Bridge Railing

The bridge railing shall be a cast-in-place concrete F- shape barrier conforming to a minimum MASH Test Level 4 (TL-4) crash level. The bridge railing height shall be 32" minimum. Glare screens shall be provided in only one direction of Albertson's Parkway structure(s) and the BNSF structures to provide a total of 54" in railing height.

4.4.5.2 Guard Rails

Guard rails shall be provided at the end of bridges in accordance with LADOTD guardrail standard plans. Guard rails shall also be provided to protect other obstructions within the clear zone as needed as per the LA DOTD guardrail standard plans and the AASHTO Roadside Design Guide.

4.4.5.3 Approach Slabs

Concrete approach slabs shall be a minimum 40 feet long and shall be provided at the end of bridges.

4.4.5.4 Decks

The minimum thickness of the deck shall be 7 ½ inches. The AASHTO empirical deck design procedure is not allowed for the bridge deck design. Pre-tensioned, pre-cast concrete deck forms are not allowed. Decks shall meet the rideability requirements as listed in Section 805.13(d)(2).

4.4.5.5 Decks Joints

Avoid or minimize joints wherever possible. Use only strip seal and finger joints. Strip seals can only be used for total movement not exceeding 3.5 inches. Movement greater than 3.5 inches shall use finger joints. Aluminum finger joints are permitted if it meets the fatigue requirements. Steel plate finger joints shall be hot dipped galvanized.

4.4.5.6 Deck Drainage

Deck drainage shall be designed in accordance with AASHTO LRFD Bridge Design Specifications and FHWA Hydraulic Engineering Circular No. 21 “Design of Bridge Deck Drainage.” Use minimum 8” dia. pipe if drainpipes will be used. Avoid drainage over the existing roadways, proposed future roadways, railroads, and other areas that cause erosion issues under the bridge.

4.4.5.7 Bearings

Design and location of bearings shall provide for maintenance accessibility and future replacement. Elastomeric bearings are preferred.

4.4.5.8 Pier Cap

The type of pier cap shall be consistent with the bridge system with consideration given to aesthetics. Abutments

Front slopes shall be 3:1 (H:V) or flatter.

4.4.5.9 Slope Embankment Protection

Cast-in-place concrete revetment shall be provided in accordance with LA DOTD standard plan CR-01.

4.4.5.10 Foundations

Foundations shall be designed in accordance with AASHTO LRFD Bridge Design Specifications, LA DOTD Bridge Design Manual, LA DOTD LRFD Bridge Design Manual and the Geotechnical Performance Specification.

Spread footings, timber piles, and auger cast piles for bridge structure foundations are not permitted. No exposed steel piles will be allowed above ground elevation. If a pile splice is needed, the design calculations and details shall be stamped, signed and dated by a Louisiana Licensed Professional Engineer and shall be submitted for DOTD review.

4.4.5.11 Under-Bridge Lighting

Under-bridge lighting will be provided for the bridge structures over Albertson’s Parkway. In addition to the standard under-bridge lighting, the Design-Builder will provide decorative substructure element lighting as an aesthetic treatment.

4.4.5.12 Substructure

Pile bents are not allowed. The type of substructure bent, column, etc. shall be consistent with the bridge system with consideration given to aesthetics.

4.5 RETAINING WALLS

Retaining walls shall be designed in accordance with the Geotechnical Performance Specification.

4.6 MAJOR DRAINAGE STRUCTURE

Major drainage structures shall be designed in accordance with AASHTO LRFD Bridge Design Specification.

4.7 SIGN STRUCTURE

Sign structures and supports shall be designed in accordance with the LA DOTD Bridge Design Manual, and the AASHTO Standard specifications of Structural Supports of Highway Signs, Luminaries and Traffic Signals. LA DOTD preferred standard sign details are available for reference.

5.0 FINAL SUBMITTALS

5.1 PLANS, SHOP DRAWINGS AND ERECTIONS DRAWINGS

Final as-built plans shall be sealed, signed and dated by a Louisiana Licensed Professional Engineer. The Design-Builder shall produce electronic final plan deliverables in conformance with "DOTD Software and Deliverable Standards for Electronic Plans". One set of final full size final as-built plans, Final shop drawings and final erection drawings shall be submitted to LA DOTD along with one final electronic pdf file. For submittal requirements, see Section 801 of the Louisiana Standard Specifications for Roads and Bridges as supplemented.

5.2 BRIDGE LOAD RATING

Bridge load rating per the as-built plans shall be performed and submitted prior to the final acceptance of the bridge. A four week LA DOTD review time should be allowed for the submittal. A two week review time should be allowed for each re-submittal.

5.3 CALCULATIONS

The Design-Builder shall submit all design calculations in an electronic pdf file. The design calculations shall include a table of contents, design criteria and design assumptions. Reference all computer program input and output files and the appropriate code sections in the calculations. All computer program input and output files shall be submitted with the calculations. All calculations shall be sealed, signed and dated by a Louisiana licensed Professional engineer. All calculations sheets should be also signed by the designer and the reviewer. The bridge load rating shall use the Virtis Software and the rating calculations shall be submitted in accordance with LADOTD The Policy and Guidelines for Bridge Rating and Evaluation and LA DOTD Bridge

Design Technical Memorandums. Use of other software not listed in the LA DOTD rating guidelines is subject to approval of LA DOTD prior to its use.

6.0 QUALITY CONTROL/QUALITY ASSURANCE

Quality Control/Quality Assurance (QC/QA) of the bridge design and other structures shall be in accordance with LA Bridge Design Technical Memorandum No. 37. These are minimum QC/QA requirements for the bridge design and other structures. Section DB 111 provides further requirements for the Design-Builder's design review and Quality Control activities.

MAINTENANCE OF TRAFFIC PERFORMANCE SPECIFICATION

1.0 INTRODUCTION

The Design-Builder shall implement a Transportation Management Plan in accordance with EDSM VI 1.1.8 for this Project that meets or exceeds the Performance Goals and Measures as outlined in this Specification. It is the Design-Builder's responsibility to obtain clarification of any unresolved ambiguity prior to proceeding with design or construction. The LA DOTD retains the right to require the Design-Builder to modify the Traffic Management Plan to address safety or traffic flow concerns. A Traffic Control Plan shall be implemented for each phase of the Work.

2.0 PERFORMANCE GOALS

- A) Provide a Transportation Management Plan (TMP) that maintains or improves safe traffic flows through the project limits for the duration of the Project while minimizing negative impacts to users and businesses.
- B) No injury or loss of life to the Public or Design-Builder's workforce.
- C) Minimize & Mitigate Liability with traffic-related incidents.
- D) No Claims as a result of traffic operations for the duration of the Project.
- E) Expeditious handling of incident and emergency operations.
- F) Provide 2-lanes of through traffic in both directions at all times. Temporary lane closures will be considered based on Queue Analysis results.
- G) Provide Hurricane and/or Contraflow Plan.
- H) Provide access to local streets and businesses at all times.

3.0 STANDARDS AND REFERENCES

The Design-Builder shall plan, design, and construct the project in accordance with this Transportation Management Plan Performance Specification and the requirements of the following standards. Standards and references specifically cited in the body of this Transportation Management Plan Performance Specification establish requirements that have precedence over all others. In this Transportation Management Plan Performance Specification, if the requirements in any standard conflict with those in another, the standard highest on the list will govern. Listed under references are guidelines that the Design-Builder may use in addressing the requirements as the Design-Builder sees fit. It is the Design Builder's responsibility to obtain clarification of any ambiguity within the Traffic Management Plan Performance Specification prior to proceeding with design or construction.

3.1 STANDARDS

- A) LA DOTD Standard Specification for Roads and Bridges 2006, Section 713
- B) LA DOTD Temporary Traffic Control Details
- C) Manual on Uniform Traffic Control Devices (MUTCD)
- D) Design-Builder's own Standard Special Provisions and Specifications
- E) LA DOTD EDSM No. V1 1.1.4
- F) LA DOTD EDSM No. VI 1.1.8

3.2 REFERENCES

- A) LA DOTD Roadway Design Procedures and Details
- B) AASHTO Roadside Design Guide,
- C) LA DOTD Traffic Signal Details
- D) LA DOTD Qualified Products List (QPL)
- E) MUTCD Standard Highway Signs Policy
- F) LA DOTD Public Convenience Specifications
- G) Manual for Assessing Safety Hardware (MASH)
- H) ATSSA "Quality Guideline for Work Zone Traffic Control Devices"

4.0 SCOPE

The Design-Builder shall plan, design, construct and implement temporary traffic control measures that provide a safe construction work zone while simultaneously maintaining traffic flow through the project limits for the duration of the Project. The Design-Builder shall maintain 2-lanes of traffic in each direction at all times except where the Design-Builder's Queue Analysis allows night-time or off-peak lane restrictions. Lane closures allowed by Queue Analysis will also require approval by the District Traffic Operations Engineer. The Design-Builder shall also provide documentation for the mitigation of accident litigation.

5.0 PERFORMANCE MEASURES

- A) Management and inspection of traffic control activities daily and assure traffic control meets plan requirements.
- B) Protection and adequate guidance for traffic control during construction.

- C) Traffic control operations within the Project Site during construction and periods of suspension of the Work.
- D) Placement, condition, maintenance and protection of traffic control devices (TCD) to meet the requirements of the plans.
- E) Traffic control methods relating to access to private and public properties within the Project Site.
- F) Traffic control operations related to Incident and Emergency activities (including hurricane evacuation and contra-flow as applicable).
- G) Quality control of submittals
- H) Modeling and model updating

6.0 REQUIREMENTS

The Design-Builder will be required, for potential litigation and claims purposes, to provide a Mitigation and Limitation of Liability/Claims Plan (M&LP).

6.1 M&LP EVALUATION CRITERIA

- A) Documentation of on-site conditions
- B) Qualifications of traffic control supervisors and technicians
- C) Accident investigation documentation (written and visual)
- D) Responsibility and authority assignments
- E) Submittals for permanent records (written and visual)

6.2 DESIGN-BUILDER'S RESPONSIBILITIES (EXCLUSIVE OF M&LP)

- A) Perform Queue Analysis/time through Project to determine the effectiveness of Traffic Management Plan (TMP). This analysis will be repeated as necessary and compared to actual conditions to validate predictions. Changes will be implemented as necessary. The Design-Builder shall maintain 2-lanes of traffic in each direction at all times except where the Design-Builder's Queue Analysis allows night time or off-peak lane restrictions with the approval by the District Traffic Operations Engineer. Design-Builder Traffic Management Plan shall take into account holiday traffic, special event traffic and sugarcane season restrictions.
- B) Properly supervise the implementation, maintenance and Inspection of Traffic Control Plan (TCP) measures and details, through certified and accepted Traffic Control Supervisors (TCSs) and Traffic Control Technicians (TCTs).

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- C) Record crash details; time and date of notification; take photos at the scene; video the project signs in the approach direction and provide to the Design Builder PM and LA DOTD PM.
- D) Perform daily video of the project signage prior to starting work and changes at work locations.
- E) Perform night video of project signage once per week.
- F) Provide weekly reports certifying adherence to the Design-Builder's TMP and that all traffic controls meet the standards.
- G) The Design-Builder Construction Quality Control Manager (CQCM) will review and certify that the TMP has been checked and meets all contract requirements.
- H) Provide daily Traffic control inspection reports, as per Special Provision 713.08(d).
- I) Provide TMP Diary(ies) and Project Video(s).
- J) Provide TMP Details and Inspection frequency.
- K) Provide copies of the TMP Diary(ies) with the Monthly Progress Report.
- L) Provide for striping on request and restripe when visual inspections indicate a reduced reflectivity that may affect safety or traffic flow.
- M) Provide for review and Acceptance by the Department a format for notification of Lane Closures, traffic modifications and other traffic related notifications. Failure to follow the approved notification will be cause to postpone or cancel operations. Notice of all work activities involving lane closures or alterations of traffic operations will be provided at least 48 hours prior to the anticipated commencement of work activities. Notice of all restrictions affecting the movement of oversize/overweight permitted loads will be provided at least seven (7) days in advance.
- N) Adjust signal timings due to changes in traffic patterns and movements.

**PUBLIC INFORMATION
PERFORMANCE SPECIFICATION**

1.0 INTRODUCTION

It is anticipated that during the course of the US 90 (I-49 South) Widening Design-Build Project public information needs will arise. The Department intends to designate the primary responsibility for presenting information to the public to an entity separate from the Design-Build Team. Therefore, for the purposes of this Public Information Performance Specification references to the Department will be taken to mean the Louisiana Department of Transportation and Development (LA DOTD) and/or its designee for public information activities. The Department and/or its designee will be responsible for disseminating information to the public. The Design-Builder will be responsible for supporting the public information efforts of and cooperating with the Department and/or its designee.

2.0 PERFORMANCE GOALS

The goal of the Design-Builder's involvement in the public information efforts will include the timely response to requests for information by the Department, and close coordination of the design and construction activities to assure that the Department has the ability to provide the public with timely information that allows the public to keep abreast of the project developments and make travel decisions accordingly.

3.0 STANDARDS AND REFERENCES

No Standards or References apply to this Public Information Performance Specification.

4.0 SCOPE

The Design-Builder's Project Manager or his designee will be responsible for interfacing with the Department to assure that the Department is apprised of upcoming activities that might impact or otherwise be of interest to the traveling public. This will include but is not limited to the regularly scheduled meetings and briefings as well as impromptu meetings and teleconferences to discuss the public information needs of the Project.

The Design-Builder will develop resources that document and explain the Project and will make these resources available to the Department for purposes of public information efforts. The Design-Builder will maintain and update these resources as necessary to assure that current information is available for use by the Department in the public information activities.

The Design-Builder will assist the Department in preparing presentations, articles, and interviews to address public concerns or promote a better public understanding of the project.

The Design-Builder will not make any verbal or written statements to the public or media without the prior consent of the Department's Project Manager.

5.0 PERFORMANCE MEASURES

The Design-Builder's performance will be measured by the Department's satisfaction with the timeliness of the response for information and overall quality and clarity of the materials supplied by the Design-Builder.

6.0 REQUIREMENTS

The Design-Builder shall provide information necessary to interface with the public. This information shall include but not be limited to the following:

- A) High resolution photographs taken at regular intervals that document the Project progress.
- B) Video clips that document the construction phasing and operations.
- C) Graphic layout drawings that show project sequencing and maintenance of traffic plans.
- D) Aerial photographs that show the key work zones of the Project, as well as the completed Project.
- E) Written descriptions of the design and construction work suitable for use in technical and non-technical articles.
- F) Project briefings and site tours as requested by the Department.

**LIGHTING
PERFORMANCE SPECIFICATION**

1.0 INTRODUCTION

The Design-Builder shall design and construct standard under-bridge lighting and aesthetic lighting for the sub-structure elements for the bridge over Albertson's Parkway. All design and development of Contract Drawings shall strictly adhere to LA DOTD standards and criteria established in this Lighting Performance Specification.

2.0 STANDARDS AND REFERENCES

The design and construction of the under-bridge and aesthetic lighting and related equipment shall be in accordance with this Lighting Performance Specification and the relevant requirements of the following standards, unless otherwise stipulated on the Plans or in this specification. Standards and references specifically cited in the body of the specification establish requirements that shall have precedence over all others. Should the requirements in any standard conflict with those in another, the standard highest on the list shall govern. Listed under references are guidelines that the Design-Builder may use in addressing the requirements as the Design-Builder sees fit. It is the Design-Builder's responsibility to obtain clarification of any unresolved ambiguity prior to proceeding with design or construction. Items listed as standards or references in this Lighting Performance Specification shall be the most recent version available at the time of issuance of the Request for Proposals.

2.1 STANDARDS

- A) LA DOTD "A Guide to Constructing, Operating, and Maintaining Highway Lighting Systems";
- B) LA DOTD Standard Plans, Standard Lighting Details, and Lighting Notes & Specifications;
- C) National Electric Code;
- D) National Electric Safety Code, NFPA 70E;
- E) LA DOTD Standard Specifications for Roads and Bridges;
- F) LA DOTD Special Provisions and Supplemental Specifications; and LA DOTD Bridge Design Manual, Fourth English Edition including memorandums and any revisions issued by the State Bridge Engineer prior to date of the Scope of Services Package;
- G) UL, Underwriters Laboratories, Inc.;
- H) NEMA, National Electrical Manufacturers Association;
- I) ANSI, American National Standards Institute;

- J) ASTM, American Society for Testing and Materials;
- K) FCC, Federal Communications Commission;
- L) OSHA , Occupational Safety and Health Administration; and
- M) IBC/ASCE Wind Speed Map.

2.2 REFERENCES

- A) IEEE Recommended Practice for Grounding of Industrial and Commercial Power Systems (Green Book);
- B) IEEE Recommended Practice for Powering and Grounding Electronic Equipment (Emerald Book);
- C) IEEE Recommended Practice for Applying Low-Voltage Circuit Breakers Used in Industrial and Commercial Power Systems (Blue Book);
- D) AASHTO “Roadway Lighting Design Guide”; and
- E) SOARES Book on Grounding and Bonding, 10th Edition.

3.0 REQUIREMENTS

3.1 Design Parameters

3.1.1 General

The Project shall be designed and detailed using the customary English units. Engineering, Plans, Specifications, and Operation & Maintenance Manuals shall be in accordance with the above Standards. Lighting systems shall be designed to deliver a minimum of 25 years service life. Final Plans shall be signed and sealed by a Licensed Professional Engineer registered in the State of Louisiana.

For areas with existing lighting:

- The Design-Builder shall design and construct under-bridge and aesthetic substructure lighting for the bridges over Albertson’s Parkway. Design-Builder shall deliver the photometric report covering the entire system showing compliance prior to construction.

3.1.2 Illumination Design

Illumination design shall be in accordance with the Standards listed in Section 2.1 Design-Builder shall minimize light trespass. Glair shall not exceed AASHTO maximum. All luminaries will be high pressure sodium (HPS) or equivalent lumens-per-watt efficiency and color temperature.

3.1.3 Electrical Design

Maximum voltage drop shall not exceed 5% in relation to the service point. Loads for each Service Point are to be centrally controlled and system shall Fail On. Conductors downstream from the controller shall be energized only when controller turns lights on. Conduit fill shall be designed around a 25% capacity except in sections where National Electric Code allows for greater than 40% fill. Minimum bury depth of underground conduit shall be 36". Service and system voltage shall be single phase 480 volts center tapped. No system conductor shall be greater than 240 volts to ground.

3.1.4 Equipment

Equipment shall be specified with a 25 year service life in mind, with the exclusion of normal owner-serviceable parts such as lamps and ballasts. Electrical equipment is to be UL listed for the use. Contactors shall be NEMA rated with current capacity no less than two times the expected steady-state line current. All enclosures shall be rated to withstand weather conditions to a minimum of a NEMA 4X rating. Ground mount and structure mounted low mast luminaires shall be 3G vibration certified.

3.1.5 Aesthetics

At a minimum, bridge aesthetics shall meet the requirements of the LA DOTD Bridge Design Manual Chapter 3, Bridge Aesthetics.

3.1.6 Conduits in Concrete Barrier Rail.

Empty conduits will be provided in all concrete barrier rails (bridge rails and median barrier rails, if used) for the provision of future roadway lighting. The Design-Builder will recommend the diameter and number of conduits to be provided.

3.2 RECORDS

The Design-Builder shall submit the final plans in electronic form, dgn format. In addition, it is necessary to submit in electronic form, pdf files of the final electrical and illumination calculations documenting design, design assumptions, and engineering software outputs. Electronic submittal of photometric files shall be submitted in IES format.

3.3 PLAN REVIEW

Lighting plans shall be submitted to LA DOTD for review and comment.

3.4 GUARDRAILS

Any guardrails needed around highmast poles shall be designed and constructed according to the Structural Performance Specifications.

**PERMANENT SIGNAGE
PERFORMANCE SPECIFICATION**

1.0 INTRODUCTION

The Design-Builder shall design, prepare plans, and install all new signs and supports. New signage is required and necessary for the safe traffic operations of the final widened roadway. Existing signs and/or supports shall not be reused. Any existing sign and supports in conflict with the new design shall be removed. It is the Design-Builder's responsibility to obtain clarification of any unresolved ambiguity prior to proceeding with design or construction.

2.0 PERFORMANCE GOALS

The Design-Builder shall meet the following performance goals, in the sole discretion of the LA DOTD:

- A) Permanent signage that provides for safe and efficient traffic flow and operations;
- B) A permanent signing plan that is easily understood by the traveling public;
- C) A permanent signing plan that follows LA DOTD and national transportation standards; and
- D) Unobstructed views of permanent signs.

3.0 STANDARDS AND REFERENCES

The Design-Builder shall plan, design, and install permanent signage in accordance with this Permanent Signage Performance Specification and the requirements of the following standards. Standards and references specifically cited in the body of this Permanent Signage Performance Specification establish requirements that have precedence over all others. In this Permanent Signage Performance Specification, if the requirements in any standard conflict with those in another, the standard highest on the list will govern. Listed under references are guidelines that the Design-Builder may use in addressing the requirements as the Design-Builder sees fit. It is the Design Builder's responsibility to obtain clarification of any ambiguity within this Permanent Signage Performance Specification prior to proceeding with design or construction.

3.1 STANDARDS

- A) The LA DOTD, Standard Traffic Signs Special Details and the LA DOTD Pavement Marking Detail;
- B) The standard for this Permanent Signage Performance Specification is the Manual on Uniform Traffic Control Devices (MUTCD).

3.2 REFERENCES

The version of the following references in effect on the Proposal due date may apply:

- A) The Louisiana Department of Transportation and Development's Bridge Design Manual; and
- B) AASHTO Roadside Design Guide.

4.0 SCOPE

The signing design must include the locations of ground-mounted and overhead signs, graphic representation of all signs, proposed striping, delineation placement, guide sign and special sign details, and structural and foundation requirements. Signs must be located and installed in a manner that avoids conflicts with other signs, vegetation, DMS, lighting, and structures. The Design-Builder shall ensure that signs are clearly visible, provide clear direction and information for users, and comply with all applicable MUTCD requirements.

5.0 PERFORMANCE MEASURES

LA DOTD shall be satisfied that the permanent signing plan will meet the performance goals.

6.0 REQUIREMENTS

All new signs, including traffic generators, and modifications of existing sign text will be submitted to the LA DOTD for review and comment prior to installation.

ENVIRONMENTAL PERFORMANCE SPECIFICATION

1.0 INTRODUCTION

This Environmental Performance Specification specifies general roles and responsibilities. Other than identified in Section 4.2, the LA DOTD will be responsible for obtaining all environmental permits required for this Project. The Design-Builder shall prepare its design and conduct its construction activities in accordance with this Environmental Performance Specification such that no action or inaction on the part of the Design-Builder shall result in non-compliance with state or federal environmental laws, regulations, and Executive Orders, including, but not limited to, the Clean Water Act, Sections 401, 402, and 404, as amended; the Clean Air Act, as amended; the Endangered Species Act, as amended; Section 106 of the National Historic Preservation Act, as amended; the State and Local Coastal Resources Management Act, as amended; and Title VI of the Civil Rights Act, as amended. It is the Design-Builder's responsibility to obtain clarification of any unresolved ambiguity prior to proceeding with design and/or construction.

2.0 PERFORMANCE GOALS

The Design-Builder shall meet the following performance goals, in the sole discretion of the LA DOTD:

- A) Environmentally friendly highway design and construction;
- B) Adherence/compliance with all environmental permits and their conditions throughout the life of the Project; and
- C) Minimization of impacts to the natural and social environment.

3.0 STANDARDS AND REFERENCES

The Design-Builder shall plan, design, construct, and implement the Work in accordance with this Environmental Performance Specification and the requirements of the following standards. Standards specifically cited in the body of this Environmental Performance Specification establish requirements that have precedence over all others. In this Performance Specification, if the requirements in any standard conflict with those in another, the standard highest on the list will govern. It is the Design Builder's responsibility to obtain clarification of any ambiguity within this Environmental Performance Specification prior to proceeding with design or construction.

3.1 STANDARDS

- A) The terms and conditions listed in the United States Army Corps of Engineers' (USACOE) Section 23, Nationwide Permit; and
- B) The Louisiana Department of Transportation and Development's Standard Specifications for Roads and Bridges 2006 Edition, with specific reference to Section 204.

3.2 REFERENCES

Not Applicable

4.0 SCOPE

4.1 GENERAL PHILOSOPHY

The philosophy followed by the LA DOTD during the development of the Project is to avoid and minimize impacts to the natural and human environments to the extent feasible and practical. The Design-Builder shall continue this approach and philosophy during the preparation of design plans and through Project implementation and construction.

4.2 GENERAL ROLES AND RESPONSIBILITIES

The LA DOTD is responsible for obtaining the environmental permits (referenced below) for the widening of US 90 (future I-49) within the project limits. The scope of work for which the permit applications were submitted calls for the construction of additional lanes within the existing Right-of-Way (ROW) and bridge structure over Albertson's Parkway and the BNSF Railroad. For this concept, the LA DOTD will provide the cultural resource concurrence letter from the State Historic Preservation Office (SHPO); the U. S. Army Corps of Engineers, Section 23 Nationwide Permits; the Department of Environmental Quality Clean Water Act Section 401, Water Quality Certification; and the Department of Environmental Quality Clean Water Act Section 402, Storm Water permit (Louisiana Pollutant Discharge Elimination System (LPDES) Storm Water General Permit for Construction Activities). All other permits and clearances are the responsibility of the Design-Builder.

Material changes to the original concept or highway alignment that result in environmental, cultural, or community impacts beyond those identified in the original permits will not be allowed without the prior written consent of the LA DOTD. All changes must be supported by the necessary investigations, documentation, and approvals of applicable resource management and permitting agencies. The Design-Builder is responsible for all work effort and document preparation required to obtain all necessary approvals, permits, or permit modifications prior to implementing any scope changes.

Any work performed by the Design-Builder that is determined by the LA DOTD or any relevant governmental agency to be outside the scope of the permits must be performed at the Design-Builder's own risk, including any additional environmental work, studies, reports, assessments, or permits that must be completed.

The Design-Builder shall be responsible for obtaining the necessary environmental and cultural resources permits and/or clearances for all construction related activities such as, but not limited to, material pits, staging yards, and haul roads that are located outside the scope of the original permits. The Design-Builder is responsible for ensuring that all required permits are obtained from the appropriate entities prior to implementing any work requiring such a permit.

5.0 PERFORMANCE MEASURES

LA DOTD shall be satisfied that the design and construction meet all of the environmental performance goals, as well as all requirements as outlined and specified in the permits.

6.0 REQUIREMENTS

6.1 MITIGATION MEASURES AND COMMITMENTS

The mitigation measures and Project commitments included in the original permits must be incorporated in the Design-Builder's plans and Project Specifications and implemented as part of Project construction. The specific mitigation measures and commitments to be implemented by the Design-Builder are listed in Sections 6.1.1 through 6.1.4.

6.1.1 Threatened and Endangered Species Protection Plan

The proposed Project is not likely to adversely affect any threatened or endangered species. The Design-Builder shall adhere to the erosion control measures outlined in the Louisiana Standard Specifications for Roads and Bridges 2006 Edition to ensure water quality impacts are confined to the immediate Project area.

6.1.2 Wetland and Coastal Use Mitigation

The LA DOTD will obtain a Water Quality Certification from the Louisiana Department of Environmental Quality and a Section 23 Nationwide Permit from the USACOE for impacts to jurisdictional wetlands and other waters of the US for the Project. The Design-Builder shall adhere to the terms and conditions of these permits. The LA DOTD will contract with private sector mitigation banks to execute compensatory mitigation in the amount required by the New Orleans District, USACOE.

If the Design-Builder changes the scope of Work in a manner that requires a new permit or an amendment or modification to an existing permit, the Design-Builder shall obtain the new permit, amendment, or modification. Any fees or compensatory mitigation required by the permitting agencies will be the responsibility of the Design-Builder.

If the Design-Builder discovers an additional need for ROW as it selects borrow, staging, or other Project-related sites, the Design-Builder shall comply with all environmental laws and regulations and obtain the necessary approvals and permits. If the use of additional ROW requires a modification to the existing permits obtained by the LA DOTD, the Design-Builder shall obtain the required modifications. Any fees or compensatory mitigation required by the permitting agencies will be the responsibility of the Design-Builder.

6.1.3 Water Quality and Storm Water

The LA DOTD will be responsible for obtaining the Section 401 (Water Quality Certification) and 402 (LPDES Storm Water General) permits from the Louisiana Department of Environmental Quality. **As part of the Section 402 permit requirements, the Design-Builder shall prepare a Storm Water Pollution Prevention Plan (SWPPP).** This SWPPP must incorporate Best Management Practices (BMPs) for spill prevention, erosion control, and

sediment control. During construction, the Design-Builder shall make every effort practicable to avoid and minimize the introduction of suspended solids and sediment into waterways. The Design-Builder shall follow all applicable rules and regulations including, but not limited to, maintaining a copy of the LPDES permit and SWPPP on the construction site.

6.1.4 Cultural Resources

If archaeological sites or historic artifacts are encountered during construction, the Design-Builder will notify the LA DOTD immediately and comply with the provisions of Contract Documents, Part 2 – Design-Build (DB) Section 100, DB Section 107-26.

**BURLINGTON NORTHERN SANTA FE RAILROAD
OVERPASS COORDINATION
PERFORMANCE SPECIFICATION**

1.0 INTRODUCTION

The Design-Builder shall provide an overpass structure for the existing US 90 (I-49 South) highway system over the Burlington Northern Santa Fe Railroad (“BNSF”) overpass capable of carrying 3 travel lanes with inside and outside shoulders in both the eastbound and westbound directions. To safely and efficiently provide this overpass structure, the Design-Builder will meet or exceed the performance goals and measures as outlined in this Burlington Northern Santa Fe Railroad Coordination Performance Specification.

2.0 PERFORMANCE GOALS

The Design-Builder shall meet the following performance goals:

- A) Provide safe and efficient traffic operations for US 90 motorists during the construction phase(s);
- B) Coordinate with the Louisiana Department of Transportation and Development (LA DOTD) and BNSF to assure that all of the construction related activities allow safe and efficient operations on the railroad, and minimize any temporary operational restriction of the railroad;
- C) Meet the commitments of the Memorandum of Understanding, dated **[INSERT DATE]** between BNSF RR and the LA DOTD;
- D) Provide a completed overpass structure that meets the horizontal and vertical clearance requirements and necessary structural protection (crash walls if necessary, etc.) to allow safe and efficient operations of the BNSF railroad and US 90 (I-49 South).
- E) Coordinate with BNSF to provide temporary protection system that conforms to AREMA Standards as required for construction near the railroad.

3.0 STANDARDS AND REFERENCES

The Design-Builder shall plan, coordinate, design, and construct, the railroad overpass structure in accordance with this Burlington Northern Santa Fe Railroad Coordination Performance Specification and the requirements of the following standards. Standards and references specifically cited in the body of this Burlington Northern Santa Fe Railroad Coordination Performance Specification establish requirements that have precedence over all others. In this Burlington Northern Santa Fe Railroad Coordination Performance Specification, if the requirements in any standard conflict with those in another, the standard highest on the list will govern. Listed under references are guidelines that the Design-Builder may use in addressing the

requirements as the Design-Builder sees fit. It is the Design Builder's responsibility to obtain clarification of any ambiguity within this Burlington Northern Santa Fe Railroad Coordination Performance Specification prior to proceeding with design or construction.

3.1 STANDARDS

The standards for this Burlington Northern Santa Fe Railroad Coordination Performance Specification are listed in descending order of precedence. In case of conflict between or among standards, the order of precedence established by the LA DOTD will govern.

- A) Memorandum of Understanding (MOU) for the Project, dated **[INSERT DATE]** between BNSF and LA DOTD. The MOU is attached to this Burlington Northern Santa Fe Railroad Coordination Performance Specification for reference;
- B) *The BNSF Railway - Union Pacific Railroad Guidelines For Railroad Grade Separation Projects*, dated January 24, 2007;
- C) LA DOTD Standard Specifications for Roads and Bridge Construction, 2006. Section 107.08 with the exception of sub-sections 107.08(g) and 107.08(n)(3); and
- D) Burlington Northern Santa Railway - Right of Entry Procedures/Application

3.2 REFERENCES

- A) The Louisiana Department of Transportation and Development's Bridge Design Manual;
- B) The American Association of State Highway and Transportations Officials' (AASHTO) LRFD Bridge Design Specification;
- C) The American Association of State Highway and Transportations Officials' (AASHTO) LRFD Bridge Construction Specification; and
- D) Engineering Directives and Standards Manual (EDSM), LA DOTD.

4.0 SCOPE

The Design-Builder will design the US 90 (I-49 South) overpass structure per the requirements of the Standards listed above. The MOU between BNSF and LA DOTD for this Project is attached to this Performance Specification for the Design-Builder's reference.

The Design-Builder shall develop final design details and plans for the overpass structure from which the construction will be performed. The Design-Builder will be required to submit final design/construction plans for the overpass structure to BNSF as soon as possible for review and approval by the railroad. The Design Builder should allow 4 weeks per submittal for the BNSF review and comment. Review comments issued by BNSF will be addressed and resolved by the Design-Builder before any construction begins in the BNSF right-of-way.

The Design-Builder shall create a Construction and Maintenance Agreement (CMA) amendment to replace the Project MOU and amend the existing CMA, per LA DOTD Railroad Unit template and submit to LA DOTD Headquarters Railroad Unit for review and comment/approval. If comments are provided, the contractor shall address all of the comments and resubmit the agreement to the Railroad Unit for review and approval. The Design-Builder shall submit the CMA amendment to BNSF as soon as possible and concurrently during the final design/construction plan review. Four weeks per submittal should be allowed for both LA DOTD and BNSF RR to review, edit and approve each submittal.

The Design-Builder will be responsible for all costs such as, but not limited to, reimbursement for plan reviews, servitude acquisition, flagging, protective liability insurance, and construction monitoring.

Design-Builder shall contact the LA DOTD - Railroad Unit first with any railroad questions to the following:

- Jason Lacombe, P.E. (Jason.Lacombe@LA.GOV, 225-379-1046), or
- Simone Ardoin, P.E. (Simone.Ardoin@LA.GOV, 225-379-1951).

The principal BNSF contact person for this project will be Mr. Timothy J. Huya; BNSF Manager Public Records.

5.0 PERFORMANCE MEASURES

The Design-Builder's performance will be evaluated based on the strict adherence to the commitments made in the Memorandum of Understanding (MOU) between BNSF and LA DOTD for the Project, dated **[INSERT DATE]** and *The BNSF Railway - Union Pacific Railroad Guidelines For Railroad Grade Separation Projects*, dated January 24, 2007.

6.0 REQUIREMENTS

Any deviation from the Memorandum of Understanding (MOU) between BNSF and LA DOTD for the Project, dated **[INSERT DATE]** that is desired or required will be approved by BNSF in writing prior to implementation by the Design-Builder.

**MEMORANDUM OF UNDERSTANDING (MOU)
BETWEEN THE
THE LOUISIANA DEPARTMENT OF TRANSPORTATION
AND DEVELOPMENT
AND
BURLINGTON NORTHERN SANTA FE RAILWAY CO.**

**STATE PROJECT NO. H.010620
BNSF (AVONDALE)
US 90: WIDENING OVER BNSF RR & LA 182
LAFAYETTE PARISH**

This Memorandum of Understanding, hereafter referred to as “MOU”, between the BNSF Railway Co., hereafter referred to as “BNSF”, and the Louisiana Department of Transportation and Development, hereafter referred to as “DOTD”, is entered into this day of _____, 2013 to set forth the Parties’ preliminary understandings concerning design and engineering concepts with respect to State Project No. H.010620 design build project hereinafter referred to as “Project” at DOT Crossing No. 767702R.

Recitals:

WHEREAS, the Project will replace the existing four lane east-west bound US Hwy 90 (US 90) bridge referred to by State Project No. 424-02-0007 dated October 27th, 1959, whose bridge over BNSF was created via “Agreement between State of Louisiana Department of Highways & Texas and New Orleans Railroad Company, “ and

WHEREAS, DOTD wishes to widen the shoulder and travel lane surfaces of US 90 where said bridge passes over BNSF’s tracks at approximate railroad milepost 136.68, Lafayette Subdivision, known as DOT No. 767702R (the “Location”); and

WHEREAS, DOTD and BNSF have agreed to this MOU to set forth their preliminary understanding as to the conceptual engineering design issues with respect to said widening in order to facilitate DOTD’s ability to obtain certain federal funding for said widening; and

NOW, THEREFORE, DOTD and BNSF hereby recite their preliminary understandings as to engineering aspects and concepts of the Project:

1. DOTD has prepared a preliminary conceptual design, a copy of which is attached hereto as Exhibit A, for the addition of travel lane and shoulder width to both the east and westbound lanes by replacing the existing structure on the same horizontal alignment over BNSF’s right of way.
2. DOTD agrees that the final design based on the conceptual design in Exhibit A shall meet or exceed the existing conditions for track vertical and horizontal clearances on the existing structure at the Location.

DOTD further agrees that the final design based on the conceptual design in Exhibit A shall meet or exceed all other BNSF design guidelines contained or referenced in the "BNSF Railway – Union Pacific Railroad Guidelines For Railroad Grade Separation Projects". An 8-ft minimum height throw fence must be installed on sides of structure over BNSF right of way. DOTD must apply and maintain the following information, using seven (7) inch high BLACK lettering and numbering on a WHITE background in a conspicuous location on both sides of the Structure near the center line of the railroad track below:

DOT NO. 767702R
MP 136.68

3. BNSF agrees that if DOTD can demonstrate that spanning the railroad's right of way is not feasible or constructible, BNSF will allow DOTD to place a bridge pier inside BNSF's eastern right of way at 25' minimum horizontal clearance from existing main track. No bridge pier will be permitted within BNSF's western right of way. Design should show and provide for one future track located 20' track centers to west of existing main track. Horizontal clearance on west side of existing main track must be 45' minimum (65' is preferred by BNSF). Vertical Clearance must be 23'-6" minimum over BNSF right of way based on elevation of existing main track top of rail.
4. DOTD will provide BNSF a set of final plans for engineering review prior to Project's construction. If the final plans meet the requirements of paragraphs 1 through 4 immediately above, BNSF shall approve the plans. If BNSF does not approve the final plans, DOTD shall amend the final plans to conform to the requirements of paragraph 1 through 4 immediately above.
5. DOTD will provide BNSF a set of as-built plans upon completion of Project.
6. This MOU may be executed in multiple original counterparts, each of which will be deemed to be an original and all of which together will constitute one and the same agreement.
7. This Memorandum of Understanding shall become effective upon its execution by all of the parties to the agreement; provided, however, that this MOU is an agreement in principle only and, notwithstanding anything else to the contrary, shall not be binding upon the parties.

NOW, THEREFORE, the above and foregoing considered, DOTD and BNSF have executed this Memorandum of Understanding through their undersigned duly-authorized representatives on the dates hereinafter identified.

WITNESSES:

BNSF RAILWAY COMPANY

(1) _____

BY: _____
Timothy J. Huya

(2) _____

TITLE: Manager Public Projects

WITNESSES:

**STATE OF LOUISIANA DEPARTMENT OF
TRANSPORTATION AND DEVELOPMENT**

(1) _____

BY: _____
Richard Savoie

(2) _____

TITLE: Chief Engineer

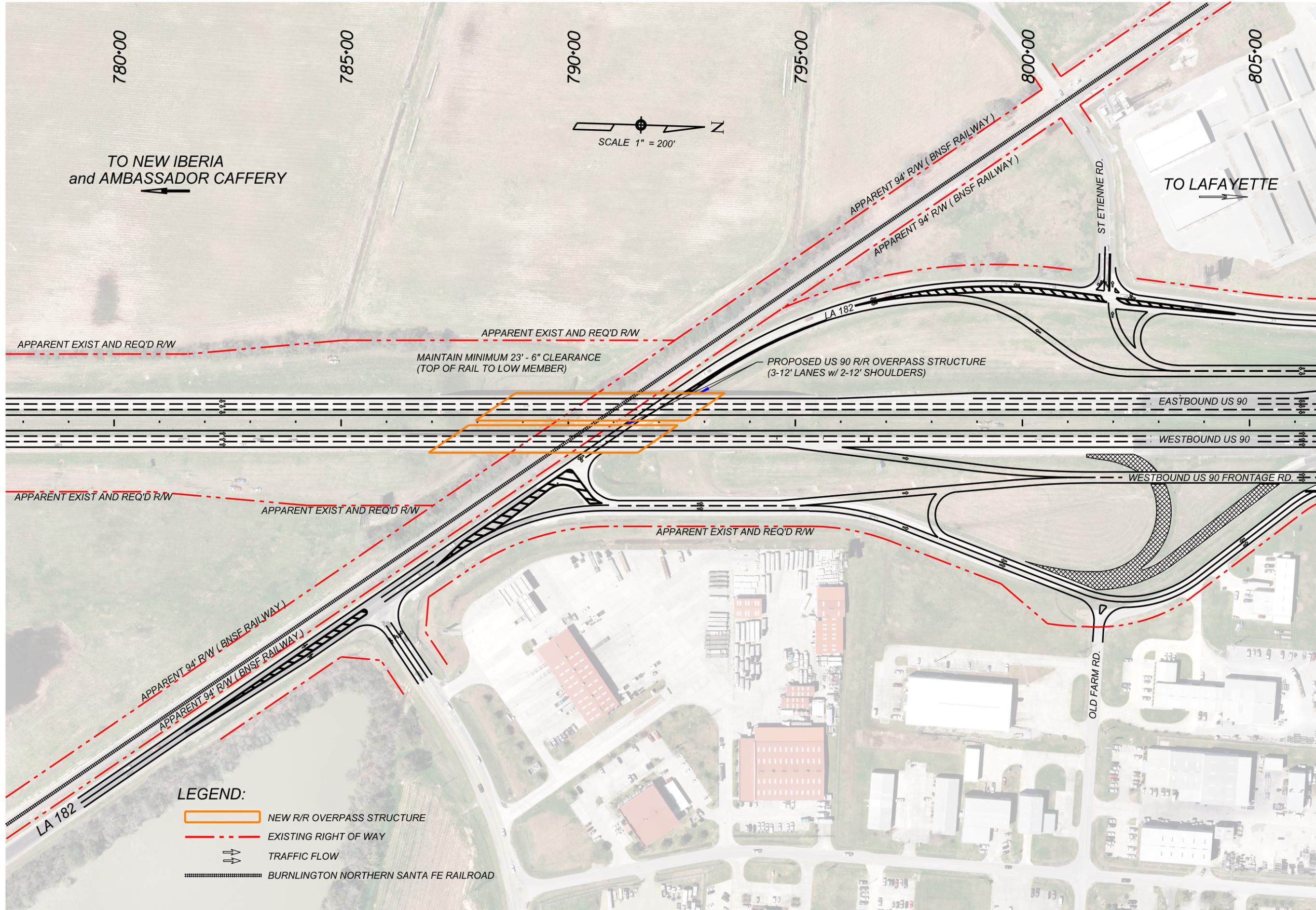
RECOMMENDED FOR APPROVAL BY:

BY: _____

TITLE: Project Development Administrator

SP No. H.010620
US 90: WIDEN/FRONTAGE OVER BNSF RR & LA 182
LAFAYETTE PARISH
Page 4 of 5

Exhibit A
Preliminary Conceptual Design



LEGEND:

- NEW R/R OVERPASS STRUCTURE
- EXISTING RIGHT OF WAY
- TRAFFIC FLOW
- BURLINGTON NORTHERN SANTA FE RAILROAD

| | | | |
|--|--------------|--|------------------|
| | SHEET NUMBER | | LAFAYETTE PARISH |
| | DESIGNED | | FEDERAL PROJECT |
| | CHECKED | | H.010620 |
| | DATE | | STATE PROJECT |
| | NO. | | H.010620 |
| | DATE | | PROJECT |
| | REVISION | | BY |
| | DESCRIPTION | | |
| US 90 (I-49 SOUTH) ALBERSTON'S PARKWAY to AMBASSADOR CAFFERY BURLINGTON NORTHERN SANTA FE RAILROAD | | | |

SP No. H.010620
US 90: WIDEN/FRONTAGE OVER BNSF RR & LA 182
LAFAYETTE PARISH
Page 5 of 5

Exhibit B

Original Constructuion and Maintenance Ageement Between LA Department of Highways
and Texas and New Orleans Railroad Company

STATE PROJECT NO. 424-02-07(A)
FEDERAL AID PROJECT NO. F-PG-65(10)
NEW IBERIA-BILLEAUD HIGHWAY
STATE ROUTE NO. LA 3052
LAFAYETTE PARISH, LOUISIANA

AGREEMENT

between

**STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS**

and

TEXAS AND NEW ORLEANS RAILROAD COMPANY

**to provide for the construction and maintenance
of a highway overpass of the Texas and New Orleans
Railroad tracks on the New Iberia-Billeaud Highway
near Billeaud, Lafayette Parish, Louisiana**

STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS

AGREEMENT

THIS AGREEMENT, made and executed in five (5) original copies on this 27th day of October, 1959, by and between the Department of Highways of the State of Louisiana, party of the first part and hereinafter referred to as "Department," and the Texas and New Orleans Railroad Company, party of the second part and hereinafter referred to as "Railway;"

WITNESSETH: That;

WHEREAS, the Department proposes to construct on new location as part of State Route No. La 3052, the work known as the New Iberia-Billeaud Highway in Lafayette Parish, Louisiana; and

WHEREAS, the cost of the work contemplated is to be financed partly from funds appropriated by the Congress of the United States to be administered by the Department of Commerce through the Bureau of Public Roads, and shall be subject to all Federal laws, regulations, orders and approvals applying to such projects; and

WHEREAS, the proposed construction of the said New Iberia-Billeaud Highway will involve the construction of a highway overpass structure across the right of way and over the tracks of the Railway along the route of the said highway near Billeaud, Louisiana, at Railway Mile Post 136.68; and

WHEREAS, the Railway desires to co-operate with the Department in the construction of the said highway overpass by the granting of servitudes across its right of way for the construction of a highway overpass and by the performance of such other services as may be necessitated thereby;

NOW, THEREFORE, in consideration of the premises and mutual dependent covenants herein contained, the parties hereto agree as follows:

ARTICLE I

For the purpose of identifying plans, specifications, estimates and other documents, this work will be designated as State Project No. 424-02-07(A), Federal Aid Project No. F-FG-65(10).

ARTICLE II

The Department expects to be reimbursed for a part of its expenditures hereunder from funds provided by the United States Government and that funds expended on the project must be expended under federal regulations; that all plans, estimates of cost, specifications, awards of contracts, acceptance of work and procedures in general are subject at all times to all federal laws, regulations, orders and approvals applying to it as a federal aid project and that items entering into the performance of work under this agreement are reimbursable in such amounts and in such forms as are proper and eligible for payment from federal funds. Particular reference is made to the U. S. Bureau of Public Roads' Policy and Procedure Memorandum No. 30-3, issued August 15, 1955, as amended, which is made a part of this agreement by reference.

ARTICLE III

The Railway will permit the construction and maintenance of a highway overpass structure over its tracks and across its right of way at Railway Mile Post 136.68 near Billeaud, Louisiana, at the intersection of the said New Iberia-Billeaud Highway, and for that purpose does hereby grant the Department temporary and permanent servitudes across its right of way and permission to construct and use the aforesaid highway overpass structure across its property and over its tracks at the intersection of the railway and the said highway, all as shown on Exhibit "A" attached hereto and made a part of this agreement. The servitudes granted hereby shall not, in any way, prevent the Railway from operating its trains or multiplying or changing its tracks across the land over which the servitudes have been granted, or under the overpass contemplated thereby. The said temporary servitude shall cease and terminate upon completion of the project and should the said permanent servitude granted by this agreement or any portion thereof cease to be used for the purpose for which the permanent servitude is granted, this permission as to the said portion or portions thereof shall immediately cease and terminate.

ARTICLE IV

Subject to the obligations hereinafter set forth in Article IX, the Railway shall perform or cause to be performed the following:

(A) All temporary and/or permanent rearrangement of Railway's communication or signal lines or other Railway facilities that may be necessitated on account of the overpass construction.

(B) The preparation of specifications and estimates for all necessary temporary and permanent rearrangement or adjustment of its facilities and shall prepare detailed plans for the rearrangement or adjustment of such facilities as may be required and shall prepare for the work to be performed by it or caused to be performed by it a comprehensive detailed statement of the work. The statement, together with detailed and itemized estimates of the cost of the work compiled in order of the items in the statement of work, shall be prepared and submitted to the Department by the Railway and when approved by the Department shall become a part of this agreement. The plans shall include reproductions of drawings of the proposed plan of operation of the Railway to accomplish the work. They shall show the existing facilities, the temporary and permanent changes to be made therein, and the stages by which these changes are to be accomplished.

(C) All required changes to the facilities of the Railway and all work incidental to such changes may be performed by the Railway through other companies under their existing contracts with the Railway. In the event the Railway intends to utilize the services of forces of a company or companies other than its own, under a continuing contract or contracts, the Railway shall indicate in its estimate the items of work to be accomplished under such contract or contracts, and list in its estimate the name of each company whose services will be utilized in the performance of the work. One (1) copy of each continuing contract shall be submitted to the Department at the time the Railway's estimate is submitted to the Department for approval.

ARTICLE V

The Department shall perform or cause to be performed the following:

- (A) The preparation of detailed plans, specifications and estimates for the highway overpass and approaches thereto including all highway facilities.
- (B) Require its contractor or contractors to execute a contract with the Department containing, in addition to other provisions to be incorporated therein, provisions reading substantially as follows:

The contractor shall, subject to the approval by the Railway's Chief Engineer, (a) conduct its or his operation in a manner looking to the prevention of interference with, interruption of, damage or delay to railroad operations over and upon the right of way or tracks of the Railway; (b) place no material, scaffolds, equipment or other obstructions on the Railway's right of way, nearer than ten (10) feet from the center line of any track on which trains may be operated, except as may be authorized by the Chief Engineer of the Railway or his authorized representative; (c) provide, at its or his expense, watchmen or red lights and erect and maintain fences for the protection of the public and the Railway's property, and in order to provide for the safety of rail traffic, Railway will maintain, at contractor's expense, two (2) flagmen during the period and at such points that the track may be subject to obstruction during the construction of this project; (d) act with utmost vigilance to guard against accidents and to cause the least possible interference with the traffic of the Railway; (e) upon completion of the work, remove from within the limits of the Railway's right of way all machinery, equipment, surplus materials, falsework, rubbish or temporary buildings and leave the right of way in a neat condition satisfactory to the Chief Engineer of the Railway or his authorized representative; and (f) provide, in addition to any other form of insurance or bond required by statute, insurance of the following kinds and amounts:

- (1) Contractor's Public Liability and Property Damage Liability Insurance and, if any part of the work is sublet, similar insurance shall be provided by, or in behalf of, the subcontractors to cover their operations.
- (2) Contractor's Protective Public Liability and Property Damage Liability Insurance.
- (3) Railroad Protective Public Liability and Property Damage Liability Insurance of a form as outlined in "Standard Provisions for General Liability Policies, Railroad Protective Liability Form (State or Federal Highway Projects)," as set forth in the U. S. Bureau of Public Roads' Policy and Procedure Memorandum 20-12, issued March 5, 1959.

The limits of liability for the kinds of insurance required above shall be as follows:

| | (1) and (2) | (3) |
|---|--------------|--------------|
| Bodily injury - each person | \$200,000.00 | \$200,000.00 |
| Bodily injury - each occurrence. | 400,000.00 | 500,000.00 |
| Property damage - each occurrence. | 100,000.00 | 200,000.00 |
| Property damage - aggregate limit | 200,000.00 | 500,000.00 |

(C) At the proper time, the construction by a public contract or contracts in accordance with the approved plans and specifications, of the highway overpass structure including the necessary abutments and piers, the approaches to the overpass, and all highway facilities in connection therewith including the adjustment of all drainage obstructed or affected by the new construction.

(D) Notify the Railway in writing at least ten (10) days in advance of the date on which it proposes to begin the work hereunder on the Railway's property.

ARTICLE VI

In the preparation of plans and specifications, the Department and the Railway shall co-operate to the greatest extent possible so as to facilitate the preparation of plans which will be mutually satisfactory to the parties hereto. Upon completion of the plans and specifications and approval of same by the Chief Engineer of the Railway and the Chief Engineer of the Department, said plans and specifications shall be adopted as the plans and specifications applying to the construction of the overpass and its approaches and when so approved shall constitute a part of this agreement as effectively as if attached hereto. After the plans and specifications have been approved, no changes shall be made in the plans and specifications by either party which will affect the facilities of the other party without prior written consent of the other party to this agreement.

ARTICLE VII

Upon authorization by the Department, the Railway shall promptly commence the performance of the work to be done by the Railway. All work shall be done in accordance with the approved plans and specifications and reimbursement to the Railway shall be in accordance with the applicable requirements of the U. S. Bureau of Public Roads' Policy and Procedure Memorandum No. 30-3, issued August 15, 1955, as amended. The Railway shall co-operate as far as practicable and consistent with the operation of its trains so as to enable the Department's contractor or contractors to proceed with the work without delay, but the traffic over and upon the Railway's tracks shall not be obstructed by the contractor except as may be specifically permitted by the Railway.

ARTICLE VIII

The Department, at its own costs and expense, shall maintain the overpass structure, its supports and approaches. Neither this agreement nor anything herein contained shall ever be so interpreted or construed as to place upon the Railway any manner of liability for injury to or death of any person or persons, or for damage to or loss of property arising from or in any manner connected with the construction or maintenance of the highway overpass and the approaches thereto.

ARTICLE IX

The Department shall reimburse the Railway for the actual costs of all labor and materials and other expenses incurred by the Railway in the performance of all services set forth in Article IV. Reimbursement to the Railway shall be made in accordance with federal statutes and regulations promulgated by the Bureau of Public Roads. In the event such statutes or regulations shall hereafter be altered or amended in such manner as to affect the Department's right to reimbursement from federal funds, or in the event that delays or difficulties arise in securing necessary federal approval, or in acquiring the necessary rights of way or in case the low bid submitted for construction of the project is too high to permit construction to be undertaken at a cost within the amount of federal funds allocated to the project, the Department reserves the right to cancel this agreement at any time prior to the actual performance of work hereunder.

ARTICLE X

In accordance with the provisions of PPM No. 21-10 issued by the U. S. Bureau of Public Roads on October 3, 1958, this project has been determined to conform to Classification 4, "Existing Railroad Crossed by New Highway." Under this classification no benefits shall be construed as accruing to the Railway and no contribution by the Railway will be required.

ARTICLE XI

This agreement shall be binding upon and inure to the benefit of the parties hereto, their successors and assigns.

IN WITNESS WHEREOF, the parties hereto have caused these presents to be executed by their respective officers thereunto duly authorized as of the day and year first above written.

WITNESSES:

Terrell H. Hubble
Headline Pool

STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS

BY: [Signature]
Director

Cecil D. Smith
J. C. Hincier

TEXAS AND NEW ORLEANS
RAILROAD COMPANY

BY: [Signature]
TITLE: Vice President

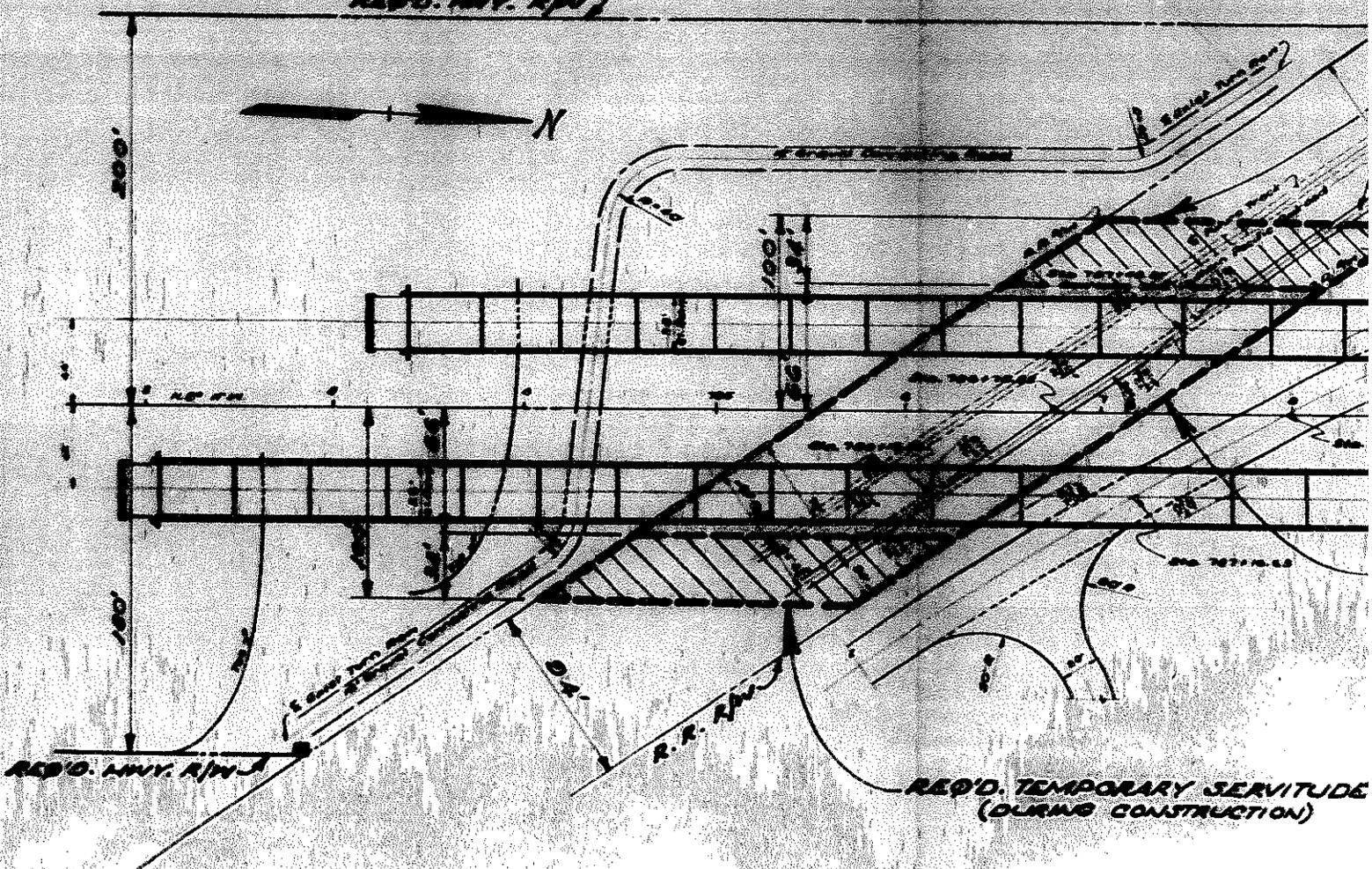
EXAMINED AND APPROVED: NOV 12 1959
Date
[Signature]
Division Engineer
Bureau of Public Roads
U. S. Department of Commerce

APPROVED:
BY: [Signature]
Chief Engineer
Department of Highways

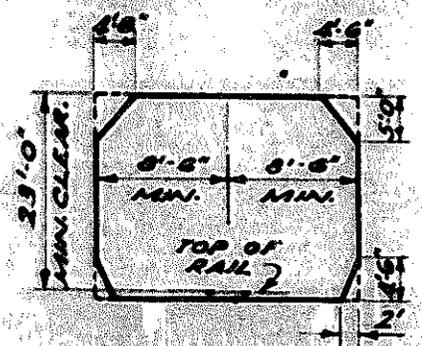
APPROVED AS TO FORM:
[Signature] [Signature]
General Attorneys

EXAMINED AND RECOMMENDED FOR
APPROVAL [Signature]
DATE NOV 12 1959

REQ'D. HWY. R/W



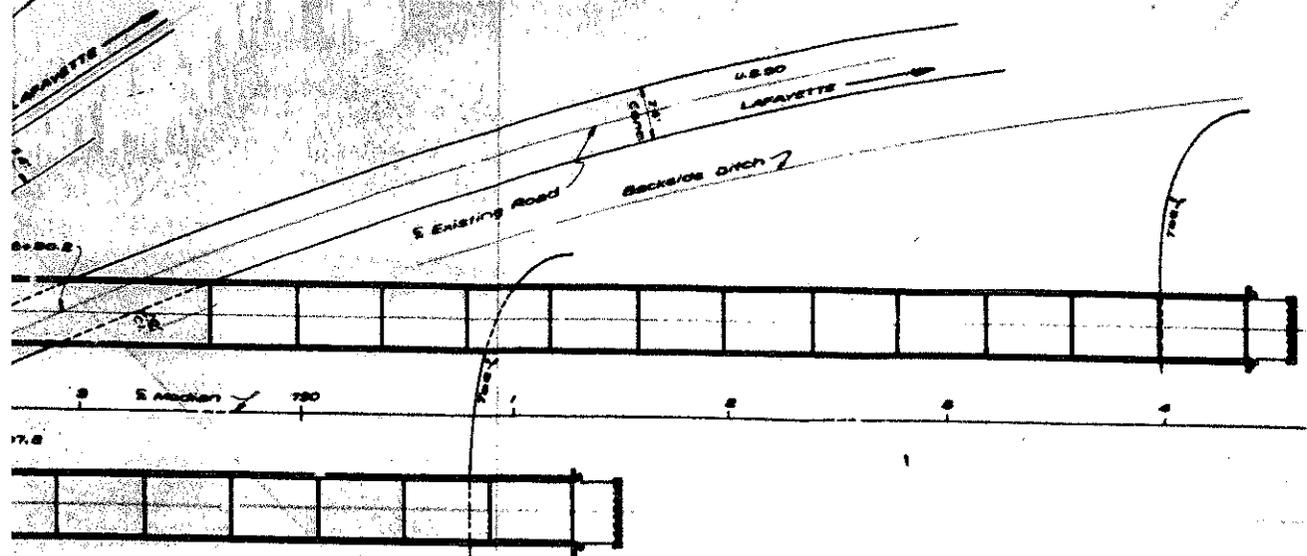
REQ'D. TEMPORARY SERVITUDE (DURING CONSTRUCTION)



RAILROAD CLEARANCE DIAGRAM FOR EXISTING AND FUTURE TRACKS



REQ'D. TEMPORARY SERVITUDE
(DURING CONSTRUCTION)



REQ'D. PERMANENT SERVITUDE

TEMPORARY SERVITUDE
(DURING CONSTRUCTION)

PERMANENT SERVITUDE

REV. 0-4-59 R.D.L.

STATE PROJECT N° 42A-02-07(A)
 FEDERAL AID PROJECT N° F-FG-65(10)
EXHIBIT "A"
 SHOWING SERVITUDES REQUIRED
 FROM: TEXAS AND NEW ORLEANS RAILROAD CO.
 FOR
HIGHWAY OVERPASS
 OVER
 TEXAS AND NEW ORLEANS RAILROAD
 AT BILLEAUD, LA.
 (NEW IBERIA-BILLEAUD HIGHWAY)
 STATE ROUTE N° LA. 3052
 LAFAYETTE PARISH
 STATE OF LOUISIANA
 DEPARTMENT OF HIGHWAYS
 JULY 30, 1959

**UTILITIES
PERFORMANCE SPECIFICATION**

1.0 INTRODUCTION

The Design-Builder may choose to design around existing utility lines where not restricted elsewhere; otherwise the Design-Builder will be responsible for resolving the relocation of any utility conflicts in accordance to LA DOTD policies and procedures so that there is no loss of service during the contract period.

2.0 PERFORMANCE GOALS

- A) Design that avoids all utility conflicts; and
- B) Construction methods that ensure existing utilities are not disrupted.

3.0 STANDARDS AND REFERENCES

The relocation of utility lines conflicting with the construction of the project shall be done in accordance with this Utility Relocation Performance Specification and the relevant requirements of the following standards, unless otherwise stipulated in this performance specification. Standards and references specifically cited in the body of the Utility Relocation Performance Specification establish requirements that shall have precedence over all others. Standards listed are placed in the descending order of precedence. In case of conflict between or among standards listed, the order of precedence established by the LA DOTD shall govern. Listed under references are guidelines that the Design-Builder may use in addressing the requirements as the Design-Builder sees fit. It is the Design-Builder's responsibility to obtain clarification of any unresolved ambiguity prior to proceeding with design or construction.

3.1 STANDARDS

The standards for this Utility Performance Specification are listed in descending order of precedence. In case of conflict between or among standards, the order of precedence established by the LA DOTD will govern.

- A) Louisiana Revised Statute 48:381.; and
- B) Louisiana Administrative Code, Title 70 – Transportation, Part II – Utilities.
- C) “ASCE Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data.”; CI/ASCE 38-02.
- D) LA DOTD “Standards Manual for Accommodating Utilities, Driveways and Other Facilities on Highway Right-of-Way”; September 1, 1994 edition.

3.2 REFERENCES

None

4.0 SCOPE

It is not anticipated that there will be any utility conflicts within the scope and limits of this Project. However, if the Design-Builder should encounter any conflicts between the existing facilities and the proposed design and/or construction, the Design-Builder shall follow the standards as outlined in this Performance Specification.

5.0 PERFORMANCE MEASURES

LA DOTD shall be satisfied that utility avoidance or relocation plan and its execution meets the stated performance goals.

6.0 REQUIREMENTS

6.1 EXISTING UTILITY LINES

SUE services have been performed throughout the Project corridor and the results are provided as Engineering Data. The Design-Builder is responsible for gathering any additional information as may be required to determine any conflicts between utility lines and the scope of the project.

Utility lines may remain in their existing locations within the project ROW if the existing location will not adversely affect the construction, operation, safety, maintenance and/or use of the project.

6.2 RELOCATION OF UTILITY LINES

6.2.1 Coordination

If utility relocation is required, the Design-Builder shall communicate, cooperate, and coordinate with LA DOTD, the Utility Owners and potentially affected third parties, as necessary for performance of the Utility Relocation Work.

When utility lines are to be relocated, the Design-Builder shall coordinate with the Utility Owner to determine which of the following three options will be utilized:

- A) The Utility Owner produces the design of the relocation of the utility line and also physically relocates the line themselves.
- B) The Utility Owner produces the design of the relocation of the utility line and the Design-Builder physically relocates the line.
- C) The Design-Builder produces the design of the relocation of the utility line, and then after the Utility Owner approves the design, the Design-Builder physically relocates the line.

In Cases B and C above, the Design-Builder is to allow and/or provide the Utility Owner inspection of the construction of relocating the utility line. The Design-Builder will work with the Utility Owner on a mutually agreed upon written procedure for the Utility Owner to notify the Design-Builder of any unacceptable work in the construction of the relocation of the utility line. The Design-Builder is to ensure complete satisfaction of the Utility Owner in the relocation of the utility line so that the Utility Owner will accept the utility line and responsibility for maintenance and upkeep to the utility line once it has been relocated.

The Design-Builder shall comply with any state and federal laws/codes governing the design and construction of a utility line.

6.2.2 Agreements & Permits

The LA DOTD will not become owner or responsible for maintenance and upkeep of any utility line from a previous Utility Owner that must be relocated.

The Design-Builder shall be responsible for coordinating all efforts in the relocation of any utility lines located within the LA DOTD right-of-way that are in conflict with the construction of the project, including the verification of existing lines, and preparing (unless prepared by the Utility Owner) all necessary agreements and permits for such relocation as described below. Subject to LA DOTD's approval, the Design-Builder shall be responsible for (a) entering into all necessary agreements with the Utility Owners and securing execution (by the Utility Owner and the Design-Builder's authorized representative) of all such agreements, and (b) securing execution (by the Department and the Utility Owner) of all such permits.

Agreements between the Utility Owner and the Design-Builder and/or permits between the Utility Owner and the Department are required for the following situations:

- A) An agreement is required whenever a utility line located within LA DOTD right-of-way is required to be relocated. In this agreement, the cost distribution and responsibility of the work to be done is specified.
- B) A permit is required whenever a utility line is to be relocated inside the LA DOTD right-of-way.
- C) An agreement is required if the Utility Owner relocates their utility line outside of the LA DOTD right-of-way stating that the utility line will be moved to private property and includes the cost distribution required between the Department and Utility Owner.

6.2.3 Federal Utility Requirements

The project is subject to 23 CFR Part 645 Subpart A (including without limitation its requirements as to plans, specifications, estimates, charges, tracking of costs, credits, billings, records retention, and audit) and FHWA's associated policies, and accordingly, all agreements between the Design-Builder and any Utility Owner shall incorporate by reference 23 CFR Part

645 Subpart A. The Design-Builder shall comply (and shall require the Utility Owners to comply) with 23 CFR Part 645 Subpart A and all associated FHWA policies as necessary for any utility relocation costs to be eligible for reimbursement from any federal financing or funding. The Design-Builder acknowledges, however, that (a) it is not anticipated that Design-Builder will be eligible for FHWA reimbursement of any utility relocation outlays, and (b) the Design-Builder will not have any share in any reimbursement from FHWA or other federal financing or funding that LA DOTD may receive on account of utility relocations. All costs incurred by the Design-Builder in complying with 23 CFR Part 645 Subpart A and the associated FHWA policies are included in the Lump Sum Contract Price.

6.2.4 Status

The Design-Builder is responsible of providing written documentation to the LA DOTD Headquarters Utility Relocation Section of any written agreements and procedures affecting the utilities on the project.

7.0 COST OF RELOCATING UTILITY LINES

7.1 PRIOR RIGHTS

When a Utility Owner can produce documents indicating prior rights, as per the LA Administrative Code, Title 70, the cost of relocating that portion of the Utility Owner's line will be paid out of the Design-Builder's funds for this project.

7.2 BETTERMENTS

Replacements for existing Utilities shall be designed and constructed to provide service at least equal to that offered by the existing Utilities, unless the Utility Owner specifies a lesser replacement. Utility Enhancements are not included in the Work. All betterments will be at 100% the Utility Owner cost, regardless of location.

**MAINTENANCE DURING CONSTRUCTION
PERFORMANCE SPECIFICATION**

1.0 INTRODUCTION

The Design-Builder shall develop and implement a Maintenance Plan for the existing US 90 (I-49 South), Highway LA 182, frontage roads and all intersecting streets in the project corridor that meets or exceeds the performance goals and measures as outlined in this Maintenance During Construction Performance Specification. This Maintenance Plan shall include thresholds for remedial work, remediation actions that need to be taken when thresholds are crossed and timelines to address deficiencies.

2.0 PERFORMANCE GOALS

The Design-Builder shall meet the following performance goals:

- A) The roadway and shoulders, including pavement and bridge decks, must be maintained in a safe, smooth, debris free condition.
- B) All roadside features, appurtenances, and devices, including, but not limited to, drainage structures, guard rail, and permanent signs must be maintained in a manner that allows these items to function as intended;
- C) The roadside vegetation must be maintained in a manner that allows the side slopes, end slopes, and ditches to function as intended and provide a pleasing aesthetic appearance which does not impede drainage or any other function of roadside features, appurtenances, or devices; and
- D) Litter and other roadside debris must be managed to maintain a pleasing, aesthetic appearance and to allow for the safe movement of traffic.

3.0 STANDARDS AND REFERENCES

The Design-Builder shall plan, design, construct, and implement the Project in accordance with this Maintenance During Construction Performance Specification and the requirements of the following standards. Standards and references specifically cited in the body of this Maintenance During Construction Performance Specification establish requirements that have precedence over all others. In this Maintenance During Construction Performance Specification, if the requirements in any standard conflict with those in another, the standard highest on the list will govern. Listed under references are guidelines that the Design-Builder may use in addressing the requirements as the Design-Builder sees fit. It is the Design Builder's responsibility to obtain clarification of any ambiguity within this Maintenance During Construction Performance Specification prior to proceeding with design or construction.

4.0 STANDARDS

The standards for this Maintenance During Construction Performance Specification are listed in descending order of precedence. In case of conflict between or among standards, the order of precedence established by the LA DOTD will govern.

- A) Manual on Uniform Traffic Control Devices (MUTCD), 2009.
- B) The Louisiana Department of Transportation and Development's Guardrail Design Standards (GR-200 and GR-201).
- C) The Louisiana department of Transportation and Development's Traffic Signal Manual, Release Version 1.0, 11-29-2012.
- D) The Louisiana Department of Transportation and Development's Maintenance Manual. (LA DOTD Maintenance is currently revising this manual. If version REV. JULY 1, 1986 of this manual is used, disregard page M6-16 ;
- E) Engineering Directives and Standards Manual (EDSM), LA DOTD.

5.0 REFERENCES

The version of the following references in effect on the Proposal due date may apply:

- A) The American Association of State Highway and Transportation Officials' (AASHTO) Maintenance Manual for Roadways and Bridges (2007);
- B) The American Association of State Highway and Transportation Official's Roadside Design Guide 3rd Edition 2006; and

6.0 SCOPE

Within the corridor Project limits, the Design-Builder shall provide all necessary maintenance of the existing US 90 (I-49 South) roadway, streets, frontage roads, highways, bridges, and all associated roadside features, including, but not limited to, permanent signs guardrail, vegetation, and drainage structures for the duration of the Design-Build (DB) Contract.

7.0 PERFORMANCE MEASURES

The Design-Builder's performance will be evaluated in accordance with the measures identified in Sections 7.1 through 7.7 below. The Department or their designee will perform monthly reviews on all measures. The Design-Builder will take immediate necessary corrective measures for any deficiencies noted in the monthly reviews.

7.1 PAVEMENT (TRAVEL LANES, DETOUR ROADS, CROSSOVERS AND SHOULDERS)

The following measures will be used to evaluate pavement maintenance during construction:

- A) Surface defects;
- B) Drainage aspects;
- C) Pavement and shoulder edge conditions;

- D) Rutting;
- E) Joints and cracking;
- F) Ride quality;
- G) Friction;
- H) Timeliness of repair strategy;
- I) Striping; and
- J) Debris removal.

7.2 BRIDGES AND STRUCTURES

The following measures will be used to evaluate bridge and structures maintenance during construction:

- A) Surface defects;
- B) Drainage aspects;
- C) Joints and cracking;
- D) Ride quality;
- E) Friction;
- F) Timeliness of repair strategy;
- G) Debris removal; and
- H) Striping.

Approval for repairs and/or replacement of bridge or structures must be obtained from the Department's Project Manager prior to Work being performed.

7.3 PIPES, CULVERTS, AND MISCELLANEOUS DRAINAGE STRUCTURES (SUCH AS, CATCH BASINS, DROP INLETS AND MEDIAN DRAINS)

The following measures will be used to evaluate pipe, culvert, and miscellaneous structure maintenance during construction:

- A) Effectiveness and function;
- B) Debris/vegetation;
- C) Erosion/scour;
- D) Structural condition; and
- E) Flooding.

7.4 RETAINING WALLS

The following measures will be used to evaluate retaining wall maintenance during construction:

- A) Effectiveness and function;

- B) Debris/vegetation;
- C) Erosion/scour; and
- D) Structural condition.

7.5 GUARDRAIL

The following measures will be used to evaluate guardrail maintenance during construction:

- A) Effectiveness and function; and
- B) Timeliness of repair strategy.

Approval for repairs and/or replacement of guardrail must be obtained from the Department's Project Manager prior to Work being performed.

7.6 PERMANENT SIGNS

The following measures will be used to evaluate permanent sign maintenance during construction:

- A) Visibility and legibility during daytime and nighttime;
- B) Timeliness of repair strategy;
- C) Functionality; and
- D) Debris.

7.7 ROADSIDE VEGETATION

The following measures will be used to evaluate roadside vegetation maintenance during construction:

- A) Maintenance of primary turf height;
- B) Landscaped areas and all other roadside vegetation; and
- C) Control of noxious weeds and the collection/disposal of litter.

7.8 TRAFFIC SIGNALS

The following measures will be used to evaluate traffic signals during construction:

- A) Maintenance Requirements
- B) Signal Indications (LED)
- C) Signal Head and Sign Alignment
- D) Controller
- E) Flasher Unit
- F) Video Detection
- G) Interconnect Equipment

- H) Cabinet Condition
- I) Service and Pedestal Disconnects
- J) Support Poles/mast Arms
- K) Underground Junction Boxes
- L) Programming (Controller vs. TSI)

8.0 REQUIREMENTS

8.1 LICENSES AND SPECIAL TRAINING

A) Pesticide Applicator

The Design-Builder shall possess, or employ a person who possesses, a Louisiana Department of Agriculture and Forestry (LD&F) Commercial Pesticide Applicator License, within the Right-of-Way (ROW) usage and turf and ornamental category, to apply pesticide/herbicide within the highway system, as required. The Design-Builder shall provide the LA DOTD with documentation of the Commercial Pesticide Applicator License prior to beginning Work. Mixing, transporting, handling, spraying, and disposal of materials must be done by licensed personnel.

B) Aquatic License

The Design-Builder shall possess an aquatic license to make pesticide applications to target species located in bodies of water.

**PROJECT OFFICE AND FIELD OFFICE
PERFORMANCE SPECIFICATION**

1.0 INTRODUCTION

This Project Office and Field Office Performance Specification requires the Design-Builder to provide a Project Office and a Field Office for the use of LA DOTD personnel and their designated agents and representatives.

2.0 PROJECT OFFICE REQUIREMENTS

Within 45 calendar days of the Contract Notice to Proceed date, the Design-Builder shall provide a Project Office either at the Project site or within a 75-mile radius of the Project site, at the discretion of the Design-Builder. This Project Office shall be located on a site provided by the Design-Builder, which will allow adequate parking space.

The Project Office shall house the Design-Builder's Key Personnel, including the Design-builder's Project Manager, Construction Manager, and Design Manager; Project records and reports; and all equipment necessary for administering the Contract. Also, the Project Office shall have at least one (1) conference room of sufficient size to accommodate Project-related meetings; and appropriate storage areas, restroom facilities and kitchen facilities for the Project.

The Project Office shall be equipped with all necessary office, conference room and kitchen furniture, refrigerator, microwave oven, stove, heating and air conditioning, and all necessary utilities including electricity, water, gas, sewer, telephones and telephone service, and internet service. The Project Office shall be handicapped accessible.

The Project Office shall remain in full service until final completion, acceptance, and close-out of the project.

3.0 FIELD OFFICE REQUIREMENTS

Within 30 calendar days of the Contract Notice to Proceed date, the Design-Builder shall provide a Field Office at the Project site or within close proximity of the Project Office, at the discretion of the Design-Builder. This Field Office shall be separate from the Design-Builder's Project Office and shall be solely for the use of LA DOTD personnel and their designated agents and representatives. This Field Office shall be located on a site provided by the Design-Builder, which will allow adequate parking space for LA DOTD personnel and their designated agents and representatives.

The Field Office shall be of sufficient size to accommodate LA DOTD personnel and their designated agents and representatives. The Field Office shall be a minimum of 1,700 S.F. in size, and shall include the following:

- Two (2) offices with minimum dimensions of 12' X 14'
- Two (2) offices with minimum dimensions of 10' X 12'
- One (1) work station area with minimum dimensions of 16' X 24'
- One (1) reception area with minimum dimensions of 10' X 12'

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- One (1) kitchenette with minimum dimensions of 10' X 12'
- One (1) storage area with minimum dimensions of 10' X 12'
- One (1) conference room with minimum dimensions of 12' X 16'
- One (1) men's restroom
- One (1) women's restroom

The Field Office shall be equipped with all necessary office, conference room and kitchenette furniture, refrigerator, microwave oven, heating and air conditioning, and all necessary utilities including electricity, water, gas, sewer, telephones and telephone service, and internet service. The Field Office shall be handicapped accessible.

The Field Office shall remain in full service until final completion, acceptance, and close-out of the project.

**RIGHT-OF-WAY ACQUISITION
PERFORMANCE SPECIFICATION**

1.0 INTRODUCTION

The Design-Builder shall provide all Right-of-Way (ROW) acquisition services necessary for the Project. Through the course of final design efforts the Design-Builder will identify the parcels to be acquired and will be responsible for the activities needed to secure the necessary right-of-way. The LA DOTD will retain final authority for approving just compensation, relocation benefits, and settlements. LA DOTD will retain the expropriation authority. The LA DOTD is not aware of any issues related to the Right-of-Way (ROW) and has not acquired any ROW for the purposes of this project. The ROW Manager for this project is Mr. Robert Richard or his representative with the District 03 Real Estate office.

If necessary the Design-Builder shall submit an acquisition and relocation procedure (see LA DOTD ROW Manual) prior to acquiring ROW

2.0 PERFORMANCE GOALS

- A) Design and construct the project to minimize the necessity to purchase real property outside existing right-of-way.
- B) Should additional right-of-way be required, ensure that property acquisition services are performed in a timely manner to avoid delays in the projects critical path.
- C) Right-of-way acquisition performed in accordance with the Uniform Relocation and Real Property Acquisition Act of 1970, as amended and all other applicable State and Federal requirements.

3.0 STANDARDS AND REFERENCES

Standards and references specifically cited in the body of this Right-of-way Acquisition Performance Specification establish LA DOTD's Standards and suggested Reference guidelines. Should the requirements in any standard or reference conflict with those in another, the standard or reference highest on the lists presented below shall govern. Listed under References are guidelines that the Design-Builder may use in addressing the project requirements as he deems appropriate. It is the Design-Builder's responsibility to obtain clarification of any unresolved ambiguity prior to proceeding with design or construction.

3.1 STANDARDS

- A) Title 23 United States Code (Highways)
- B) Title 49 United States Code (Transportation) Part 24
- C) Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended

- D) Title 9 Title 19 Title 38 Title 48 Louisiana Civil Code
- E) Louisiana Constitution Article I, Section 4
- F) Louisiana Constitution Article VI, Section 21
- G) Louisiana Constitution Article VII, Section 14
- H) Louisiana Administrative Code Chapter 70

3.2 REFERENCES

- A) Operations Manual; LA DOTD, Office of Right Of Way
- B) Title Research Manual; LA DOTD, Office of Right-Of-Way
- C) LA DOTD ROW Manual

4.0 REQUIREMENTS

The Design-Builder shall perform the following services should ROW acquisition be necessary for the successful completion of the Work.

Within 60 days from notice-to-proceed, the Design-Builder will prepare and submit a ROW Acquisition Service Plan for the LA DOTD's review and approval. The ROW Acquisition Service Plan will be in accordance with Title 23 CFR Part 710.313 (d)(Ii) which includes in part a detailed organizational chart showing the individuals who will be providing the right-of-way acquisition services, a written description of the Design-Builder's approach to acquiring the necessary ROW for the project, a flow chart of the step-wise activities/process needed, a Gantt Chart schedule showing the anticipated start/durations/finish for the activities, providing reasonable timeframes for the orderly relocation of residences and businesses and any other information that the Design-Builder deems necessary to adequately describe their ROW acquisition process. The Design-Builder shall provide assurance to the LA DOTD that necessary ROW has been acquired prior to beginning physical construction on the acquired parcels. In accordance with Title 23 CFR Part 710.313 (d) (2i) the Design-Builder shall establish a project tracking system, showing appraisal, acquisition and relocation status of all parcels.

The Design-Builder's right-of-way acquisition activities will include but not be limited to the following:

- A) **Title Research Reports** – Title research reports shall be performed by a Design-Builder listed on the DOTD Real Estate Section's approved title work panel list and shall consist of obtaining the necessary title research reports.

The term "Title Research Report" is defined as a report of the ownership of the current property owner(s) with addresses, acquisition data, assessment and tax information, description of the property, conveyances of full ownership, conveyances of other rights (servitudes, leases, restrictions, etc.), existing right-of-

way, recorded plats, and copy of the last acquisition. One title research report shall be obtained for each parcel.

The original and three paper copies and one electronic copy of the title research reports shall be furnished to the LA DOTD Project Manager along with the final right-of-way map submittal, for forwarding to the Real Estate Section.

- B) Property Survey** – Shall consist of all investigations, studies, and field property surveys required for the preparation of a base right-of-way map. The field property survey shall be based on the same survey control as the topographic survey. Upon completion of the property survey, the Design-Builder shall notify the LA DOTD Project Manager, in writing, and provide an electronic text file listing coordinates and descriptions of all found monuments, a “PDF” copy of all documents (plats, maps, etc.) used to determine property line locations and a “PDF” copy of title take-offs or title research reports used to determine property line locations. The Design-Builder shall also provide a sketch in MicroStation and “PDF” formats showing all surveyed property lines and existing right of way with ties to project centerline.
- C) Title Updates** – Shall consist of obtaining updates of the originally acquired title research reports, if the reports are more than six months old. These updates shall be used in the preparation of the final right-of-way maps and also by the LA DOTD’s Real Estate Section in acquiring title to the property required for the construction project.
- D) Right-of-Way Maps** – Shall consist of all services required to complete the base and final right-of-way maps, described more specifically as follows:

The base right-of-way map shall show the adopted project centerline, all existing right-of-way, limits of construction, appropriate topography (residences, commercial buildings, structures, etc.), parcel line locations and ownerships, and required taking lines, with ties to the adopted project centerline. Individual parcel metes and bounds and precise area calculations are not required at this time, however, the approximate area of each required parcel and remaining area shall be determined and shown on the base map. These maps shall be in the same standard format and shall form the basis for the final right-of-way map. Specifically, this work shall be performed in accordance with all principles and objectives set forth in the latest issue of the DOTD’s Location and Survey Manual, although currently acceptable surveying standards and methods, as approved by the Location and Survey Administrator, may be used. For purposes of a joint review meeting, the base right-of-way map along with one copy of each of the title reports used in preparation of the base right-of-way map, shall be furnished at approximately 60% completion, and reviewed by a DOTD Team. Appropriate revisions recommended for inclusion in the final right-of-way map shall be addressed by the Design-Builder.

The final right-of-way map preparation shall include all activities necessary to complete the final right-of-way map and shall be performed in accordance with the

requirements specified in the latest issue of the DOTD's Location and Survey Manual. The final right-of-way map shall be the base right-of-way map as described above, and shall also include all revisions recommended by the Joint Review Team, parcel metes and bounds, parcel acquisition blocks, parcel areas, remaining areas, Lambert coordinates of all breaks in the required right-of-way and P.C.'s and P.T.'s of curves, and shall be accompanied by an electronic file containing the DOTD COGO program input commands for creating parcel descriptions suitable for use by the DOTD's Real Estate Section.

- E) Title Take-Off** – A report of the deed of ownership of the current property owner, and all survey documents, (plats, maps, etc.) associated with the current ownership deed. One title take-off may be obtained for each parcel, if necessary, to expedite commencement of field work. The title take-off is not considered a part of the title research report and may be performed by the surveyor.
- F) Appraisals** – The Design-Builder shall select appraisers to perform the appraisal services from the DOTD Real Estate Section's list of approved appraisers.

The appraisal must consider all relevant and reliable approaches to value consistent with established Federal and federally assisted program appraisal practices. If the appraiser uses more than one approach, there shall be an analysis and reconciliation of approaches to value used that is sufficient to support the appraiser's opinion of value; it must include a description of comparable sales, including description of all relevant physical, legal, and economic factors such as parties to the transaction, source and method of financing, and verification by a party involved in the transaction;

The appraisal must also include a statement of the value of the real property to be acquired and, for a partial acquisition, a statement of the value of the damages and benefits, if any, to the remaining real property, where appropriate and the effective date of valuation;

5.0 PERFORMANCE MEASURES

The Design-Builder's performance will be equally measured by the following:

- A) A design that fulfills project goals while minimizing the acquisition of additional right-of-way.
- B) Timeliness of acquisitions relative project critical path.
- C) Amicability of all acquisitions; avoidance of expropriations.
- D) Ability to document all work appropriately.
- E) Ability to interact with real property owners in a positive, professional manner.