

# **STATE OF LOUISIANA**

## **INTERSTATE-12 WIDENING DESIGN-BUILD PROJECT**

**O'NEAL LANE INTERCHANGE TO WALKER  
EAST BATON ROUGE AND LIVINGSTON PARISHES  
STATE PROJECT NOS. 454-01-0047 AND 454-02-0025**

### **SCOPE OF SERVICES PACKAGE CONTRACT DOCUMENTS PART 3 - DESIGN REQUIREMENTS AND PERFORMANCE SPECIFICATIONS**



**TABLE OF CONTENTS**

**1.0 GENERAL..... 1**

1.1 PURPOSE..... 1

**2.0 DESIGN REQUIREMENTS ..... 1**

2.1 SCOPE..... 1

2.2 PROCEDURES ..... 1

2.2.1 Format ..... 1

2.2.2 Deviations ..... 1

2.3 SUPPORTING ENGINEERING INFORMATION..... 1

2.3.1 Geotechnical..... 1

2.3.2 CADD ..... 2

2.3.3 Traffic Data ..... 2

2.4 DESIGN CODES AND MANUALS ..... 2

2.5 PROJECT-SPECIFIC DESIGN PARAMETERS ..... 2

2.6 SAFETY CONSIDERATIONS ..... 2

**3.0 PERFORMANCE SPECIFICATIONS ..... 3**

3.1 STANDARDS AND REFERENCES ..... 3

3.2 RELATION TO PART 4 – SCOPE OF SERVICES PACKAGE PLANS ..... 3

3.3 LIST OF PERFORMANCE SPECIFICATIONS ..... 3

## **1.0 GENERAL**

### **1.1 PURPOSE**

This Part 3 – Design Requirements and Performance Specifications establishes basic design and performance goals to be used in the design and construction of the Project. In addition, directive and indicative Plans (*see* Part 4 – Scope of Services Packages Plans) have been prepared during Preliminary Engineering (PE) to guide the design activities through final design and the preparation of procurement and construction documents.

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. The Performance Specifications also relate the applicability of the Plans contained in Part 4 – Scope of Services Packages Plans.

### **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 the performance goals contained in each Performance Specification, will guide the design of that Project element. Each Performance Specification provides the LA DOTD's performance goals and provides specific design requirements.

The Design-Builder shall use the performance goals and other information contained in the Performance Specifications to design and construct the Project to assure that it meets the Contract requirements.

#### **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 standards 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 Geotechnical**

Aquaterra, Inc., was is under contract with the LA DOTD to obtain deep and shallow boring data including approximately 60 shallow borings at 750 foot spacing along the centerline of I-12 with standard subgrade testing. Additionally, Aquaterra, Inc., will conduct 26 deep borings along the existing Amite River bridge to elevation -150 feet and two deep borings to elevation -190 feet for a total of 28 deep

borings to expand on the existing data. Fifteen of the deep borings will be full depth, and the rest will be washdown borings with sampling beginning at the termination depths of the existing boring information. The placement of the deep borings are along the centerlines of the existing bridges, with no more than 200 foot separation between borings along centerline but an average of ~110 foot separation. The geotechnical information conducted by Aquaterra, Inc., is only warranted to be accurate for the location in which the boring was taken.

The Design-Builder shall conduct additional geotechnical investigations, analyses, design, and construction as it deems necessary to complete the design and construction of the Project in accordance with the Geotechnical Performance Specification (*see* Appendix A – Performance Specifications to this Part 3 – Design Requirements and Performance Specifications).

### **2.3.2 CADD**

CADD formatting for Design and As-Built Plans must conform Part 2 – Design-Build (DB) Section 100, DB Section 111, Section 111-19.3.

### **2.3.3 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 Proposal due date will 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 will be covered by a change order.

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

- A) AASHTO A Policy on Geometric Design of Highways and Streets (Green Book), 2002;
- B) AASHTO Roadside Design Guide, 2002; and
- C) Manual of Uniform Traffic Control Devices (MUTCD), 2001.

## **2.5 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 bridge clearances.

## **2.6 SAFETY CONSIDERATIONS**

The Design-Builder shall consider safety during construction and for the completed facility as a function of design. Design features and construction components will be selected that provide a safe and efficient Project.

### **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 must achieve. The Performance Specifications are intended to provide the LA DOTD’s goals 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 goals.

#### **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 references are cited in Performance Specifications as requirements.

#### **3.2 RELATION TO PART 4 – SCOPE OF SERVICES PACKAGE PLANS**

The Performance Specifications contained in Appendix A – Performance Specifications to this Part 3 – Design Requirements and Performance Specifications also govern the applicability of the Scope of Services Package Plans contained in Part 4 – Scope of Services Packages Plans. Individual Performance Specifications establish which of the Scope of Services Package Plans apply and the extent to which those Scope of Services Package Plans apply. Indicative plans are, for the most part, for reference as described in Section 3.1. The presence or lack of presence of an indicative plan, or the lack of a directive plan, relative to an element or component of the Project should not be interpreted as reducing the flexibility or range of choices provided to the Design-Builder under a Performance Specification. Part 4 – Scope of Services Package Plans further addresses the distinction between directive and indicative plans and the applicability of directive and indicative plans.

#### **3.3 LIST OF PERFORMANCE SPECIFICATIONS**

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

- A) Geotechnical;
- B) Roadway;
- C) Pavement Structure;
- D) Drainage;
- E) Structures;
- F) Lighting;
- G) Intelligent Transportation Systems (ITS);
- H) Traffic Management Plan;
- I) Permanent Signage;
- J) Environmental;
- K) Utility;
- L) Maintenance during Construction;
- M) Public Information; and

N) Warranty.