ST. TAMMANY PARISH
PATRICIA P. BRISTER
PARISH PRESIDENT

May 9, 2017

Please find the following addendum to the below mentioned QUOTE.

Addendum No.: 1

Quote#: 315-25-17-49-1

Project Name: 2017 District 2 & 5 Panel Replacements

Quote Due Date: Thursday, May 18, 2017

GENERAL INFORMATION:

1. Please add the following attachments:
   - Attachment "H" – Testing and Inspection Standards (Attached)
   - Attachment "I" – Testing Record (Attached)

QUESTIONS & ANSWERS:

Question #1: There are no testing standards in the bid documents for this project. Is testing required?

Answer #1: Please see the added attachments in this addendum.

ATTACHMENTS:

1. Attachment "H" – Testing and Inspection Standards (Attached)
2. Attachment "I" – Testing Record (Attached)

<< End of Addendum # 1 >>

ST. TAMMANY PARISH ROADWAY TESTING & INSPECTION STANDARDS FOR RESIDENTIAL SUBDIVISION

GENERAL:

- Louisiana Standard Specifications for Roads and Bridges (LSSRB), as amended, special provisions by the St. Tammany Parish Roadway Design and Construction Standards shall apply to Roadway Testing and Inspection Requirements.
- Testing of all materials and construction shall be in accordance with ASTM, AASHTO or LA DOTD specifications.
- All testing and inspection reports performed by the independent testing laboratory employed by the developer/contractor shall be submitted to the Parish Engineering Department within 10 working days after the tests are conducted.
- Materials Testing Laboratories should be approved by St. Tammany Parish Engineering Department. The testing and inspection firm must have a minimum of 5 years of experience and operates under the direct supervision of a Louisiana Registered Professional Engineer.

1. Roadway Subgrade Preparation

The roadway alignment should be stripped of all topsoil with organics and other deleterious materials. The topsoil in St. Tammany Parish is generally underlain by moisture sensitive silty soils. These near surface silty deposits should be examined at the time of construction since they tend to lose their support capabilities if they become wet. Consequently, depending on the site condition at the time of construction, the moisture sensitive soils may have to be undercut and replaced with compacted structural fill.

Once the roadway alignment is stripped and undercut to the required subgrade elevation, the roadway subgrade should be proofrolled using a single or a tandem axle dump truck or similar heavily loaded rubber tired vehicle weighing about 20 tons. Soils which are observed to rut or deflect under the moving load should be undercut and replaced with compacted structural fill, disked open to dry or treated to form a stable non-yielding subgrade prior to fill placement. Proofrolling the roadway subgrade should be witnessed by St. Tammany Parish Inspection personnel or their representative prior to proceeding with fill placement. The approval of the subgrade is valid for 24 hours. Therefore, the subgrade should be protected and covered with fill as soon as possible. Should the subgrade be exposed to excessive amount of precipitation, re-approval of the subgrade will be required.

2. Roadway Fill

Fill placed along the roadway alignment should consist of sandy clays, clayey or silty sands free of organics and other deleterious materials. The fill should have a maximum liquid limit of 40 and a plasticity index less than 18 percent. The structural fill should be placed in maximum lifts of 8 inches of loose materials and should be compacted within 1 percentage point below to 3 percentage points above the optimum moisture content. The fill should be compacted to at least 95 percent of the fill's maximum dry density as determined by ASTM D698 (AASHTO T99). Each lift of fill should be compacted by the parish designated testing laboratory and approved prior to placement of subsequent lifts. The edge of the fill should extend at least 2 feet beyond the edge of the road or face of curb. Field density tests should be conducted in accordance with ASTM D2922 at 100 foot intervals along the roadway alignment.

3. Aggregate Base Course

The roadway aggregate base should consist of Class II Base including 610 limestone or crushed concrete meeting the requirements of the latest edition of Louisiana Standard Specifications for Roads and Bridges (LSSRB), Section 1003.3D. The aggregate base should be compacted to at least 95 percent of the aggregate's maximum dry density determined by ASTM D698 (AASHTO T99). Field density tests should be conducted on the base material in accordance with ASTM D2922 at 100 foot intervals along the roadway alignment. In addition, depth checks should be conducted at the density test locations to verify compliance with the pavement design and parish requirements.

4. Lime Treated Subgrade

Lime treatment may be used to stabilize the clay subgrade or to dry the in situ soil. It is not intended for use as a pavement base. Lime treatment should be conducted after the soil has been classified and the plasticity index of the soil is determined to optimize the quantity of lime needed to treat the soil. The following percent of hydrated lime, by weight, is a guide to treat the cohesive soil. The actual amount shall be verified prior to field application.

% of Hydrated Lime by Weight	Clay Soil Plasticity Index, %
2	18 to 30
4	31 to 45

The percent of lime required to stabilize clays with plasticity indices over 45 percent shall be determined by an independent testing laboratory. Lime treatment of silty soils should be conducted for drying purposes only.

Lime treatment should be designated by type in accordance with LSSRB, Section 304. When lime is used to treat the clay sub-base or to prepare for cement treatment, Type B and Type C shall be used, respectively. For Type B and Type C treatments, the pulverized treated soil should yield 95 percent passing the ¾ inch sieve and 50 percent passing the No. 4 sieve, by weight. The mixture should be compacted to at least 95 percent of the maximum dry density as determined by ASTM D698 (AASHTO T-99). Field density tests should be conducted at intervals of 200 linear feet of roadway. The mixture should be protected against drying in accordance with LA DOTD specifications.

5. Cement Treated Base

Cement treatment of roadways should be conducted in general accordance with LSSRB, Section 303. Cement treated base generally involves treatment of the existing subgrade soils or treatment of imported embankment fill to be used as a base course in flexible or rigid pavement sections.

The in situ or embankment fill considered for cement treatment should have a plasticity index of less than 15 percent. Soils with higher plasticity indices should be lime treated prior to cement treatment. Cement treated bases for roadways should be designed to yield a minimum compressive strength of 300 psi at 7 days as determined by a mix design in accordance with DOTD TR 432 Standard Procedure. The mix design should be conducted on representative samples of the subgrade soil by an independent testing laboratory. Unless the results of the mix design indicate otherwise, the silty soils encountered generally in St. Tammany Parish should be treated with at least 10 percent of Portland Cement, by volume. The roadway should be prepared in general accordance with LSSRB, Section 303-04. The moisture content of the mixture should be within 2 percent of the optimum moisture at the time of treatment. Pulverization of the treated soils should yield a mixture with at least 60% passing the No. 4 sieve.

Compaction and finishing of a treated roadway section should be completed within 3 hours of the initial cement application to the base course materials. The treated base should be compacted to at least 95 percent of the mixture's maximum dry density as determined by ASTM D698 (AASHTO T-99). Field density tests should be conducted on the cement treated base at a frequency of not less than 1 test per 100 linear feet of road.

Thickness of the cement treated base should be verified for compliance with the roadway design. The depth of treatment should be checked during placement at a frequency of not less than 1 test per 100 linear feet of road. The cement treated base should be immediately protected against rapid drying by applying an asphalt curing membrane. The treated section should be allowed to cure for a period of at least 7 days prior to exposure to construction traffic. The contractor should protect the treated base from damage until the surface course is placed. Damaged base course should be repaired by the contractor and approved by St. Tammany Parish Engineering Department prior to application of the surface course.

6. Portland Cement Concrete

Portland Cement Concrete for St. Tammany Parish roadways should be placed on approved roadway bases. The concrete mix design should be reviewed in accordance with ACI 301 for compliance with the strength requirements. All materials used in the concrete mix should be from DOTD approved sources. The materials should be proportioned, batched, cured and placed in accordance with LSSRB, Section 901.

Prior to placement of concrete, depth checks should be conducted by string lines trained across the forms to verify the pavement thickness at a frequency of not less than 50 feet. Deficiencies noted should be corrected and approved prior to concrete placement.

During placement of Portland Cement Concrete pavement, observation and testing should be done on a full-time basis. At a minimum slump, air content and mix temperature test should be conducted every 50 yards of placed concrete. Four (4) compressive strength cylinders should be cast every 100 cubic yards placed. Cylinders shall be tested as follows: 1 Cylinder at 7 days, 2 cylinders at 28 days and 1 cylinder should be placed on hold. Additional cylinders should be cast when high/early mix is used and early concrete strength is required to open the road to traffic with the approval of St. Tammany Parish Engineering Department. The placed concrete should be finished, cured and protected in accordance with LSSRB requirements. At the discretion of St. Tammany Parish Engineering Department, cores may be obtained for verification of pavement thickness.

7. Asphaltic Concrete

All materials used in the mixture should be from DOTD approved sources. The materials should be proportioned to produce a pavement mix meeting LSSRB requirements. The proposed mix design should be submitted for approval to St. Tammany Parish Engineering Department. The asphaltic concrete mixture should be placed on a stable and approved base.

During placement of asphaltic concrete, observation and testing shall be on a full-time basis. For each 1,000 tons of materials placed, or a fraction thereof in one day, a sample should be tested at the plant for percent void, Void Mineral Aggregate (VMA), asphalt content and gradation. The results will be used to control the mixture and form a basis for acceptance of the pavement.

Mix temperature should be checked on each truck load in the field. Loads with low temperatures not meeting specifications should not be placed.

The final pavement thickness and density of the mixture shall be verified by obtaining 4 inch diameter cores at a minimum frequency of 1 core per 400 linear feet of road and not less than 3 cores per roadway section. The density of the pavement core should not be less than 92 percent of the maximum theoretical density. The thickness of the cores should be within ¼ inch of the design thickness. The Parish reserves the right to accept or reject the pavement based on the test results.

8. Utility Trench Backfill

Backfill material for culverts and storm drains should be placed and compacted in general accordance with LSSRB, Section 701, as modified in this section.

Cross drains and side drains in paved areas should be backfilled with granular fill A-3 material or better. The backfill shall be placed near optimum moisture and should be compacted in lifts not exceeding 12 inches. Field density tests should be performed during the backfill operation from 1 foot above the pipe up to the finished grade. Each layer should be compacted to 95 percent of the fill's maximum dry density as determined by ASTM D698 (AASHTO T-99). The field density tests should be conducted at a minimum frequency of 1 test per 100 linear feet.

Bedding material should be provided under the utility lines with a minimum of 6 inches placed under the pipe and extending one half of the pipe diameter beyond the edge of either side of the pipe or minimum of 12 inches, whichever is greater. The pipe should be side bedded to the mid-height of the pipe or to the pipe spring line, if arch pipe is used. The bedding material should consist of free draining granular material meeting the requirements of #57 limestone or crushed concrete. Other bedding materials may be considered by St. Tammany Parish Engineering Department. A geotextile fabric should also be placed around the pipe at each joint to reduce potential migration of the fill into the joints of the pipe.

Utility trench backfill in non paved areas should be either granular material or selected soils as defined by LSSRB, Section 701.08. The fill should be compacted in lifts to the density of the surrounding soil but not less than 90 percent of the fill's maximum dry density as determined by ASTM D698 (AASHTO T-99).

Attachment I

TESTING RECORD

Minimum Testing Requirements for Roadways

Project Number _____ **Road** _____ **Date** _____

Project Inspector _____ **Location Description** _____

Item	Type of Test/Method	Min Testing Frequency	Required # of Tests	Actual # of Tests
Roadway Subgrade	Proof roll (tandem axle, 20 tons)	All Subgrade		
String Line Depth Check	Depth Check	Test/50 LF		
Roadway Base	Field Moisture/Density, DOTD TR401	1 Test/100LF/Lift		
	Depth Check	1 Test/100 LF		
	Laboratory Moisture/Density, ASTM D698 or DOTD TR418. Required 95%	1Test/Aggregate Type		
	Sieve Analysis, ASTM C136 or DOTD TR113	1 Test/Aggregate Type		
Lime Treated Subgrade	Lime Series, DOTD TR416	1 Test/Soil Type		
	Field Moisture/Density, DOTD TR401	1 Test/1000 LF		
Cement Treated Base	Soil/Cement Series, DOTD TR432	1 Test/Soil Type		
	Field Moisture/Density (1 point proctor – family of curves) DOTD TR415	Daily/Treated Section		
	Field Moisture Density, ASTM D2922 or DOTD TR401	1 Test/1000 LF		
	Depth Check	1 Test/100 LF		
Roadway Concrete	Slump, ASTM C143	1 Test/50 CYDS or fraction thereof		
	Temperature, ASTM C1064	1 Test/50 CYDS or fraction thereof		
	Air Content, ASTM C231 or C173	1 Test/50 CYDS or fraction thereof		
	Test Cylinders, ASTM C31	1 set of 4 Cylinders/100 CYD or fraction thereof		
Roadway Asphalt	Field Temperature- Parish Inspector	Full-Time/Every Load		
	Laboratory Extraction and Gradation, DOTD TR323 and TR309, Marshall Stability, DOTD TR305, Specific Gravity, TR304 or AASHTO M323 (Super Pave)	1 Test/500 Tons or a Fraction Thereof/day or if less: 2 tests per day, 1 per ½ day.		
Roadway Cores	Thickness and Density	3 Cores/1000 Feet		
Utility Trench Bedding	Gradation, ASTM C136 or DOTD TR113	1 Test/Aggregate Type		
Utility Trench Backfill	Classification, ASTM D2487 or DOTD TR423	1 Test/Soil Type		
	Laboratory Moisture/Density, ASTM D698 or DOTD TR418	1 Test/Soil Type		
	Field Moisture/Density, ASTM D2922 or DOTD TR401	1 Test/100 LF/Lift		