NOTICE TO ALL CONSULTING ENGINEERING FIRMS

Solicitation Number S-120-14

The **SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION (SCDOT)** requests a letter of interest and a current resume of qualifications from all interested consulting firms experienced in providing **Bridge Design Engineering Services** on an on-call basis necessary for the preparation of preliminary plans, right of way plans, and final construction plans for roadways and bridges in South Carolina. Requested services include but are not limited to: surveys, roadway design, hydrology/hydraulics, construction support services, utility coordination, geotechnical borings and design engineering, environmental documentation and permitting, bridge and structural design, and other related duties deemed necessary.

The proposed solicitation will span a three (3) year time frame. The SCDOT will select six (6) firms with a maximum award amount of up to $2,500,000/firm. Consultants will be evaluated and ranked based on their score during the selection process. Consequently, work under each On-Call will initially be assigned based on the consultant's ranking. Once the list has been exhausted, work will then be assigned to best maintain equity in the value of work unless an exception is approved. Exceptions are warranted when specialized experience or knowledge to specific project is required and will require justification (see supplemental information).

Supplemental information associated with this solicitation is located at the following link: http://www.scdot.org/doing/constructionLetting_Services.aspx.

For questions, please contact the SCDOT Contracting Officer, Roberta Mack, at (803) 737-1256 or via email at Mackrb@scdot.org. Electronic Submissions are due no later than 2:00 PM, January 21, 2014.

Bridge Replacement

Statewide On-Call 2014-2017

Scope of Work

INTRODUCTION

The South Carolina Department of Transportation (**DEPARTMENT**) proposes to enter into agreements with 6 qualified engineering firms for the replacement of bridges across the state of South Carolina. The scope of services for each bridge replacement may include any of the following tasks: environmental documents; environmental permitting; site investigation; field surveys; development of preliminary and final right-of-way plans; development of preliminary and final bridge construction plans; development of preliminary and final roadway construction plans; hydrology and hydraulic design; subsurface utility engineering; geotechnical borings, testing and design; utility and railroad coordination; and construction support services.

QUALITY CONTROL

The **CONSULTANT** shall implement all necessary quality control measures to produce plans that conform to the **DEPARTMENT** and **FHWA** guidelines and standards. Prior to submittal to the **DEPARTMENT**, all plans shall be thoroughly reviewed by the **CONSULTANT** for completeness, correctness, accuracy and consistency with the above referenced requirements. **CONSULTANT** shall follow the **DEPARTMENT's** plan checking procedure checklist and submit to the **DEPARTMENT** a copy of the QA/QC checklist with the appropriate signatures with all plan submittals. Plans shall be prepared under a certification agreement between the **DEPARTMENT** and **CONSULTANT**.

CONTRACT CHANGES

CONSULTANT shall notify **DEPARTMENT** of any event that causes or may cause a change in the contract within fifteen (15) working days of the incident. **DEPARTMENT** will not be responsible for incidents that remain unreported longer than the time specified above.

SUMMARY OF WORK

This project shall consist of the following tasks:

Task 1: Environmental Services
Task 2: Subsurface Utilities Engineering

Task 3: Field Surveys
Task 4: Preliminary and Final Bridge Plans
Task 5: Road Design Plans
Task 6: Hydrology and Hydraulic Design
Task 7: Traffic Control, Pavement marking & Signing
Task 8: Utility Coordination
Task 9: Geotechnical Services
Task 10: Construction Phase Services

TASK 1: ENVIRONMENTAL SERVICES

AGENCY COORDINATION/PUBLIC INVOLVEMENT

A letter of intent will be prepared and sent to the affected agencies after receipt of notice to proceed. This will initiate coordination with resource and regulatory agencies that will continue throughout the project. As part of the agency coordination, the project will be presented at Agency Coordination Team meetings (3 meetings maximum).

Project information will be prepared and bulk mailed during the project to potentially affected residents and local officials in the project area. This information will be provided in the form of a newsletter. A newsletter will be mailed prior to the public information meeting and prior to the public hearing should one be deemed necessary. This newsletter will notify the public of the public meeting and outline the project and discuss such items as schedule and the type of improvements proposed.

A public information meeting and/or public hearing will be held during the project development, once sufficient information has been collected to develop a base map and preliminary alternatives. This meeting will be part of the continuing effort to provide opportunities to the public to learn about the proposed projects and comment on them it. The meetings will follow the established **DEPARTMENT** format as established on the date of the Notice to Proceed. It is assumed that representatives from the **DEPARTMENT** and the **CONSULTANT** will attend the meetings to help explain the project to the public. Written responses to comments, received as a result of the meetings, will be prepared by the **CONSULTANT** and reviewed by the **DEPARTMENT** prior to mailing.

ENVIRONMENTAL ANALYSIS & DOCUMENTATION

In the development of the subject project, the **CONSULTANT** shall be responsible for NEPA compliance in accordance with 23 CFR Parts 771 and 772, as well as any related, current/latest guidance promulgated by Federal Highway Administration (FHWA), as of the date of executed

contract.

Within two weeks of the date that the **DEPARTMENT** executes the contract for the subject project, and prior to commencement of design and/or NEPA compliance, the **CONSULTANT** shall make a determination of the environmental and/or navigational permits expected to be required for the subject project on a permit determination form (*Enclosure* A), and provide the completed form to the Environmental Section of the **DEPARTMENT**.

A. The **DEPARTMENT**, in coordination with **CONSULTANT** and FHWA, will determine appropriate level of documentation for the project. It is anticipated that a Categorical Exclusion (CE) will be required for this project, and will be the basis for determining the man-hour and fee estimate for the environmental documentation effort. The **DEPARTMENT** will be afforded the opportunity to review and approve any correspondence, contact or communication with the FHWA, State and Federal agencies, and regulatory agencies in advance. The **CONSULTANT** shall schedule an onsite meeting with the USACOE, SCDHEC, SCDNR, and USFW (specifically with the **DEPARTMENT** liaisons at each of these agencies) to review the proposed project, discuss any particular regulatory concerns, and establish a timetable for acquisition of the permit. The **CONSULTANT** shall make determination of the aquatic significance of the stream, and confirm these findings with resource and regulatory agency personnel.

1. For all environmental documentation, **CONSULTANT** shall address the following:

   a. Purpose and Need - **CONSULTANT** will outline background that led to initiation of proposed action. A description of the need for the action, along with specific components (i.e. goals, objectives, benefits to be gained by the public, etc) will be included.
   b. Existing Facility - **CONSULTANT** will prepare description of existing roadway characteristics, safety conditions, Level of Service (LOS), etc.
   c. Proposed Facility - **CONSULTANT** will prepare description of proposed the roadway facility/improvements, anticipated LOS, etc.
   d. Alternatives - **CONSULTANT** will complete a rigorous alternatives analysis, including a discussion of all alternatives considered and a detailed discussion of reasonable alternatives considered and basis of elimination. Throughout the project development process, from preliminary design through the development of right-of-way plans, the **CONSULTANT** shall record of any decisions regarding alternatives, and the **CONSULTANT** shall provide such records to the **DEPARTMENT** Environmental Section at the time that the environmental document is submitted for their review and approval. For Environmental Assessments, an alternatives matrix should be prepared. If applicable, the **CONSULTANT** shall include a rigorous alternatives analysis regarding the anticipated impacts to natural

systems, including documentation of efforts to minimize or avoid impacts to waters of the U.S., as well as a color graphic(s) indicating the anticipated impacts to waters of the U.S. in relation to the surrounding special aquatic sites including wetlands, drainage systems/features and open waters (e.g., a digital ortho-quad, with an NWI map, and county soil survey maps, and the delineated waters of the U.S. superimposed) and Section 404 (Clean Water Act) drawings as an appendix.

e. Impact Assessment Form - The **CONSULTANT** shall also include a completed SCDOT Impact Assessment Form as an appendix to the permit application and/or environmental document if applicable *(Enclosure B).* The **CONSULTANT** shall fill out the entire SCDOT Impact Assessment Form *(Enclosure B)* when preparing any permit application or NEPA document. The **DEPARTMENT's** Environmental Section will review each completed Impact Assessment Form to ensure that the form is completed to the **DEPARTMENT's** satisfaction.

f. Natural Resources / Endangered Species Survey - **CONSULTANT** will perform a natural resources investigation, which will describe the project area, including vegetation, wildlife, wetlands/waters of the U.S., water quality, protected species habitat evaluation, soils, topography and anticipated impacts to each resource. The natural resources investigation is to include a freshwater mussels survey. The results of the investigation will be documented in a Natural Resource Technical Memorandum. Three hard copies of the technical memo will be provided to the **DEPARTMENT**. If an informal consultation with the U.S. Fish and Wildlife Service (USFWS) is required, then the **CONSULTANT** shall also be responsible for performing this part of the project development process on behalf of the **DEPARTMENT**. Any concessions in either the scope of work, construction activities, or mitigation measures will require prior SCDOT approval. Also any correspondence or communication with USFWS must receive prior approval by the **DEPARTMENT**. If the **DEPARTMENT** chooses to allow the **CONSULTANT** to correspond directly with the USFWS, then the **CONSULTANT** shall communicate/correspond with the **DEPARTMENT's** USFWS liaison, when practicable, and the **DEPARTMENT** shall be copied on all communications.

g. Wetlands / Water Quality - **CONSULTANT** shall quantify the anticipated impacts to waters of the U.S., and provide a qualitative discussion regarding the types of streams, wetlands, and other waters of the U.S. being impacted in the context of the adjacent and surrounding waters of the U.S. (In this section of the document, the **CONSULTANT** shall utilize / reference the natural systems graphics specified in item "d" above and reference the Impact Assessment Form specified in item "e" above). The **CONSULTANT** shall also include a discussion regarding the overall affects of the planned improvements to water quality.

h. Farmlands – **CONSULTANT** will include a discussion of farmland impacts, including a determination of the presence of prime or unique farmlands or farmlands with statewide

importance. Coordination with the NRCS, including completion of Form AD-1006, and review of the alternatives pursuant to the Farmland Act will be completed.

i. Hazardous Waste and Underground Storage Tanks – In assessing the environmental liabilities associated with the proposed new right of way, the **CONSULTANT** shall complete the appropriate / applicable elements of a Phase I Environmental Site Assessment (ASTM 1527).

j. Cultural Resources (Historical, Archaeological) – Investigations shall be conducted as required. Cultural resource reports will comply with state and federal requirements. However, with findings of up to five non-significant sites, a form report format (provided by the **DEPARTMENT**) will be utilized. All SHPO coordination shall occur through the **DEPARTMENT**.

k. Displacements – **CONSULTANT** will perform a relocation study to identify all potential business and residential relocations that will occur as a result of the project.

l. Air Quality – The **CONSULTANT** shall provide a discussion regarding the overall affects of the project on air quality, and indicate the Attainment or Non-Attainment status of the county of the roadway is to be improved or constructed. For roadway improvements involving additional capacity, the **CONSULTANT** shall consult with the **DEPARTMENT** regarding the particular scope of work involved in completing this section.

2. **CONSULTANT** will also address the following topics, as required, based on project information/ conditions:

a. Floodplains – Based on the results of a hydraulic design study performed according to SCDOT Guidelines for Hydraulic Design Studies the following statements should be included in the environmental document where applicable: Regarding FEMA designated floodways, the **CONSULTANT** shall include either a 'no effect' statement or a 'conditional letter of map revision;' otherwise the **CONSULTANT** shall include a statement that "based on the hydraulic analysis of the pre-construction and post-construction discharges, the planned roadway improvements will have no significant impact on either flood elevations or flood widths."

b. Noise - For projects involving additional capacity, or shifting alignment closer to receivers (Type II projects as defined in 23 CFR Part 772), the **CONSULTANT** shall perform a noise analysis according to 23 CFR Part 772, which will include identification of sensitive receivers in the project corridor, existing noise levels, and predicted noise levels (20 years). Text and tables presenting results of the noise impact and abatement analysis will be prepared for use in the environmental document. A separate Noise Technical Memorandum may be required; however, the **CONSULTANT** shall provide to the **DEPARTMENT** at a minimum, the traffic data used in the study (e.g., ADT, DHV, percentage of heavy, medium

trucks, and autos, etc.), the assumptions incorporated into the noise model (e.g. resolving the traffic into a 50/50 or 60/40 split, with the traffic being placed on the center of the travel lanes or the pair of travel lanes in each direction and the exact locations of the receivers) the software utilized, and either the linear curves representing the noise levels vs. distance from the noise source plotted on semi-logarithmic paper, or, preferably, the 66 dBA contours for existing, future No-Build and future Build conditions plotted on the right-of way plans for the proposed roadway improvements.

c. Parks and Recreational Areas – **CONSULTANT** shall identify these areas within the project area and the impacts of the project on the resource(s).
d. Section 4(f) / 6(f) - **CONSULTANT** shall identify properties within the project corridor that are protected under Section 4(f) or Section 6(f) and the impacts of the project on the resource(s).
e. Social and Economic - **CONSULTANT** shall develop a description of the existing demographic, social, and land use conditions.
f. Environmental Justice - **CONSULTANT** shall identify any low-income and/or minority areas within the general project area, using US census data and determine if there are potentially disproportionately high and adverse effects on these populations as a result of the project.
g. Coordination - **CONSULTANT** shall outline any interagency and/or public involvement activities that occur during the project development process.

B. The CONSULTANT shall be responsible for coordinating the public involvement associated with NEPA. The **CONSULTANT** shall be responsible for conducting public information meetings. It is assumed that there will be one public information meeting and one public hearing for each project.

1. **CONSULTANT** shall coordinate the date and location of the meetings with the **DEPARTMENT** personnel and will prepare the newspaper ad for the Public Notice (the template/example will be furnished by the **DEPARTMENT**).
2. **CONSULTANT** shall prepare any and all related public meeting materials, (deliverables would include public information meeting displays, booklets and brochures). The information contained in the public hearing booklet will be consistent with the information contained within the environmental document, and the format of the public hearing booklet will be consistent with the template/example, which will be furnished by the **DEPARTMENT**.
3. **CONSULTANT** shall prepare a summary of responses to comments received as a result of a public information meeting.

Environmental Permitting

A. **Jurisdictional Determination**

If a Clean Water Act Section 404/401 permit is applicable, the **CONSULTANT** shall obtain a jurisdictional determination and/ or approximation letter for the project site, and deliver it to the **DEPARTMENT**. The jurisdictional determination corridor will be measured 150 feet left and right of construction centerline, if no construction centerline is available then go off the existing centerline, for the entire length of the project.

The **CONSULTANT's** shall delineate wetlands utilizing the three-parameter approach (hydric soils, hydrophytic vegetation and wetland hydrology) set forth in the 1987 USACOE Wetland Delineation Manual.

The **CONSULTANT** shall provide an assessment and documentation of site conditions as to the presence and/or absence of wetland areas. The **CONSULTANT** shall submit a copy of a completed Wetland Determination Request form as well as completed, current, ACOE Delineation Worksheets to the **DEPARTMENT's** Environmental Office. If jurisdictional waters of the U.S. are being impacted by the project, then the CONSULTANT shall submit a Wetland Determination Request to the Charleston District Corps of Engineers, secure the Jurisdictional Determination (JD) or approximation letter from the Corps, and include a copy of the JD or approximation letter with the permit application (by reference at a minimum) and/or, if applicable, in the environmental document.

Identification and marking of any upland/wetland boundaries with sequentially numbered flags. Additionally, using sub-meter GPS or survey data, the **CONSULTANT** will plot the wetland boundaries on both a surveyed map (in a manner consistent with the **DEPARTMENT** Road Design custom line style for wetlands and other waters of the U.S.), and a Digital Ortho Quad or other acceptable aerial photography. The **CONSULTANT** shall also provide electronic copies of any GIS or CAD files that are produced to our SCDOT Road/Bridge Design Group within 2 weeks of completion of the delineation.

Following the delineation of the upland/wetland boundaries, the **CONSULTANT** shall submit a request to the Charleston District Army Corps of Engineers for either an approximation letter or a Jurisdictional Determination, and copy (cc) the **DEPARTMENT's** Environmental Section with the request.

If a Clean Water Act (CWA) Section 404/401 permit is required, the CONSULTANT shall include a separate biological assessment report regarding the project effects on any State recognized rare, threatened, or endangered species.

B. **Permit Acquisition**

Applies to: Individual 404/401 Permit, SCDOT/Chas. Dist. Corps of Engineers General Permit #2005-14-001 Authorization, Critical Area Permit, Navigational Permits, Nationwide Permits

1. Pre-Application Meeting

The **CONSULTANT** shall schedule an onsite meeting with the USACOE, SCDHEC, SCDNR, and USFW (specifically with the **DEPARTMENT** liaisons at each of these agencies) to review the proposed project, discuss any particular regulatory concerns, and establish a timetable for acquisition of the permit. The **CONSULTANT** shall make determination of the aquatic significance of the stream, and confirm these findings with resource and regulatory agency personnel.

The CONSULTANT shall schedule a meeting with the SCDOT environmental office and SCDOT program manager to ensure all information is received and to ensure the CONSULTANT completely understand the purpose and need of the project. At this meeting discussion will occur on how the CONSULTANT can obtain SCDOT's project design file (if applicable), hydrology data, traffic data, safety data, design rational, and additional information needed for submitting a detailed permit application. Within two weeks of that meeting the CONSULTANT will send SCDOT Environmental Permitting Manager and SCDOT Project Manager a schedule for receiving all approved state and federal permits outlined in this scope of service.

2. Preparation and Submittal of a Clean Water Act Section 404/401 Application

If a Clean Water Act Section 404/401 permit is applicable, the **CONSULTANT** shall also prepare the 404/401permit application in the format specified by the Charleston District Corps of Engineers and the attached SCDOT Checklist *(Enclosure C)*. In the completed application, the **CONSULTANT** shall document all proposed impacts to Waters of the U.S. At its discretion, the **DEPARTMENT** will execute the Joint State and Federal Application form as the applicant, and will designate the **CONSULTANT** as the **DEPARTMENT's** agent in the processing of the permit application for the subject project and in furnishing supplemental information in support of the application.

In some instances, however, the **DEPARTMENT** may, opt not to identify any firm as their agent in this matter on the Joint State and Federal Application form. Even if no agent is identified on the Joint State and Federal Application form, the **CONSULTANT** shall be responsible for furnishing all of the supplemental information in support of the permit application as described herein, and the **CONSULTANT** shall be assigned all of the fiduciary duties and responsibilities

associated with permit acquisition, and for all of the tasks, duties and responsibilities outlined herein, with the only distinction being that all of this information shall be provided to the **DEPARTMENT**, which will then forward the information to the Charleston District Corps of Engineers or SCDHEC as the applicant (i.e., all of the supplemental information in support of the application shall be forwarded to the regulatory agencies on the **DEPARTMENT's** letterhead, and all communication with the resource or regulatory agencies shall originate with the **DEPARTMENT**).

Also, the **CONSULTANT** shall provide with any Section 404 application at a minimum, concurrence from the State Historic Preservation Office regarding the anticipated project effects to any cultural resources, as well as either a biological assessment report (for those projects having "no effect" on any federally listed species or habitat) or a Section 7 sign-off/concurrence from the U.S. Fish & Wildlife Service with any Section 404. Additionally, if available, the CONSULTANT shall provide a copy of the NEPA document (CE, EA, or EIS) as part of the 404 permit application.

If the project scope and the anticipated impacts to waters of the U.S. meet the criteria of the Department's General Permit agreement with the Charleston District Corps of Engineers, then the **CONSULTANT** shall prepare an application according the template/example provided by the **DEPARTMENT** (the application package is very similar to that of an Individual 404/401 Permit application, with the exception that no property owners addresses are required, and in some instances 11" X 17" plans, with a title block, depicting the proposed impacts will suffice). The **CONSULTANT** shall provide clear indication on the joint state and federal 404 permit application form that we are seeking authorization under the **DEPARTMENT's** general permit agreement. Additionally, when seeking General Permit authorization, the **CONSULTANT** shall reference the Corps issued project number (the SAC #) assigned to the associated jurisdictional determination (the SAC #) or approximation letter (the SAC #) on the joint state and federal permit application form.

3. Preparation of Drawings and Maps

As part of the Clean Water Act Section 404/401 permit application package, the **CONSULTANT** shall submit drawings depicting the proposed impacts to waters of the U.S. on the subject property, including fill placed for construction of the new facility, as well as any impacts from mechanized land clearing (clearing and grubbing), and any impacts to jurisdictional streams (e.g., culvert extensions, stream channel re-alignments or the placement of riprap in stream channels). The **CONSULTANT** shall include the surveyed or measured boundaries of jurisdictional waters superimposed on the actual development/grading plans to establish the proposed jurisdictional impacts (See *Enclosure "C"* for the examples of the additional drawings and maps required for

the Section 404/401 application).

4. SCDOT Impact Assessment Form Completed

The **CONSULTANT** shall include a completed SCDOT Impact Assessment Form *(Enclosure B)* with the completed 404/401 permit application. The **DEPARTMENT's** Environmental Section will review all completed Impacts Assessment Forms to ensure that the form is completed to the **DEPARTMENT's** satisfaction. {Note: At this 'permit application stage' of project development, the form should be essentially complete, as it is required as part of the NEPA document, exclusive of the details of the proposed mitigation.}

5. Agency Coordination During the Joint Public Notice or Dissemination of a GP Authorization Request

Following dissemination of the Joint Public Notice (or GP authorization request) for the project and prior to the reconnaissance of the project site by any of the regulatory or commenting agencies, the **CONSULTANT** shall meet with representatives of the **DEPARTMENT**, the Chas. Dist. Corps of Engineers, SCDHEC, SCDNR and USFWS (specifically, the **DEPARTMENT's** liaisons at these agencies when practicable) to discuss the project and to answer any questions (for this meeting, a conference call will suffice). When applicable, the participants in any such meeting/conference call should include representatives of the U.S. EPA and/or NOAA Fisheries. Another such meeting (or conference call) should occur following the agencies reconnaissance of the project site to clarify any concerns and to address any questions prior to the release of any official comments by those agencies during the 30-day Joint Public Notice period. If the project involves any new roadway alignment, the **CONSULTANT** shall additionally provide a tour of the project corridor for representatives of the regulatory and commenting agencies (the **DEPARTMENT** liaisons where applicable or practicable) as they conduct their reconnaissance of the project site.

6. Negotiations and Permit Acquisition

The **CONSULTANT** would be in contact with the USACOE, SCDHEC and other federal, state and local regulatory personnel throughout the course of the permit application process, and coordinate the submission of any additional information as requested by the respective agencies in order to facilitate permit acquisition. The **CONSULTANT** shall inform the **DEPARTMENT** of all communications involving the subject property.

The CONSULTANT shall also include a discussion regarding the overall affects of the planned improvements to water quality. When requested by the SCDOT, the CONSULTANT shall prepare required state and federal navigational and wetland permit applications, perform interagency and/or liaison presentations as necessary, negotiate/secure such permits (including

necessary correspondence), and perform related environmental studies including, but not limited to, field investigations/surveys, stormwater management plans, Endangered Species Act Compliance, natural systems studies/reports, cultural resources surveys (National Historic Preservation Act Section 106 compliance), NEPA compliance (or assistance with one or more aspects of NEPA compliance), mitigation planning and site selection and natural stream design.

The **CONSULTANT** shall also furnish supplemental information in support of the Section 404/401 permit application, or the **DEPARTMENT's** Corps General Permit authorization request (e.g., NEPA, Threatened & Endangered Species Report, clarification, additional information or responses to comments, etc.). The **CONSULTANT**, with the **DEPARTMENT** review and approval, shall also be responsible for expediting approval of the permit, coordinating any concessions in the project scope or in the mitigation, or special permit conditions requested by any of the resource or regulatory agencies. The **CONSULTANT** will also prepare the appropriate responses to agency or public comments received as a result of the public notice or from the dissemination of a General Permit authorization request, as directed by the Environmental Section of the **DEPARTMENT**. The **DEPARTMENT** reserves the right to review and approve both the permit application and any of the supplemental information provided in support of the application (e.g., clarification, additional information or responses to comments, etc.), including any communication (e.g., e-mail, facsimile, phone calls, meetings, etc.), before it is submitted to the Charleston District Corps of Engineers (or other review and regulatory agencies) on the **DEPARTMENT's** behalf.

7. Compensatory Mitigation Plan

In accordance with regulatory requirements, The **CONSULTANT** will develop a conceptual mitigation plan and submit it as part of the application package. The applicant will follow current ACOE mitigation guidance in exploring potential mitigation opportunities.

8. Critical Area Permits

If a Critical Area Permit is required for the subject project (i.e., when impacts are to tidal areas along SC coast or a Critical Area Permit is being sought in conjunction with a Nationwide permit, General Permit, or Individual 404 Corps Permit), then the **CONSULTANT** shall prepare an application according to the latest guidance promulgated by the SCDHEC Office of Ocean and Coastal Resource Management (OCRM). The **CONSULTANT** shall also furnish all supplemental information in support of the application (e.g., critical line verification, plat stamped by professional land surveyor showing approved OCRM critical line, clarification, additional information or responses to comments, etc.). The **CONSULTANT** shall be responsible for expediting approval of the permit and for preparing the appropriate responses to the comments received as a result of the public notice, as directed by the Environmental Section of the

DEPARTMENT. SCDOT reserves the right to review and approve both the Critical Area Permit application and any of the supplemental information provided in support of the application (e.g., clarification, additional information or responses to comments, etc.) before it is submitted on our behalf.

The **CONSULTANT** shall schedule an onsite meeting with the USACOE, SCDHEC, SCDNR, and USFW (specifically with the **DEPARTMENT** liaisons at each of these agencies where practicable) to review the proposed project, discuss any particular regulatory concerns, and establish a timetable for acquisition of the permit. The **CONSULTANT** may make determination of the aquatic significance of the stream, and confirm these findings with resource and regulatory agency personnel.

9. Navigational Permitting

If a U.S. Coast Guard is required for the subject project, then the **CONSULTANT** shall provide a completed application for submission to the 7th District Coast Guard, according to the latest guidelines promulgated by the U.S. Coast Guard. The **CONSULTANT** shall also furnish supplemental information in support of the application (e.g., clarification, additional information or responses to comments, etc.). The **CONSULTANT** shall also be responsible for expediting approval of the permit and for preparing the appropriate responses to the comments received as a result of the public notice, as directed by the Environmental Section of the **DEPARTMENT**. The **DEPARTMENT** reserves the right to review and approve both the Coast Guard Permit application and any of the supplemental information provided in support of the application (e.g., clarification, additional information or responses to comments, etc.) before it is submitted on the **DEPARTMENT's** behalf.

If a State Permit to Construct in Navigable Waters is required for the subject project, then the **CONSULTANT** shall prepare an application according to the State Regulation 19-450, and the latest guidance promulgated by SCDHEC. However, if the project qualifies for authorization under the Department's General Permit to Construct in Navigable Waters, GP-95-002 (Revised), the **CONSULTANT** shall prepare an application according to the template/example to be provided by the **DEPARTMENT**. The **CONSULTANT** shall also furnish supplemental information in support of the application (e.g., clarification, additional information or responses to comments, etc.). The **CONSULTANT** shall be responsible for expediting approval of the permit and for preparing the appropriate responses to the comments received as a result of the public notice or dissemination of a Navigable Waters General Permit authorization request, as directed by the Environmental Section of the **DEPARTMENT**. As noted above, the **DEPARTMENT** reserves the right to review and approve both the application for the Permit to Construct in Navigational Waters and any of the supplemental information provided in support of the

application (e.g., clarification, additional information or responses to comments, etc.) before it is submitted on the **DEPARTMENT's** behalf.

TASK 3: SUBSURFACE UTILITIES ENGINEERING

Within 45 days of the Notice to Proceed for the contract, the **CONSULTANT** will provide the **DEPARTMENT** with a recommendation as to the extent of SUE services to be provided. This should include as much information as can be assembled on utility type, approximate location, owner, material type, prior rights, and any preliminary assessment of impact with respect to the scope of the proposed project. This information will be used to specifically define the limits of the SUE work to be performed.

SUE Work

The **CONSULTANT** shall perform work in two phases. The first phase consists of designating services (Quality Level B). For the purpose of this *Agreement*, "designate" shall be defined as indicating, by marking, the presence and approximate horizontal position of the subsurface utilities by the use of geophysical prospecting techniques. The second phase consists of test hole services (Quality Level A). For the purpose of this *Agreement*, "locate" means to obtain the accurate horizontal and vertical position of the subsurface utilities by excavating a test hole. The **CONSULTANT** shall provide these services as an aide in the design of right-of-way and construction plans for the project.

Unless specifically stated otherwise, the **CONSULTANT** shall adhere to the ASCE Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data (CI/ASCE 38-02).

SUE information previously collected will be utilized and supplemented with additional exploration to include but not be limited to the following:

A. **Designating**

1. In the performing of designating services under this *Agreement,* the **CONSULTANT** shall,

a. Provide all equipment, personnel and supplies necessary for the completion of Quality Level 'B' information for approximately _____ LF of underground utilities for the project.
b. Provide all equipment, personnel and supplies necessary for the accurate recording of information for approximately _____ LF of aerial utilities for the project.
c. Conduct appropriate records and as-built plans research and investigate site conditions.
d. Obtain all necessary permits from city, county, state or any other municipal jurisdictions to allow **CONSULTANT** personnel to work within the existing streets, roads and rights-of-way.
e. Designate the approximate horizontal position of existing utilities by paint markings in accordance with the APWA Uniform Color Code scheme along the utility and at all bends in the line in order to establish the trend of the line. All utilities shall be designated as well as their corresponding lateral lines up to the point of distribution, existing right-of-way limits, or whichever is specifically requested and scoped for each individual project.
f. Survey designating marks, which shall be referenced to project control provided by the surveyor of record.
g. Draft survey information using the **DEPARTMENT's** CADD guidelines for Subsurface Utility Engineering for consultants (latest version).
h. Final review and seal of all appropriate work by a professional engineer and/or land surveyor licensed in South Carolina in responsible charge of the project.

2. In the performing of designating services under this *Agreement*, the **DEPARTMENT** shall,

a. When requested, provide reasonable assistance to the **CONSULTANT** in obtaining plans showing the project limits, alignment, centerline, rights-of-way limits (existing and proposed), project controls and other data for selected projects.
b. Provide notification to key **DEPARTMENT** District personnel concerning the upcoming SUE services to be provided by the **CONSULTANT**.

B. **Locating**

1. In the performance of locating services under this *Agreement*, the **CONSULTANT** shall,

a. Provide all equipment, personnel and supplies necessary for the completion of Quality Level 'A' information for an estimated _____ (__) test holes for the project.
b. Conduct appropriate records and as-built plans research and investigate site conditions.
c. Obtain all necessary permits from city, county, state or any other municipal jurisdictions to allow **CONSULTANT** personnel to work within the existing streets, roads and rights-of-way.
d. Perform electronic sweep of the proposed conflict and other procedures necessary to adequately "set-up" the test hole.
e. Excavate test holes to expose the utility to be measured in such a manner that insures the safety of excavation and the integrity of the utility to be measured. In performing such excavations, the **CONSULTANT** shall comply with all applicable utility damage prevention laws. The **CONSULTANT** shall schedule and coordinate with the utility companies and their inspectors, as required, and shall be responsible for any damage to the utility during excavation.
f. Provide notification to the **DEPARTMENT** concerning (a) the horizontal and vertical location of the top and/or bottom of the utility referenced to the project survey datum; (b) the elevation of the existing grade over the utility at a test hole referenced to the project survey datum; (c) the outside diameter of the utility and configuration of non-encased, multiconduit systems; (d) the utility structure material composition, when reasonably ascertainable; (e) the benchmarks and/or project survey data used to determine elevations; (f) the paving thickness and type, where applicable; (g) the general soil type and site conditions; and (h) such other pertinent information as is reasonable ascertainable from each test hole site.
g. Provide permanent restoration of pavement within the limits of the original cut. When test holes are excavated in areas other than roadway pavement, these disturbed areas shall be restored as nearly as possible to the condition that existed prior to the excavation.
h. Draft horizontal location and, if applicable, profile view of the utility on the project plans using CADD standards as outlined above. A station and offset distance and/or northing and easting coordinates (State Plane) with elevations shall be provided with each test hole.
i. Test hole information shall be formatted and presented on **CONSULTANT's** certification form and listed in a test hole data summary sheet.

j. Certification form shall be reviewed and sealed by a professional engineer or land surveyor licensed in South Carolina and in responsible charge of the project.

2. In the performance of locating services under this *Agreement*, the **DEPARTMENT** shall,

When requested, provide reasonable assistance to the **CONSULTANT** in obtaining plans showing the project limits, alignment, centerline, rights-of-way limits (existing and proposed), project controls and other **data for selected** projects.

C. **Deliverables**

1. Level A
   a. Test Hole Reports
   b. Microstation Mapping of test hole locations
2. Level B
   a. Microstation mapping of designated utilities and appurtenances
   b. Microstation Utility Data Sheet for each designated utility line
   c. Microstation Pole Data Sheet for each pole mapped
   d. Manhole Data Sheets for gravity sewer locations

   e. Provide all equipment, personnel and supplies necessary for the completion of Quality Level 'A' information for an estimated ten (10) test holes for the project.

TASK 4: FIELD SURVEYS

The **CONSULTANT** will perform field surveys as outlined below to determine accurate elevations and locations of existing facilities, e.g., roadways, bridges, and culverts, for design purposes. All surveys shall conform to the **DEPARTMENT's** "Preconstruction Survey Manual" dated August 2003 (or latest edition).

A. **Project Assumptions**:

The CONSULTANT shall perform adequate surveys to study the possibility of relocating the new structure on either side of the existing structure and carry surveys in both directions a distance great enough to adequately realign US Route 25 and meet design standards set forth in the Highway Design Manual for the route's design speed. Surveys previously collected will be utilized and supplemented with additional surveys to include but not be limited to the following:

B. **Field Survey Outline:**

1. **CONSULTANT** will establish a control baseline along the proposed project corridor and tie to the SC State Plane coordinate system to be as a basis for all surveys required on the project (NAD 83 Horizontal Datum and NAVD 88 vertical datum).
2. **CONSULTANT** will perform plat and deed research of all parcels affected by the project. The plats and deeds will be used to create property strip maps.
3. **CONSULTANT** will field locate and survey detectable property monuments for the impacted parcels. The monuments that are found will be tied into the survey and mapping horizontal control.
4. **CONSULTANT** will perform detailed plannimetric and topographic surveys along the project corridor. Topographic surveys will be collect by cross sections at intervals of 50’ on curves and 100’ on tangents. The detailed survey will gather all information necessary for design of the project.
5. **CONSULTANT** will perform surveys of existing drainage outfalls within the project area.
6. **CONSULTANT** will perform surveys of the existing river bed approximately 500’ upstream and downstream from the existing structure or for a length deemed necessary for design purposes and also obtain profiles of the existing ground at the center, upstream face and downstream face of the existing bridge.
7. **CONSULTANT** will process acquired survey data and prepare base mapping to include breaklines that reflect field conditions. Each point of the processed survey will include Point ID, Description, and Elevation. Complete mapping and linework will be included displaying all plannimetric information. The final product of the survey will consist of a set of base sheets of the project area at a scale of one-inch equals 50 feet.
8. **CONSULTANT** will field survey the horizontal location for geotechnical bore holes. A ground elevation will be established at each bore hole.
9. **CONSULTANT** will field survey wetland boundaries within the project limits and prepare a wetlands map for submittal purposes.

10. **CONSULTANT** will perform New and Existing Right of Way staking surveys on affected parcels within the project corridor as needed for acquisition purposes.
11. **CONSULTANT** will set and establish horizontal location and elevation for a total of 2 temporary benchmarks (TBM) along the proposed roadway alignments at approximately 800 to 1000 foot intervals, set approximately 100 feet from the proposed centerline.
12. **CONSULTANT** will maintain appropriate signage for traffic control purposes at all times when working within or near the existing traffic areas.

TASK 5: PRELIMINARY AND FINAL BRIDGE PLANS

A. **Preliminary Bridge Plans**

The **CONSULTANT** will develop preliminary bridge plans to construct a new bridge. The **CONSULTANT** will provide the **DEPARTMENT** the following for the structure:

1. Design Basis Statement

The **CONSULTANT** will conform to the following **DEPARTMENT** and **FHWA** design standards in preparation of the bridge plans.

- The SCDOT Bridge Design Manual, 2006
- SCDOT Bridge Design Memoranda to Team Leaders and Consultants, issued after April, 2006;
- AASHTO *LRFD Bridge Design Specifications*, 4th Edition (2007) with 2009 Interim Revisions
- SCDOT Bridge Drawings and Details, latest versions;
- Road Standard Drawings and Details, latest versions;
- 2010 SCDOT Geotechnical Design Manual, with latest interims;
- 2008 SCDOT Seismic Design Specifications for Highway Bridges, Version 2.0;
- SCDOT Standard Specifications for Highway Construction, 2007 edition;

- ANSI/AASHTO/AWS D1.5 Bridge Welding Code, the latest edition.

The preliminary plans will be prepared in sufficient detail and appropriate format to clearly illustrate significant design features, dimensions and clearances. The preliminary plans will include title sheet, bridge plan and profile, proposed boring locations, roadway and bridge typical sections, types of superstructure and substructure, and pertinent road plan and profile sheets. Preliminary plans will also include recommended methods of handling traffic during construction. The Preliminary Bridge Plans will be approved by the **DEPARTMENT** prior to beginning Final Bridge Plans. Preliminary Bridge Plans shall meet requirements of SCDOT Bridge Design Manual.

B. **Final Bridge Plans**

The **CONSULTANT** will develop final bridge plans to construct a new bridge. The **CONSULTANT** will provide the **DEPARTMENT** the following for the structure:

The final bridge plans for the bridge structure will be based upon the approved preliminary plans. Constructability of the bridge superstructure and substructures shall be considered in the development of the plans, including maintenance of traffic, access for construction equipment, the placement of reinforcing steel, clearances required for the use of equipment, and foundation considerations. The bridge construction plans shall consist of:

1. Being prepared in conformity with current practices of the **DEPARTMENT** with regard to method of presentation, scales, billing of pay items, special drawings and summaries thereof. Standard drawings of the **DEPARTMENT** shall be used to the extent feasible and shall be furnished by the **DEPARTMENT**, to be modified by the **CONSULTANT** to fit the particular needs of the project. Construction drawings shall be on sheets of the size, and with standard markings utilized by the **DEPARTMENT**. Scale of drawings and lettering size shall be such as to provide clear and legible reproductions when reduced to half size. The construction plans shall bear the **CONSULTANT's** seal and signature as a registered professional engineer, in the State of South Carolina, on the title sheet.

2. The **CONSULTANT** will prepare special provisions concerning items of construction not covered by the **DEPARTMENT's** standard specifications or standard bridge special provisions, as well as special treatments during construction.
3. The **CONSULTANT** will prepare detailed estimates of quantities and construction costs.
4. The **CONSULTANT** will prepare a detailed construction time estimate for the bridge work.
5. Prior to submittal to the **DEPARTMENT**, all plans and documents shall be thoroughly reviewed by the **CONSULTANT** for completeness, correctness, accuracy and consistency with the above referenced requirements.
6. Deck drainage calculations will be performed by the hydraulic engineer and the **CONSULTANT** shall be prepared to provide a closed drainage system if required.
7. The **CONSULTANT** shall submit 95% and 100% Final Bridge Plans, all meeting the requirements of the SCDOT Bridge Design Manual. The 95% Bridge Plans are for final review by the **DEPARTMENT**. The plans will have been through a thorough QA/QC process and all Preliminary Bridge Plan comments will have been addressed. All plan sheets, quantities, specifications, cost estimates, and construction time estimate will be complete. The 100% Final Bridge Plans will incorporate all amendments or revisions evolving from the 95% Bridge Plans Review.

C. **Deliverables**

- Six (6) 11" x 17" sets of Preliminary Bridge Plans
- Six (6) 11” x 17” sets of 95% Bridge Plans
- One (1) full size set of final bridge construction plans
- One (1) set of electronic final bridge construction plans in Microstation format
- Four (4) 11" x 17" sets of final bridge construction plans
- Two (2) sets detailed quantity and construction cost estimate
- Two (2) sets of special provisions
- Two (2) sets of detailed construction time estimate
- Two (2) sets of list of required supplemental specifications
- Manila plan cover for final bridge construction plans

TASK 6: ROAD DESIGN AND PLANS

A. **Preliminary Road Design**

The **CONSULTANT** will prepare conceptual roadway alignments.

Upon approval by the **DEPARTMENT** of the preferred conceptual roadway alignment, the **CONSULTANT** shall develop preliminary roadway plans. Preliminary plans shall be considered approximately 30 percent complete of total plans. Preliminary designs relating to the following activities will be developed:

1. The **CONSULTANT** will prepare preliminary plans based on the preferred conceptual alignment that is selected. The preferred conceptual alignment will be approved by the **DEPARTMENT** prior to beginning preliminary plans.
2. The **CONSULTANT** will establish the roadway alignment and profile in sufficient detail and in the appropriate format, in order to clearly illustrate significant design features of the project.
3. The preliminary plans shall contain sufficient details of pertinent physical features to illustrate the design that will include:

- Typical sections;
- Geometric control (vertical and horizontal);
- Staking Plan;
- Horizontal and vertical alignments;
- Detail plan layout;
- Review of sight distance considerations;
- Non-standard major driveway grades and tie-ins;
- Review of guardrail warrants and slope adjustments;
- Limits of existing right-of-way, easements and adjacent properties;
- Development of a preliminary storm drainage plan and type, size, invert elevation and location of major storm drainage features including outfall ditches, detention, sediment basins and roadway ditches;
- Type, size, and location of existing major utility facilities;
- Preliminary cross-sections at 100 feet interval on tangents and 50 feet intervals on curves;

- Construction limits;
- Property lines, property parcel number, and ownership;
- Proposed right-of-way and easements
- Location and anticipated type of any necessary culverts, retaining walls, and other miscellaneous roadway structures

4. Design standards will be in compliance with AASHTO's A Policy on Geometric Design of Highways and Streets, (2001), or latest edition; SCDOT Standard Drawings – Latest Edition; SCDOT Standard Specifications for Highway Construction 2007 Edition; Roadway and Bridge Design Standard as published by the **DEPARTMENT**; SCDOT's Road Design Reference Material for Consultants Prepared Plans, dated October 17, 2005; SCDOT's Plan Preparation Guide, latest edition; SCDOT Instruction Bulletins; SCDOT Engineering Directive Memo (EDM) #PC-27 and others as appropriate; and SCDOT Highway Design Manual, latest edition

5. Preliminary plans (Design Field Review Submission) will be developed and serve as the base documents for further refinement into the final right-of-way plans.

6. All plans will be prepared using MicroStation V-8 and GeoPak Version 2004.

7. A constructability review will be performed between the **DEPARTMENT** construction representatives and appropriate **CONSULTANT** members**.**

B. **Final Right-of-Way Plans**

The **CONSULTANT** will prepare right of way plans based upon approved preliminary plans. Right-of-Way will be set to cover all construction limits and outfall ditches. Right-of-way adjacent to bridge shall comply with Departmental Standards. Final right of way plans shall be approximately 75 percent complete of total plans. Right-of-way plans shall include:

- Preliminary roadway plan revisions to incorporate proposed right-of-way and any easements.
- Computation of right-of-way areas and easements to be purchased for project construction.

- Preparation of right-of-way strip maps if necessary.
- Further refinement of quantities for construction estimates.
- Submittal of preliminary right-of-way plans to the **DEPARTMENT** for approval.
- Incorporation of comments on preliminary right of way plans into final right of way plans for the acquisition of right-of-way.

C. **Final Road Construction Plans**

The **CONSULTANT** will develop final road construction plans, as a continuation of the right-of-way plans.

Road construction plans will be detailed to 100% complete level and depict the information set forth in **DEPARTMENT** Road Design Reference Material for Consultant Prepared Plans, 7/2006 and will include the following:

- Title Sheet
- Right-of-Way Title Sheet
- Summary of Quantities
- Moving Items
- Removal & Disposal Items
- Typical Section
- Details (as needed)
- Property Strip Map
- Right-of-Way Data Sheet
- General Construction Note & Inclusion Items
- Reference Data Sheet
- Roadway Plan
- Roadway Profile
- Drainage Plan
- Erosion Control Data Sheet
- Stormwater Pollution Prevention Plan (erosion control plan)
- Construction Staging Plan
- Pavement Marking Plan
- Signing Plan
- U-Sheets.
- Cross Sections

Bridge Plans will be noted on the title sheet and bound separately.

1. Summary of Quantities/General Construction Note/Inclusion Items/Details

   The **CONSULTANT** will prepare quantity calculations for items of work depicted in the plans. Each bid item will assigned an item number in the Department's P2S System. Item No., Description, Unit and Quantity will be depicted on the summary of quantity sheet in accordance with the **DEPARTMENT** Plan Preparation Guide and applicable instructional bulletins.

   The **CONSULTANT** will prepare the general construction note sheet with inclusion items. Inclusion items will include those items not clearly depicted in the plans and items for use at the discretion of the Resident Engineer.

   The **CONSULTANT** will prepare details for items of work not provided in the Standards for Roadway Construction.

2. Moving Items and Removal & Disposal Items

   The **CONSULTANT** will prepare the moving items and removal and disposal items sheets based on list provided by the **DEPARTMENT** based on agreements with property owners during right-of-way acquisition.

3. 100% Complete Submission

   The **CONSULTANT** will submit a 100% complete (unsealed) set of construction plans for the Department's final review and comment.

4. Sealed Construction Plans

   The Consultant will address final comments by the Department and submit a sealed set of construction plans for letting.

D. **Deliverables**

- Six (6) half-sized sets (12" x 18") sets of Preliminary plans
- One (1) CD containing preliminary plan files
- One (1) scaled full size(24"x36") set of final right-of-way plans
- Three (3) half size sets of final right-of-way plans

- One (1) CD containing final right-of-way plan files
- One (1) set of full bond plans (24” x 36”) and six half-sized sets (12”x18”) 100% complete for review of final road construction plans
- One (1) set of full bond plans (24” x 36”) and six half-sized sets (12”x18”) , signed and sealed of final road construction plans
- Manila Plan Cover for final road construction plans
- Electronic Media (as described in Road Design Reference Material for Consultant prepared Plans).
- Hard Copies of design and quantity calculations

TASK 7: HYDROLOGY AND HYDRAULIC DESIGN

The **CONSULTANT** will develop hydrologic and hydraulic designs for the project and follow all guidelines for roadway surface drainage and sediment and erosion control with the methods, procedures, and criteria outlined in the “SCDOT Requirements for Hydraulic Design Studies”, May 2009, the AASHTO "Highway Drainage Guidelines", Federal Highway Administration Technical publications, “Model Drainage Manual”, “Interim Stormwater Control Manual” prepared for use by the **DEPARTMENT**, September 1993, the South Carolina Department of Health and Environmental Control Regulations 72-405 et. seq. entitled “Standards for Stormwater Management and Sediment Reduction” published in the S.C. State Register Volume 17, Issue 5, Part III, May 28, 1993, and SCDOT Supplemental Specifications.

A. **Site Visit and Data Review**

The CONSULTANT shall perform a project data collection phase to gather technical and historical information pertinent to the project. This will include file research, report and publication review, contact with appropriate Federal, State and local agencies, review of survey data, gage data, geotechnical data, planning documents, and project plans, as well as contact with local maintenance personnel as appropriate. A field study of the project site and a comparative bridge review shall be performed and data obtained in conformity with current practices of the DEPARTMENT as outlined above.

B. **Hydraulic Modeling**

The **CONSULTANT** will perform a preliminary analysis of the hydrologic/hydraulic characteristics of the existing and proposed bridges using the one dimensional computer program HEC-RAS. The **CONSULTANT** will determine the beginning and end stations, finished grade elevations, and optimal span configurations for the new bridge based on guidance given by the Hydraulic Engineering Section and Bridge Design Division of the **DEPARTMENT**. The **CONSULTANT** will present a summary of their data collection, findings and proposed design procedure at an office meeting with the **DEPARTMENT** prior to commencing design studies. The **CONSULTANT** shall prepare and present to the **DEPARTMENT** a summary report of this meeting for written concurrence and authorization to proceed prior to continuing with the project.

The **CONSULTANT** will finalize the bridge hydraulic study based on road construction plans and will provide final bridge hydrology data sheets to the **DEPARTMENT**. The **CONSULTANT** will also plan to attend one other meeting at the request of the **DEPARTMENT**.

C. **Preliminary Drainage Design**

The **CONSULTANT** shall perform the drainage design study in the manner and form prescribed in the Federal Highway Administration Technical publications, the AASHTO "Highway Drainage Guidelines" and "Model Drainage Manual," and the **DEPARTMENT's** design guidelines and provide detailing of all drainage features including drawings, sketches, calculations, reports, and plans to the **DEPARTMENT** for review and acceptance for right-of-way plan preparation. The **CONSULTANT** will also provide drainage plans for inclusion in construction plans. The **CONSULTANT** will attend an office meeting with the **DEPARTMENT** to discuss the roadway drainage prior to continuing with the project.

D. **NPDES Study**

The **CONSULTANT** shall provide stormwater management and sediment and erosion control plans in the manner and form prescribed in the "SCDOT Requirements for Hydraulic Design

Studies" dated May, 2009, "Interim Stormwater Control Manual" prepared for use by the SCDOT, September 1993, the South Carolina Department of Health and Environmental Control Regulations 72-405 et. seq. entitled "Standards for Stormwater Management and Sediment Reduction" published in the S.C. State Register Volume 17, Issue 5, Part III, May 28, 1993, and **DEPARTMENT** Supplemental Specification "Rolled Erosion Control Products (RECP) Specifications", March 9, 2004. The **CONSULTANT** shall provide the Erosion Control Data Sheet. Permanent Water Quality Best Management Practices (BMPs) pertaining to the possible treatment of stormwater from this project, if verified to be a TMDL site, shall be included as part of this scope.

E. **Scour Study**

The **CONSULTANT** shall perform the scour analysis for the proposed bridges in accordance with FHWA's HEC-18, HEC-20, and the **DEPARTMENT's** guidelines. The **CONSULTANT** will provide 100-year and 500-year scour profile information for the bridge using data developed by the HEC-RAS model. The 100-year and 500-year scour will be plotted to scale on the Triple Profile.

F. **Final Reports**

The **CONSULTANT** will attend the Design Field Review and present the detailed study that was performed to the **DEPARTMENT** prior to the final documentation being submitted. This meeting may consist of but not limited to representatives from Road Design, Bridge Design, Project Development, Construction, and Maintenance. The **CONSULTANT** shall prepare and present to the **DEPARTMENT** a summary report of this meeting for written concurrence and authorization to proceed prior to continuing with the project. The **CONSULTANT** will finalize the bridge hydraulic study based on road construction plans and will provide final bridge hydrology data sheets to the **DEPARTMENT**. All final report, plans, drawings, calculation, etc. shall meet the approval of the **DEPARTMENT** prior to acceptance of the work. Final plans shall be provided to the **DEPARTMENT** in red-lined hard copy. The **DEPARTMENT** will provide to the **CONSULTANT** via the **DEPARTMENT** ftp site. The **CONSULTANT** will provide a design study report, which includes the hydrologic and hydraulic design and scour

analysis for the bridge, roadway surface drainage design, NPDES studies, and sediment and erosion control recommendations and designs. The **CONSULTANT** will submit the report, along with any plan markup sheets to the **DEPARTMENT**. All design calculations, field notes, drawing, reports and other material prepared under this agreement will be the property of the **DEPARTMENT** and will be turned over to the **DEPARTMENT** upon completion of the work.

The **CONSULTANT** shall provide 4 signed, completed copies of the Notice of Intent (NOI) to the **DEPARTMENT** upon completion of the project.

TASK 8: TRAFFIC CONTROL, PAVEMENT MARKING & SIGNING

A. **WORK ZONE TRAFFIC CONTROL PLANS**

The **CONSULTANT** will provide engineering services for the design of a safe and effective Traffic Control Plan to move vehicular and pedestrian traffic during all phases of construction. The Traffic Control Plan will follow the guidance of The *Manual on Uniform Traffic Control Devices (MUTCD): 2003 Edition, SCDOT Supplement to the MUTCD,* and *SCDOT Design Standards*. The plans will include a description of the sequential steps to be followed in constructing the plans and will include construction phasing of roadway ingress and egress to existing property owners and businesses, routing, signing and pavement markings, and detour quantity tabulations. Consideration will be given to the construction of the drainage systems so that positive drainage will be maintained at all times. The plans will be developed at a scale of 1"=50', unless otherwise agreed upon. The **CONSULTANT** will investigate the need for lane closures, detours, temporary pavement construction, traffic control devices, temporary lane markings, construction signing and additional sequencing notes/details. The plans will identify lane widths, transition taper widths, and any geometry necessary to define temporary roadway alignments. Also, the plans will address the type of surface to be used for all temporary roadways. Standard traffic control details will be incorporated into the plans for most work activities, but detailed staging plans will be required where impacts upon the normal traffic flow are significant. Traffic control plan quantities and an engineer's estimate will be prepared. Prior to proceeding with the Traffic Control Plan, the **CONSULTANT** will meet with the appropriate

DEPARTMENT personnel. The purpose of the meeting is to provide information that will better coordinate the preliminary and final traffic control plan efforts. Quality control and quality assurance of the plans will be implemented as part of the scope.

The **CONSULTANT** will prepare a Traffic Management Plan for each project (anticipated at Intermediate Level), in accordance with **DEPARTMENT'S** requirements as of the date of the Notice to Proceed.

B. **PAVEMENT MARKING/SIGNING PLANS**

Final pavement marking/signing plans will be prepared at a scale of 1"=50' unless otherwise agreed upon. The plans will consist of an itemized listing of estimated quantities, typical for installation (**DEPARTMENT's** typicals may be used where applicable), details showing lane lines, edge lines, stop bars, symbol and word messages and other appropriate markings and sign designation numbers and locations. The plans will include dimensions sufficient for field layout. The *Manual on Uniform Traffic Control Devices (MUTCD): 2003 Edition* and the **DEPARTMENT's** details will be incorporated into the plans. A tabulation of pavement marking/signing quantities and an engineer's estimate will be prepared. An inventory of existing pavement markings and signs will be performed. Prior to proceeding with the pavement marking/signing plans, the **CONSULTANT** will meet with the appropriate **DEPARTMENT** personnel. The purpose of the meeting is to provide information to the **CONSULTANT** that will better coordinate the preliminary and final pavement marking/signing plan efforts. Quality control and quality assurance of the plans will be implemented as part of the scope.

TASK 9: UTILITY COORDINATION SERVICES

A. The **CONSULTANT** shall have the responsibility of coordinating the project development with utilities that may be affected. Utility relocations shall be handled in accordance with the **DEPARTMENT's** "A Policy for Accommodating Utilities on Highway Rights of Way" and the Code of Federal Regulations, Title 23, Chapter 1, Subchapter G, part 645, subparts A and B.

B. These services shall be performed by individuals skilled and experienced in utility coordination services.

C. The **CONSULTANT** shall design the Project to avoid conflicts with utilities where possible, and minimize impacts where conflicts cannot be avoided. This may include, but is not limited to, utilizing all available utility data, whether obtained from SUE services, as-builts, or provided by the **DEPARTMENT** or some other source. The **CONSULTANT** will be expected to determine utility conflict points, including all work to properly analyze each conflict point, and make recommendations for resolution of the conflict where possible. The **DEPARTMENT** may request a Utility Conflict Analysis and Remediation Spreadsheet from the **CONSULTANT** as a deliverable.

D. The **CONSULTANT** shall initiate early coordination with utility companies that are located within the project limits. Coordination shall include, but shall not be limited to, contacting each utility company to advise the company of the proposed project, providing preliminary plans to the utility company, obtaining copies of as-built plans for the existing utility facilities (if available), and determining the companies' requirements for the relocation of their facilities.

E. The **CONSULTANT** shall provide the utility companies with design plans as soon as the plans have reached a level of completeness adequate to allow the companies to fully understand the project impacts. These plans shall contain available data that may be helpful to the utility in assessing the utility impact (stations and offsets, and etc.). The utility company may use the **CONSULTANT's** design plans for preparing Relocation Sketches. If a party other than the utility company or its agent prepares Relocation Sketches, there shall be a concurrence box on the plans where the utility company signs and accepts the Relocation Sketches as shown.

F. The **CONSULTANT** shall coordinate and conduct a preliminary review meeting with the utility companies to assess and explain the impact of the Project to the companies. The **DEPARTMENT's** Project Manager, Resident Construction Engineer (RCE), and Utilities Manager (or designee) shall be included in this meeting.

G. The **CONSULTANT** shall research the prior rights of each utility company's facilities. If there is a dispute over prior rights with a utility, the **CONSULTANT** shall be responsible for making a recommendation to the **DEPARTMENT** regarding resolution of the dispute. The **CONSULTANT** shall meet with the **DEPARTMENT's** RCE to present the prior rights information gathered. This information must be sufficient for the RCE to certify the extent of the utility company's prior rights. The **DEPARTMENT** shall have final approval authority as to the **CONSULTANT's** determination of whether the utility company has prior rights.

H. The **CONSULTANT** shall prepare and submit to the **DEPARTMENT** a Preliminary Utility Report that includes a listing of utility companies located within the project limits and a preliminary recommendation as to the extent of each company's prior rights. This report shall also include a preliminary assessment of the impact to each company as can best be determined at the time, as well as a determination of the feasibility of early utility relocations that may begin prior to the start of construction.

I. The **CONSULTANT** shall be responsible for collecting the following from each utility company that is located within the project limits: Relocation Sketches including letter of "no cost" where the company does not have a prior right; Utility Agreements including cost estimate and relocation plans where the company has a prior right; and Letters of "no conflict" where the company's facilities will not be impacted by the Project.

J. The **CONSULTANT** shall review Relocation Sketches and Utility Agreements to ensure that relocations comply with the **DEPARTMENT's** "A Policy for Accommodating Utilities on Highway Rights of Way" and the Code of Federal Regulations, Title 23, Chapter 1, Subchapter G, part 645, subparts A and B. The **CONSULTANT** shall also ensure that there are no conflicts with the proposed highway improvements, and ensure that there are no conflicts between each of the utility company's relocation plans.

K. The **CONSULTANT** shall prepare and submit to the **DEPARTMENT** a Final Utility Report no later than 90 days prior to the letting date (120 days if 60-day advertisement) that includes a listing of the utilities located within the Project limits, an explanation of the Project impacts to each of the utilities, prior rights supporting documentation, and a description of each utilities'

relocation plans. As part of the report, the **CONSULTANT** shall assemble and submit to the **DEPARTMENT** all Relocation Sketches, Utility Agreements, and Letters of "no conflict", as set forth in "I" above, for the Project. The **CONSULTANT** is expected to assemble the information included in the Utility Agreements and Relocation Sketches in a final and complete form and in such a manner that the **DEPARTMENT** may approve the submittals with minimal review. Each Utility Agreement and Relocation Sketch submitted must be accompanied by a certification from the **CONSULTANT** stating that the proposed relocation will not conflict with the proposed highway improvement and will not conflict with another utility company's relocation plan. The report shall also contain the **CONSULTANT's** recommendation for approval of the Utility Agreements and Relocation Sketches and the **CONSULTANT's** recommendation that, from a utilities standpoint, the Project is ready to be let to contract.

L. The **CONSULTANT** is expected to meet with the **DEPARTMENT's** Utilities Office within 45 days of the Notice to proceed to gain a full understanding of what is required with each submittal.

M. The **CONSULTANT** shall prepare and maintain a compilation of utility relocation plans on one set of the project plans. These plans (Utility Relocation sheets) will be used during the project development, and the final set may be included in the bid documentation for information only and will reference the actual relocation plans prepared by the utility.

N. The **CONSULTANT** will attend a utility kickoff meeting for the project once **DEPARTMENT's** Utilities Department gives approval for utility relocations.

O. The utility companies shall not begin their relocation work until authorized in writing by the **DEPARTMENT**.

P. The **CONSULTANT** will attend two (2) (assumed) utility coordination meetings to be available for questions. The **CONSULTANT** will provide support for utility coordination throughout construction. The **DEPARTMENT** will provide day-to-day utility coordination on the project.

TASK 10: GEOTECHNICAL ENGINEERING SERVICES

A. **Geotechnical Engineering Services**

The **CONSULTANT** will develop geotechnical engineering services for the bridge and roadway on each project separately. This will include subsurface investigation and geotechnical engineering reports. All testing locations should be located along the proposed alignment of the roadway and bridge structure whether within or outside of the SCDOT right-of-way. The testing locations should assure that the entire construction areas are adequately explored. Clearance of utilities will be the responsibility of the consulting firm.

The **CONSULTANT** is responsible for obtaining permission to access outside of SCDOT right-of-way. A required letter to the Director of Right-of-way shall be submitted detailing the location and proposed depth for each soil test boring performed throughout the project site. This includes soil test borings that may be within SCDOT right-of-way but may have potential impacts on a property owner to get to the proposed site.

In addition to the scope outlined herein, refer to the latest SCDOT GDM for further clarification and requirements associated with geotechnical engineering services. All geotechnical design recommendations must conform to latest AASHTO LRFD Bridge Design Specifications and the latest SCDOT Seismic Design Specifications for Highway Bridges.

The **CONSULTANT** will provide to the **DEPARTMENT** the following for geotechnical services:

1. Task I – Field Investigation

   Proposed final testing locations shall be determined by the **CONSULTANT** and shall be in conjunction with the preliminary exploration plan. The **CONSULTANT** shall provide copies of the proposed subsurface exploration plans to the **DEPARTMENT** prior to initiation of field work for review and acceptance. See Chapter 4 of the SCDOT GDM for subsurface investigation guidelines.

2. Task II – Field Engineering

To include the following:

a. Provide oversight of drill and cone rig operations by field engineers and/or field geologist; Field personnel should consist of 1 field services supervisor, and 1 full time rig engineering/rig geologist per drill rig;
b. Soil Classification in accordance with USCS (ASTM 2487);
c. Field Services Supervisor, who should have a minimum of 3 years experience in supervision of field equipment and field personnel, will coordinate all field activities as outlined in Task I (including clearance of underground utilities through PUPS).

In addition, it is anticipated that monthly progress meetings will be held by the **DEPARTMENT** during the execution of the field investigation. At this time, copies of the field logs of test holes completed to date should be made to the **DEPARTMENT**.

3. Task III – Laboratory Testing

The firms shall be AASHTO certified in the anticipated laboratory testing outlined below and/or any additional testing that may be required. See Chapter 5 & 6 of the SCDOT GDM for AASHTO and ASTM designations. The laboratory investigation is to include, as a minimum, the following:

a. Laboratory-testing program should include classification testing:

(i) Natural Moisture Content tests;
(ii) Grain Size Distribution with wash No. 200 Sieve
(iii) Hydrometer analysis at the proposed interior bents;
(iv) Moisture-Plasticity Relationship Determination (Atterberg Limits);
(v) Organic Loss tests;
(vi) Unconfined compressive strength on rock cores;
(vii) CU triaxial shear strength tests with pore pressure measurements;

The information collected (i.e. field and laboratory data) during the final subsurface investigation will be used to develop the final foundation and earthwork recommendations for the project At this time any additional laboratory analyses should include additional index property testing as well as sophisticated shear and consolidation testing.

4. Task IV –Geotechnical Engineering Report for Bridge and Roadway

Three copies of the report should be submitted in hard copy form along with one electronic copy on a CD. This task should include, as a minimum, the following recommendations:

a. Preliminary Geotechnical Engineering Report for Bridge

(i) Base line geological report summarizing findings of the exploration;
(ii) Preliminary ADRS Curve;
(iii) Foundation recommendations;
(iv) Point of fixity for all bents;
(v) Special geotechnical considerations to be addressed before preliminary bridge plans are submitted;
(vi) Boring logs and laboratory results;
(vii) Preliminary report must be signed and sealed by a registered SC Professional Engineer.

b. Preliminary Geotechnical Engineering Report for Road

(i) Base line geological report summarizing findings of the exploration;
(ii) Preliminary ADRS Curve;
(iii) Preliminary analysis for embankments and retaining walls to determine any stability issues;
(iv) Special geotechnical considerations to be addressed before preliminary road plans are submitted;
(v) Boring logs and laboratory results;
(vi) Preliminary report must be signed and sealed by a registered SC Professional Engineer.

c. Final Geotechnical Engineering Report for Bridge

(i) Base line geological report summarizing findings of the exploration;
(ii) Final ARDS Curve;
(iii) Liquefaction assessment;
(iv) Foundation designs and recommendations;
(v) Lateral Load Analysis;
(vi) Plan notes;
(vii) Special geotechnical considerations;
(viii) Final report must be signed and sealed by a registered SC Professional Engineer.

d. Final Geotechnical Engineering Report for Road

(i) Base line geological report summarizing findings of the exploration;
(ii) Final ARDS Curve;
(iii) Liquefaction assessment;
(iv) Borrow material evaluation;
(v) Final slope stability analysis for embankments, cut excavation, retaining walls, and culverts;
(vi) Settlement issues;
(vii) Undercutting recommendations (if necessary);
(viii) Plan notes;
(ix) Special geotechnical considerations;
(x) Final report must be signed and sealed by a registered SC Professional Engineer.

Preliminary Coordination Process

The preliminary geotechnical exploration and preliminary geotechnical reports shall be issued prior to the Design Field Review on an individual basis for each project. The preliminary geotechnical reports shall be forwarded to the appropriate design groups. Refer to Chapter 2 of the SCDOT GDM for Project Coordination Process

.

Final Coordination Process

The final geotechnical exploration and final geotechnical reports shall be issued prior to the Final Plans for each project. The final geotechnical reports shall be forwarded to the appropriate design groups. In addition, the results of hydrometer testing shall be forwarded to the appropriate Hydraulic Engineers for use in bridge scour. Refer to Chapter 2 of the SCDOT GDM for Project Coordination Process.

The **DEPARTMENT** reserves the right to change the final geotechnical exploration services based on the results from the preliminary geotechnical exploration or additional geotechnical information that may require further analysis.

TASK 11: CONSTRUCTION SERVICES

A. **Preconstruction Conference**

The **CONSULTANT** shall attend the preconstruction conference and respond to questions by the successful contractor pertinent to the **CONSULTANT's** design.

B. **Partnering**

The **CONSULTANT** shall attend a partnering meeting with the **DEPARTMENT**, the contractor, utilitiy companies, and any other concerned parties. In attendance from **CONSULTANT** will be project manager, structural engineer, drainage and erosion control engineer, and traffic engineer.

C. **Technical Assistance During Construction**

The **CONSULTANT** will assist **DEPARTMENT** personnel during construction phase with issues or questions relating to the design

The **CONSULTANT** will review the bridge contractor's erection and shop drawings and specifications, as required to verify conformance with the plans & specifications.

The **CONSULTANT** will review any construction phase value engineering proposals presented by

the Contractor.

The **CONSULTANT** will make necessary revisions to the construction plans as directed by the **DEPARTMENT**.

Supplemental Information for Bridge Design Engineering Services

Solicitation Number S-120-14

The proposed solicitation will span a three (3) year time frame. The SCDOT will select six (6) firms with a maximum award amount of up to $2,500,000/firm. Consultants will be evaluated and ranked based on their score during the selection process. Consequently, work under each On-Call will initially be assigned based on the consultant's ranking. Once the list has been exhausted, work will then be assigned to best maintain equity in the value of work unless an exception is approved. Exceptions are warranted when specialized experience or knowledge to specific project is required and will require justification.

NOTE: Work awarded under this solicitation includes projects that are being administered by SCDOT and funded by other governmental entities pursuant to an IGA or LPA agreement between the SCDOT and the governmental entity. In those cases, a separate agreement between that governmental entity and the consultant will be prepared and administered by SCDOT to cover the services.

A detailed scope of services is located under this solicitation number (S-120-14) @ http://www.scdot.org/doing/constructionLetting_Services.aspx.

In consultant selection, the SCDOT will consider and conduct a comparative ranking of the firms submitting based upon the following:

35%	Experience, qualifications, and technical competence of the staff proposed for the type of work required
25%	Past performance of the firm/team on similar type projects
15%	Responsiveness to the SCDOT, and the availability/readiness of the proposed staff
10%	Team makeup; ability of firm to perform all aspects of the services
10%	Familiarity of the firm/team with SCDOT practices and procedures
5%	DBE utilization plan

The proposal must contain the following: letter of interest, current resume of qualifications, a direct response to each of the selection criteria identified above, and Standard Form 330 (SF

330) as required by the Federal Acquisitions Regulations. All parts of the SF 330 must be completed in its entirety for the prime consultant, any sub-consultants and any sub-contractors.

Consultants are prohibited from submitting on multiple proposals as the prime consultant in response to this advertisement. The preceding, with the exception of SF 330, shall be limited to 20 double-spaced pages printed on one side only.

To qualify as a DBE on this project, the firm must be listed as approved for the type of work to be performed in the South Carolina Unified DBE Directory at the time of the bid submittal. The directory can be found at the following link:

http://www.scdot.org/doing/doingPDFs/businessDevelop/UCP_DBE_Directory.pdf.

All responding firms must utilize the SCDOT's new electronic proposal submission process. Information regarding Project Wise can be found at the following link: http://www.scdot.org/doing/constructionLetting_ProjectWise.aspx. Please contact Eric Stuckey at 803-737-1003 or StuckeyEC@scdot.org to set up an account to begin utilizing the electronic submittal process.

The SCDOT selection will be based on information submitted; however, additional information and/or an interview may be required.

All responders must visibly mark as "CONFIDENTIAL" each part of their submission that they consider to contain proprietary information the release of which would constitute an unreasonable invasion of privacy. All unmarked pages will be subject to release in accordance with law. Proposer should be prepared, upon request, to provide justification of why such materials should not be disclosed under the South Carolina Freedom of Information Act, S.C. Code Section 30-4-10, et seq.

Consultants and sub-consultants must have an SCDOT approved indirect cost rate prior to contract execution. Please refer to the following link for additional information: http://www.scdot.org/doing/contractor_Audit.aspx.

Consultants shall comply with Title VI of the Civil Rights Act of 1964. The SCDOT strongly encourages the use of and involvement of Disadvantaged Business Enterprises (DBE) on this project.

The contract will be cost plus a fixed fee with a contract maximum, or lump sum, or approved unit cost at the discretion of the SCDOT. There is no guarantee of any specific amount of work.

All electronic proposal submissions and the letter of interest should be addressed to the Contracting Officer, Room 128, at the South Carolina Department of Transportation, P.O. Box 191,

Columbia, South Carolina 29202 or 955 Park Street, Room 128, Columbia, South Carolina 29201, no later than 2:00 PM, January 21, 2014.