Interstate 85/385 Interchange Improvements
Greenville County
File 23.038111
Federal Aid Project No. IM23(009)

NOTICE TO PROPOSERS

April 28, 2014

NOTICE TO PROPOSERS - Enclosed is Addendum #1 to the Request for Proposals (RFP) package for the Interstate 85/385 Interchange Improvements Project. The information provided in this notice and the addendum shall be made part of the contract documents.

Addendum #1 is being issued in order to provide clarification and additional information for the project.

This addendum includes the following documents:

- NOTICE TO PROPOSERS
- NOTICE OF RECEIPT
- Pages to be inserted into Request for Proposals

In addition to the pages included in this document for insertion into the RFP, the following items can be found on SCDOT's Design Build website and will be available for download.

The following items are to be included in Exhibit 4c – Pavement Design Criteria:

- .pdf file entitled "Mainline Pavement Criteria"
- .pdf file entitled " Pavement Type Figures"

The following items are to be included in Attachment B and used as information:

- .pdf file entitled "Video Pipe Inventory Summary Report"
- Folder entitled "Models with Surface Links"
- Folder entitled "2035 Alt 4A and No Build"

Interstate 85/385 Interchange Improvements
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NOTICE OF RECEIPT – ADDENDUM #1

The information in this addendum shall be made part of the contract documents. PROPOSERS are instructed to incorporate the information into the previously provided RFP documents.

PROPOSERS are required to sign this document and enclose it with their Technical Proposal and/or Statement of Intent. Signed receipt of this document by The South Carolina Department of Transportation serves as confirmation that the PROPOSER has received and incorporated Addendum #1 into the contract documents.

Confirmation Statement:

I, the PROPOSER confirm that I have received the Addendum #1 package and have incorporated the information provided in the addendum into the contract documents.

_____ _____

PROPOSER's Signature Date

_____

Printed Name

For:_____

Design Build Firm Name

Interstate 85/385 Interchange Improvements
Greenville County
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The following pages should be inserted into previously provided copies of the RFP and the old page of the same number removed and disregarded. A summary of the pages included follows:

Request for Proposals

- Pages 10, 11

Agreement

- Page 29

Exhibit 3 – Scope of Work

- Pages 1, 3, 4, 6, 9, 10

Exhibit 4 – Project Design Criteria

- Page 2

Exhibit 4a – Roadway Design Criteria

- Page 2, 5, 8, 13

Exhibit 4b – Structures Design Criteria

- Page 19, 23

Exhibit 4c – Pavement Design Criteria

- Pages 1, 2, 3

Exhibit 4d, Part 2 – Work Zone Traffic Control Criteria

- Page 21

Exhibit 4d, Part 3 – Traffic Signals

- Page 1

Exhibit 4e – Drainage Design Criteria

- Pages 3, 4, 5, 7, 9

Exhibit 5– Special Provisions

- Pages 1, 3, 13, 23, 122, 151, 177, 225, 226, 227- 282

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Exhibit 6 – Supplemental Specifications

- Pages 74 -77

Exhibit 7 – Federal Aid Projects Supplemental Specifications

- Entire document

4. Determination of SCDOT

a. SCDOT will make one of the following written determinations with respect to each properly submitted ATC:

i. The ATC is approved, in its entirety or in part;
ii. The ATC is not approved;
iii. The ATC is not approved in its present form, but may be reconsidered for approval upon satisfaction, in SCDOT's sole discretion, of certain identified conditions that must be met or certain clarifications or modifications that must be made by PROPOSER. The PROPOSER shall not have the right to incorporate this ATC into the Proposal unless and until the ATC has been resubmitted within the time limits in the RFP, with the conditions, clarification and modifications satisfied, and SCDOT has unconditionally approved the revised ATC; or
iv. The submittal does not qualify as an ATC but appears eligible to be included in the Proposal without an ATC (i.e., the concept appears to conform to the ~~basic configuration~~ RFP and to be consistent with other contract requirements).
v. The ATC is deemed to take advantage of an error or omission in the RFP, or other documents incorporated into the contract by reference, the ATC will not be considered, and the RFP will be revised to correct the error or omission
vi. More than one formal ATC has been received on the same topic and the Department has elected to exercise its right to issue an addendum to the RFP to include that topic.

b. Once an ATC has been approved, only the entire ATC is eligible for inclusion into the Proposal. The inclusion of partial ATCs into a Proposal is not allowed, unless the individual ATC's have received separate approval by SCDOT

c. Each PROPOSER, by submittal of its Proposal, acknowledges that the opportunity to submit ATCs was offered to all PROPOSERS, and waives any right to object to SCDOT's determinations regarding acceptability of ATCs.

5. Incorporation into Proposal

a. A PROPOSER has the option to include any or all approved ATC's in its Proposal. If SCDOT responded to an ATC by identifying conditions for approval, PROPOSER may not incorporate such ATC into the Proposal unless all conditions have been met. Copies of SCDOT's ATC approval letters for each incorporated ATC shall be included in the Technical Proposal. Proposals with or without ATC's will be evaluated against the same technical evaluation factors set forth in the EVALUATION OF PROPOSALS section, and the inclusion of an ATC, including an ATC

that provides technical enhancements, may or may not receive a higher technical rating. SCDOT approval of an ATC shall not be considered a guarantee that the proposal incorporating the ATC will be selected. SCDOT's rejection of an ATC will not entitle the proposer to an extension of the Proposal submission deadline on the Milestone Schedule or claim for additional costs or delays, including development costs, loss of anticipated profits, or increased material or labor costs.

b. The Proposal Price should reflect any incorporated approved ATCs.

c. Except for incorporating approved ATCs, the Proposal may not otherwise contain exceptions to or deviations from the requirements of the RFP.

6. Value Engineering

An approved ATC that is not incorporated into the proposal will not be considered a pre-approved value engineering change.

7. Abandonment of ATC by PROPOSER

If the approved ATC is abandoned by the PROPOSER, is unable to obtain required approvals, is otherwise proved to be infeasible, or fails to be constructed for any reason, the successful PROPOSER is obligated and required to complete the project utilizing the original RFP ~~design and scope~~ requirements at the awarded cost, and shall be responsible for any redesign costs.

8. SCDOT's use of Concepts Contained in an ATC

SCDOT expressly reserves the right to adopt and use any ATC, approved or disapproved, by the successful PROPOSER on this contract or other contracts administered by SCDOT. By submitting a Proposal, all unsuccessful PROPOSERS acknowledge that upon acceptance of the designated stipend, all approved or disapproved ATC's may be included in this contract or other contracts administered by SCDOT and shall become the property of SCDOT without restriction on use. Prior to contact execution, limited negotiations may be conducted as necessary to incorporate the ideas and concepts from unsuccessful PROPOSERS provided a stipend is accepted by the unsuccessful offerer.

9. Proposer Obligations.

The successful PROPOSER, in addition to performing all other requirements of the Contract Documents, shall:

a. Obtain and pay the cost of obtaining all required approvals including approvals required to implement any approved ATC(s) incorporated into the Contract Documents;

b. Obtain and pay the cost of obtaining any third party approvals required to implement any approved ATC(s) incorporated into the Contract Documents; and

Special Provisions for Protection of Railway Interests, and all terms of the final agreement executed with the Railroad Company.

O. The CONTRACTOR will be required to meet the Railroad's Insurance Requirements as specified in the Special Provisions for Protection of Railway Interests.

P. The CONTRACTOR shall attend a mandatory meeting with the SCDOT's Utilities Office and Railroad Projects Office within thirty (30) days of the Notice to Proceed. The CONTRACTOR will be required to use the SCDOT approved agreement language and procedures, that will be provided in this meeting.

Q. SCDOT has negotiated language for the PE and Construction Agreements (see Exhibit 9 ~~and additional information in Attachment B~~). CONTRACTOR shall provide project specific information to SCDOT for inclusion into the agreements. The CONTRACTOR shall anticipate and include in the proposed schedule a minimum 90-day approval time-frame for all railroad agreements. However, SCDOT will not be held responsible for delays caused by negotiations with the railroad company.

R. CONTRACTOR shall anticipate the need for a separate right-of-entry agreement between the CONTRACTOR and Railroad for surveys, borings, etc. The required PE Agreement, between SCDOT and Railroad, must be executed before Railroad will review or comment on any design questions or submittals from the CONTRACTOR. The Construction Agreement, between SCDOT and Railroad, must be executed before any construction activities can begin.

S. CONTRACTOR is advised the all utility relocations required within railroad right-of-way will require separate agreements between the affected utility company and the Railroad.

VIII. RIGHT OF WAY ACQUISITION

A. Right of Way Services

CONTRACTOR, acting as an agent on behalf of the State of South Carolina, shall provide right-of-way services for the Project. CONTRACTOR shall use firm(s) from the SCDOT's current "on-call" list for right of way consultants, as listed in Attachment B, to provide right of way services. Right-of-way services shall include appraisal, appraisal review, negotiation, acquisition, and relocation assistance services. CONTRACTOR shall be responsible for all costs related to these right-of-way services. CONTRACTOR will provide expert testimony and SCDOT will provide legal services necessary for any cases that are to be resolved by trial. Experts are defined as engineering and appraisal witnesses. SCDOT will retain final authority for approving just compensation, relocation benefits and settlements. SCDOT will designate a hearing officer to hear any Relocation Assistance Appeals. SCDOT agrees to assist with any out of state relocation by persons displaced within the rights of way by arranging with such other state(s) for verification of the relocation assistance claim. CONTRACTOR shall carry out the responsibilities as follows:

Addendum #1

General

The CONTRACTOR is to perform, at a minimum, all work necessary to complete the improvements to I-85, I-385, ramps and side roads as described within this Scope of Work, the Agreement, and the Request for Proposals (RFP). This work shall be performed in accordance with all contract requirements. In carrying out this work, the CONTRACTOR is responsible for all contract services including, but not limited to, project administration, design, demolition and construction services for roadway and bridge, maintenance of traffic, right-of-way acquisitions and acquisition services, utility coordination and relocation services, railroad coordination, contractor quality control, environmental permitting, and public/community relations. The project limits are shown in a .pdf file entitled "Figure 1 – Project Limits" included in Attachment B of the RFP.

As part of the design services, the CONTRACTOR shall complete the design throughout the project limits per the typical sections and criteria provided. The CONTRACTOR is fully responsible for compliance with the specifications and standards cited in all Contract Documents. Design submittals shall be provided in accordance with the Contract Agreement. Any deviation from the proposed design (whether necessary or desired by the CONTRACTOR) shall meet or exceed the contract requirements. If the project design necessitates a modification to any previously approved document (including but not limited to, the environmental document(s), environmental permit(s), Municipal Agreements, and Interchange Modification Report), the CONTRACTOR is responsible for the necessary studies and reports. Final review and approval lies with SCDOT and FHWA. Details on IMR evaluation process are found in Interstate System Access Informational Guide (August 2010) from USDOT/FHWA. The eight deficiencies noted in the Traffic Study (included in Attachment B) should also be addressed.

Acquisition and all costs associated with acquiring the necessary right-of-way shall be the responsibility of the CONTRACTOR. If additional right-of-way is required outside the NEPA footprint, it shall be the responsibility of the CONTRACTOR to provide a re-evaluation of the NEPA document and to revise any permits deemed necessary to reflect the proposed right-of-way.

As part of the construction services required, the CONTRACTOR shall thoroughly review all contract documents especially the project's Special Provisions contained in Exhibit 5. These Special Provisions provide detailed information on work to be included in this contract.

The Project shall include at a minimum design and construction activities necessary for all improvements associated with Contract Documents including but not limited to the following:

1. Erosion Control
2. Clearing and Grubbing
3. Grading
4. Drainage
5. Paving
6. Guardrail, End Treatments, Concrete Median Barrier, and Cable Median Barrier

- The CONTRACTOR shall provide complete storm drainage design and construction for the portion of the project within the limits of the interchange. No hydraulic design is required in the portions of the project beyond the limits of widening for interchange ramps or auxiliary lanes, however the existing pipes outside these limits shall be cleaned, and have debris removed, ~~and video inspected~~ prior to project completion.
- All driveway pipes located within the project area shall be replaced as part of the scope of services.
- Existing catch basins to be retained within the project area and right-of-way for I-85 and I-385 and their associated ramps which are outside the areas for normal pedestrian traffic shall be modified to include Type 12 Catch Basin Grates.
- The Department has determined some existing cross lines within the Project limits are structurally inadequate and are to be replaced or otherwise rehabilitated as detailed in Exhibit 4e.
- All other cross line drainage culverts and pipes may remain in place provided that the PROPOSER demonstrates to the Department's satisfaction that they provide the necessary hydraulic capacity. The hydraulic capacity shall be verified by a professional engineer registered in South Carolina.

7. Pavement:
   - The design for pavement shall be selected from the designs listed in Exhibit 4c.
   - Milled-in rumble strips shall be used on all interstate shoulders, both inside and outside, in accordance with SCDOT standard drawings and specifications.
   - The existing milled in rumble strip on the outside concrete paved shoulder along I-385 Northbound between the Butler Road on-ramp and the northern terminus of the existing concrete pavement, and the inside concrete paved shoulder along I-385 SB within the transition from two to three lanes at Smith Hines Road shall be removed and replaced in order to accommodate the proposed lanes. This work shall be performed in accordance with Exhibits 4a and 4c.
   - The existing outside concrete paved shoulder along I-385 Southbound between the northern terminus of the existing concrete pavement and the Butler Road off-ramp shall be removed and replaced in order to accommodate the proposed lanes. This work shall be performed in accordance with Exhibits 4a and 4c.

8. Traffic:

   Pavement Markings - Provide durable pavement markings and surface mounted raised pavement markers throughout the limits of the project. Striping materials will be determined by the type of roadway surface as described in Exhibit 4c. Apply line widths and patterns in accordance with the Standard Drawings.

   Signs - Provide and install all permanent signing required within project limits as described in Exhibit 4d – Part 1 including the required advance signs for interchanges that may be located beyond the project limits. A signing strip map with approved destinations is included as a .pdf file named "Signing Strip Map" and included in Attachment B. The CONTRACTOR shall provide signing plans and sign layouts for SCDOT approval prior to

ordering any materials. Traffic signing shall be provided throughout the project limits in accordance with MUTCD.

ITS System – The Project includes the installation of an ITS System along I-85 and I-385 throughout the limits of the Interchange portion of the project. See Exhibit 5 – Special Provisions for details regarding the ITS System. This will be a turn-key ITS project, with the CONTRACTOR furnishing and installing cameras on concrete poles along the mainline segments (at approximately ¾ mile intervals) and as necessary within the interchange area to achieve full video coverage. The installation shall also include lowering devices, 144 and 96 SM fiber optic cable in 2 inch conduits, fiber optic cable splicing and terminations, fiber optic cable testing, service boxes, electrical services, and all miscellaneous hardware required to make an operational system per the specifications, as listed, complete to the satisfaction of the DEPARTMENT. The two existing dynamic message signs (DMS) that are currently in place within the project limits (I-385 NB south of Smith-Hines Road and I-85 NB north of Roper Mountain Road) (to be removed by The DEPARTMENT) shall be replaced with new DMS as part of the new ITS system. New DMS location shall be coordinated with the signing layout to avoid conflicts and/or spacing issues; new DMS location may be adjusted slightly relative to the existing location as required to avoid such conflicts. The CONTRACTOR shall develop and furnish conceptual plans a minimum of 45 days prior to commencing fabrication/construction activities. The CONTRACTOR shall also provide as-built plans (three complete sets), allocation drawing and Fiber Trak data entry upon completion of the system installation.

Work Zone ITS – Prior to commencing construction the DEPARTMENT will remove all existing ITS equipment and facilities (including but not limited to camera pols, dynamic message signs, and the ITS/Communications hub located within the interchange). After removal of the existing ITS infrastructure, SCDOT will contract with a third party vendor to provide Work Zone ITS (WZITS) services. The DEPARTMENT will be responsible for all costs associated with WZITS. The CONTRACTOR will be required to coordinate with WZITS provider to ensure proper location of WZITS devices to provide the desired coverage while avoiding conflicts with construction to the maximum extent practicable. The WZITS provider will be in attendance at the Partnering Meeting in order to initiate the coordination process.
~~At project completion, the ITS System shall be complete and operational.~~

Traffic Signals – For a detailed scope of work see Exhibit 4d part 3 ~~Re-construct existing traffic signals as necessary to complete the project.~~

Existing Traffic Counting Stations – If the project impacts the existing traffic counting stations at I-85 NBL MP 47.4 and 55.0, the CONTRACTOR shall replace any component impacted by the project; components which are not impacted may remain in place. Work may consist of furnishing and installing a Control Box with lightning suppression, Loop Wires, Piezo Film Sensors, Weigh-In-Motion sensors, lead-in wires, pull boxes, conduit, or interconnections necessary to replace and upgrade the existing traffic counting, classification or Weigh-In-Motion devices which will be removed or otherwise impacted by the project.

Minimize shoulder width reductions. On roadways with paved shoulders, maintain a minimum total width of paved shoulder area no less than 5 feet wide with a minimum 3-foot / 2-foot split between each paved shoulder; provide a minimum width of 2 feet of paved shoulder on one side of the travel way with a minimum width of 3 feet of paved shoulder on the other side of the travel way. On bridge structures, maintain a minimum total width of shoulder area no less than 4 feet wide with a 2-foot / 2-foot split between each shoulder; provide no less than 2 feet of shoulder width on each side of the travel way.

A separation of adjacent travel lanes in the same direction of travel shall require approval by the Department. If a separation of adjacent travel lanes in the same direction of travel is approved by the Department, the approved separation of travel lanes shall not exceed one separation event per direction.

Maintain the legal posted regulatory and advisory speed limits of all roadways, including but not limited to interstate mainlines, multilane and two-lane two-way primary and secondary roads, collector-distributor facilities, ramps, etc., prior to the presence of a work zone or an unforeseen roadway hazard unless otherwise directed by the Department. Design and develop the Temporary Traffic Control plan (TTC), including but not limited to tapers, tangent and curve sections, reverse curves, etc. based upon the legal posted regulatory speed limit of the roadway prior to beginning the work. Temporary posted speed limit reductions may be considered and submitted to the Department for review when temporary roadway alignments, roadway geometry and other factors such as rights-of-way limitations facilitate a design incorporating a speed limit reduction. However, the Department reserves the right to reject and/or require modifications to all proposed temporary posted speed limit and design speed reductions.

For existing interchange ramp movements impacted by the temporary traffic control plan provide a minimum design speed equal to the values shown in Exhibit 4d Part 2. Reduction of this design speed will be approved by the Department when it has been extensively evaluated and determined unfeasible and inadequate for the construction requirements and based on its impact to traffic flow and queuing. ~~At a minimum, the existing advisory speed limits shall be maintained as noted above.~~

11. Environmental: The CONTRACTOR shall give extra attention throughout project operations to minimize impacts to the environment. As a minimum the CONTRACTOR shall include the following in the Project:

- The CONTRACTOR shall provide all modifications or revisions to the environmental documents that result from deviations in the project design and environmental impacts as stated in the environmental documents.

- The CONTRACTOR shall provide an Environmental Plan for the Project. The plan shall be submitted to SCDOT for approval prior to any construction activity. The plan shall identify

5.) Provide a combined three-lane exit to I-385 NB / SB and Woodruff Road from I-85 SB ~~as shown in the approved IMR.~~ Split ramp into two 2-lane ramps to provide access to I-385NB/Woodruff Road and I-385 SB ~~as depicted in approved IMR~~. .
6.) Provide a two-lane entrance onto I-85 SB from I-385 NB and SB ~~as shown in the approved IMR~~.
7.) Provide a single lane entrance onto I-85 SB from Woodruff Road.
8.) Provide Collector-Distributor along I-85 NB servicing Woodruff Road via existing ramps and new I-385 Interchange ramps.
9.) Provide two-lane exit from I-85 NB to I-85 NB Collector-Distributor.
10.) Provide two-lane entrance from I-85 NB Collector-Distributor to I-85 NB for Woodruff Road traffic.
11.) Collect the I-385 NB and SB traffic to I-85 NB into a common ramp and enter onto I-85 NB via a three lane entrance.
12.) Perform additional rehabilitation work along I-85 Northbound beyond the limits of the interchange work to MP 47.3 to the South and to MP 56.4 to the North. See Exhibit 4c for paving requirements. In addition, replace all existing guardrail and end treatments and add new guardrail where necessary in order to meet the requirements of the RFP. No shoulder widening will be required for installation of guardrail. Use extra-depth post as necessary.
13.) Perform cross slope correction in accordance with Exhibit 4c and special provisions to include all necessary median drainage adjustments.
14.) If the weather station located in the quadrant of I-85 SB and I-385 SB is impacted by construction, it shall be removed and delivered to the Greenville District Maintenance yard.

B. I-385

1.) Widen I-385 NB between MP 34.97 and MP 37.15 to provide a third through lane and tie to existing three-lane section at each end.
2.) Widen I-385 SB between MP 34.97 and MP 37.10 to provide a third through lane and tie to existing three-lane section at each end.
3.) Widen existing I-385 NB to provide a continuous ~~4~~4th auxiliary lane between the entrance ramp from Butler Road and the exit ramp to Woodruff Road / I-85 ~~385~~.
4.) Widen existing I-385 SB to provide a continuous ~~4~~4th auxiliary lane between the entrance ramp from I-85 ~~I-385~~ / Woodruff Road and the exit ramp to Butler Road.
5.) Provide a 3-lane exit from I-385 NB to Woodruff Road/I-85 ~~385~~.
6.) Provide a single lane entrance from Woodruff Road to I-385 NB.
7.) Provide access from Woodruff Road at I-385 to I-85 NB and SB without merging ramp traffic from Woodruff Road onto I-385 NB.
8.) Provide a two-lane entrance on I-385 NB from I-85 SB.

9.) Provide a single lane entrance on I-385 NB from I-85 NB.
10.) Widen I-385 NB to provide a continuous ~~5~~5th auxiliary lane between I-85 NB entrance ramp and Roper Mountain Road.
11.) Widen I-385 SB to provide a continuous ~~4~~4th auxiliary lane between Roper Mountain Road and I-385 Exit Ramp to I-85.
12.) Provide 2-Lane exit from I-385 SB to I-85.
13.) Provide single lane exit from I-385 SB to Woodruff Road.
14.) Provide Collector-Distributor along I-385 SB which collects traffic from I-385 SB and I-85 NB / SB and provides access to Woodruff Road.
15.) Provide 3-lane entrance ramp onto I-385 SB from Woodruff Road and I-85 NB / SB.

C. Ramps

All interstate-to interstate movements shall be maintained and the following improvements are required:

1.) Realign I-385 SB to I-85 NB ramp to replace bridge over I-85.
2.) Replace I-385 NB to I-85 SB loop ramp with a ~~flyover~~ ramp.
3.) Replace I-85 SB to I-385 SB loop ramp with a ~~flyover~~ ramp.
4.) Realign I-85 NB to I-385 NB ramp to replace bridge over I-85.

All service level interchange ramps shall be maintained and the following improvements are required:

1.) Reconstruct Woodruff Road / I-85 ramps and ramp terminals on the north side of I-85 to accommodate new I-85/I-385 ramps.
    a. I-85 SB exit ramp to Woodruff Road shall be isolated (“braided”) from the ramps carrying traffic from I-385 to I-85 and provide a 4-lane throat at Woodruff Road (double right and double left).
    b. I-85 SB entrance ramp from Woodruff Road shall be relocated as necessary to accommodate the I-385 entrance ramp.
2.) Ramp from Woodruff Road to I-385 NB shall be isolated (“braided”) from ramp carrying traffic from I-385 NB and Woodruff Road to I-85.

Access from I-385 (both directions) to the I-85 SB Exit Ramp to Woodruff Road via the I-85/I-385 ramps shall not be allowed.

D. Side Roads

1.) Re-align Roper Mountain Road as required to replace bridge over I-85. Roadway section shall be a three-lane section with bike lanes in each direction in accordance with design

DESIGN REFERENCES

This exhibit describes the general design considerations and criteria for the proposed roadway approaches, hydraulics, structures, and surveys. All design references listed below or elsewhere in the RFP shall be the version in effect at the time of the release of the Final RFP.

Design standards shall be in accordance with the following design references as supplemented or amended by Sections 4a, 4b, 4c, 4d, 4e, and 4f of this Exhibit:

- SCDOT Pre-Construction Survey Manual, effective as of the Final RFP release date
- 2003 SCDOT Highway Design Manual with updates effective as of the Final RFP release date and supplemented with AASHTO A Policy on Geometric Design of Highways and Streets, 2001
- AASHTO Roadside Design Guide, with 2006 Chapter 6 update, 3rd Edition
- AASHTO Standard Specifications for Highway Bridges, 17th Edition
- SCDOT Requirements for Hydraulic Design Studies, May 2009
- SCDOT Standard Drawings, effective as of the Final RFP release date
- SCDOT Engineering Directive Memorandums, effective as of the Final RFP release date
- SCDOT Instructional Bulletins, effective as of the Final RFP release date
- AASHTO Guide for the Development of Bicycle Facilities, 1999
- AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities, 2004
- SCDOT Americans with Disabilities Act Transition Plan, January 2009
- SCDOT Roadside Plants to Avoid/Trees with Limitations on R/W, June 2008
- SCDOT Access and Roadside Management Standards, August 2008 with updates
- SCDOT Plan Preparation Guide, 2000
- SCDOT Standard Specifications for Highway Construction, 2007
- SCDOT Supplemental Specifications, effective as of the Final RFP release date
- SCDOT Supplemental Technical Specifications, effective as of the Final RFP release date
- SCDOT Qualified Product Lists, effective as of the Final RFP release date
- FHWA Manual on Uniform Traffic Control Devices, 2009
- SCDOT Supplement to the MUTCD
- The Rule on Work Zone Safety and Mobility
- SCDOT Traffic Signal design Guidelines, 2009 with updates
- Highway Capacity Manual, 2000
- ~~SCDOT Traffic Engineering Guidelines~~
- SCDOT Preconstruction Advisory Memorandums, effective as of the Final RFP release date
- AASHTO “Highway Drainage Guidelines”
- SCDOT Bridge Design Manual, 2006
- SCDOT Bridge Design Memoranda, effective between July 1, 2006 and the Final RFP release date

2A	I-385 SB to I-85 NB	50	Freeway Ramp
3	I-85 NB to I-385 SB	45	Freeway Ramp
3A	I-85 NB to I-385 NB	35	Freeway Ramp
4	I-385 NB to I-85 NB	50	Freeway Ramp
4B	I-385 NB to I-85 SB	45	Freeway Ramp

SERVICE INTERCHANGE RAMPS

RAMP	DESCRIPTION	DESIGN SPEED (mph)	Functional Classification to be used for design
1B	I-85 SB to Woodruff Rd (I-85)	40	Freeway Ramp
5	Woodruff Rd (I-85) to I-85 SB	50	Freeway Ramp
R6	I-85 NBCD to Woodruff Rd (I-85)	N/A	Freeway Ramp
L6	Woodruff Rd SB (I-85) to I-85 NBCD	20	Freeway Ramp
7	Woodruff Rd NB (I-85) to I-85 NBCD	35	Freeway Ramp
2B	I-385 SB to I-385 SBCD	50	Freeway Ramp
	I-385 NB to Roper Mountain Rd	60	Freeway Ramp
4A	I-85 NBCD to I-85 NB	60	Freeway Ramp
8	Woodruff Rd (I-385) to I-385 NB	45	Freeway Ramp
8A	Woodruff Rd (I-385) to I-385 NBCD	45	Freeway Ramp
9	I-385 SBCD to Woodruff Rd (I-385)	40	Freeway Ramp
10	Woodruff Rd (I-385) to I-385 SBCD	45	Freeway Ramp
11	I-385 NBCD to Woodruff Rd (I-385)	45	Freeway Ramp

CROSSROADS

Rd S-548 (Roper Mountain Road) 45 mph (FC – Urban Collector)

Rd S-564 (Garlington Road/Miller Road) ~~45~~ 40 mph (FC – Urban Collector)

SC 146 (Woodruff Road) 45 mph (FC – Urban Arterial)

FRONTAGE ROADS AND SIDE ROADS

I-85 SB Frontage Road (Whispering Hollow) 45 mph (FC – Local Group 2)

Rd S-1112 (Chrome Drive) 25 mph (FC – Local Group 2)

Rd S-1142 (Chrome Drive) 25 mph (FC – Local Group 2)

Rd S-564 (Garlington Rd/Miller Rd), SC 146 (Woodruff Rd)

Travel Lane Width	12 ft
Median	16 ft paved to accommodate 12 ft turn lane and 4 ft median due to truck traffic
Turning Lanes	12 ft
Shoulder Width	6-10 ft total widths/2 ft paved (Based on the SCDOT HDM (2003 with updates) functional class) or 2 ft curb and gutter with 6 ft earthen shoulder ~~berm~~ measured from back of curb

FRONTAGE ROADS AND SIDE ROADS

I-85 SB Frontage Road (Whispering Hollow Road)

Travel Lane Width	10 ft
Shoulder Width	6 ft total width/2 ft paved

Rd S-1112 & Rd S-1142 Chrome Drive

Lanes	11 ft
ShoulderWidth	6 ft total widths/2 ft paved or 2 ft curb and gutter with 6 ft earthen shoulder ~~berm~~ measured from back of curb

Section 4

HORIZONTAL CURVES

INTERSTATE

Minimum Radius (65mph)	1485 ft ~~(Retain existing superelevation for I-85, "e=Retain Existing")~~
Minimum Radius (60mph)	1205 ft
Superelevation	0.08 ft/ft

~~Concrete Barrier Walls Type 2 through Type 6 and Type 11A through Type 15) in order to match the existing barrier. All other Concrete Barrier Walls used on this project shall be 'Straight Face' type barriers (SCDOT Concrete Barrier Wall Type 21 through Type 25).~~ All Concrete Barrier Walls shall be 'Jersey Face' type barriers (SCDOT Concrete Barrier Walls Type 2 through Type 5 and Type 11A through Type 15) except for barriers required to protect bridge columns where Type 25 shall be used.

Barrier Extension

Existing and proposed concrete median barrier along I-85 and I-385 which separates opposing traffic shall have concrete barrier extension provided except in areas on I-385 with existing landscaping between median barriers. Barrier extension shall be in accordance with SCDOT Specifications and Standard Drawings.

Guardrail and Barrier Usage

In order to eliminate narrow areas of grass between guardrails, barrier wall shall be utilized between the I-85 or I-385 (mainlines) and adjacent ramp or collector-distributor roadways constructed as part of this project in areas where the distance between the edge of the outermost mainline lane (through or auxiliary lane) and the edge of the innermost lane of the adjacent roadway is less than 45 feet. The barrier shall be placed to provide the appropriate inside shoulder for the adjacent roadway and allow for the future widening of the mainline (additional 12-foot lane on ~~either~~ both I-85 and ~~or~~ I-385 and 5.25' inside shoulder widening on I-85). The barrier may not be discontinued in areas where the offset between the mainline and adjacent roadway is greater than 45 feet due to a lane drop on the mainline. The barrier may end as the mainline and ramp alignments converge near the gore areas.

Addendum #1

Section 13

RIGHT-OF-WAY & CONTROL OF ACCESS

RIGHT OF WAY

Right of way widths will vary based on construction limits and NPDES requirements. Right of way concrete posts shall be installed along the right of way required for interstate, collector/distributers, ramps, and frontage roads as per Standard Drawing 809-105-00. Rebar cap markers shall be installed along all other roadways as per Standard Drawing 809-105-00.

CONTROL OF ACCESS

All right of way and control of access will follow the guidelines in the SCDOT HDM (2003 with updates), the Access & Roadside Management Standards (ARMS Manual 2008) and other SCDOT memorandums and bulletins.

72" Chain Link Fence shall be installed along the Control of Access in accordance with Standard Drawings 806-105-00 and 806-115-00. Location of four (4) 24' gates shall be specified by SCDOT. Existing Control of Access fence within the interchange limits shall be removed and replaced.

Any Temporary Sediment Control Basins or Storm Water Detention Ponds constructed beyond the limits of the Interstate Controlled Access shall include security fencing with a gate. Use Woven Wire Type 1 for Temporary Sediment Control Basins in accordance with Standard Drawings 806-305-00 and 806-315-00. Use 72" Security Chain Link Fence for Storm Water Retention Ponds in accordance with Standard Drawings 806-11—00 and 806-115-00.

9.0 BRIDGE LAYOUT

9.1 SPAN ARRANGEMENT

All new bridges constructed shall accommodate a future I-85 and I-385 typical section, 8 lanes (4 in each direction) as shown in Figure 2.

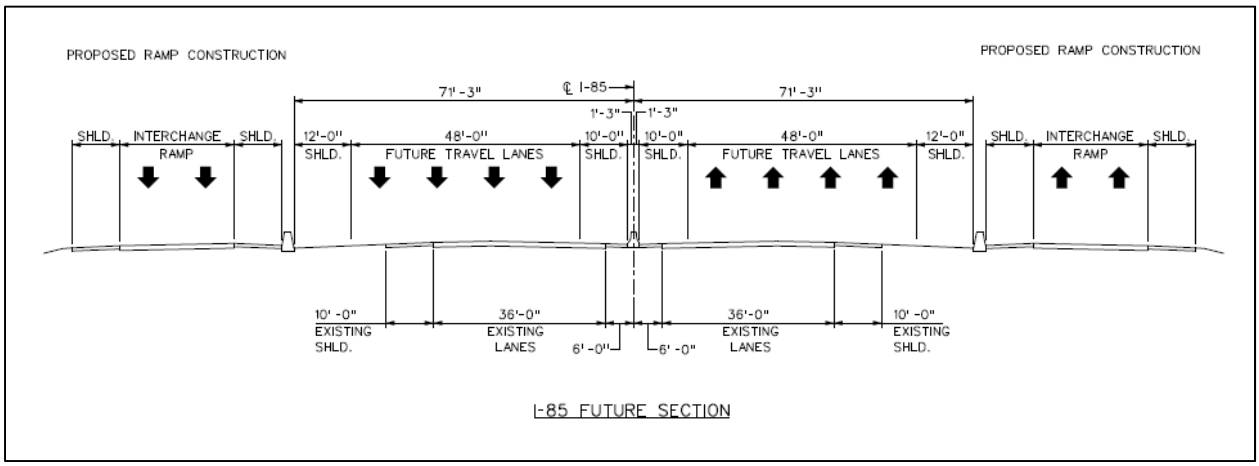

Figure 2: ~~I-85~~ Future Typical Section (I-85 shown, I-385 similar)

All new bridge bents, abutments, walls, or non-traversable fill slopes shall be located to provide the horizontal clearance required by Figure 13.5B in the *SCDOT Highway Design Manual* (HDM) unless indicated otherwise in this criteria. In instances where this clearance does not satisfy the Clear Zone requirements in Figure 14.3A in the SCDOT HDM, the obstruction shall be protected with barrier or guardrail in accordance with SCDOT Standard Drawings.

At locations where it is practical to place bridge bents or abutments that do not satisfy the SCDOT HDM clear zone requirements, new bridges may accommodate the typical section shown in Figure 3. A design exception has been approved for the reduced 4'-9" I-85 median shoulder width and shoulder width reductions at spot locations on I-85 and adjacent ramps.

12.0 RETROFIT AND REHABILITATION REQUIREMENTS

Both the I-385 Northbound (entire bridge) and Southbound (retained portion) bridges over the GE Railroad and Garlington Road will require rehabilitation in accordance with this section. Design of widening existing bridges shall be designed in accordance with *AASHTO Standards Specifications for Highway Bridges, 17th Edition.* CONTRACTOR shall demonstrate that any modifications to existing bridges do not lower the existing load rating of the structure.

Approach slabs shall be replaced in accordance with Section 1.19.

12.1 BRIDGE DECK REHABILITATION/REPLACEMENT

The entire Northbound bridge deck and the portion of the Southbound bridge deck which is to be retained shall be rehabilitated using one of the two options below:

1. The existing bridge deck shall be rehabilitated by performing partial removal of the bridge deck concrete (minimum of 3.25 inches, maximum of 3.75 inches, based on chloride testing performed by SCDOT), retaining the existing top mat of reinforcing, and providing a latex modified concrete overlay. The rehabilitated deck thickness shall match the existing deck thickness. This work shall be performed in accordance with Section 726 of the Standard Specifications.
2. Completely remove the concrete bridge deck, ~~retaining the existing reinforcing steel~~ and provide an in-kind bridge deck replacement with Class 4000 concrete. New barrier parapet shall be reconstructed on the new bridge deck. This work shall be performed in accordance with section 702 of the Standard Specifications.

Care shall be taken during demolition activities to ensure that the existing superstructure elements to remain are not damaged. CONTRACTOR is responsible for repairing damages.

12.1.2 EXPANSION JOINT REPLACEMENT

Bridge expansion joints shall be replaced with a new expansion joint. Bridge joint type selection and design shall be in accordance with the SCDOT Bridge Design Manual and shall be constructed in accordance with applicable Standard Drawings and Standard Specifications. Joint

I-385 South of I-85

Mainline Pavement: Construct a concrete pavement for the mainline travel lanes, ramps, CDs and shoulders. In all cases, construct a plain jointed concrete pavement with the following characteristics:

Thickness:	13”
Transverse Joint Spacing:	15’
Transverse Load Transfer:	1.5” dowels, 18” long, spaced 12” c-c, mainline only
Longitudinal Joint Spacing:	Maximum 15’
Longitudinal Reinforcement:	#5 tie bar, 30” long, 30” c-c
Surface Texture:	Mainline – Diamond Ground Shoulders – Heavy Broom or Turf Drag
Joint Sealant:	Silicone, 3/8” wide longitudinal and transverse
Nominal Compressive Strength:	4000 psi

Cross-slope verification in accordance with Exhibit 5 – Special Provisions is required.

Options for the pavement structure are as follows and may be alternated throughout the project as desired. However, under no circumstance shall the nominal thickness of the concrete pavement itself be varied transversely across the finished lanes. The intent of this requirement is to avoid construction of a “bathtub” section or otherwise trap water underneath the concrete pavement. ~~For all options, construct an expansion joint of a design acceptable to the Department when abutting bridges or other structures.~~ At bridge ends and other rigid obstructions, provide three (3) expansion joints one (1) inch in width located at the obstruction and 75 feet and 150 feet away from the obstruction. Obtain approval of expansion joint assembly and detail from the RCE prior to construction.

Also, Section 6.3.3.1 of SC-M-501(0308) is removed and replaced with the following:

6.3.3.1 Furnish a suitable concrete compression testing machine meeting the requirements of ASTM C39. Have the machine professionally calibrated after installation in the field laboratory and prior to commencement of work. Maintain proper calibration of the equipment for the duration of the project.

Option 1: Mill the existing mainline pavement up to 3”. Perform 6” full-depth asphalt patching on areas that are visibly deformed. Where further grade change is desired, overlay with Asphalt Surface – Type C as necessary. Place concrete pavement as described above. The existing shoulders may be white-topped if not milled. However, if any milling is necessary in the shoulders, Option 2 is required for the base under the shoulder. The 4’ wide shoulder in the median of I-385 must be removed and replaced with Option 3 under all circumstances.

Option 2: Mill the existing mainline pavement from 3" to 6". Reclaim the existing base to a depth of 10" in accordance with Section 306 of the Standard Specifications at a cement rate approved by the Resident Construction Engineer and overlay with 200 psy of Asphalt Surface Type C. Place concrete pavement as described above. Use this option for existing shoulders if any milling is required except for the 4' wide shoulders in the median of I-385 as noted in Option 1.

Option 3: Remove existing pavement or grade new location as appropriate. Modify the existing subgrade to a depth of 6" to create Cement Modified Subbase. Place at least 6" Cement Stabilized Aggregate Base or 600 psy Asphalt Base Type A, overlay with 200 psy Asphalt Surface Type C, and concrete pavement as described above.

For new location related to tie-ins to asphalt pavement, use the following pavement structure. Modify the existing subgrade to a depth of 8" to create Cement Modified Subbase. Place 1350 psy Asphalt Base Type A, 200 psy Asphalt Intermediate Type B, 200 psy Asphalt Surface Type A and 140 psy Open Graded Friction Course as described under I-85 and I-385 North of I-85 new location pavement below. All lanes transversely must use the same pavement type; PCC pavement lanes may not be placed adjacent to asphalt pavement lanes such that a longitudinal joint that may be crossed by traffic is created.

Where flexible tie-ins to I-85 are needed, mill off the existing OGFC. Overlay the existing pavement with at least 200 psy Asphalt Intermediate Type B, 200 psy Asphalt Surface Type A, and 140 psy Open Graded Friction course as described below. To meet the existing asphalt pavement grade, perform two variable milling operations up to 3" in depth to smoothly tie in the intermediate course for the first operation and the surface and OGFC courses in the second.

A portion of the existing Northbound I-385 outside shoulder south of I-85 has recently been constructed 12' wide with concrete in order to accommodate the current project. Where the current 12' concrete shoulder will be utilized as a travel lane, remove the existing milled in rumble strip by diamond grinding the shoulder and adjacent travel lane a maximum depth of three quarters of one inch (3/4") in order to provide the correct cross slope and to remove the milled in rumble strips. The existing 10' southbound concrete shoulder on Southbound I-385 south of I-85 shall be removed where required by design in order to provide a 12' travel lane.

I-85 and I-385 North of I-85

New Location Pavement: Any of the asphalt mainline and shoulder pavement structure alternatives shown on the following pages are acceptable for pavement on new location. Shoulder and mainline designs may be mixed between alternatives. However, mainline pavement should have the same structure for the full width of the travel lanes unless otherwise approved by the Department. Ramp pavement should use a mainline structure alternative for the full width of the ramp, including shoulders. Cross-slope verification in accordance with Exhibit 5 – Special Provisions is required.

In all alternatives, place 140psy of OGFC over all travel lanes and shoulders. Carry the OGFC to a width of 4 feet over shoulders that are 4 feet or greater in width and to the full width for shoulders less than 4 feet in width. For shoulders adjacent to barrier walls, carry the OGFC to the face of the drop inlets or 4 feet, whichever is less. For system interchange ramps with design speeds of 45 mph or greater and that do not lead to a stop or signal, carry the OGFC for the full length of the ramp. For ramps that do lead to a stop or signal, the OGFC may be terminated just beyond the gore in a neat, smooth transverse joint using variable milling.

Existing Pavement: For I-85 Southbound from Milepost (MP) 51.2 to MP 53.1 and I-85 Northbound from MP 47.3 to MP 56.4, perform full-depth patching as required in Special Provision 46, mill 3 inches in areas with OGFC and 2 inches where there is no OGFC. Correct the cross slope with variable milling up to 1 inch and Asphalt Surface Type E for correction up to 2 inches and Asphalt Surface Type B for greater correction. Overlay with 200 psy Surface Type A and 140 psy OGFC as stated above. For I-85 Southbound between MP 51.2 and the southern termini of the project, micromill the existing OGFC and replace with 140 psy OGFC as stated above. For I-385 north of I-85, micromill any existing OGFC and overlay with 140 psy OGFC as stated above. Combined uniform and variable milling depths may be increased up to one additional inch in the vicinity of low clearances as necessary to maintain minimal clearances. For ramps that lead to a stop or signal on I-85 and I-385 (north of I-85), full depth patch as required by Special Provision 46, mill 2" uniform, overlay with 200 psy of Surface Course Type A, and 140 psy of OGFC as shown on "OGFC and ACSC Gore Area Typical.pdf" included in Attachment B. Any traffic signal loops on these ramps damaged during this operation are to be replaced. Perform this work to the radius returns of the crossing routes.

Where flexible tie-ins to I-385 north of the interchange are needed, mill off existing OGFC. Overlay the existing pavement with at least 200 psy Asphalt Intermediate Type B, 200 psy Asphalt Surface Type A, and 140 psy Open Graded Friction course. To meet the existing asphalt pavement grade, perform two variable milling operations up to 3" in depth to smoothly tie in the intermediate course for the first operation and the surface and OGFC courses in the second.

Ramp Pavement

For new ramps, along I-385 (south of I-85), construct mainline concrete pavement for the full width of the ramp, including shoulders. Carry the concrete ramp pavement to the gore area.

For new ramps, along I-85 and I-385 (north of I-85), utilize asphalt pavement design alternatives.

For retained asphalt ramp pavement, perform full-depth patching to a depth of at least 8" in the existing pavement in areas where the pavement is visibly distorted and/or has high severity cracking. Mill the existing pavement 2", then overlay with 400 psy Asphalt Intermediate Type

SYSTEM INTERCHANGE RAMPS (Temporary Traffic Control Speeds)

RAMP	DESCRIPTION	Build DESIGN SPEED (mph)	Ramp Type	Temporary Traffic DESIGN SPEED
1	I-85 SB to I-385 NB	50	Ramp	45
1A	I-85 SB to I-385 SB	45	Loop	25/35*
2	I-385 SB to I-85 SB	45	Ramp	45
2A	I-385 SB to I-85 NB	50	Ramp/Bridge	45
3	I-85 NB to I-385 SB	45	Ramp	45
3A	I-85 NB to I-385 NB	35	Ramp/Bridge	35
4	I-385 NB to I-85 NB	50	Ramp	45
4B	I-385 NB to I-85 SB	45	Loop	20/35*

*For existing loop ramps, maintain 35 mph if relocated from loop to another alignment

Addendum #1

1. **LIST OF TRAFFIC SIGNALS WITHIN PROJECT**

Intersection No.	Intersection Name	Description of Signal Work
1	Woodruff Rd @ I-385 NB	Full signal rebuild - ~~span wire~~
2	Woodruff Rd @ I-385 SB	Full signal rebuild - ~~span wire~~
3	Woodruff Rd @ Garlington/Miller	Full signal rebuild - ~~span wire~~
4	Woodruff Rd @ Market Place Dr	Full signal rebuild - ~~span wire~~
5	Woodruff Rd @ Carolina Point Pkwy	Full signal rebuild - ~~span wire~~
6	Woodruff Rd @ I-85 NB	Full signal rebuild - ~~span wire~~
7	Woodruff Rd @ I-85 SB	Full signal rebuild - ~~span wire~~
*	Woodruff Rd btwn I-85 SB and I-385 NB	Fiber Interconnect between all 7 signals
*	Woodruff Rd btwn Ketron Ct and SC 14	Synchro Green Traffic Adaptive Signal System installation

2. **PROJECT DESCRIPTION**
   a. This Project is a Design-Build construction project and involves the signal construction of the above intersections along Woodruff Road (SC 146) in and around the city of Greenville, South Carolina. The intersections involved are shown on the above "List of Traffic Signals within Project".
   b. Specific Description of the signal work:

Signal Scope

Rebuild 7 traffic signals utilizing black powder coated (over galvanized) steel poles with span wire for existing span wire configurations and black powder coated (over galvanized) steel poles with mast arms for existing mast arm configurations, including new cabinet/controller, signal heads, signal cable, and overhead signs; Install pedestrian treatments in accordance with SCDOT policy. Fiber optic cable connecting traffic signals is existing. Signal design should include re-running underground fiber optic cable along section affected by construction project to reconnect all 17 traffic signals in signal system. Controller at Woodruff Rd & I-85 NB currently operates 2 intersections, NB ramp and Carolina Point Parkway. Signal design should separate out these 2 intersections with separate signal controllers.

Synchro Green Traffic Adaptive Signal System

Install (purchase and deploy) Enterprise version of Synchro Green traffic adaptive software for the 17 signals in the Woodruff Road signal system, prior to and during construction of I-385/I-85 ramps. Temporary stop bar detection shall be utilized for the 7 signals affected by the construction project, for ease of varying detection zones during the various phases of traffic control Install permanent stop bar detection at each of the 17 signals; Two signals on Woodruff Rd @SC 14 and @Ketron Ct) shall have flush mounted detection on the mainline approaches in each lane, at the stop bar, in accordance with requirements below. Four signals (Woodruff Rd @I-385 NB, @I-385 SB, @I-85 NB, @I-85 SB) shall have flush mounted detection on both the mainline approaches and the side street approaches in each lane, at the stop bar, in accordance with requirements below. Detection at the other signals shall be designed to accommodate needed information for Synchro Green Adaptive Signal System, as indicated below.

- Stop bar detection – Stop bar detection is required on every lane on every approach where adaptive is installed. Each detector must have a separate input channel into the controller. The stop bar detectors are typically placed near the stop bar and are small enough to pick up gaps between vehicles. Typically an equivalent loop size of 6'x15' works well. Stop Bar Detection can consist of inductive loops, video detection, and flush mounted wireless detection.
- Advanced detection – Advanced detection is required on the mainline through lanes only. Each detector should be approximately 6'x6' and each detector should be placed on a separate input channel into the controller. The advanced detectors should be placed between 250'-500' upstream of the intersection stop bar. Where intersection spacing is less than 1000', advanced detection is not required. Advanced Detection can consist of inductive loops or flush mounted wireless detection**.**

minimum distance of 200 linear feet from the crossing. Silt fence shall be placed along both the inside and outside shoulders of the roadway.

b) Additional silt fence shall be placed in areas outside of stream crossings to prevent sediment from leaving the project site.
c) At stream crossings, median catch basins shall be protected by the appropriate inlet filter to prevent the entry of sediment into the pipe system.
d) In locations away from stream crossings, additional catch basins shall be protected by the appropriate inlet filter if there appears to be any potential for sediment to escape the site and to be deposited in adjacent drainage systems and/or outfalls.
e) Any fill or cut slopes greater than five feet in height shall be stabilized with a temporary erosion control blanket.
f) The CONTRACTOR may select suitable accepted alternates for protecting catch basins in lieu of wrapping with silt fence. Hay bales are not considered a suitable alternate.
g) All deliverables shall be in accordance with SCDOT's Requirements for Hydraulic Design, May 2009.

2. Pipe Culvert Replacement

SCDOT inspected pipe culverts within the project area. Please refer to the document, ~~"I-85 / I-385 Interchange Improvements – Pipe Inspection Summary"~~ "VPI Summary PLANS 20140122" and "Video Pipe Inventory Summary REPORT" for a summary of the inspection, inspection reports, and recommendations. See the following table for a summary of existing pipes requiring repair or replacement. Pipe and culvert locations are approximate. The Pipe Designation refers to the Pipe Inventory number provided in the Pipe Inspection Summary. CONTRACTOR is directed to the column headed "SCDOT Evaluation of Pipe" for direction regarding replacement or repair that is required. CONTRACTOR may elect to replace any pipe in lieu of repair and CONTRACTOR is responsible for any permits necessary to perform the replacement. CONTRACTOR is responsible for final hydrologic/hydraulic analysis of all pipes within the project area.

~~I-26 Widening and Rehabilitation Drainage Structures~~

~~SITE NO.~~	~~File #~~	~~Station~~	~~Shape~~	~~Size~~	~~Length (ft)~~	~~SCDOT Evaluation of Pipe~~
~~1~~	~~32.405~~	~~474~~	~~RC Pipe~~	~~2 - 36"~~	~~-~~	~~If pipes retained, clean out, and repair with structural liner for entire length~~
~~2~~	~~32.405~~	~~480~~	~~RC Pipe~~	~~24"~~	~~242~~	~~If pipe retained, clean out, and repair with structural liner for entire length~~
~~3~~	~~32.405~~	~~481~~	~~RC Pipe~~	~~24"~~	~~209 54~~	~~If pipes retained, clean out, and repair with structural liner for entire length~~
~~4~~	~~32.405~~	~~493~~	~~RC Pipe~~	~~30"~~	~~220 49~~	~~If pipes retained, clean out, and repair with structural liner for entire length~~

~~5~~	~~32.405~~	~~498~~	~~RC Pipe~~	~~30"~~	~~220 44~~	~~If pipes retained, clean out, and repair with structural liner for entire length~~
~~6~~	~~32.405~~	~~503~~	~~RC Pipe~~	~~30"~~	~~236~~	~~If pipe retained, clean out, and repair with structural liner for entire length~~
~~7~~	~~32.405~~	~~507~~	~~RC Pipe~~	~~24"~~	~~364~~	~~If pipe retained, clean out, and repair with structural liner for entire length~~
~~8~~	~~32.405~~	~~523+~~	~~Box~~	~~2 - 8'x6'~~	~~196~~	~~If Culvert retained, clean out, and repair spalled areas~~
~~9~~	~~32.405~~	~~535+~~	~~RC Pipe~~	~~36"~~	~~214~~	~~If pipe retained, clean out, and repair with structural liner for entire length~~
~~10~~	~~32.405~~	~~542~~	~~RC Pipe~~	~~24"~~	~~208~~	~~If pipe retained, clean out, and repair with structural liner for entire length~~
~~11~~	~~N/A~~	~~558+50~~	~~-~~	~~24"~~	~~227~~	~~If pipe retained, clean out, and repair with structural liner for entire length. Preliminary hydro analysis indicates that additional capacity may be needed at this location.~~
~~12~~	~~32.405~~	~~561+50~~	~~RC gutter~~	~~18"~~	~~213~~	~~If pipe retained, clean out, and repair with structural liner for entire length. Preliminary hydro analysis indicates that additional capacity may be needed at this location.~~
~~13~~	~~32.405~~	~~571~~	~~Box~~	~~2 - 10'x8'~~	~~188~~	~~If Culvert retained, clean out, remove blockage in 15" RCP drain, and repair spalled areas~~
~~14~~	~~32.405~~	~~591.5~~	~~RC Pipe~~	~~24"~~	~~210~~	~~If pipe retained, clean out, and repair with structural liner for entire length~~
~~15~~	~~32.405~~	~~597~~	~~RC Pipe~~	~~36"~~	~~247~~	~~If pipe retained, clean out, and repair with structural liner for entire length. Preliminary hydro analysis indicates that additional capacity may be needed at this location.~~
~~16~~	~~32.405~~	~~601+80~~	~~RC Pipe~~	~~18"~~	~~110~~	~~If pipe retained, clean out, and repair with structural liner for entire length. Preliminary hydro analysis indicates that additional capacity may be needed at this location.~~
~~17~~	~~32.405~~	~~622~~	~~RC Pipe~~	~~48"~~	~~292~~	~~If pipe retained, clean out, and repair with structural liner for entire length. Preliminary hydro analysis indicates that additional capacity may be needed at this location.~~
~~18~~	~~32.405~~	~~650~~	~~RC Pipe~~	~~24"~~	~~180~~	~~If pipe retained, clean out, and repair with structural liner for entire length. Preliminary hydro analysis indicates that additional capacity may be needed at this location.~~
~~19~~	~~32.405~~	~~655~~	~~RC Pipe~~	~~18"~~	~~230~~	~~If pipe retained, clean out, and repair with structural liner for entire length. Preliminary hydro analysis indicates that additional capacity may be needed at this location.~~

20	32.405	660	RC Pipe	24"	316	If pipe retained, clean out, and repair with structural liner for entire length
21	32.405	672	RC Pipe	24"	235 +/-	If pipe retained, clean out, and repair with structural liner for entire length
22	32.405	679	RC Pipe	24"	180	If pipe retained, clean out, and repair with structural liner for entire length
23	32.405	692	RC Pipe	24"	277	If pipe retained, clean out, and repair with structural liner for entire length
24	32.411	713+55	Box	2 - 10'x12'	127	Retain Culvert, clean out, and repair spalled areas
25	32.411	752	RC Pipe	2 - 24"	260	If pipe retained, clean out, and repair with structural liner for entire length
26	32.411	778	RC Pipe	24"	283	If pipe retained, clean out, and repair with structural liner for entire length. Peliminary hydro. Analysis requires additional capacity at this location.
27	32.411	787	RC Pipe	18"	329	If pipe retained, clean out, and repair with structural liner for entire length. Preliminary hydro analysis indicates that additional capacity may be needed at this location.
28	32.411	831+35	RC Pipe	42"	293	If pipe retained, clean out, and repair with structural liner for entire length
29	32.411	841	RC Pipe	24"	174	If pipe retained, clean out, and repair with structural liner for entire length

I-85 / I-385 Interchange Pipe Inventory Summary

Pipe No.	Alignment	Station	Size	SCDOT Evaluation of Pipe
A7	I-85 SB	229+05	15"	8' of existing pipe prior to outlet shall be replaced.
A8	I-85	231+00	4' x 6'	Culvert needs to be cleaned; any cracks and holes grouted.
A10	I-85 SB	241+50	18"	24' of existing pipe prior to outlet shall be replaced.
A13	I-85 SB	252+80	18"	Slip line existing pipe due to hole and joint deficiencies.
A14	I-85 SB	255+05	15"	8' of existing pipe prior to outlet shall be replaced.
A18	I-85 NBCD	264+00	18"	Remove or plug & abandon due to joint separations.
A19	I-85 NBCD	264+50	18"	Remove or plug & abandon due to joint deficiencies..
B2	I-85 SBCD	311+70	18"	Slip line existing pipe due to joint deficiencies.
B3	I-85 NB	317+90	18"	Remove or plug & abandon due to joint deficiencies.
B4	I-85 SB	318+40	18"	Slip line existing pipe due to hole and broken pipe.

I8	I-85 NBCD	279+80	18"	Remove or plug and abandon due to large joint separations and broken section.
I9	I-85 SBCD	281+00	36"	Slip line existing pipe due to joint separations.
I10	I-85 SBCD / I-85 SB	281+50	36"	Repair existing pipe at the downstream catch basin.
I12	I-85 NBCD	281+55	36”	Minor deficiencies. Okay to Retain. Recommend adding a junction box for the existing lateral line.
I15	I-85 SBCD	284+20	15"	Slip line existing pipe due to joint separations.
I17A	Ramp 3	57+50	36"	Slip line existing pipe due to joint deficiencies.
I20	I-385	403+00	30"	Slip line existing pipe due to joint deficiencies.
I21	I-385	405+50	30"	Slip line existing pipe due to joint deficiencies.
I23	I-385 SB	406+80	18"	Slip line existing pipe due to joint offset.
I24	I-385 NB	405+90	18"	Slip line existing pipe due to joint deficiencies.
I25	I-385	409+50	30"	Slip line existing pipe due to joint deficiencies.
I26	I-385 NB	411+10	30"	Retain 72' of existing pipe from the upstream catch basin. Replace remainder pipe due to pipe bend.
I28	I-385 NB	405+50	30"	Slip line existing pipe due to deficiencies.
I29	I-85 SBCD	293+70	18"	Repair broken joint at 3 feet from the upstream catch basin; retain the remainder of the pipe.
I30	I-85 SBCD	295+90	18"	Slip line existing pipe due to joint deficiencies and hole in pipe.
I32	I-85	297+00	18"	Remove or plug and abandon due to joint deficiencies and several holes.
I34	I-85 SBCD	301+60	15"	Slip line existing pipe due to joint deficiencies.
I37	I-85	304+10	18"	Retain 48' existing pipe from the downstream junction box and replace existing pipe from the bad joint to the end of I37
I39	I-385	380+80	54"	Slip line existing pipe due to multiple deficiencies.
I40	I-385	383+20	6' X 7' / 5' x 7'	Needs maintenance; repair culvert at all voids and exposed rebar.

For pipes not inspected by the SCDOT, the CONTRACTOR shall confirm the condition of the pipe prior to utilizing for proposed storm drainage systems. The CONTRACTOR shall provide video pipe inspection reports for any pipes which are to be retained and were not previously inspected as shown in the “I-85 / I-385 Interchange Improvements – Pipe Inspection Summary”.

3. Pipe Culverts or Box Culverts to be Retained

The CONTRACTOR may retain existing pipes which are incorporated into or impacted by the CONTRACTOR’s design provided the following conditions are met:

to provide an Erosion Control Plan per section 1 and shall be responsible for cleaning pipe and clearing debris. No hydraulic analysis will be required.

6. Considerations for Temporary Drainage during Traffic Control/Staging

The design year storm for temporary drainage design during construction staging is 2 years.

Addendum #1

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accessible at all times. Notify the RCE and all subcontractors as to the location of the bulletin board.

~~**(11) SECTION 107: CSX TRANSPORTATION SPECIAL PROVISIONS:**~~
~~See Attached Supplemental Specification Dated **April 11, 2007** in **Exhibit 6.**~~

(12) SECTION 107: RAILROAD PROTECTIVE INSURANCE:
The cost of the portion of the structure within railroad right-of-way is estimated to be 15 % of the estimated entire contract cost of the bridge.

(13) SECTION 107: COORDINATION OF UTILITY RELOCATION WORK WITH HIGHWAY CONSTRUCTION:
It shall be the responsibility of the contractor to inspect the sites for potential utility conflicts. It is the responsibility of the contractor to call Palmetto Utility Protection Service (PUPS) at 811 or 1-888-721-7877 three (3) days prior to work so that existing utilities can be properly marked. All utilities may not be a member of PUPS.

(14) SECTION 107: FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED:
Attention is directed to this Federal Legislation, which has been enacted into law. The contractor will be responsible for carrying out all of the provisions of this legislation, which may affect this contract.

(15) SECTION 107: APPLICATION OF DAVIS-BACON AND RELATED ACTS TO INDEPENDENT TRUCK DRIVERS AND MISCELLANEOUS CONSTRUCTION ACTIVITIES:
See attached Supplemental Specification dated **June 13, 1990** in **Exhibit 7.**

(16) SECTION 107: DISADVANTAGED BUSINESS ENTERPRISES (DBE) GOALS AND REQUIREMENTS:
~~See attached Supplemental Specification entitled "Disadvantaged Business Enterprises (DBE) Supplemental Specification" dated **January 1, 2014** in Exhibit 7 for specific requirements that must be met. The DBE Goal for this project is 9%.~~

~~The CONTRACTOR's attention is directed to the electronic DBE BIN file found on the electronic bidding service website, *Bid Express*, containing data from the "Directory of Certified Disadvantaged Business Enterprises" approved for use in each particular letting. It specifies the amount (percentage) that the contractor may count toward its appropriate DBE Goals of expenditure for materials and supplies obtained from DBE Suppliers and Manufacturers.~~

~~For this project, the Contractor shall use the "Directory of Certified Disadvantaged Business Enterprises" to determine appropriate DBE involvement.~~

1. GENERAL

For Design Build Projects, PROPOSER shall comply with the Disadvantaged Business Enterprises (DBE) Supplemental Specification, dated May 2, 2014, except as specifically

will revise the instrumentation plan and resubmit the revised plan for review and acceptance. If the measured deformations exceed the maximum allowable deformations shown in the instrumentation plan, the Contractor will be required to stop work immediately, and at his own expense, correct the situation to the satisfaction of the Department prior to resumption of construction activities. Extended monitoring after construction may be required if adjacent structures have been affected by the construction. The extended monitoring of the adjacent structures shall continue until the structures have stabilized and the Department concurs with the results and conclusions of the monitoring report. All costs associated with developing the instrumentation plan, purchasing instrumentation, installing instrumentation, and monitoring of the instrumentation shall be included in the unit cost of the temporary shoring item."

(40) SECTION 208: FINE GRADING:
Section 208 is amended as follows:

Page 131, **Subsection 208.5**, Paragraph 1, first sentence:
Insert the word "paved" before the word "shoulders".

(41) SECTION 305: MAINTENANCE STONE:
Maintenance Stone used on this project shall conform to the gradation requirements of Section 305, or to the gradation specified for Aggregate No. CR-14 in the Standard Specifications.

(42) SECTION 401: ASPHALT BINDER ADJUSTMENT INDEX:
See attached Supplemental Specification Dated **March 3, 2009** in Exhibit 6. For this project the Basic Bituminous Material Index will be determined on the first calendar day of the month in which this project is let. The index and adjustment table will be available on the internet at http://www.scdot.org/doing/constructionLetting_MonthlyIndex.aspx, or may be obtained from the office of the Contracts' Administrator.

The following is hereby included in the table entitled "**Items of Work Eligible for A.C. Binder Adjustments**" on page **86**:

	PREVENTATIVE MAINTENANCE SURFACE TREATMENT	SY	0.0026
	ASPH. SURF. TREAT. (TRIPLE T-1)	SY	0.0024

All items of work included in this project, that are listed in the table entitled "Items of Work Eligible for A.C. Binder Adjustments" below paragraph 4 of the Supplemental Specification, on page 86 will be subject to price adjustment.

The following Section of the Supplemental Specification is hereby modified:

Additional Provisions:

- Estimate period begins on the 1st of the month and ends on the last day of the month. The 1st of the month Index will be compared to the contract Base Index to determine index adjustments for the estimate period.

~~**(43) SECTION 401: PRICE ADJUSTMENT FOR LIQUID ASPHALT BINDER:**~~
~~No price adjustment for liquid asphalt binder will be made on this Project.~~

(44) SECTION 401: HOT MIX ASPHALT (HMA) QUALITY ASSURANCE:

Notes: 1. The test procedures shall conform to the most recently approved ATSM geotexile test procedures.
2. All numeric values represent Minimum Average Roll Value (MARV).
3. Applies to factory or field sewn seams.

2.1 Source Approval and Certification. Prior to construction, the Contractor shall submit to the Resident Construction Engineer (RCE) a Certification Package prepared by the geotextile reinforcement manufacturer. The Contractor shall allow 21 calendar days from the day the submittals are received by the RCE for review and acceptance. Submit the following information regarding each geotextile proposed for use:

- Manufacturer's name and current address;
- Full product name/number, including roll number;
- Geosynthetic material (i.e. polymer type) and structure (including fiber/yarn type);
- Proposed geotextile use(s); and
- Certified test results for the properties outlined in Table 1 and below in Section 2.

The Certification shall state that the furnished geotextile soil reinforcement is in full compliance with the design requirements as stated in this specification and the design drawings and is fit for use in long-term critical soil reinforcement applications. In addition to the minimum required properties in Table 1, the submittal shall also certify the following values for each geotextile soil reinforcement used on the project:

1. The ultimate tensile strength, T_{ULT}, (MARV) for geogrid soil reinforcements, MD/XD
2. The tensile strength at 5% strain, MD
3. The creep reduced tensile strength, MD
4. The geotextile's pullout coefficients (F*, α)

The Contractor's submittal package shall include, but not be limited to, actual test results for tension, creep, durability, construction damage, joint/seam strength, pullout and quality control. A person having the legal authority to bond the manufacturer shall attest to the certificate. Any tests required shall be performed at no additional cost to the Department. If in the opinion of the RCE, the required documentation is not provided for individual reduction factors (RF) or pullout coefficients (F*, α), default values for these design parameters shall be used in accordance with this specification.

2.1.1 Ultimate Tensile Strength (T_{ult}): The ultimate tensile strength, T_{ult}, shall be determined from wide width tensile tests (ASTM D 4595). Geotextile samples tested in accordance with ASTM D 4595 shall be with an 8-inch width specimen, or a 4-inch specimen width with correlation to an 8-inch width. Correlation methodology shall be submitted to, and is subject to acceptance by the RCE. All geotextile strength tests (ASTM D 4595 and ASTM D 6637) shall be conducted at a strain rate of 10% per minute based on actual gage length necessary to meet the testing sample dimension requirements. Laboratory test results documenting the ultimate tensile strength, T_{ult}, in the reinforcement direction shall be based on the minimum average roll values (MARV) for the product.

2.1.2 Long-Term (Allowable) Design Tensile Strength (T_{al}): The allowable tensile load per unit width of geotextile soil reinforcement, T_{al}, in accordance to the backfill type used shall be computed as follows:

$$T_{al} = \frac{T_{ult}}{RF}$$

2.1.3 Reduction Factor (RF): The total reduction factor, RF, is the combined reduction factor for long-term degradation due to installation damage, creep, and durability. The total reduction factor, RF, shall be defined as follows:

$$RF = RF_{ID} \times RF_{CR} \times RF_{D} \geq 3.0$$

The price and payment for this work shall be full compensation for furnishing the necessary Settlement Sensor, including the settlement sensor, the liquid reservoir, the waterproof casing, surveys and incidental items based on the acceptance of the Settlement Sensor installation by the Engineer.

Payments shall be made under:

Item No.	Pay Item	Pay Unit
2038115	MON. DEVICE – SETTLEMENT SENSOR	EA

(97) DIVISION 200: TOTAL PRESSURE CELLS

1.0 Description. This work includes furnishing all supervision, materials, equipment, labor, and related services necessary for installing pressure monitoring instrumentation consisting of a vibrating wire (VW) total (earth) pressure cell at the locations indicated in the plans and in accordance with these specifications. This item includes the furnishing of as-built drawings of actual locations where instrumentation was installed, survey data recorded during instrumentation installation, and installation field reports. Also included in this item of work is the initial and periodic/continuous recording of total pressure readings and reporting to the Engineer in accordance with the Department's Geotechnical Instrumentation Monitoring Plan for the entire duration of the project.

The purpose of the instrumentation monitoring program is to:
1. Confirm estimates of load transfer to the stone columns beneath the column supported embankment;
2. Confirm that the soil located between the stone columns does not carry excessive loads that could induce consolidation settlement, thus affecting the performance of the bridge foundations.

The Contractor shall be familiar with project geotechnical conditions and recognize that geotechnical data is available with geotechnical boring logs, laboratory testing results, and other pertinent information.

2.0 Pressure Instrumentation. VW total (earth) pressure cell shall consist of 2 steel plates welded at the edges with an incompressible fluid filled void located between the plates. The void between the plates shall be hermetically sealed. The incompressible fluid shall be in contact with a pressure transducer that converts the pressure into an electronic signal that is recorded by the data collection unit outside of the embankment. The pressure cell shall be able to measure up to 50 psi and shall be designed to withstand point loads induced by stone of the stone columns and the load transfer platform on both sides. The aspect ratio (D/t – D - diameter of cell; t – thickness of cell) of the cell shall be greater than 15. The pressures cells shall have an accuracy ±0.1 percent with a thermal affect of <0.05 percent for a temperature range of -4°F to 176°F. Enough cable shall be provided to run from the pressure cell to the location of the Vibrating Wire Data Collection Center (VW-DCC) plus 10 feet for each instrument. The cable used to connect the pressure cell to the VW-DCC shall meet the requirements of the instrument manufacturer/supplier. The Contractor shall supply non-conductive conduit to encase the cable between the pressure cell and VW-DCC. The conduit shall have a minimal nominal diameter of 1 inch and meet the requirments of Schedule 80 materials. Provide enough conduit to enclose all lengths of buried cable from the pressure cells to the VW-DCC. All connections in the conduit and in the cable between the pressure cell and VW-DCC shall be water proof.

3.0 Submittals. Within 30 calendar days before installing the total pressure cells, the Contractor shall submit to the Department for review the qualifications of the personnel installing the instrumentation as well as the installation plan. The submittals shall contain as a minimum the following information.

3.1 **Qualifications:** The Contractor shall identify the licensed surveyor who shall be responsible for providing survey services during the installation of the total pressure cell. The Contractor shall also identify the geotechnical engineer that will be responsible for installing the total pressure cell in accordance with the Department's Geotechnical Instrumentation Monitoring Plan. The geotechnical engineer's experience in providing instrumentation services using a total pressure cell and remote VW-

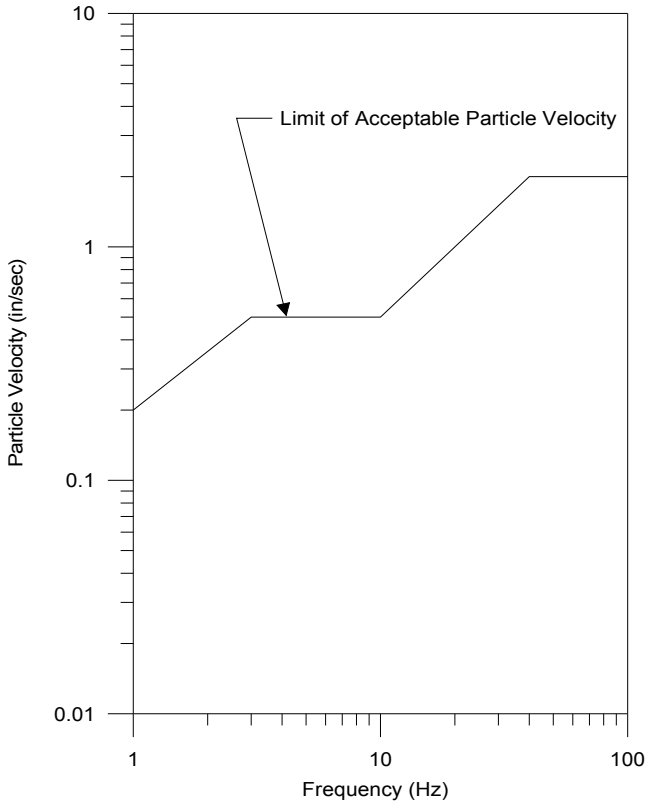


Figure 1. Vibration Criteria (adapted from AASHTO R8-96)

(107) ANTI-GRAFFITI COATING:

ANTI-GRAFFITI COATING

1. GENERAL

This special provision describes the application of an anti-graffiti coating for the purposes of enhanced appearance. Apply anti-graffiti coating system to the areas shown or described in the plans.

Anti-graffiti coatings intended for use under this provision shall be of a composition capable of preventing the adhesion of graffiti and/or facilitating the removal of graffiti. All anti-graffiti coatings must possess the physical and handling characteristics that are compatible with the requirements of this provision.

Use clear, non-sacrificial anti-graffiti coating for all applications.

2. MATERIALS

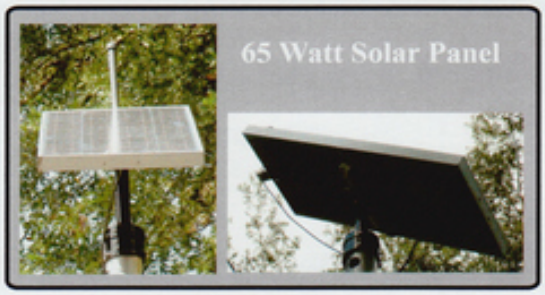
Provide clear, non-sacrificial anti-graffiti coating system manufactured by TEX-COTE or approved equal. Ensure that the anti-graffiti coating is compatible with any other Final Finish it is used in conjunction with, as specified in the plans, special provisions, or Section 702.4.11 of the SCDOT Standard Specifications.

Anti-graffiti coatings shall contain less than 5.0 lb/gal volatile organic compounds (VOC) as defined by 40 CFR Park 59, Subpart D.

Automatic Data Recorder Assembly

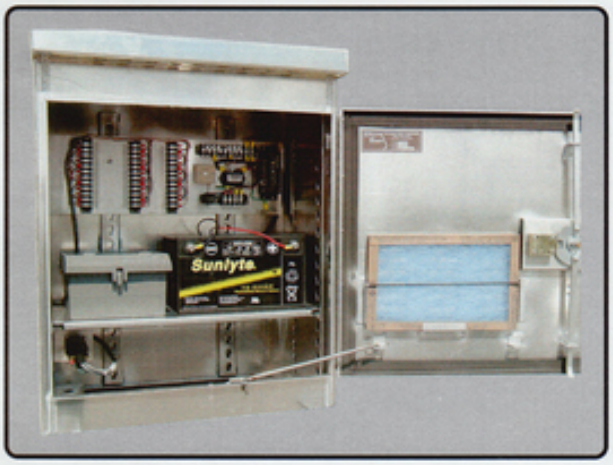
Cabinet Assembly includes:

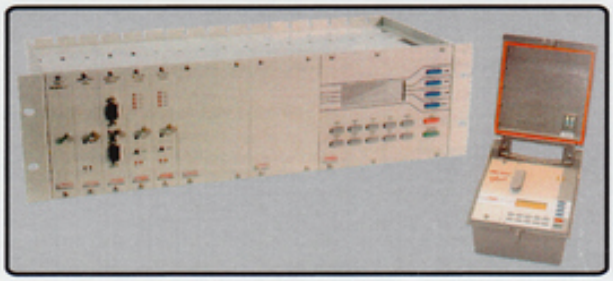
- Type IV Base or Pole Mounted Aluminum Traffic Cabinet
- Built to Specification
- Lightining Suppression for:
  - Loop Asemblies
  - Piezos
  - Solar Panel
- Solar Power Charger / Regulator
- Telephone Jack
- Clearly marked terminal facilities



Solar Power Assembly includes:

- 65 Watt solar panel and side of pole or top mounting brackets
- Sealed rechargeable 12 volt, 100 amp hr. battery
- Solar Power / Modem cable





PEEK
ADR 2000 / 3000

PEEK LPM 33

Low Power Modem

- Designed specifically for use with ADR 2000 / 3000 Counters / Classifiers
- Designed for extended environmental range
- AC / DC / Solar compatible

ADR 2000 / 3000

- Simple to setup and operate
- Multi-lane operation
- Sensor options
  - Loops
  - Piezos
- Weigh-In-Motion Expandable
- Optional PCMCIA Memory Card
- Optional Keypad and Display
- GPS cordinates

TRANSPORTATION CONTROL SYSTEMS
1030 South 86th Street Tampa, Florida 33619
Tel. 813-630-2800 Fax. 813-630-2801

FIGURE 18

SPECIFICATIONS
AUTOMATIC TRAFFIC DATA RECORDER
(VOLUME, CLASSIFICATION, SPEED)

HOUSING
Weatherproof cast aluminum with tamper proof latch and hinge with lock

WEIGHT
Not to exceed 20 pounds

INPUT CAPABILITY
a. Sixteen (16) internal loop detectors
b. Eight (8) internal piezo detectors
c. Four (4) Road tube air switches

POWER
Rechargeable sealed lead gel 6v/10 ampere hour internal battery

OPERATING TEMPERATURE
-40 F to +158 F

MEMORY
128 K bytes expandable to 64 M bytes

DISPLAY
80 character LCD

KEYBOARD
16 key

BAUD RATE
up to 33,600

SETUP FEATURES (minimum)
a. Date and Time
b. Station no. (12 digits)
c. I. D. no. (12 digits)
d. Number of lanes
e. Lane layout
f. Sensor distance
g. Storage format
h. Printout format
i. Speed categories (no. & range)
j. Classification (15 categories, 1st 13 FHWA type F, user programmable)
k. Recording Intervals
   1. One PRIME (1-1440 minutes)
   2. Four separate PEAK periods
l. Start-Stop times (PRIME and PEAK recording intervals)
m. Baud rate
n. Parity selection
o. Data bits
p. Reprogram completely from keyboard, computer on-site, and remotely via telemetry

OTHER
1. Battery charger
2. Battery tester
3. Data Module or PCMCIA memory card
4. Maintenance and operations manual
5. Real time clock

Data recovery by data module or memory card, printer, computer at site and by telemetry.

Programs for volume counting, vehicle type classification, speed classification, length classification, and headway / gap classification must be compatible with existing Peek TDP programming data collection systems.

Necessary hardware to connect recorders to road sensors, solar panels and communication modem.

Self contained units, requiring no peripheral devices such as programmers to setup programs.

Main unit power source (battery) can be completely disconnected without loss of recorded data. Recharging of the battery shall be possible without removing the battery from the data recorder.

Store data in memory in a three dimensional matrix form, such as: lane x speed x gap, or vehicle axle classification x vehicle speed x lane.

Real time interrogation of status or program parameters without affecting operation. Setup and configuration to be "user friendly", capable of being done or changed by non-technical personnel.

Recorder shall be capable of using a loop-axle-loop sensor array in each lane for claasification.

One (1) year warranty on parts and labor, and one (1) year free replacement on system updates and initial operations training.

FIGURE 18A

(113) ITS ELEMENTS INSTALLATION

S.C. FILE NO: **PROJECT NO:** **COUNTY**
Greenville

1. PROJECT DESCRIPTION

1.1 Scope. ITS System – The Project includes the installation of an ITS System along I-85 and I-385 throughout the limits of the Interchange portion of the project. See Exhibit 5 – Special Provisions for details regarding the ITS System. This will be a turn-key ITS project, with the CONTRACTOR furnishing and installing cameras on concrete poles along the mainline segments (at approximately ¾ mile intervals) and as necessary within the interchange area to achieve full video coverage. The installation shall also include lowering devices, 144 and 96 SM fiber optic cable in 2 inch conduits, fiber optic cable splicing and terminations, fiber optic cable testing, service boxes, electrical services, and all miscellaneous hardware required to make an operational system per the specifications, as listed, complete to the satisfaction of the DEPARTMENT. The two existing dynamic message signs (DMS) that are currently in place within the project limits (I-385 NB south of Smith-Hines Road and I-85 NB north of Roper Mountain Road) (to be removed by The DEPARTMENT) shall be replaced with new DMS as part of the new ITS system. New DMS location shall be coordinated with the signing layout to avoid conflicts and/or spacing issues; new DMS location may be adjusted slightly relative to the existing location as required to avoid such conflicts. The CONTRACTOR shall develop and furnish conceptual plans a minimum of 45 days prior to commencing fabrication/construction activities. The CONTRACTOR shall also provide as-built plans (three complete sets), allocation drawing and Fiber Trak data entry upon completion of the system installation.

Work Zone ITS – Prior to commencing construction the DEPARTMENT will remove all existing ITS equipment and facilities (including but not limited to camera pols, dynamic message signs, and the ITS/Communications hub located within the interchange). After removal of the existing ITS infrastructure, SCDOT will contract with a third party vendor to provide Work Zone ITS (WZITS) services. The DEPARTMENT will be responsible for all costs associated with WZITS. The CONTRACTOR will be required to coordinate with WZITS provider to ensure proper location of WZITS devices to provide the desired coverage while avoiding conflicts with construction to the maximum extent practicable. The WZITS provider will be in attendance at the Partnering Meeting in order to initiate the coordination process.

The Department will furnish to the contractor local camera cabinets with camera controller and power units, local camera cabinet prefabbed concrete bases and concrete pedestals to be installed according to the specifications for INSTALL 332 AND SCIPCAB1 ITS CABINET ASSEMBLY.

The Supplemental Specifications provide detailed requirements for specific ITS components of this system. Elements of this ITS system to be shown in the conceptual design plans, and specified in the Supplemental Specifications, are briefly described as follows:

Spare parts - Per section 12 of the **FURNISH AND INSTALL PERMANENT DYNAMIC MESSAGE SIGN STANDARD,** section 3 of the **FURNISH AND INSTALL CAMERA LOWERING DEVICE** the **CONTRACTOR** shall furnish NEW spare parts as defined.

Training – Per Section 6 of FURNISH AND INSTALL FIBER OPTIC CABLE, AND Section 11 of FURNISH AND INSTALL PERMANENT DYNAMIC MESSAGE SIGNS, the CONTRACTOR shall furnish training as defined.

The Local Control Cabinet (332 or SCIPCAB1) – Department furnished 332 Control cabinets shall be installed on Department furnished preformed concrete bases, a SCIPCAB1 Control cabinets shall be installed on Department furnished concrete pedestal mounted at each specified field site as shown on the Plans. Control cabinets shall be used to house the field control and communications equipment required interfacing the CCTV components to the field hub cabinet communications control and communications

system, closures, and traffic control center (TCC) equipment. Control cabinets include all of the equipment needed to interface the CCTV cameras and the communication system.

Service boxes - Service boxes shall be installed as shown on the plans, though not to exceed a maximum of 2450 foot spacing or as indicated on plans. Service boxes shall all so be installed at CCTV, Field Hub, Hub Buildings and other locations as needed for fiber optic splicing and cable management. Each service box shall have the SCDOT Fiber Optics logo cast in the lids. Each service shall have a passive marker ball operating at 101.4 KHZ orange in color. In cases were a service box is to be used for electrical cabling the lids shall have the SCDOT Electrical logo cast, and shall have a red passive marker ball operating at 169.8KHZ installed. At each service box location a PNA type marker post shall be installed, orange top for fiber optic and red top for electrical.

The Fiber Optic Backbone and Drop Cable – The fiber optic backbone shall be a 96 fiber single-mode cable with eight (8) buffer tubes with 12 fibers each and 144 fiber single-mode cable with twelve (12) buffer tubes with 12 fibers each. It shall be installed in a 2" conduit where shown. The contractor shall assure that any existing cable is not damaged during construction. Splicing of the cable shall only be allowed at specified locations to be approved by the ITS Field Operations Manager. Buried backbone cable shall have orange marking tape above it and above ground cable markers at every service box. The drop cable or Gator patch shall also be single-mode and extend from 3M Brand splice closures to local cabinets. No subsurface investigation has been done. It shall be the CONTRACTOR's responsibility to verify that the cable can be buried at specified depth using pre-plowing or other methods to be approved by SCDOT. **New 96 SM fiber optic Backbone cable installed along I-85 shall be a Prysmian cable matching the existing 96 SM fiber cable and shall be spliced to the existing Prysmian 96 fiber optic cable in the service box located at mile marker 49.5 on I-85 Northbound, in accordance with the designated fiber allocations to be issued by the ITS Field Operation Manager. New 144 SM fiber optic cable will be spliced in to the existing 144 SM fiber optic cable starting at the project limits on I-385 Northbound and shall be installed into the I-385 Hub building location terminating all 144 fibers inside of the Hub building. New 96 SM fiber optic cable shall be installed (all 96 fibers terminated in both hub buildings) between the Pelham Rd / I-85 Hub building and the I-385 Hub building. All terminations and splicing shall be in accordance with the designated fiber allocations to be issued by the ITS Field Operations Manager.**

TMC Equipment – All field equipment installed shall be made operational at its respective local TCC.

2. GENERAL PROVISIONS

2.1 All work under this Contract shall be performed under the latest editions of following standards:

THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS FOR HIGHWAYS CONSTRUCTION", Latest Edition;
These SPECIAL PROVISIONS;
The "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", "MUTCD - 2009 Edition";
The "INTELLIGENT TRANSPORTATION SYSTEM SPECIFICATIONS";
The "NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)";
The "NATIONAL ELECTRICAL SAFETY COUNCIL (NESC)";
The "ELECTRONIC INDUSTRIES ASSOCIATION (EIA);
The "NATIONAL ELECTRIC CODE (NEC)";
The "United States Department of Agriculture Rural Utility Service (RUS)";
The "AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM);
The "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)", and
Any other standards, codes and ordinances that may apply.

2.2 Section numbers appearing in these SPECIAL PROVISIONS refer to the section numbers in the STANDARD SPECIFICATIONS referenced above.

MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES:
"The Contractor is hereby advised that the Department has adopted the MUTCD 2009 - Manual on Uniform Traffic Control Devices for use on all projects. All references to the South Carolina Manual on Uniform Traffic Control Devices (SCMUTCD) are hereby revised to read "MUTCD - 2009 Edition"."

3. CODES, LICENSES, & ABILITIES

3.1 All work shall be done in a workmanlike manner to meet the highest industry standards, all in accordance with the requirements of the latest editions of the National Electric Code (NEC), National Electrical Safety Council (NESC), the Illuminating Engineering Society (IES), American National Standards Institute (ANSI), National Electrical Manufacturer's Association (NEMA), and the regulations and standards of the local power company.

3.2 The following supplements Section 102.1. The contracting firm responsible for the performance of the work covered by these SPECIAL PROVISIONS, **must be licensed as a General Contractor with a Classification of Public Electrical Utility (2U) by the SC Licensing Board For Contractors, and possess all other Sub-classifications and Licensing as required by the SC LLR.** Documentation of properly trained personnel for exothermic welding is required for all personnel performing exothermic welding. A copy of the documentation for exothermic welding shall be submitted to the Department.

3.3 The CONTRACTOR shall retain employee(s) holding the appropriate licenses to conduct this type of work for the duration of the project; and the employee(s) shall be present ***DAILY*** and at the ***FINAL INSPECTION***. The CONTRACTOR shall submit the names and copy of these licenses to SCDOT prior to contract award.

3.4 The CONTRACTOR shall employ persons capable of installing all the components of this ITS project as described in the Plans and Specifications. The CONTRACTOR shall possess all the necessary equipment and be capable of using it to install, integrate and maintain all the ITS components into a functional system that will allow the SCDOT Traffic Control Center (TCC) operators and system supervisors to monitor, detect and verify incidents on the Interstate.

4. SYSTEM INTEGRATION

4.1 **Furnished by the Department- includes cameras, camera pipe adaptors, encoders, fiber transceivers, fiber mux, and integration.**

5. SUPPLEMENTAL SPECIFICATIONS

5.1 The ITS components shall be constructed in accordance with the detailed "SUPPLEMENTAL SPECIFICATIONS, and the plan details; which by reference are made a part of these SPECIAL PROVISIONS. These documents may be obtained from the SCDOT, Director of Traffic Engineering, Advanced Systems Coordinator, P. O. Box 191, Columbia, SC 29202-0191.

6. SPECIAL INSTRUCTIONS TO CONTRACTOR

6.1 This is a "TURN-KEY" project. The Plans are schematic in nature, showing what is generally expected for installation and maintenance of the ITS components. The plans will be field reviewed with the Contractor and SCDOT engineers before installation begins. **Any field supervisor for the contractor must be at this review**. The CONTRACTOR must devise/refine the final details, working within the Supplemental Specifications, the Design Details, the Standards, and with the ENGINEER. The ENGINEER must approve the Plans as submitted by the contractor before construction begins.

6.2 At project completion, all ITS components shall be complete and operational to the satisfaction of the ENGINEER.

6.3 The CONTRACTOR shall furnish and install conduit, service boxes, and stainless steel pull boxes where needed or as shown on the plans.

6.4 The CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIALS such as, EDCO surge suppressors, equipment racks, wood poles, fiber optic cables, electrical and coax cables, conduit, miscellaneous fittings, electrical service parts, clamps, ground rods, tape, fiber optic Siecor or equivalent interconnect centers, and all other needed materials.

6.5 The CONTRACTOR SHALL INSTALL 332 base-mounted or SCIPCAB1 pedestal mounted cabinets as shown in the plans.

6.6 The CONTRACTOR will install all new ITS components to provide a state-of-art installation. The CONTRACTOR shall install a new METERED ELECTRICAL SERVICE indicated on the Plans. NOTE: the service may be either: underground or overhead; depending on the latest requirements of the power company. Bids should be prepared accordingly. The CONTRACTOR shall furnish and install ALL NEW ELECTRICAL CABLE.

6.7 In addition to the state requirements, all permits and licenses required by a City/County are the responsibility of the CONTRACTOR. The CONTRACTOR shall arrange with the utility company for hookup connections and attachment agreements.

6.8 Camera lowering devices shall be installed at all locations with CCTV unless otherwise indicated by SCDOT.

6.9 Submittal Data Requirements -

The CONTRACTOR shall provide six (6) copies of complete and thorough submittal data for all components and materials of the Intelligent Transportation system (ITS) project on the date of the preconstruction meeting. Work cannot begin on any part of the project until the Complete Submittal Data Package is approved by the Department. The submittal data shall be furnished to the DEPARTMENT Project Engineer. Submittal data shall include complete technical and performance specifications on all hardware, materials and installation wiring/cabling to be performed on the ITS project. Each package of submittal data shall be neatly organized and separated by hardware item and shall contain an index of all submittal data documents included in the package. The index shall name each submittal data document, what ITS system component the document is submitted for, and the specific manufacturer model, part and revision number of the subject hardware or software item exactly as the item is proposed to be provided. Any submittal data document or documentary item that is not listed in the index shall not be accepted for review. Each package of submittal data shall address all of the components and materials necessary for a complete ITS system as spelled out in the specifications; separate submissions for individual ITS system components and materials are not permissible. Typical submittal data which is required for all ITS system components shall include, but is not limited to, manufacturer's specifications, operating/maintenance, troubleshooting manuals, schematic wiring diagrams with detailed parts lists, materials lists and assembly drawings for the components used on this project, camera control, acceptance testing procedures, and detailed warranty and guarantee information for each component.

6.10 Contractor shall be responsible for locating existing ITS electric and fiber optic cabling that is located within the project. Contractor shall be responsible for new electrical and fiber optic cable locates during project. Contractor shall be responsible for locating PUPS tickets for the project area throughout the duration of the project.

6.11 Contractor is responsible for preventive maintenance on all **new** components with in the project. Preventive maintenance shall start upon notice to proceed. Preventive maintenance consists of cleaning cabinets, changing filters, weed and grass control, rodent control and repairs as needed. Preventive maintenance is to be performed every three months during project. New components installed shall be serviced every three months after installation until completion of project. Upon award of contract the Contractor will be given a Preventive maintenance checklist to be followed for servicing components. Preventive Maintenance check list shall be filled out for each CCTV, RVD, DMS sign, and Hub locations, and shall be turned in to the ITS Central Maintenance Facility for review.

6.12 SUBMISSION OF REQUIRED DESIGN INFORMATION AND DESIGN DRAWINGS:

It is essential that the signing contractor make all required design submissions within 90 days following award of this contract, except as follows:

Section 9.103 of Signing Specifications is amended to also require that design drawings for Overhead Sign Structures and the details of footings be submitted within 90 (ninety) calendar days following award of the contract.

Section 9.104 of the Department's **SPECIFICATIONS FOR SIGNING EXPRESSWAYS AND FREEWAYS** is revised to require that the independent registered Professional Engineer who checks the designs for the overhead structures and footings be licensed by the State of South Carolina.

OVERHEAD SIGN STRUCTURE DESIGN:

Section 9.101 of the Signing Specification is amended to require stiffener plates between the base plate of all cantilever structures and the upright. The plates should be equally spaced about the base plate between the anchor bolt holes. All structures shall have at least six (6) anchor bolts per base plate. Also, the Contractor shall provide direct bolted connections of the sign to the structure sign hangers at the top and bottom of the signs. This shall be provided at all four corners of the sign. The top hole on each hanger shall be slotted to provide for adjustment.

Soil borings are not provided for the locations of the new Overhead Structures. The Contractor will be responsible for obtaining subsurface investigation data at the locations of the overhead structures shown in the plans for the purpose of overhead structure footing design. **Special Note: Footings shall be designed using a maximum allowable toe pressure of 2000 pounds per square foot**.

7. ACCEPTANCE

This project requires a 30 (thirty) day burn in period. All equipment shall operate satisfactorily for a period of 30 calendar days prior to final acceptance of the project. Any items deemed non-operational in that time period will cause the burn in period to start over. The burn in period shall not begin until all equipment is installed and operational. The burn-in period shall not begin until a punch list, generated by the final inspection, is complete.

8. INSPECTION

8.1 Resident Construction Engineer (RCE). During construction of the ITS portion of the Project periodic Inspections will be made by the RCE and by the Department's ITS staff. The Department's RCE is the designated representative of the Engineer, for the purposes of this project.

8.2 Disputes. The CONTRACTOR is advised that in any dispute between the CONTRACTOR and the manufacturer, concerning the operation/maintainability/reparability of any piece of equipment, THE DECISION OF THE ENGINEER SHALL BE FINAL.

8.3 Faulty Equipment. The CONTRACTOR shall be responsible for the labor cost to remove and replace faulty equipment. The CONTRACTOR shall be responsible to have a replacement part in place no later than 24 hours from the reported failure of the equipment.

Any delay that is documented by the RCE as late or non-responsive by the CONTRACTOR in replacing the faulty equipment within the specified period of time shall be assessed at a $500 PER DAY liquidated damages penalty.

9. MAINTENANCE OF TRAFFIC

The CONTRACTOR shall maintain traffic throughout the length of this Project as required by the Manual on Uniform Traffic Control Devices and other applicable SCDOT Standards for traffic control. As part

of the plans, the contractor shall provide traffic control plans prior to beginning work. Any necessary lane closures will have to be approved by the ENGINEER two weeks prior closing the lane. Interstate lane closures shall be done only at night. Shoulder closers are required when work is performed within 30 feet of the travel way. This includes the parking of vehicles or equipment.

Should the CONTRACTOR believe a lane closure is necessary to perform the work specified herein, the CONTRACTOR shall submit to the ENGINEER a written request at least two (2) weeks in advance of the proposed closure. The request for lane closure shall include:

- Date and times that the closure is required.
- Reason for the closure, and why the work cannot be accomplished without the requested closure.
- A plan showing the lane(s) to be closed, the extent of the closure, the work area, and the proposed signing and other traffic control devices to be installed by the CONTRACTOR for the maintenance and protection of traffic during the closure.
- Date and time that the closure will cease and related signing and other traffic control devices will be removed and normal traffic control will be re-established.

The RCE shall review the request, and shall approve, reject, or identify modifications to the plan necessary for approval.

10. WEEKLY ITS SCHEDULE

For the duration of this project, the CONTRACTOR shall furnish on each Friday to the RCE, a WEEKLY SCHEDULE for the week to come, listing the location and date of each intended activity. This will permit scheduling ITS inspection personnel. Upon contractor not showing up nor notifying the Inspector of changes to schedule there will be a penalty of $500.00 per hour after the first hour of delay. Deviation from this schedule may cause the DEPARTMENT to delay inspection and payments.

MOBILIZATION

DESCRIPTION - This item shall consist of performing preparatory operations, including moving personnel and equipment to the project site; paying bonds and insurance premiums, establishing CONTRACTOR's offices, buildings and other facilities necessary for work on the project and for all other work and operations which must be performed or costs incurred prior to beginning work on the project.

1. CONSTRUCTION REQUIREMENTS -

All work performed in providing the facilities and services shall be done in a safe and workmanlike manner.

FURNISH AND INSTALL CONDUIT

DESCRIPTION - This work shall consist of furnishing and installing electrical conduit and fittings of the types and sizes specified herein, at locations shown on the Plans, or as established by the ENGINEER in accordance with these Specifications. All materials will be subject to inspection for condition by the ENGINEER, just prior to incorporation into the work.

1. MATERIALS -

Materials shall meet the requirements listed below:

1.1 Steel Conduit -

Steel electrical conduit shall be rigid, heavy-wall, galvanized steel, meeting the requirements of Federal Specification WW-C-581, and American Standards Association Specifications USAS C-80.1-1966.

1.2 PVC Conduit –

Plastic conduit shall be sunlight resistant Polyvinyl chloride (PVC), SCHEDULE 80, meeting the requirements of National Electrical Manufacturing Association (NEMA) Specification TC-2 and Underwriter Laboratory (UL) Standards UL-514; and/or ASTM D-1784. Fittings shall meet NEMA TC-3 and UL-514. No half or quarter size conduit shall be used. Conduit sizes shall be as follows: 1 inch, 2 inch, 3 inch and so on.

HDPE Rolled Conduit –

Underground fiber shall be installed in rolled conduit, plowed or directional bored (trench less) in. **Each run shall have one (1) conduit installed**. This conduit shall be a minimum of schedule 80 or SDR 11 HDPE (HDPE shall be **Orange** in color for fiber optic cable installations and **Red** in color for electrical). It shall be buried at a minimum of 36".

1.3 Flexible Weather-Tight Steel Conduit -

Weather-tight/liquid-tight flexible steel electrical conduit shall be single strip, helically wound, interlocking galvanized steel. It shall be made liquid-tight by an extruded polyvinyl chloride jacket; and shall meet the requirements of UL-360.

1.4 Fittings –

All conduit bodies, 90° bends, weatherheads, elbows, nipples, couplings, and other hardware shall be made of the same material and quality as the conduit run and shall be incidental to conduit installation. HDPE coupling shall be hydraulically pressed on type. HDPE couplings shall be Carlon Barbed couplings BS2.375 or approved equal. Catalog cuts are required for HDPE couplings for approval.

1.5 Ground Bushings -

Grounding bushings shall be threaded, made of malleable iron, galvanized steel, or brass; and shall have an insulating plastic insert, and lay-in lugs to hold No. 6 AWG copper wire.

1.6 Pulling Line –

The pulling line shall be Muletape WP1250P or Detectable Muletape DT1250/4P, having a minimum strength of 1250 lbs, which SHALL BE PULLED INTO ALL UNDERGROUND CONDUIT RUNS, AND SHALL REMAIN THEREIN FOR FUTURE USE.

1.7 Warning Tape -

Underground warning tape shall be heavy duty B-720 polyethylene, 0.89 mm (3.5 mils) thick, by 76 mm (3 inches) wide, with APWA color Orange for fiber and RED for electric lines. The tape shall be PLACED ABOVE ALL TRENCHED CONDUIT RUNS, just before the final back-fill.

1.8 Concrete -

Concrete used for patching pavement shall be SCDOT STANDARD SPECIFICATION CLASS X according to Sections 701, 702, 703, and 704.

1.9 Bituminous Asphalt -

Bituminous Asphalt for patching pavement shall be SCDOT STANDARD SPECIFICATIONS, Section 403.

Marking Wire-

All underground conduits containing fiber optic cable shall have a four (4) conductor Detectable muletape type DT1250/4P pulled in for future locate services. The Detectable muletape shall be spliced through all junction points and grounded to a RUS 13 5/8"X8' ground rod in service boxes and connected to the ground buss in cabinets.

2. CONSTRUCTION METHODS -

2.1 General -

Conduit shall be installed as either a riser, or be trenched, plowed or directional bored (trench less).

2.2 Plans -

All conduit shall be installed as trenched, plowed or riser unless specifically shown on the plans as or site determined by SCDOT as directional bored.

2.3 Depth -

Unless shown otherwise, conduits shall be placed a minimum depth of thirty-six (36) inches below surface grade, when approved by the Engineer a min. of 24" cover when rock is encountered, rock being defined in section 203.2.1.7 of the Standard Specifications of Highway Construction Edition of 2007, and shall slope at a minimum rate of 150 mm (six inches), per 30 meters (100 ft.) of length, to a service box hole or drain. All conduit runs shall be cleaned and swabbed before cables are installed. In poles, cabinets, and buildings, duct-seal shall be used to effectively seal the opening.

2.4 Direction -

Changes in direction of conduit shall be accomplished by the use of standard bends, elbows, or by bending the steel conduit. Steel conduit, if bent, shall have a uniform radius that will fit the location, with a minimum radius of six (6) times the internal diameter of the pipe. Sharp kinks in the conduit or the substitution of unlike materials will not be permitted.

2.5 Fittings –

Standard manufactured conduit bodies, condulets, weatherheads, elbows, nipples, tees, reducers, bends, couplings, expansion couplings, unions, etc., of the same materials and treatment as the straight conduit, shall be used as required throughout the conduit line except that weatherheads shall be malleable iron clamp on type Arlington Industries, Inc. catalog number 145 MFG number 00145 or approved equal. All fittings shall be tightly connected to the conduit. A solvent-weld cement shall be used for fitting connections with PVC conduit. Where steel conduit mates PVC, an adapter coupling shall be used and sealed waterproof. Where HDPE mates PVC an approved adapter coupling shall be used. Where HDPE meets PVC a service box shall be installed.

2.6 Cutting -

Nipples shall be used to eliminate cutting and threading where short lengths of conduit are required. Where it is necessary to cut and thread steel conduit, no exposed threads will be permitted. All conduit fittings shall be free from burrs and rough places; and all cut conduits shall be reamed before fittings and cables are installed. All conduit runs ending in a junction box, hand box, or other approved junction point, shall be provided with a bushing to protect the cable from abrasion. Conduit being placed for future use shall be capped.

2.7 Location -

Where conduit passes under a curb, an `X' shall be cut in the curb, over the conduit. Where there is no curb, a stake shall be driven in the ground at the end of the conduit to mark its location.

2.8 Risers -

Conduit risers shall be attached to wood poles. Stainless Steel conduit clamps/straps and hot dipped galvanized or stainless steel screws shall be used on wood poles. Attachment shall be in accordance with the

Design Details, the Standards, or the Plans. Each riser shall be furnished with an approved weatherhead, which shall not be measured.

2.9 Trenching (Non-Paved Surface) -
Trenches shall be excavated to such depth as necessary to provide (24" minimum in rock, , rock being defined in section 203.2.1.7 of the Standard Specifications of Highway Construction Edition of 2007, when approved by the Engineer) 36 inches minimum cover over the conduit. Cinders, broken concrete, or other hard abrasive materials will not be permitted in the back-filling. The trench shall be free of such materials before the conduit is placed. Contractor shall supply approved back fill material as needed in such cases. No conduit shall be placed prior to inspection by the ENGINEER. Back-fill shall be compacted, and the surface restored.

2.10 Trenching (In Paved Surface) -
Trenches across driveways or streets shall be cleanly saw cut about 150 mm (six inches) wide. The conduit shall be placed and the back-fill shall be compacted, and the patch shall be of like material and thickness as was removed. NO additional payment shall be made for the bituminous or concrete patching material, unless a pay item has been established for such.

2.11 Bored and Jack (Pushing) -
Where shown on the Plans as bored or jacked, certain steel conduit to be placed under existing roadways, driveways, sidewalks, or other paved surfaces, shall be bored and jacked. Such conduit shall be placed by jacking, boring, pushing, or other means approved by the ENGINEER, without cutting or removing pavement.

2.12 Bored and Jack (Pulled) -
When the ITS design anticipates that high-accuracy directional boring techniques will be used, and two (2)- two (2) inch schedule 80 or SDR 11 HDPE conduits pulled back through the bore, then a pay item will be established for: SCHEDULE 80 PVC CONDUIT (trench less). The directional boring method shall be approved by the ENGINEER, and shall in no way crumple or damage the conduit.

2.13 Placed Before Pouring -
Where shown on the Plans, PVC conduit, with flexible weather tight conduit, shall be placed in roadways or structures, prior to pouring the concrete. Typical usage would be a bridge deck. The conduit shall be firmly attached to the bottom reinforcement bar mat, or to the bottom wire-mat, using plastic tie-wraps every 0.60 meter (two feet). At expansion joints, 1.2 meter (four ft.) lengths (typical) of flexible weather-tight steel conduit shall be used to accommodate movement. These shall be installed to NEC standards for concrete structural installations and usage, including any recommended lubricants and sleeves. All conduit ends etc. shall be plugged to prevent concrete penetration. When used on a bridge, there will usually be service-box(es) near the centerline, and the conduit will terminate in service-boxes at each end.

2.14 Restoration -
The CONTRACTOR shall restore all cuts, trenches, and openings to the original condition. Grass surfaces shall be replaced with pre-grown, cut turf (sod), in existing lawns. Seeding shall be performed in accordance to the Standard Specifications of Highway Construction Edition of 2000. Other dirt areas shall be raked, seeded, and fertilized. While care should have been used to avoid them, any damaged trees and shrubs shall be replaced (if directed by the ENGINEER).

Rock Boring
When ITS design anticipates rock being encountered or the Engineer deems it necessary rock boring techniques will be used. The Rock Boring method shall be approved by the ENGINEER, and shall in no way crumple or damage the conduit.

Bridge attachment
When attaching to a bridge, rigid galvanized steel conduit shall be used. Conduit supports and hardware shall be Stainless steel and installed using an approved epoxy anchor. Conduit supports shall be installed a maximum of 5 feet apart and bent closed at the bottom. Conduit straps shall be two hole heavy duty stainless steel. Conduit shall have approved heavy duty galvanized steel expansion couplings at every expansion joint in bridge. Approved in line stainless steel pull boxes shall be installed on bridge attachments for pull points that

are over 500 feet at no additional cost to the Department. There shall be a service box set at both ends of bridge to make transition from PVC or HDPE conduit to ridged galvanized steel conduit for bridge crossing. All conduit, expansion couplings, couplings, conduit supports, bolts, nuts, anchors, epoxy, unions, and all other incidental material will be included in the pay item for LF Bridge attachment.

FURNISH AND INSTALL ELECTRIC SERVICE

DESCRIPTION - This work consists of furnishing and installing complete electrical services to provide electric power to the ITS components, at locations shown determined by the contractor and SCDOT, and in accordance with power company procedures. This includes all necessary poles, conduit and incidentals. Contractors are advised that locations may require long conduit runs for power. These runs SHALL be included in the "ELECTRICAL SERVICE".

1. GENERAL -

1.1 Standards -
All work is to be in accordance with the Standards, or the REQUIREMENTS OF THE LOCAL POWER COMPANY. All work shall be in accordance with the National Electric Code (NEC), and applicable local codes.

1.2 Meeting -
The ENGINEER, the CONTRACTOR, and the power company representative shall discuss the project at the "Pre-Construction Meeting", and arrange the schedule for power connection. Additional meetings will be held as necessary to satisfy all concerns about electrical service.

1.3 Schedule -
The CONTRACTOR shall make all necessary arrangements with the power company to insure having the needed power available at each location. Difficulties in securing the service of the power company are to be immediately reported to the ENGINEER.

1.4 Location -
The CONTRACTOR shall determine the exact location of the electric service. When a wood pole is to be used for power company attachment and meter base, the pole shall be set within 15 feet of the cabinet or device it's feeding. Engineer shall approve final location of service pole prior to installation. The nature of the service is not shown on the Plans, and shall be finalized as:

- Electrical service from the power head to the local cabinet assembly;
- Electrical service from the local cabinet assembly to the field hub;
- Electrical service from the power panel to the Hub building.

1.5 Meter -
The electric service will usually be METERED. The CONTRACTOR shall provide hardware accordingly.

2. MATERIALS –
The power connection shall be 100 amp SINGLE-PHASE, 120/240 VOLT, 3-WIRE, 60 Hertz alternating current supply for CCTV/Hub cabinets and DMS signs. The power connection shall be 200 amp Single Phase, 120/240, 60 Hertz alternating current supply for Hub Buildings.

2.1 Meter -
The contractor shall furnish a Mid West R102EN METER BASE/POWER PANEL (CAN) or as indicated on plans, for the CCTV cabinet or Field HUB cabinet, a Cutler hammer MB816B200BTS Meter base/power panel for Hub building, which the CONTRACTOR shall install. Contractor shall install an EDCO EMC-240B surge arrestor on the power panel at all metering locations and shall be wired according to manufactures spec.

2.2 Disconnect Switch -
The disconnect switch shall be NEMA STANDARD TYPE 3R, weatherproof. It shall be CIRCUIT BREAKER TYPE, 100 AMP rated and have a tab for pad-locking the cover closed. It shall be of 3-WIRE DESIGN (2-circuit), with solid neutral. Disconnect switch shall be a Siemens Model WO408ML1125 or approved equal or as indicated on the plans. The CONTRACTOR shall twist a No. 6 AWG wire through the padlock tab, to prevent unauthorized entry (until SCDOT installs their padlock). Pedestals (or lintels) for services or disconnect switch shall be an 8"X8"X96" Allied Concrete Products Lintels or approved equal, whenever possible the same Pedestal shall be utilized for the installation of the disconnect and the SCIPCAB1 cabinet assembly. If the Power company metering location is greater than 100 feet from the cabinet or is

placed on the opposite side of the road, a disconnect switch shall be installed on a concrete pedestal not greater than 15 feet from the cabinet. The disconnect switch shall have a 100 AMP rating and shall be a circuit breaker type. In cases where one meter location is going to feed two ITS devices, the breakers shall be sized to accommodate both devices.

2.3 Rating -

To provide a maximum of future flexibility, and a minimum of voltage-drop to meter/power panel, the components of the electrical service shall have the ratings stated. (Shall be wired to supply a min. of 100 amp 120/240 volt service).

DISCONNECT BREAKER:

Panel rating: (for uniformity) 100 AMP (200 AMP for Hub Building)
Circuit breaker (single pole) 30 AMP Camera/RVD or as indicated on the plans
Circuit breaker (double pole) 50 AMP DMS
(If needed an additional circuit breaker may need to be installed for AC or future use).

CABLE:

3-Wire THHN/THWN MIN SIZE No. 2/0 AWG copper (Hub Building)
3-Wire THHN/THWN MIN. SIZE No. 4 AWG copper (from meter to power company attachment)
3-Wire (W, BL, RD), THHN/THWN MIN. SIZE No. 6 AWG copper or as indicated on the plans (from power panel to CCTV/Hub cabinet)
(Wire size to be determined by the length of run and voltage drop according to NEC to supply 100 AMP to all meter/power panels (except Hub Building),), breaker sizes shall be 50 AMP to DMS signs, 30 AMP to CCTV/RVD cabinet or as indicated on the plans, 50 AMP to Hub cabinet and 200 AMP to Hub building).

CONDUIT:

PVC Schedule 80 MIN. SIZE 25 mm (1 in.)
(Conduit size shall be determined by the conductor size; **NO** quarter or half size conduit).

2.4 Ground Rod -

One or more ground rods shall be installed at the service pole; and where applicable, at the controller itself. The ground rod shall be min. 16 mm by 2.4 meters (5/8 in. by 8 ft.) (minimum), copper-clad RUS 13, with brass or bronze ground rod clamp. Additional ground rods may be needed to achieve proper resistance to ground. **The controller ground rod shall be exothermically welded (by personnel properly trained to make exothermic welds). Grounding system shall be no greater than 15 ohms. Grounding systems shall be tested using the fall of potential method and shall be overseen by the engineer.**

2.5 Ground Wire -

The grounding wire for the service shall be No. 6 AWG, bare, 7 stranded wire. (Note that this is in addition to the solid grounding wire running down each wooden pole and shall be stapled at a min of every 16 inches with a coil of solid copper wire at the bottom and top of pole.) For grids the ground wire shall be #4 AWG (7) seven stranded or larger around concrete poles and # 2 or larger around Hub Buildings. The grounding for the service shall be connected to the cabinet ground rod with AWG 6 and the pole ground grid shall be connected to the cabinet ground rod in the electric service pull box, (located at the cabinet) to make up a complete grounding system.

2.6 Conduit -

Conduit and fittings used for the electric service shall be PVC Schedule 80, MIN. Size 25 mm (1 in.) diameter. Contractor shall use 1 inch, 2 inch, 3 inch, etc. conduit sizes. No quarter or half size conduit shall be used. It shall extend from the point of power company attachment, through the meter and disconnect assembly, to the controller cabinet (See FURNISH AND INSTALL CONDUIT Specifications). **All HDPE roll pipe to be used for electrical underground service shall be RED in color.**

2.7 Weatherhead -

A weatherhead mating to the above conduit shall be used with overhead service connections. Weatherhead shall be malleable iron clamp on type Arlington Industries, inc. catalog number 145 MFG number 00145 or approved equal. Also used shall be a strain Clevis, to create a 200 mm (1 ft.) minimum drip loop.

2.8 Cable -

The electrical cable installed from the point of power company attachment to the Communication Local Cabinet or the Communication Hub Cabinet, shall be: Type THHN/THWN, sized per length of run and voltage drop and above table, 3-WIRE, (white, black, red) 600 Volt, copper only, stranded, with cable lugs. Wire sizes AWG 6 and smaller shall have colored insulation (Red, Black, White, Green). Wire sizes larger than AWG 6 shall be marked with phasing tape (Red, Black, White) at every termination point. Grounding conductors shall be bare copper or have Green insulation. At no place shall the service cable be in the same conduit as any other control and or electric cables.

2.9 Hardware -

All hardware used shall be rustproof: steel parts shall be stainless steel or Hot Dipped galvanized. Stainless steel ¾" bands shall be used for attachment to steel/concrete poles. The bands are to be spaced every 1.0 meter (3 ft.) maximum, and at the top and bottom of the pole. When specifically required by the utility company or on wood poles, stainless steel conduit clamps/strap, fastened with hot dipped galvanized or stainless steel screws, may be substituted for the bands. A neutral spool bracket shall be furnished and installed by contractor for the power company attachment **(house knobs are not acceptable)**.

2.10 Power Service Assembly -

Lightweight corrosion resistant aluminum construction (painted gray).
14 gauge galvanized post with high quality electro-deposition gray paint finish.
UL listed NEMA 3R construction.
10,000 AMPS RMS symmetrical short circuit rating, 22,000 AMPS rating available when appropriate 22,000 AIC breaker is field installed.
100 AMP (200 amp for hub buildings) continuous, 120/240 V single phase 4 jaw ring type meter socket.
Loop feed 350 KCMIL single phase line terminals as standard.
Main breaker (bolt in main on 200 amp service), convertible 2 circuit load center, or 12 circuit plug-in load center.
Lockable, sealable covers provided with stainless steel latches.
Parallel wired units are copper bussed from the meter socket to the load center.
Multi-breaker UL listed accepts GE, Bryant, Challenger, Westinghouse, Sq D. "Homeline" or ITE plug-in circuit breakers.
Deadfront construction for maximum user safety.
Fully accessible line terminal compartments.

2.11 Pull Box –

A 17''X30''X28'' pull box shall be installed within five (5) feet of cabinet location. The pull box shall be an Armorcast A6001640TAPCX28, 17''X30''X28'' or approved equal. See Furnish and Install Service/Pull Box. Electrical pull boxes shall not be placed over 500' feet apart without Department approval. All pull boxes containing electrical cable shall have SCDOT ELECTRIC logo caste on lids. All pull boxes containing electrical cabling shall have a PNA dome pack post cable marker 3" in dia, 6' long with a 16" Red top with approved labeling and phone number (labeling information and phone number to be supplied by Engineer for each project) or approved equal. There shall be a Red passive marker ball operating at a frequency of 169.8KHZ installed in all pull boxes containing electrical conductors. The red passive marker balls shall be compatible with a Metro Mark passive marker locator 760Dx or approved equal.

3. CONSTRUCTION METHODS -

3.1 The electrical service shall be installed in accordance with all applicable codes, regulations, and the REQUIREMENTS OF THE POWER COMPANY, with the final location being determined in the field. Typical construction methods are shown on the Installation Details, and the Standards.

The CONTRACTOR shall obtain all ELECTRIC PERMITS required; and shall arrange for INSPECTION at completion.

3.3 The CONTRACTOR shall install the power service and post locations as shown on the Plans at the back edge of the right-of-way. The power company will supply power to the power service.

3.4 At locations where need is determined by the contractor, transformers shall be installed to compensate for voltage drops in service. All work to comply with the NEC.

4. EQUIPMENT POWER -

4.1 Normal –
For equipment for this Contract, (while operating from a 115 VAC, ± 10%, sixty (60) Hz, commercial grade, non-dedicated power service), shall be capable of providing the following:

4.1.1 Proper regulation for AC outputs, up to one-hundred and fifty percent (150%) of normal load.

4.1.2 Sufficient internal electronic noise and transient immunity, so that equipment fed by this service will not be affected by either noise or transients.

4.1.3 Equipment power supplies of sufficient design to prevent extraneous coupling of signals between equipment.

4.1.4 Complete internal surge protection (in addition to that of the cabinet).

4.2 Additional -
Where electronic problems can be traced to Radio Frequency Interference (RFI), as shown by an oscilloscope, then the CONTRACTOR shall provide additional isolation, filters, capacitors, etc. to eliminate the problem.

5. GROUND SYSTEM -

The resistivity of the electrical system EARTH GROUND shall be FIFTEEN (15) OHMS OR LESS, as measured with an appropriate instrument which was calibrated not more than twelve (12) months prior to the date of performing such tests. Test shall be over seen by Engineer and documented results given to DOT. Contractor shall add appropriate grounding to achieve the above requirements if needed.

CATALOG CUTS ARE REQUIRED

FURNISH AND INSTALL FIBER OPTIC CABLE

DESCRIPTION - This item shall consist of furnishing and installing single-mode fiber optic (SMFO) cable in conduit and risers or overhead lashed to new messenger cable. The pay item FURNISH AND INSTALL FIBER OPTIC CABLE also includes all items and expenses associated with the items labeled FIBER OPTIC COMMUNICATION PLANT – TESTING, FURNISH AND INSTALL FIBER INTERCONNECT CENTERS AND CLOSURES . The CONTRACTOR shall furnish all attachment hardware, splice enclosures and installation guides necessary to install the fiber optic cable. Cable shall be Prysmian FlexLink matching the existing Prysmian 96 SM fiber. Contractor shall have index of refraction labeled on as-built for all fiber cable.

General -

The cable shall meet all requirements stated in RUS-90 as well as those stated within this specification. The cable shall be an accepted product of the United States Department of Agriculture Rural Utility Service as meeting the requirements of RUS-PE-90. The cable shall be new, unused, and of current design and manufacture.

The single-mode fiber used in the cable shall conform to the following specifications:

Fiber Coating	Corning CPC6 or approved equal
Cladding Diameter:	125.0 + 1.0 μm by fiber end measurement
Outer Coating Diameter	245 ± 5 μm
Core-Clad Concentricity	≤ 0.5 μm
Cladding Non-Circularity:	≤ 1.0%
Fiber Curl	≥ 4.0m radius of curvature
Index of Refraction 1310/1550 nm	1.4693/1.4690
Mode field diameter – 1310	9.2 ± 0.4 μm
Mode field diameter – 1550	10.5 ± 1.0 μm
Cable Cutoff Wavelength	ccf ≤ 1260nm
Refractive Index Profile	Matched clad, step index
Zero Dispersion Wavelength	1304nm ≤ ±o ≤ 1324 nm
Zero Dispersion Slope	<0.092 ps(km-nm)
Dispersion 1330 nm	<3.5ps/(nm-km)
Dispersion 1550 nm	<18ps/ (nm-km)
Point Discontinuity	≤ 0.10 dB at 1310 and 1550 nm
Attenuation at Water Peak (Uncabled Fiber)	<1.5 dB/km at 1383 ± 3nm
Attenuation vs. Wavelength	1285 ≤ 1310 ≤1330nm – 0.05 dB/km 1525 ≤ 1550 ≤ 1575 nm – 0.05 dB/km

Attenuation vs. Bending	1 turn (32 mm) at 1550nm ≤0.50 dB 100 turns (50mm) at 1550nm ≤ 0.10dB
Polarization Mode Dispersion Coefficient	≤ 0.2 ps/√km
Temperature Cycling	≤0.05 dB/km (-40 C to 85 C)
Temperature-Humidity Cycling	≤0.05 dB/km – 10 C to 85 C, 4 to 98% RH
Water immersion, 23 C	≤ 0.05 dB/ km
Heat Aging, 85 C	≤0.05 dB/ km
Proof Test	≥ 100 kpsi

1.1 Fiber Characteristics -

All fibers in the cable shall be usable fibers and meet required specifications.

All optical fibers shall be sufficiently free of surface imperfections and inclusions to meet the optical, mechanical, and environmental requirements to this specification.
Each optical fiber shall consist of a doped silica core surrounded by a concentric silica cladding.

The coating shall be a dual-layered, UV cured acrylate applied by the fiber manufacturer. The coating shall be capable of being mechanically or chemically striped without damaging the fiber.

Optical fibers shall be placed inside a loose buffer tube.

EIGHT through TWELVE (8-12) buffer tubes, each containing twelve (12) single-mode fibers shall be furnished. The fibers shall not adhere to the inside of the buffer tube.

Each fiber shall be distinguishable from each other by means of color coding according to the following.

These colors shall meet EIA/TIA-598, *"Color Coding of Fiber Optic Cables"*.
Buffer tubes containing fibers shall also be color coded with distinct and recognizable colors according to the following.

1.	Blue	7.	Red
2	Orange	8.	Black
3.	Green	9.	Yellow
4.	Brown	10.	Violet
5.	Slate	11.	Rose
6.	White	12.	Aqua

Buffer tubes shall be of a dual-layer construction with the inner layer made of polycarbonate and the outer layer made of polyester. Fillers may be included in the cable core to lend symmetry to the cable cross-section where needed.

Each buffer tube shall be filled with a non-hygroscopic, electrically non-conductive, homogenous gel. The gel shall be free from dirt and foreign matter. The gel shall be readily removable with conventional non-toxic solvents. Water blocking tape is an acceptable substitute.

Buffer tubes shall be stranded around a central member using the reverse oscillation, or "SZ" stranding process.

Binders shall be supplied with sufficient tension to secure the buffer tubes to the central member without crushing the buffer tube. The binders shall be non-hygroscopic, non-wicking (or rendered so by the flooding compound), and dielectric with low shrinkage.

The cable shall contain a central member that is intended to prevent buckling of the cable. The central anti-buckling member shall consist of a glass reinforced plastic rod.

The cable shall contain at least one (1) ripcord under the sheath for easy sheath removal.

Tensile strength shall be provided by high tensile strength aramid yarns and fiberglass. The high tensile strength aramid yarns/fiberglass shall be vertically stranded evenly around the cable core. All cable shall be sheathed with medium density polyethylene. The minimum nominal jacket thickness shall be 1.4 mm. Jacketing material shall be applied directly over the tensile strength members and flooding compound. The jacket or sheath shall be free of holes, pits and blisters.

The maximum pulling tension shall be 2700 N (600 lbs.) during installation (short-term) and 600 N (135 lbs.) long-term installed.

The shipping, storage, installation and operating temperature range of the cable shall be –40º C to 70º C.

1.2 Drop Kit -

When specified on the Plans, the CONTRACTOR shall furnish and install all necessary items required for connectivity of a device to the network via fusion splice of a drop cable to the network trunk cable. This assemblage of items shall be known as a drop kit. The drop kit consists of the drop cable assembly, fiber optic splice closure, termination's splices and splice trays. **The "Gator Patch" product is acceptable for this application. Gator Patch if used takes the place of the interconnect center.**

1.3 Quality Assurance Provisions -

All optic fibers shall be proof tested by the fiber manufacturer at a minimum load of 100 kpsi.

All optical fibers longer than 1,000 meters shall be 100% attenuation tested by the manufacturer. The attenuation of each fiber shall be provided with each cable reel. Fibers less than 1,000 meters shall be tested for continuity.

1.4 Splice Closure – Underground -

1.4.1 Use -

The closure shall be 3M brand only no exceptions, designed for use under the most severe conditions such as moisture, vibration, impact, cable stress and flex temperature extremes as demonstrated by successful passing the factory test procedures and minimum specifications listed below. The closure will be installed inside service boxes. For more details see FURNISH AND INSTALL SERVICE BOXES. The closures shall be incidental to the fiber optic cable installation.

1.4.2 Physical Requirements -

1.4.2.1 The closure shall handle up to four (4) cables in a butt configuration. A butt adapter may be used to increase capacity to six (6) cables.

1.4.2.2 The closure shall prevent the intrusion of water without the use of encapsulate.

1.4.2.3 The closure shall be capable of accommodating splice organizer trays, which accept mechanical, fusion, or multi-fiber array splices. The splice closure shall have provisions for storing fiber splices in an orderly manner, mountings for splice organizer assemblies, add space for excess or non-spliced fiber. Splice organizers shall be re-enterable. Splice cases shall hold a minimum of two (2) splice trays to a maximum of six (6) splice trays, with each tray housing 24 splices.

1.4.2.4 Closure re-entry and subsequent reassemble shall not require specialized tools or equipment. Further, these operations shall not require the use of additional parts.

1.4.2.5 The splice closure shall have provisions for controlling the fiber bend radius to a minimum of 38 mm.

2. CERTIFICATION -

2.1 The CONTRACTOR shall provide certified test results from the manufacturer showing the cable furnished has been tested. The test shall be approved by SCDOT prior to its implementation.

Note: Catalog cuts shall be submitted at pre-con.

3. LABELING AND DELIVERY -

The SMFO cable furnished by the CONTRACTOR shall be packaged on non-returnable wooden reels. The reels shall not contain imperfections such as broken flanges or nails that may cause damage to the cable as it is unreeled.

Both the top and bottom ends of the cable shall be available for testing on the reel. The ends of the cable shall be sealed to prevent the ingress of moisture.

Each cable reel shall have a durable weatherproof label that shows the actual length of cable on the reel. Index of refraction shall be the same for all cable installed in project and for 2000' spare repair cable for SCDOT.

4. CONSTRUCTION METHODS -

4.1 General -

The CONTRACTOR shall take every precaution to ensure the fiber optic cable is not damaged during storage and installation. The fiber optic cable shall not be stepped on by workers, or run over by any vehicle or equipment. The fiber optic cable shall not be pulled along the ground, or over or around obstructions.

It shall be the responsibility of the CONTRACTOR to coordinate his overhead and underground construction activities on a continuing basis with each of the utility agencies that have facilities in the immediate vicinity.

The fiber optic cable shall be installed in conduit with other cables only where specifically called out in the Plans.

Where fiber optic cable is to be installed on overhead poles, the CONTRACTOR shall exercise care in temporary placement of installation equipment to provide safety to the public and to prevent damage to existing facilities. Should the CONTRACTOR cause damage to any existing cables and/or equipment, the CONTRACTOR shall immediately notify the ENGINEER. The affected owner and the CONTRACTOR shall repair or have the repair made at no additional cost.

During installation, the CONTRACTOR shall provide cable blocks at least every 50 feet to guide the cable and reduce pulling tension. All pulling equipment and hardware that will contact the cable during installation must maintain the minimum bend radium of the fiber optic cable as listed in Table 1. Corner blocks, appropriately sized to ensure that the minimum bending radius of the cable is maintained, shall be provided whenever fiber optic cable must be pulled around a corner.

Table 1
Fiber Optic Minimum Bend Radius Chart

Nominal Cable Diameter		Minimum Bend Radius (no tension) Installed		Minimum Bend Radius (under tension)	
Millimeters	Inches	Centimeters	Inches	Centimeters	Inches
6.0 – 10.0	(1/4 – 3/8)	10.0	(4.0)	15.0	(6.0)

10.1 – 15.0	(4/10 – 6/10)	15.0	(6.0)	22.5	(9.0)
15.1 – 20.0	(10/16 – 8/10)	20.0	(8.0)	25.0	(10.0)
20.1 – 23.0	(13/16 – 9/10)	23.0	(9.0)	25.0	(10.0)
23.1 – 25.0	(15/16 – 1.0)	25.0	(10.0)	30.0	(12.0)

In the case where the plans call for fiber optic installations in conduit, the fiber optic cable shall not be pulled through any intermediate junction box, manhole, pull box, pole base or any other opening in the conduit unless specifically required by the ENGINEER in specific facilities. The necessary length of cable to be installed shall be installed from one junction box, manhole, pull box, pole base, or cabinet to the immediate next downstream manhole, box, pole base, or cabinet. The remaining length of cable to be installed in the next conduit shall be carefully stored in a manner that is not hazardous to vehicular traffic, yet ensures that no damage to the cable shall occur. The cable shall be stored in a manner that shall allow that length of cable to be safely pulled into the next conduit. The ENGINEER shall approve the storing methods to be used.

Cable reel lagging shall remain on the cable reels until they arrive at the pulling site. If the lagging has been removed, the CONTRACTOR shall securely fasten the cable ends to avoid damage during transit.

If the cable must be unreeled during installation, the "figure-eight" configuration shall be used to prevent kinking or twisting of the fiber optic cable. The preferred size of the "figure-eight" is 15 feet with each loop about eight (8) feet in diameter. The fiber optic cable shall not be coiled in a continuous direction except for lengths of 100 feet or less.

In case of aerial installations, the CONTRACTOR shall not increase the tension on the messenger cable to which the fiber optic cable has already been lashed.

At the completion of a day's installation, the CONTRACTOR shall protect the cable from the ingest of moisture by placing a cable cap and/or several wraps of tape on the tip of the cable.

The CONTRACTOR shall record the cable meter marks at the fiber splice points on a set of as-built Plans. Two (2) copies of the Plans showing the meter marks shall be provided to the RCE. The meter marks are most easily obtained while forming drip loops.

For aerial installations, the CONTRACTOR shall route the fiber optic cable on the inside of messenger intersections at dead ends and crossovers.

4.2 Aerial Installation -

4.2.1 General -

Where the Plans call for aerial installation, the CONTRACTOR shall install new ¼" messenger cable and shall lash the fiber optic cable to the new messenger.

Aerial cable shall be installed either manually or by using the moving reel method. If the CONTRACTOR proposes to use the moving reel method, the CONTRACTOR shall submit to the RCE the cable manufacturer's recommended procedures for this installation technique at least seven (7) days prior to beginning the installation of the fiber optic cable.

The required clearances between the fiber optic cable and the utility features shall be maintained as follows unless otherwise noted on the Plans:

- A minimum of four (4) inches vertical clearance and 12 inches minimum total (diagonal) separation shall be maintained to the telephone and/or cablevision facilities.
- A minimum of 40 inches vertical clearance shall be maintained to all electrical transformers.
- A minimum of 40 inches vertical clearance shall be maintained to all electric lines (including street light circuits).

Relocation of overhead utilities will be made by others and is not a part of this Contract.

Where called for on the Plans or as directed by the ENGINEER, fiberglass extension arms shall be furnished and utilized to install the new fiber optic cable. Such fiberglass extension arms shall be an MIF PH6-2 or approved equal.

Where called for on the Plans, the CONTRACTOR shall install down guys as shown in the typical diagrams in the Plans. Guy guards shall be constructed of #18 hot-dipped galvanized steel. All guy hardware shall be on the same bolt with the J-hook.

The CONTRACTOR shall use a Kellems® (or approved equal) grip wire mesh pulling grip and swivel to prevent damage to the cable during cable pulls.

The CONTRACTOR shall provide drip loops for the fiber optic cable at all utility poles to which the fiber optic cable is attached. The drip loops must be of the "smooth-curve" type and shall be at least of the recommended dimensions for a drip loop in the typical details. Drip loops shall be formed by hand or by using an expansion loop-forming tool. Straps and spacers shall be used to support the cable in the absence of lashing wire support and to hold the cable bundles together. The strap and spacer shall be installed no closer than four (4) inches to the first bend in the drip loop.

Where called for on the Plans, the CONTRACTOR shall install backlashes in the fiber optic cable as necessary. The CONTRACTOR shall utilize sixteen (16) inch fiber optic strand storage bracket (Multilink model number 2116-SSPTB or approved equivalent) which are also known as "fiber optic sno shoes". All hardware necessary for the installation of the backlash including the "fiber optic sno shoes", and lashing of the additional cable, shall be incidental to the cost of furnishing and installing the fiber optic cable.

The straps and spacers used for drip loops and other fiber optic cable handling purposes shall be hand-tight only. The strap and spacer must be loose enough to allow longitudinal travel by the cable, but tight enough to prevent the strap and spacer from moving on the messenger cable.

4.2.2 Lashing -

The fiber optic cable shall be overlashed to the new messenger installed by the CONTRACTOR. The lashing shall be accomplished with aluminum wrapping tape spaced at intervals not exceeding 380 mm or with 1.5 mm (minimum) diameter galvanized steel spiral cable wrap. Wrapping tape, if used, shall be 1.3 mm x 7.6 mm, and at least four (4) turns shall be used. Lashing shall be accomplished in the manner that results in the wire and the cable appearing to be an integral part of the support cable. Fiber optic cable shall be installed without loose lashing, twisting or weaving along the messenger.

The CONTRACTOR shall terminate the lashing wire with a lashing wire clamp as the cable run is lashed up, span-by-span. The lashing wires shall be terminated as follows:

- Place a cable spacer between the fiber optic cable and the messenger.
- Locate lashing wire clamp two (2) inches from strap and spacer. Pull enough lashing wire out of lasher to terminate into the lashing wire clamp.
- Wrap the lashing wire three (3) times around only the messenger between the lashing wire clamp and the planned location of the first wrap around both the strand and fiber optic cable.
- Secure the lashing wire as shown in the typical details.

4.3 Underground Installation -

Where shown on the Plans, the fiber optic cable shall be installed in new or existing underground conduit, 36" deep. Typically, the drop cable from the backbone to the local cabinets is installed in one 2 inch schedule 80 PVC, or as indicated on the Plans.

4.3.1 Conduit -

Conduit size and type are specified on the Plans. For additional information concerning conduit see FURNISH AND INSTALL CONDUIT. This section concerns the procedure for installing cable inside the conduit.

Seven (7) days prior to the installation of fiber optic cable in conduit is performed, the CONTRACTOR shall provide the RCE with four (4) copies of the cable manufacturer's recommended and maximum pulling tensions. Included with these pulling tensions shall be a list of the cable manufacturer's approved pulling lubricants. Only those lubricants in the quantity recommended by the fiber optic cable manufacturer shall be approved for use.

When installing the cable in underground conduit, the maximum allowable pulling tension for the cable installation by the CONTRACTOR shall not exceed 70 percent of the manufacturer's maximum pulling tension. If the cable is pulled by mechanical means, a dynometer (clutch device) approved by the ENGINEER shall be used to ensure that a maximum allowable pulling tension is not exceeded at any time during installation.

Fiber optic cable shall not be pulled over edges or corners, over or around obstructions or through unnecessary curves or bends. Approved cable guides, feeders, shoes and bushings shall be used to prevent damage to the cable during installation.

Sealing bushings rather than weatherheads shall be used on all risers containing fiber optic cable. The sealing bushings shall conform to the typical detail shown.

Conduit bends and cabinet entrance fittings used by the fiber optic cable network shall be designed to accommodate the bending radius limitations of the fiber optic cable used.

The CONTRACTOR shall pull an adequate amount of fiber optic cable into the various cabinets and service boxes. The following table shows the amount of slack cable that should be provided in the various type cabinets and service boxes:

- Local cabinet 50 feet
- Field hub cabinet 50 feet
- Service boxes 100 feet
- Hub building 100 feet

The length of slack for each of these cabinet types should be divided evenly between entering and exiting cable. For example, the field hub cabinet should have 50 feet of slack on the entering cable and 50 feet of slack on the exiting cable for a total of 100 feet. If service box is within 50 feet of local or hub cabinet, the cable slack can be cut in half in the cabinets. Service boxes and hub buildings should have 100 feet of slack on the exiting and 100 feet of slack on the entering cable for a total of 200 feet. When Gator Patch cables are used in local cabinets there should be 25 feet of slack in cabinet and 100 feet of slack entering into the service box. Maintenance loops should follow the same cable slack measurements listed for service boxes. After the fiber optic cable has been spliced, the cable shall be neatly coiled (with tie-wraps placed on the cable) and placed on top of the fiber interconnect center or on the bottom of the cabinet. The cable shall be readily accessible to enable maintenance personnel to perform splicing of the cable in a vehicle located near the controller cabinet.

All metal conduit shall be grounded. All conduit, terminal cabinets, anchor bolts and reinforcing bar cages shall be made mechanically and electrically secure to form a continuous system and shall be effectively grounded. The grounding or bonding conductor shall be #6 AWG bare stranded copper wire.

Bonding of metallic conduit in service boxes and other installations, where the conduit is not coupled, shall be coupled with metallic conduit ground bushings having smoothly rounded, molded, insulated inserts and bonding jumpers.

The CONTRACTOR shall furnish and install all grounding facilities.

4.3.2 Buried Cable Markers -

Buried cable markers shall be located along the buried cable line at locations shown on the Plans and/or shall be placed at every service box and not more than every 2450 feet apart. The marker shall be a PNA dome pack post cable marker 3" in dia., 6' long with a 16" orange top with approved labeling and phone number (labeling information and phone number to be supplied by Engineer for each project) or approved equal. An Orange passive marker ball shall be placed in every service box containing fiber or communications cable with a frequency of 101.4KHZ, that is compatible with a MetroMark passive marker locator 760Dx or approved equal.

5. SPECIAL INSTRUCTION TO CONTRACTORS

5.1 Fiber optic cable, of the type and size specified, will be measured by the linear foot of cable actually furnished and installed, completely in place and accepted, using an optical time-domain reflectometer (OTDR).

5.2 The jacket shall have "Grabber" brand cable (stock no. VF0G – 07) markers. The markers shall be six (6) inches long, orange in color and read as follows in black: "SCDOT FIBER OPTIC CABLE (803) 737-1893". Two Grabber brand cable markers shall be placed on cable in each service box and shall be visible when the lid is removed. For aerial installation, the cable markers shall be placed on each side of every pole approximately two (2) feet from the pole. The CONTRACTOR shall install three (3) additional markers on the cable between the poles, spaced equally apart along the span.

5.3 The SMFO cable shall be spliced only at those points shown in the Plans or as approved by the ITS Field Operations Manager, (minimum distance between reel end or end to end splices shall be no less than 15,000 feet of cable length). Back bone cable shall not have intermediate splices and all drop cables shall connect to the back bone cable using mid-span entry. The designated splices shall be in the fiber interconnect centers that are proposed for installation in the field hub cabinets, ITS hub and at service boxes as designated on the Plans. If fiber optic cable splice locations are not labeled on the plans the ITS Field Operations Manager shall designate were splices will be allowed. The CONTRACTOR shall order cable in reel lengths that are of sufficient length (>15,000') to require no intermediate splicing of the cable.

5.4 The CONTRACTOR shall furnish and install single-mode fiber optic cable as the transmission medium for the video signals, the data communications trunk, and the data communication channels between the field devices and the hub building. The CONTRACTOR shall furnish, install, splice and test all the fiber optic cables. No separate payment shall be made for furnishing and installing splicing kits, fiber optic cable caps, breakaway swivels, moisture sealants, terminators, splice trays, fiber connector panels, jumper cables, connectors, and accessories to complete the fiber optic network. These items shall be considered as incidental and their costs shall be included in the cost to furnish and install the fiber optic cable. No separate payment will be made for equipment used by the CONTRACTOR to install, splice and test the fiber optic cable, the cost of which shall be included in the unit price to furnish and install the cable.

The number of fibers in each cable shall range from twelve (12) fibers through four (4) fibers in the drop cable to 144 fibers in the backbone cable. The number of fibers provided in any particular section of cable shall be as indicated in the Plans.

The following specifications provide detailed operational and technical requirements for specific elements of the communication system. The ITS Field Operations Manager shall designate the fiber allocations for all communications and integration into existing system. Elements of the fiber optic system shall include, but not be limited to, the following:

- Single-mode optical fiber cables used for CCTV data transmission from local field equipment cabinets to the hub building. Transceivers shall be furnished and installed by the Department for video transmission and camera control data transmission over the fiber optic links between the field cabinets and hub building.

- Two single-mode fibers will be used between the local cabinets (two fibers in and two fibers out) for communications. The allocations for the fibers to be used will be designated by the ITS Field Operations Manager.

- Single-mode optical fiber cables used for data communication between the field equipment cabinets. The fiber cables will link the field cabinets in a network having a fiber optic backbone as shown in the Plans.

- UPC ST connectors, patch panel modules, connectorized cable assemblies, and jumpers.

6. Training -

The Contractor will be required to furnish training for the testing and maintenance of the fiber optic infrastructure installed on this contract. The training will consist of classroom and "hands-on" training. The Training will be ETA and IMSA compliant and will include ETA FOI, IMSA Fiber Optics for Traffic Systems Tech. Levels I and II certification testing and certifications for each SCDOT employee in attendance.

Training will be furnished as part of the Furnish and Install Fiber Optic Cable bid item with no additional cost to the Department.

- The classroom training will consist of a minimum 40 hours (or as required to achieve certifications for both ETA FOI and IMSA Level I and II) of classroom instruction for up to ten (10) SCDOT ITS maintenance personnel and will include hands on training, ETA and IMSA Fiber Optic Technician certification testing, certifications and written instruction.

- The testing and maintenance training will be conducted at the ITS Maintenance Facility in Columbia SC. Training dates and times shall be approved by the ITS Field Operations Manager prior to scheduling. A list of attendees will be given to the contractor by the ITS Field Operations Manager for scheduling and testing purposes. Training shall be conducted prior to Substantial completion of ITS infrastructure for this contract.

CATALOG CUTS ARE REQUIRED

FIBER OPTIC COMMUNICATION PLANT - TESTING

DESCRIPTION - The CONTRACTOR shall test the fiber optic cable before and after installation in accordance with the procedures in this project's special provisions. The results of the tests shall be provided to the DEPARTMENT'S project resident construction engineer (RCE). The CONTRACTOR shall test all used or spare/unused fibers.

1. FIBER OPTIC CABLE TEST -

1.1 Continuity -

Prior to the installation of any fiber optic cable, the CONTRACTOR shall test the continuity of each fiber using an optical time domain reflectometer (OTDR). The test shall be conducted while the fiber is still on the reel and the test results shall be provided to the RCE.

1.2 Splice Loss -

After the installation of the fiber optic cable, the CONTRACTOR shall test the dB loss for every splice of the fiber optic cable in accordance with procedures established in the OTDR operator's manual. The testing may be done in conjunction with the splicing of the cable. Any splice that has a splice loss >0.05 dB shall be re-spliced.

The CONTRACTOR shall provide hardcopy test results to the ITS Field Operations Manager that identify the location of the splice (camera/DMS #, splice tray #), the fiber (by buffer tube and fiber color), and the splice loss in dB.

1.3 Connector/End Splice Testing -

The CONTRACTOR shall test each connector/end splice loss bi-directionally using an OTDR, in accordance with procedures established in the OTDR operator's manual. The average mated connector/end splice loss shall be <0.5 dB. Individual mated connector pair/end loss shall be <0.7 dB. Any connector/end splice with a loss greater than 0.7 dB shall be replaced by the CONTRACTOR. Any replacement connectors/ends shall also be tested.

1.4 End-to-End Attenuation Testing -

The CONTRACTOR shall perform end-to-end testing of each fiber between each place point at 1310 nm, and 1550 nm bi-directionally in accordance with EIA/TIA 526-7.

The CONTRACTOR shall provide hardcopy test results to the ITS Field Operations Manager that identify the two (2) ends of the test site, the fiber tested, the wavelength tested, the reference power output, and the system attenuation in dB.

The contractor shall provide to the Department three hard copies and three electronic copies on CD of the OTDR test results of all fiber optic cable installed on project. Contractor will supply to the Department any software required to open the OTDR electronic files at no additional cost to the Department.

The CONTRACTOR shall provide OTDR signature traces of all fibers between all CCTV locations and ITS control centers for system documentation and restoration purposes.

FURNISH AND INSTALL FIBER INTERCONNECT CENTERS AND CLOSURES

DESCRIPTION - This item is to be included in the cost for FURNISH AND INSTALL FIBER OPTIC CABLE. These items shall consist of furnishing and installing fiber interconnect centers and fiber optic interconnect closures. All in-ground (below grade) **Splice Enclosures shall be of the 3M brand, no exceptions**. Included in these items are the splicing of the fiber optic cable; furnishing and installing splice trays, interconnection sleeves, jumpers, connectors and other hardware that may be needed to house the coiled fiber optic cable and the fiber optic splices. The centers and closures will have a varying number of splice trays and splices and shall be housed at locations such as: at base mounted 332A local cabinet, at field hubs (332A cabinet) and the hub building, and inside service boxes for drop cables to local cabinets or inside service boxes at reel termination points. Closures may be needed when the fiber optic cable is transitioned from a buried location to an aerial crossing at a river or railroad crossing.

1. MATERIALS -

The CONTRACTOR shall furnish and install Gator patch cables or Department approved Siecore or CCS01U rack-mounted fiber optic interconnect centers at field cabinets or hubs. The CONTRACTOR shall also provide 3M splice closures at locations for drop cables and reel end splices. The fiber interconnect centers shall include strain-relief hardware, be rack-mountable and typically have the following capacities and locations:

- At each of the base mounted local cabinets, there shall be one (1) splice/organizing tray and termination/connection capacity for a minimum of six (6) fibers and shall have ST connectors installed or a Gator patch.
- At a field hub cabinet there shall be one or two (1-2) splice/organizing tray and termination/connection capacity for twelve to one hundred forty four (12-144) fibers.
- At hub building, there shall be four (4) splice center/organizer trays with a capacity to hold a total of 96 splices each.

The fiber optic 3M brand closures shall typically have the following capacities and locations:

- At fiber optic backbone reel end locations with a 144-splice closure capacity.
- At drop locations as specified on drawing with a 12-splice closure capacity.

The fiber interconnect center and closures shall be located in the cabinet or service boxes such that the slack fiber optic cable stored on top of the fiber interconnect center (as required in the Special Provision – Furnish and Install Fiber Optic Cable) can be easily removed (along with the fiber interconnect center) from the cabinet and taken to a maintenance vehicle for splicing, if necessary.

The interconnect centers shall be equipped with fiber connector panels with factory-installed interconnection sleeves. The interconnection panels shall be clearly labeled (transmit/receive). The interconnection sleeves shall be type ST compatible, with ceramic insert, and composite housing for single-mode fiber optic cable. The trays shall be a Siecor type or approved equivalent.

The CONTRACTOR shall furnish pigtail fiber optic cable assemblies with type UPC-ST compatible connectors factory-installed on one (1) of the assemblies. The pigtails shall be fusion-spliced to the fiber optic communication cable in each splice tray. The appropriate number of pigtail assemblies shall be furnished and installed in each fiber interconnect center.

2. SPLICING OF THE FIBER OPTIC CABLE -

2.1 Splicing Methods -

All splicing shall be done by means of a fusion-splice technique, which induces less than 0.09 dB attenuation. Bare fibers shall be completely recoated with a protective RTV gel or similar substance prior to application of the sleeve or housing to protect the fiber from scoring, dirt, or microbending. Each spliced fiber shall be packaged in a heat shrunk protective sleeve or housing. All splices shall be performed in accordance

with the cable manufacturers and the splice manufacturer's recommendations. During splicing, the CONTRACTOR shall maintain the continuity of the buffer tube and fiber color.

Incoming fibers shall be provided with five (5) feet of coiled slack and spliced to a pigtail of the same type fiber. Pigtails shall have a minimum length of five (5) feet and shall have a factory-installed UPC-ST compatible connector. The pigtails shall have an attenuation of less than 0.5 dB. The UPC-ST connector shall mate with the connector panels installed in the fiber interconnect center.

Unused optical fibers shall be properly protected with sealed end caps.

The CONTRACTOR shall record the meter marks on the cable sheath at each splice point. These marks shall be provided to the owner on a sheet of as-built system plans at the completion of the project.

The contractor shall label all fiber optic patch panels and jumpers. Labeling shall match DMS and Camera addressing numbers, if fiber port is unassigned, the fiber destination location shall be used for labeling. The labeling shall be approved by the Engineer.

2.2 Jumpers -

If necessary, the CONTRACTOR shall furnish and install single-mode fiber optic cable assemblies with UPC ST connectors factory-installed on each end (jumpers). These assemblies will be used to connect the fiber optic modem to the connector panel. These jumpers will not be paid for directly, but shall be considered incidental to the item Furnish and Install Fiber Optic Modem.

2.3 Future Applications -

The fiber optic communications network is being designed and constructed to accommodate future applications. The CONTRACTOR shall only fusion splice the necessary fibers at local cabinet locations. However, the CONTRACTOR shall splice all fibers at reel end splices. Complete fiber optic cable count shall be terminated at Hub building, TMC facilities and/or other head end location. All pigtail assemblies shall be connected by the CONTRACTOR to the connector panels installed in the fiber interconnect center. The transmit and receive designations of each fiber pair shall be clearly labeled on the front of the connector panel. Each fiber termination/connection shall be tested for attenuation.

CATALOG CUTS ARE REQUIRED

FURNISH AND INSTALL PRESTRESSED CONCRETE POLES

DESCRIPTION - The following specification covers design, fabrication and installation of pre-stressed spun concrete poles. Poles shall be designed and constructed so that all wiring and grounding facilities are concealed within the pole. All handholes, wire inlets/outlets, inserts for pole steps, thru-bolt holes and ground wire shall be cast into the pole during the manufacturing process. These specifications are for typical 80-foot and 60-foot concrete poles to be used for installations with Closed Circuit Television (CCTV) assemblies. Pre-stressed concrete poles shall be Accord Industries #840-0751-060/SC CCTV or Stress Crete SCDOT camera lowering device pole for sixty (60) foot poles or approved equal.

1. DESIGN -

1.1 Poles shall be designed considering the application of both dead load and wind load. The moment at any point along the length of the pole is to be the sum of moments resulting from dead loads and forces from wind loads. The wind force is to be computed by multiplying the specified wind pressure by the effective projected area (EPA) of the individual components.

1.2 The P-Delta secondary moments due to the deflected unbalance of the structure must be accounted for in the design and shown in any calculations submitted.

1.3 Poles shall be designed to meet AASHTO requirements for wind loading.

1.4 Manufacturer shall supply engineering calculations which support pole design, hardware when applicable and foundation design when soil borings are provided. Calculations shall be approved and stamped by a registered professional engineer.

1.5 Poles shall be designed such that the deflection does not exceed 1.1% of the free height of the pole at its maximum EPA under a wind loading equivalent to ½ the designated ultimate wind speed, including a 1.3 gust factor.

1.6 The natural frequency of the pole shall be limited to 0.8 cycles/sec. The manufacturer shall provide calculations verifying the above requirements.

1.7 The structural design shall provide for both multiple point and one point lifting.

1.8 Poles shall be designed such that the forces imposed in handling, transportation and erection including a 1.3 impact factor, shall not exceed its cracking moment when handled at the pickup point locations indicated by the manufacturer.

2. MATERIALS -

2.1 Concrete –
The concrete mix shall be designed to achieve a minimum 28-day compressive strength of 8,000 psi. Concrete test reports shall be kept per ASTM C-99 and certified by a registered professional engineer. Cement shall conform to the latest requirements of Type I, II or III Portland Cement in accordance with ASTM-C150. Maximum size aggregate may be ¾ inch or 75% of the clear spacing between main reinforcing steel and surface of pole. Any water/reducers, retarders, or accelerating admixtures shall conform to ASTM-C494. Water shall be free from foreign materials in amounts harmful to concrete and embedded steel.

2.2 Pre-stressing Steel -
Pre-stressing steel reinforcement shall conform to uncoated 7-wires, stress-relieved strand (including low relaxation) per ASTM-A416 and shall be limited to ½ inch diameter.

2.3 Spiral Reinforcement -

Steel spiral reinforcement shall conform to the requirements of ASTM-A82 and shall not be less than 0.150 inch diameter. The pitch of the spiral steel shall not be greater than 3.2 inches or the radius of the pole, whichever is less.

2.4 Hardware -
All structural steel shall conform to ASTM-A36 and be hot-dip galvanized in accordance with ASTM-A123. Zinc alloy AC41A for inserts, hand hole frames and covers, shall conform to ASTM-B240. All bolts, nuts, washers and other fasteners must be either stainless steel or hot-dip galvanized per ASTM-A153.

3. MANUFACTURE -

3.1 All manufacturing tolerances, details or reinforcement and finishes shall be in accordance with "Guide Specification for Pre-stressed Concrete Poles", as published in the May-June 1982 issue of the Journal of the Pre-stressed Concrete Institute.

3.2 Poles shall be pre-stressed concrete poles, manufactured by the centrifugal spinning process. Poles shall be round in cross-section with hollow center.

3.3 Pre-stressing forces shall be limited to 65% of the ultimate yield strength of the pre-stressing strand.

3.4 Forms shall be designed to provide a minimum concrete cover of ¾" inch over the spiral steel.

3.5 Poles shall have a smooth natural form finish, soft gray color.

3.6 The manufacturer shall have a minimum of ten years of experience in the design and production of centrifugally spun concrete poles.

3.7 Pole will be of single piece construction through 130 ft., unless otherwise specified.

4. POLE ACCESSORIES -

4.1 Nameplate -
A brass or aluminum nameplate shall be cast into the wall of the pole approximately five (5) feet above the ground line identifying the name of the manufacturer, job identification (SCDOT project number) or order number, overall length, manufacturer date, and actual weight.

4.2 Two (2) four (4) inch x ten (10) inch conduit entrance opening shall be centered 18 inches below grade.

4.3 An internal wire support shall be located directly above each wire inlet/outlet and be accessible from the handhole opening.

4.4 Each pole shall have a galvanized steel or a PVC cap (for 40 feet poles only). The pole base shall be plugged to provide extra bearing surface.

4.5 Grounding - A #4 stranded copper ground wire shall be cast into the pole. The ground wire shall be terminated in a copper/tank ground at the top platform/crossarm level and approximately 12 inches below grade. Ground grid shall be connected to the cabinet ground and electric service ground in the electrical pull box located at the cabinet. The copper tank ground shall provide a ½ inch tapped insert for the grounding of hardware. The tank ground shall be connected to the camera lowering device at the top of the pole with AWG 4 stranded bare copper. This internal grounding system, combined with the lightning rod (lightning rod to be installed on 40 feet RVD poles only), shall meet NFPA and UL96 requirements.

4.6 A minimum size three and one-half (3-1/2) inch x eight (8) inch reinforced hand hole frame with curved cover shall be centered 24 inches above grade for both 80 feet and 60 feet poles. This hand hole

shall have the manufacturer recommended attachments installed for the camera lowering device wench to be used on this contract.

4.7 A minimum size three and one-half (3-1/2) inch x eight (8) inch reinforced hand hole frame with curved cover shall be centered 48 inches above grade 90 degrees offset from other hand holes for cable access on both 80 feet and 60 feet poles.

4.8 A minimum size three and one-half (3-1/2) inch x eight (8) inch reinforced hand hole frame with curved cover shall be centered 52 inches above grade for both 80 feet and 60 feet poles. There shall be an eye bolt installed 90 degrees offset from the hand hole inside of pole. The eyebolt shall be installed to manufactory recommendations to secure the camera-lowering device's lowering cable.

4.9 A minimum size three and one-half (3-1/2) inch x eight (8) inch reinforced hand hole frame with curved cover shall be centered 20-23 feet above grade for both 80 foot and 60 foot poles.

4.10 A minimum size two (2) inch x eight (8) inch reinforced hand hole frame with curved cover shall be centered 48 - 49 feet above grade for the 60 feet pole only and 67 – 69 feet above grade for 80 pole.

5. INSTALLATION -

Prior to installation, the CONTRACTOR shall conduct the necessary soil samples and geotechnical analysis to determine installation depth and foundation design requirements for each pole. The samples should be taken at the locations where the poles are to be installed and a copy of the analysis submitted to the SCDOT project engineer for consensus. The analysis results should provide a recommendation of the back fill material, depth and diameter requirement for the concrete pole. Final pole installation location shall be approved by the ITS Field Operations Manager prior to installation. When pole is to be installed on steep slopes or hills contractor shall furnish and install a level 12'X12' class A concrete pad around pole for access and maintenance purposes, **at no additional cost to the department.** A service box shall be installed in pad with 2- two (2) inch spare conduits extending out two (2) feet past the edge of pad for future access. The conduit locations shall be marked with an X in the concrete pad.

For bidding and estimating purposes, an embedment depth of ten percent (10%) of the overall pole length plus an additional four (4) feet may be used. Sixty feet CCTV poles shall have a typical 36-inch diameter hole. Forty feet RVD poles shall have a typical 24-inch diameter hole.

5.1 Grounding Grid -

There shall be a four point grounding grid 7' x 7' around pole which shall be connected to copper/tank ground 12 inches below grade. The grid shall consist of a min. of four RUS 13 ground rods 5/8 inch by eight (8) feet long copper clad, a min. of #4 AWG bare 7 stranded copper wire. Ground grid shall be connected to the cabinet ground and electric service ground in the electrical pull box located at the cabinet. Additional ground rods may be required to achieve proper resistance to ground. Connections to rods shall be by a method of exothermic weld connections. Ground grid shall meg <15 ohms and shall be tested using the fall of potential method and test shall be overseen by Engineer.

5.2 Plumbing Pole -

Poles shall be plumbed (straight) before back filling, to Engineers approval.

5.3 Access Holes -

Pole shall be set so that top Access hole in pole is no more than four (4) and one half (½) feet above finished grade and no less than four (4) feet above finished grade.

5.4 Back fill Material –

Back fill material shall be crush and run in typical installations. No soil samples and geotechnical analysis have been made. Contractor is responsible for all soil samples and geotechnical analysis. Where deemed necessary by Engineer, Class A Concrete shall be used for back fill material at no additional cost to the Department.

CATALOG CUTS ARE REQUIRED

FURNISH AND INSTALL CAMERA LOWERING DEVICE

DESCRIPTION - The camera lowering device shall be designed to support and lower a standard closed circuit television camera, lens, housing, dome, PTZ mechanism, cabling, connectors and other supporting field components without damage or causing degradation of camera operations. All components of the lowering device shall be installed so that they function properly with other ITS components such as the Radar Vehicle Detection (RVD). The device shall be used in conjunction with concrete support poles. Camera lowering device shall be a Camera Lowering Systems (CLS) CDP6-16HDBP series, Moog CV280D Lowering Arm or approved equal. Lowering device to be offset a minimum of 90 degrees off access holes. Lowering devices should typically be ordered with 105 feet of lead cable and 18 inch pigtail on lowering head. All lowering devices and lowering winches shall be designed for eighty (80) feet camera poles. When deemed necessary by the Department the Contractor shall furnish longer lead cables as needed per project.

1. MATERIALS -

1.1 Top Plate or Arm Mounted Assembly -
The headframe assembly shall be designed to bolt to a round cross section on top of pole structure.

The interface and locking components shall be made of stainless steel and or aluminum. All external components of the lowering device shall be made of corrosion resistant materials, powder coated, galvanized, or otherwise protected from the environment by industry-accepted coatings to withstand exposure to a corrosive environment.

The lowering device shall be a "single cable" system, with the control cable remaining stationary in the pole during the lowering process. Camera lowering tool is a LT-1R-11-XX or approved equal.

The only cable permitted to move within the pole or lowering device during lowering or raising shall be the stainless steel lowering cable. All other cables must remain stable and secure during lowering and raising operations.

1.2 Camera Mounting Assembly -
The camera mounting assembly shall be a two piece design for easy camera mounting.

- Both sections shall be made of corrosion resistant cast aluminum.
- The top half shall be mounted and gasketed to the bottom of the disconnect unit. It shall extend into the cylinder of the disconnect unit and designed to repel water.
- Inside the top half, it shall have provision to mount additional weights for lightweight cameras or other equipment.
- All parts shall be made of extra heavy construction.
- The camera connection box shall be adaptable to all brands of cameras by means of a one and one half inch NPT receptacle.
- The two piece construction shall feature a lower box that hinges down for easy access to wiring. It shall contain a large capacity-splicing compartment for camera power, signal leads, surge suppression equipment, and connectors. The internal cavity shall be a minimum 8.5 inches square X a minimum 4.5 inches deep (per half) with a 1.5 inch NPT female pipe thread centered in the bottom
- All hardware shall be made of stainless steel.

The hoist cable shall be stainless steel wound anti-rotational aircraft cord minimum of 1/8 inch diameter manufactured to meet MIL-W83420C.

1.3 Electrical Connection –

1.3.1 The coaxial and electrical disconnect unit shall meet or exceed sine vibration tests of 3.5 g's within the frequency range of 5-60 Hz in all three axes for minimum of six 5-minute cycle each axes. It shall meet or exceed random vibration tests of frequency range 60-1000 Hz at .025 g2/Hz applied for 30

minutes in each of the three axes. It shall have results to exhibit no signal or electrical discontinuities greater than 10 microseconds. Tests applicable to Electrical Disconnect Unit and attached component.

1.3.2 The EDU shall have a 3-way tracking guide and support. It shall be constructed of precision cast high strength aluminum alloy 356-T6. A permanently fixed position piece incorporating a special tracking guide system permits the moveable portion of the *Disconnect* Unit to align in the same position every time the system is operated, thereby eliminating the need to re-orientate the camera. The Electrical Disconnect Unit shall have twin high strength notches securing the load of the *Lower Contact* Assembly and camera.

1.3.3 The MULTI-CONTACT Connector assembly shall be modular for easy installation and retrofit requirements. All pin and socket contacts shall be insertable and removable. The connector shall have a maximum of 16 copper alloy C14500, size 12 contacts (.095" Dia.) rated at 35 Amps with gold plating per MIL-G-45204. All hardware shall be corrosion resistant stainless steel. It shall have a self-aligning and self-adjusting mechanical system comprised of two principal assemblies:

Two UPPER CONTACT HALVES shall house the socket contacts. It shall incorporate spring assisted polymer contact body with precision-machined guideposts. The socket contact body shall have integral guideposts for precise contact alignment. The composite cable shall be terminated directly into the upper contact halves and shall run splice free to the CCTV cabinet. Composite cable shall be Camera Lowering Systems 663-229-RG59-09 16HD-CQ or approved equal.

Two LOWER CONTACT HALVES shall house the pin contacts comprised of spring assisted polymer contact body with precision-machined guidepost receivers. The pin contact body aligns with guideposts of integral socket body guideposts.

1.3.4 The EDU cover shall be a one-piece hydro-spun heavy gauge stainless steel. The unit shall have a guidepost constructed of precision cast high strength stainless steel. It shall utilize a cast-in-place guide bar for precise alignment of *Lower Contact Assembly* with the fixed portion of the EDU.

1.3.5 The cables shall meet the following minimum requirements:

- Camera Control Cable – Shall be a Camera Lowering System 663-229-RG59-09 16 HD-CQ or approved equal. All camera control cables shall incorporate a cat-5 or cat-6 cable for IP camera connections along with all other conductors for analog cameras in one single jacketed cable. The cable shall be splice free. All connectors shall be equipped with a strain-relief.

- Video Cable - The video cable between the camera unit and the video transmitter shall be made with RG-59U coaxial cable. All cable runs shall be continuous and un-spliced. Connectors shall be BNC or MS. All connectors shall be equipped with a strain-relief.

2. CONSTRUCTION METHOD-

The lowering device shall not be installed on pole prior to delivery to installation location. After pole is delivered to the location where it is to be erected, the lowering device shall be installed. The clam shell or junction box shall not be mounted prior to pole being set. The Clam shell or junction box shall be mounted after the pole is erected by means of lowering the device and then installing. Care shall be taken while the pole is being erected to insure lifting cables do not rest against or damage lowering device. It is the contractor's responsibility to insure the lowering device is level and straight after erection of pole, to the satisfaction of the Department.

3. Spare Parts –

As part of the contract bid for **FURNISH AND INSTALL CAMERA LOWERING DEVICE**, at the time of final acceptance of the project, the Contractor shall furnish to the SCDOT the following for use as spare parts. These parts will be new.

- Five (5) spare Camera Lowering Systems (CLS) CDP6-16HDBP series per spec

- Two (2) spare LT-CC-90 Lowering tool with SS aircraft cable each including Dewalt 20 volt ½'' hammer drills (DCD985L2)

CATALOG CUTS ARE REQUIRED

INSTALL 332 AND SCIPCAB1 ITS CABINET ASSEMBLY

DESCRIPTION - This work shall consist of installing a Department supplied Type 170 332 cabinet assembly or SCIPCAB1 cabinet assembly used to house the transceivers and splice tray equipment or gator patch to transmit the signals and connect to the fiber optic cable back to the hub building or TMC.

Where references are made to Caltrans specifications, the CONTRACTOR is directed to the Traffic Signal Control Equipment Specifications, as published by the State of California Business, Transportation & Housing Agency: Department of Transportation, Current Edition, and all current addenda. The ITS cabinet assembly, as described below, shall conform to all applicable sections of the Caltrans specifications, South Carolina DOT Standard Specifications and to the supplemental requirements of this section.

1. GENERAL REQUIREMENTS -

The CONTRACTOR shall install the ITS cabinet assemblies as called for in the Plans and shall conform to all materials and installation requirements of this section.

2. MATERIALS -

2.1 Standard Cabinet Housing -

2.1.1 General Requirements -

Unless otherwise specified, all cabinet housings shall conform to the cabinet housing details as defined in Chapter 6, Section 2 (Housing Number 2) and the cabinet housing details of the Caltrans specification. All cabinets shall exhibit a smooth, uniform natural aluminum finish. The police panel and associated wiring circuits are not required as part of this cabinet assembly. All cabinets shall have hooks, welded to the inside of the front cabinet door, for hanging the plastic documentation pouch.

All bolts, nuts, washers, screws, hinges, hinge pins and other related hardware shall be stainless steel.

Unless otherwise specified in the Plans, all 332 equipment cabinet assemblies shall be configured for base-mounting. The cabinet bottom shall be open and set on a Department Supplied prefabricated concrete base. Prefabricated concrete bases shall be set on a 12 inch bed of crush and run leveled and compacted. Cabinet must be level and plumb. All SCIPCAB1 equipment cabinet assemblies shall be configured for pedestal mounting and mounted on a Department Supplied prefabricated concrete pedestal. Prefabricated concrete pedestals shall be set 3 feet in the ground and back filled with ready mix concrete, a minimum of 5 feet above grade.

2.1.2 Standard Cabinet Housing -

The cabinet housing (see Detail Drawing 1) shall be a standard Model 332 housing with approximate exterior dimensions of 66 inches (H) by 24 inches (W) by 23 inches (D).

All cabinet housings shall be equipped with the standard EIA 19-inch rack cabinet cage as described in Section 3 of the Caltrans specification. Side panels within the two sides of the cabinet cage shall be installed as. Each side panel shall be fabricated from 5052 sheet aluminum alloy with a minimum thickness of 0.125 inches.

SCIPCAB1 cabinet housing with approximate exterior dimensions of 16 inches (H) by 14 inches (W) by 12 inches (D).

The 332 cabinet housing shall be equipped with a rack-mounted fiber interconnection panel or Gator patch and appropriate fiber jumper cables between the interconnection panel and the fiber optic transceivers. The fiber interconnection panel shall be no more than one rack unit high (1.75 inches) and no more than 12 inches deep (Multilink FRM012X, Siecor C-MIC-012 or CCSO1U or approved equivalent). The panel shall be fabricated from aluminum or painted steel and shall include an easily accessible enclosed compartment with fiber routing guides, cable strain-relief guide and grounding lug. Cable entry holes closed with rubber or soft plastic poke-through grommets shall permit cable entry from

the rear, sides or bottom of the enclosed compartment. The panel shall be capable of terminating a minimum of 144 fibers. A minimum of two (2) single-mode ST connectors shall be provided to terminate the fibers in the fiber drop cable as shown in the Plans. The ST connectors furnished with the fiber interconnection panel shall be fully compatible with the ST connectors terminated onto the fiber drop cable and the fiber jumper cable. All ST connectors in the fiber interconnection panel shall be identified in the cabinet documentation by type (UPC, single-mode, ceramic, composite, etc.).

The 332 cabinet housings shall be equipped with a cabinet sliding drawer. The drawer shall be an aluminum storage compartment mounted in the rack assembly with the approximate following dimensions: 1.75 inches (H) x 16 inches (W) x 14 inches (D). This compartment shall have telescoping drawer guides to allow full extension from the rack assembly. When extended, the storage compartment shall open to provide storage space for cabinet documentation and other miscellaneous items. The storage compartment shall be of adequate construction to support a weight of 25 lb. when extended. The top of the storage compartment shall have a non-slip plastic laminate attached, which covers a minimum of 90% of the surface area of the top.

2.2 Internal Cabinet Assembly Components and Wiring -

2.2.1 Surge Suppression -
The cabinet shall have a Department supplied model 4000 Hawk modular power unit or approved equal.

3. INSTALLATION -
All 332 or SCIPCAB1 cabinet assemblies which includes the concrete base or pedestal shall be installed where shown on the Plans and shall be plumb and level. The cabinet assembly shall be provided with a grounding system in accordance with the DEPARTMENT'S Standard Specification. The CONTRACTOR shall measure the resistance to ground in the presence of the ENGINEER and it shall be <15 ohms. The ground conductor between the cabinet grounding terminal and the ground rod shall not be spliced. The cabinet assembly grounding system shall be connected to the camera pole ground grid and the electric power service ground in the 17X30X28 pull box placed within five feet of cabinet to form a complete grounding system. Cabinets shall be installed approximately five feet from the CCTV pole, insuring that the cabinet will not interfere with the lowering tool. The Cabinet shall be placed so that the equipment side is facing away from the pole or DMS sign location. The ITS Field Operations Manager shall designate the cabinet location in the event the cabinet has to be set further than five feet from the CCTV pole. The DMS sign cabinets shall be located 75 feet in front of the sign structure with the equipment side of cabinet facing away from sign.

All cabling and wiring entering the cabinet housing shall be enclosed in conduit. A spare 2" conduit shall be installed for future use. All cabling and wiring inside the cabinet, including field wiring, shall be secured and neatly dressed and shall have sufficient slack [minimum two (2) feet] for cabinet equipment maintenance and re-termination of the field wiring. Fiber drop cables into the cabinet shall be routed to provide as much physical protection as possible, shall be secured through the cabinet, and shall be strain-relieved within the fiber termination unit.

Electrical power cable, control cabling and fiber optic cabling shall enter the SCIPCAB1 cabinet housing in a continuous run of 2'' aluminum conduit to extend from bottom of SCIPCAB1 cabinet to a minimum of two (2') feet below grade. When disconnect and or power meter is located on the same pedestal, the electrical power cabling shall enter the bottom of the SCIPCAB1 cabinet housing in a 1'' metallic sealtight flex. SCIPCAB1 cabinet assembly shall be banded to the pedestal using stainless steel banding in two locations. Whenever possible the SCIPCAB1 cabinet assembly shall be mounted on the opposite side of the pedestal from the disconnect or meter can.

4. CERTIFICATION -

Prior to installation, the CONTRACTOR shall submit to the ENGINEER design details and drawings in complete evaluation of the materials, and comparison with these specifications. Any exception to these specifications must be stated in writing at that time.

5. GUARANTEE -

5.1 The CONTRACTOR shall furnish the ENGINEER with any warranties or guarantees on all electrical or mechanical equipment that are provided by the manufacturer or vendor, as customary trade practice.

-and/or-

5.2 The CONTRACTOR shall warranty or guarantee the satisfactory in-service operation of all electrical or mechanical equipment and related components, for a period of six (6) months following project final acceptance.

CATALOG CUTS ARE REQUIRED

FURNISH AND INSTALL ELECTRIC FLUSH UNDERGROUND ENCLOSURE

DESCRIPTION - This work shall consist of furnishing and installing ELECTRIC FLUSH UNDERGROUND ENCLOSURE (service boxes) at the locations determined by the Contractor and SCDOT and in accordance with these Specifications. The service box shall consist of a box and cover, installed over a min. 6 inches of aggregate. The service box is intended for use for the power supply for the cameras and detection devices and is intended for use of coil of fiber optic cable and future splice of the fiber optic cable near bridge decks. **The contractor is cautioned that some boxes may be installed over existing conduit with existing cable. The contractor is responsible for installation without damage to the existing items. Any damage shall be repaired by the contractor at no cost to the Department. Any damage to the existing fiber optic cable shall be repaired within twelve (12) hours of damage. A penalty of $100.00 per hour shall be imposed for every hour past twelve that it takes to repair existing fiber cable. Service boxes shall be Armorcast A6001430TAPCX30 furnished with a two- piece non-skid cover or approved equal. All Electrical pull boxes shall be an Armorcast A6001640TAPCX28 or approved equal.**

It shall be installed on in the dirt, at the depth so as the top is flush with the ground.

1. MATERIALS -

Shall meet the following requirements:

1.1 Box and Cover -

1.1.1 The service boxes shall consist of a base having an open top (the box), with a separate removable two piece cover. . They shall be GRAY IN COLOR. Two piece covers shall have the LEGEND "SCDOT Fiber optic" or "SCDOT Electrical", as required. **In the case were both fiber optics and electrical cable will pass thru the same box the LEGEND shall have "SCDOT FIBER/ELEC".** They shall use HEX-HEAD stainless steel bolts. The PHYSICAL FEATURES AND THE NOMINAL SIZE AND DIMENSIONS for the box and cover, are shown on the Standards or the Design Details, and are listed below:

	WIDTH	LENGTH	DEPTH
SERVICE BOX:	30in.	48in.	30in.
Pull Box:	17in.	30in.	28in.

(Service, Splice box for fiber optics and for electric services when deemed necessary by the engineer)

1.2 Design Load -

Boxes shall be designed to survive a tandem wheel load specified by AASHTO H 20-44, being 32,000 pounds (14,514.9 kg) per axle, or 16,000 pounds (7257.6 kg) per tandem wheel pair. This 16,000 pound (7257.6 kg) dead load shall be multiplied by 1.3 impact factor, to obtain the DESIGN TEST LOAD OF **20,800 pounds** (9434.7 kg). Thus, boxes shall be designed and tested for the following test loads: Cover- vertical load 20,800 pounds distributed over a 10 in. x 20 in. area (9434.7 kg over .254 x .508 m). Box- vertical load 20,800 pounds distributed over a 5 in. x 20 in. area (9434.7 kg over .127 x .508 m). Box- lateral load of 600 pounds per square foot (28728 Pascals). The cover deflection shall be less than 0.5 inch (1.27 cm); and the box deflection less than 0.25 in./ft. of length (.635 cm/.3 m).
(Because of quoted references, English units are first.)

1.3 Western Underground Committee (WUC) -

Using the above specified loads, the service boxes shall meet or exceed the WUC "Recommended Guide No. 3.6, Non-Concrete Enclosures". Structural requirements shall include: testing for vertical load on cover; vertical load on box; lateral load on box. Further they shall meet WUC recommendations for: accelerated service per ASTM D-756; chemical resistance per ASTM D-543; simulated sunlight resistance per ASTM G-53; plus water absorption; and flammability. Covers shall be skid-resistant, with a minimum coefficient of friction of 0.5.

1.4 Concrete -

Concrete for patching shall be DHPT Class A, mixed and installed in accordance with Section 700 of the STANDARD Specifications.

1.5 Aggregate -

Crushed stone for the service box shall be DHPT Aggregate Numbers 5 or 57. Service boxes shall be set on a min.36'' X 54'' bed of aggregate min. 6 inches deep.

2. CERTIFICATION -

2.1 The Bidder shall provide certification from the manufacturer or vendor that the above material specifications have been met, including written results for Western Underground Committee tests.

NOTE: CATALOG CUTS ARE REQUIRED.

2.2 The CONTRACTOR shall provide the DEPARTMENT with all guarantees offered by the manufacturer.

3. CONSTRUCTION METHODS -

3.1 Construction -

3.1.1 The service boxes shall be constructed as indicated in the Design Details or the Standards, at locations shown on the Plans.

3.1.2 The service boxes shall be constructed such that when the box and covers are in place, they are flush with the adjacent pavement, ground, or sidewalk, as shown in the Design Details or the Standards. Patching concrete shall be placed around any box installed in pavement.

3.1.3 Boxes shall be placed at least 0.3 meters (one ft.) behind the curb-line or edge of roadway or as shown on the Plans.

3.2 Conduit -

3.2.1 See FURNISH AND INSTALL CONDUIT Specifications.

3.2.2 Conduit shall enter the box at the bottom and extend at least six inches above the aggregate.

3.2.3 Conduit shall enter from the direction of the run unless otherwise permitted by the ENGINEER.

3.2.4 All metallic conduit ends within the box shall have grounding bushings with plastic inserts; and shall be bonded with one another with #6 AWG bare copper ground wire. Plastic conduits shall have end bushings to prevent chaffing.

3.2.5 After the electrical/communication cable is placed, the completed conduit ends shall be packed with "duct-seal" or other equivalent material to prevent water from entering the conduit. Spare conduit shall be capped.

3.3 Grounding-

3.3.1 Service box shall have one 5/8" X 8' copper clad ground rod installed for grounding of detectible muletape or tracer wire for fiber optic cable. The Detectable muletape conductors shall be bonded to the ground rod with a mechanical ground rod connector. Ground rod shall extend 6 to 8 inches above aggregate. There shall be a min. three feet of slack on detectible muletape.

3.3.2 All service boxes shall have accurate GPS coordinates with accuracy of 3 feet or less marked on as-built plans. GPS coordinates shall be obtained using a Department approved device. All service boxes shall have a red or orange passive marker ball with a frequency of either 101.4KHZ for fiber or 169.8KHZ for electrical that is compatible with a MetroMark passive marker locator 760Dx or approved equal. All service boxes shall have a 16'' RED or ORANGE Top (as required) above ground cable marker type PNA Dome Pack cable post marker 3'' dia., 6' long or approved equal.

CATALOG CUTS ARE REQUIRED

FURNISH AND INSTALL PERMANENT DYNAMIC MESSAGE SIGN

Description - The following provides a description of a dynamic message sign using amber LED display elements and various subassemblies, with the intent of providing interchangeability between signs and compatibility with software used. This section describes the minimum requirements for the sign. All items furnished shall be new and shall be the latest version.
It is understood and agreed by the Contractor that equipment shall be complete and shall include all items necessary for the proper functioning of the DMS System. All DMS local controllers shall be Ethernet connectible without any additional upgrades or expense to the Department. Even though every item necessary may not be specifically mentioned or described, the Contractor is responsible for constructing a complete and functioning sign system. Any additional items that are required to make the sign system perform properly but which are not mentioned herein shall be supplied and furnished by the Contractor at no additional charge. Structures for the DMS should be included with the DMS for bidding and payment. Fiber optic cable and Equipment from sign to Controller shall be single mode fiber and equipment. Fiber terminations and splicing shall be in accordance to the Furnish and Install Fiber Interconnect Centers and Closures Section 1 and 2. Fiber optic cable shall meet the specifications for Furnish and Install Fiber optic Drop cable. DMS signs shall be LedStar VMS-68R6-3X21 Full Matrix Capable and Daktronics or approved equal. If structure is to span a cross both directions of roadway, the structure shall be designed for a load rating sufficient for installing one sign in each direction. Catwalks for bridge structures, cantilever, and any other shall extend from sign to vertical up right.

1. General -

- The sign display shall only consist of LED illumination technology.
- Remote RS232 port shall be provided in the DMS housing to access the local port of the DMS controller.
- Displays shall be three (3) lines of 18" characters, 21 characters per line.
- Displays shall be readable from a distance of 900 feet.
- Sign display and all components will be housed in a waterproof walk-in enclosure.

1.1 LIGHT EMITTING DIODES (LED) -

- LEDs shall be untinted, non-diffused, high-output, solid state lamps utilizing indium aluminum gallium phosphide (ALLnGAP) LED technology, manufactured by Avago or equal.
- LEDs shall emit a true amber color at a wavelength of 592 nm (±4nm).
- LED size shall be T-1 ¾ (5mm).
- LEDs shall be nominally rated for 100,000 hours of operation under field conditions, which shall include operating temperatures between -22° and +185°F.
- LEDs shall have a 15° - 17° viewing angle and shall all be of the same degree viewing angle and manufacturer for all signs.
- LEDs shall have no less than 50% of the normalized intensity at their 15° viewing angles.

- LEDs shall be soldered to circuit boards with through-hole type circuit board mounting. Surface mounting of LEDs will not be allowed.

1.2 PIXELS.

- Each light-emitting pixel of an LED display shall consist of a cluster of closely spaced LEDs.
- Pixels shall be constructed with strings of LEDs. The number of LEDs in each string shall be determined by the manufacturer, as necessary to produce the candela requirement as stated herein.
- LED pixels shall produce the luminous intensity levels required herein at a drive current of 20 mA per string with a forward voltage drop not to exceed 24 VDC. The LED drive current shall be adjustable up to, but not exceed, 30 mA per string.
- Each pixel shall produce a luminous intensity of 40Cd when driven with a LED drive current of 20 mA per string.
- LED pixels shall be driven with direct-drive pulse width modulation. Maximum pulse amplitude shall not exceed 30 mA.
- Materials used in the fabrication of LED clusters shall contain UV light inhibitors and shall be designed for direct exposure to sunlight.
- Each LED pixel shall be rated for outdoor use over the environmental range expected for the sign locations (including heat absorption due to sunlight).
- LED pixels shall be attached to the display panel with a secure fastening system.
- LED pixels shall be mounted perpendicular to the display panel.
- Visors shall be installed above each pixel or row of pixels for maximum contrast and legibility without interference to the LED display. Alternate methods may be utilized upon approval of the Engineer. The Contractor shall submit complete descriptive literature to the Engineer to substantiate an alternate method.
- LED pixels shall be replaceable either individually or in groupings. Groupings with three (3) or more pixels shall be permitted only if bench level repairs and replacements to individual pixels are possible.
- Pixels shall be replaceable from the inside of the walk-in display. Clusters and modules shall be interchangeable between signs employing the same display technology.
- Characters formed by the DMS displays shall have a minimum of seven (7) pixels in height. The number of pixels making up the character width shall vary by the operator. The horizontal spacing between pixels shall be equal to the vertical spacing between pixels. From the center of the last column of pixels in one module to the center of the first column of pixels in the adjacent module shall equal the spacing between pixels in the same modules.
- Character display shall be all upper case letters, all punctuation marks, all numerals 0 to 9, and special user characters such as #, &, *, +, <, >.

1.3 MODULES -

All modules shall consist of pixels arranged by forming a column of seven (7) pixels high by five (5) rows wide. The vertical and horizontal spacing from center of pixel to center of pixel shall be equal. The spacing shall be such that seven (7) pixels high shall form 18" characters. Modules shall be interchangeable among all signs in this project. Modules shall be easily removable for service/replacement with simple hand tools from inside the walk-in enclosure.

1.4 TEMPERATURE SENSOR -

Adjustable temperature sensors to monitor the interior temperature of the DMS enclosure are required. Sensor parameters shall be adjustable by commands from the central, local, or laptop computers to activate/deactivate the fans and heaters. Sensor operating range shall be from +40°F to +150° F. When the temperature in the enclosure reaches +140 degrees F, the local controller will be prompted and when the temperature goes back down to +100 degrees F, the local controller will be prompted again.

1.5 DRIVER BOARDS -

LED driver boards shall be in the DMS housings for all signs. Plug-in locking connectors shall be provided on each driver board for all connections. Connectors shall be held in place with screws. Driver boards shall be easily removable for service/replacement with simple hand tools. Driver boards shall control a single 5X7 LED module. Driver boards and all electronic circuit boards installed in the DMS housing shall be thoroughly coated with an acrylic coating for moisture-resistance. **Each driver board shall have an on-board microprocessor capable on internal diagnostics, LED current measurement and adjustment.**

Photo-Electric Sensors -

Three (3) commercially available, watertight and dust-proof photoelectric sensors shall be mounted on the enclosure or structure in a position where a technician can easily access them for repair or maintenance. The sensors shall be automatically adjustable by the software for the DMS System or manually set, to a minimum of seven (7) levels. The sensor will be positioned so that front, rear and ambient lighting levels can be detected.

Power Supplies -

Power supplies shall operate from 120 VAC power. The LED displays shall be operated at low internal DC voltage not exceeding 24 VDC. Power supplies shall be solid state transformer type regulated output. Electronic switching type power supplies will not be allowed. Signs shall be powered with one supply for each 1/3 of the display. Power supplies shall be wired in a redundant configuration such that failure of any supply shall result in a backup supply providing power. The backup power supply shall be rated such that it can operate the entire LED section under full load conditions. Power supplies shall operate from -22^{o} to +185^{o} F. Power supplies shall be short circuit protected by DC power off. Power supplies shall also be protected by a minimum overload allowance of 105% and have an efficiency rating of at least 75%.

Sign Face Coverings -

Signs shall have polycarbonate sign face coverings. Coverings shall be weather tight, ultraviolet protected, non-diffusing, polycarbonate, with anti-reflective coating and a minimum ¼ inch thick. Sign face shall be designed to minimize bowing. Sign face cover panels shall be installed and removed using simple hand tools.

Walk-In Housing -

Sign housing, framing, and mounting members shall be designed to withstand a wind velocity in accordance with AASHTO's *Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals* and PE certified. The DMS should be constructed with a metal walk-in enclosure excluding the face and the enclosure of welded aluminum type 6061-T6, 5052-H38, 5052-H38, 5052-H34 or of an Engineer approved alternate at least 1/8" thick. The seams should be continuously welded using an inert gas process and all welds should be ensured to be solid with no cracks or blowholes. The housing should be constructed with a maintenance-free clear aluminum finish, with the exception of the front of the housing, which will be painted matte black. A complete description of the painting process, along with a sample of the finish on a 12" x 12" sheet of the same type of aluminum that is used to construct the DMS enclosure, should be submitted to the Engineer for approval. The enclosure should be designed and constructed to resist torsion twist and warp, present a clean and neat appearance, and protect the equipment within from moisture, dust and corrosion. The interior surfaces of the enclosure should be painted with a dull black enamel to reduce internal reflection.

Lifting eyes or the equivalent shall be provided for moving and mounting signs. DMS housings shall be designed such that the DMS can be shipped and temporarily stored, without damage or undue stress, prior to installation on the overhead support structure. The DMS shall be shipped with a temporary wood support frame that will permit the storage of the DMS in a vertical position without damage to the sign housing. The DMS shall be furnished with all required hardware for attachment on overhead sign structures. The attachment devices will be of a type where the sign face can be adjusted +/- 3 degrees vertically and horizontally once installed. The Contractor can propose an alternate method of sign face tilt to be approved by the Engineer.

The requisite dimensions will determine the height and length of the sign enclosure. The sign will consist of three (3) lines of copy, with 21 18-inch high characters per line and a minimum of one-half the letter height distance between lines. The border will be a minimum of 12 inches on all sides of the active display area.

The minimum height of the interior, from the top of the walkway to the lowest framing member or other obstruction, shall be 72 inches. The minimum distance from the interior rear wall of the DMS housing to the closest display component shall be 36 inches. This free space shall be maintained across the entire interior of the sign housing. Structural members shall be designed and positioned so as to not be an obstruction to free movement by maintenance technicians throughout the 72-inch height of the housing interior. A level walkway shall be installed in the bottom of the DMS housing for maintenance personnel to walk. This walkway shall be a minimum of 24" wide and shall run the entire length of the sign. The walkway's top surface shall be non-slip and free of obstructions that would present a tripping hazard to maintenance personnel.

All DMS equipment, components, modular assemblies, and other materials located in the DMS housing shall be removable, transportable, and capable of being installed by a single technician. Structural members and components thereof are not included in this requirement. The DMS housing shall be constructed so that all maintenance and repair is performed from within the DMS housing, except for the sign face, necessary external repairs, and any miscellaneous devices required to be installed on the outside of the housing.

Housings shall have interior, non-corrosive, metal cage support frames to mount the display clusters. The cage support frames shall be designed to withstand and minimize vibration effects to the display and/or electronics.

Doors shall be installed on one or both sides of the housing and shall open to the outside and to the rear of the DMS housing. DMS housing doors shall be watertight/dust-proof doors with minimum doorway opening dimensions of six (6) feet high by two (2) feet wide. Doors shall be provided with continuous stainless steel hinges. A four (4) inch kick plate shall be provided at the base of both DMS door openings above the internal walkway. DMS housing doors shall have a stop to retain the door open at the full position. The DMS housing door shall be furnished with a door lock that is keyed. All locks shall be keyed alike, and the Contractor will furnish the Engineer with five (5) keys per DMS. The latching/locking mechanism shall include a handle on the interior of the housing so that a person with no key or tools could not become trapped inside the housing. A metal pocket will be provided on the inside of the door of sufficient size to hold documents relating to the sign, such as wiring diagrams, instructions and specifications. One of the door openings will require removable rails on the inside of the housing. Rails shall be installed horizontally and spaced vertically every 12 inches to a height of 48 inches above the internal walkway. When installed the side rails will not interfere with the operation of interior handle on the door. The rail size shall be as required to conform to OSHA and all other applicable regulations. Rails shall be attached to the sign housing with stainless steel hardware and designed for removal with simple hand tools. The Department will advise the Contractor prior to installation on which end the rails will be required.

Fans or other forced air devices of sufficient size to circulate air through the interior of the enclosure for maintenance personnel shall be provided. Fans shall be provided to maintain operating temperature for all equipment in the sign. A minimum of two exhaust fans shall be provided to ventilate the enclosure. A separate set of fans shall be used to provide airflow over the LED's and the entire sign face. The Contractor shall provide copies of applicable regulations dealing with personnel ventilation systems and proof of compliance with each requirement. An adjustable timer that will deactivate fans after the set time has expired shall control the maintenance personnel ventilation system. The timer shall be adjustable up to at least four (4) hours and shall be located just inside the DMS housing door, within easy reach for a maintenance technician, and without having to enter the DMS housing.

The DMS housing shall include 15 AMP, 120 VAC duplex electrical outlets, with ground fault circuit interrupters, for use by maintenance personnel. A minimum of two (2) duplex outlets, one at each end of

the enclosure, shall be located within the DMS enclosure. Additional duplex electrical outlets may be required so that there is a maximum of 12-feet between outlets.

The walk-in housing shall contain enough internal fluorescent lighting to provide maintenance personnel with a minimum of 240 watts of evenly distributed lighting. Ballast shall be rated for operation in zero degree temperatures. There shall be a protected cover over the lamps. Two (2) three-way switches shall control the interior lighting system and shall be located just inside the DMS enclosure, at both ends, within easy reach from outside the enclosure through each door opening.

Signs shall contain a minimum of three (3) thermostatically controlled fans and electric heating elements (if required by manufacture) to prevent condensation on the inside of the display windows. Electric heating elements are needed if required by the manufacture to prevent condensation. Adjustable thermostat on/off parameters for the control of the fans and electric heaters for the display window shall be adjustable from the local or central computers. Fans shall be designed to provide the cubic feet per minute (CFM) required to properly remove condensation on the inside of the display window. Cooling fans shall be located behind the display modules and shall blow air directly on the back of the LED pixels. Fans shall be designed to properly cool the enclosure and display modules. Heaters shall operate from a 240-volt, 60 Hz, single-phase AC power. Fans shall operate from 120-volt, 60-Hz, single-phase AC power. Vents for fan intake and exhaust shall be weatherproof in design. Filters shall be sized so that standard “off-the-shelf” filters will fit. Filters shall be installed and removed from inside the walk-in enclosure.

6. Local Controller -

Each sign installation shall include an associated controller installed in a ground-mounted cabinet on a concrete base at the location shown on the plans. **The local controller shall be operated by the Departments existing DMS control software (LEDMASTER), or its existing VIKON software. The successful contractor must include integration of the signs with one of the above software packages in his bid.** The controller shall be orientated so that a technician working at the controller can easily see the message displayed on the DMS. DMS sign cabinet shall be installed 75 feet in front of sign and cabinet equipment shall be facing away from sign. The DMS local controller will include all necessary cabling, conduit, terminal blocks to connect the DMS to the local controller, and devices required for Ethernet network connection and dial-up phone connections to a central controller. Each DMS local controller will have its own unique address for communications. The controller cabinet assembly shall be a LedStar Model CAS36A03R11 or approved equal. The 332 cabinets shall meet the Furnish and Install 332 Cabinet Specifications for this project. The controller cabinet will include (but not be limited to) the following:

- Power supply and distribution with back panel.
- Power line surge protection devices, UPS system and local disconnect.
- Communication surge protection devices.
- Microprocessor-based controller, menu driven, with software integrated with SCDOT’s software.
- Lamp driver and control system (unless integral to the DMS).
- Communication interface with modem and serial port for dial-up operation to the central controller.
- Serial port for laptop computer connection with a three (3) foot connector cord to allow operation of the laptop outside the cabinet.
- Local control panel with remote/local control switch.
- Adjustable shelves as required for components.
- Interior lighting and duplex receptacle.
- Interior ventilation.
- All interconnect harnesses, connectors, and terminal blocks.
- All necessary installation and mounting hardware.
- Communications from the local controller to the sign shall be over single mode fiber optic cable. The fiber cable and transceivers shall meet the specifications for those components spelled out in their respective specifications in this contract. The fiber optic transceivers shall be Optelecom 9245 or equal.

The DMS controller and associated equipment will be housed in a NEMA 3R cabinet made of 5052-H32 sheet aluminum at least 1/8" thick. All seams will be welded with continuous solid welds. The cabinet shall be sized to house all equipment plus 20% vacant space for future equipment requirements. The cabinet shall be a Caltrans specified 332 cabinet shell (see Install 332 cabinet specifications).

7. Central Controller -

- Deleted for this project.

8. Sign Structures -

The contractor is responsible for the design, manufacture and construction of each sign structure needed for the DMS. Each structure that spands a cross both directions of road way shall be designed to handle one sign in each direction. Catwalks for bridge structures, cantilever, and any other shall extend from sign to vertical up right. Each structure shall be made part of the bid item for the DMS. Reference is made to SCDOT's Signing Specifications. The Contractor must perform all cross-sections as outlined in the Signing Specifications. Overhead structures which are fabricated incorrectly and do not fit the specific location shall be replaced by the Contractor at no additional cost to the Department. Alterations that involve cutting or welding or any procedure which will damage the factory-applied protective finish of the posts will not be allowed after the structures are fabricated.

SUBMISSION OF REQUIRED DESIGN INFORMATION AND DESIGN DRAWINGS:

It is essential that the signing contractor make all required design submissions within 90 days following award of this contract, except as follows:

Section 9.103 of Signing Specifications is amended to also require that design drawings for Overhead Sign Structures and the details of footings be submitted within 90 (ninety) calendar days following award of the contract.

Section 9.104 of the Department's **SPECIFICATIONS FOR SIGNING EXPRESSWAYS AND FREEWAYS** is revised to require that the independent registered Professional Engineer who checks the designs for the overhead structures and footings be licensed by the State of South Carolina.

OVERHEAD SIGN STRUCTURE DESIGN:

Section 9.101 of the Signing Specification is amended to require stiffener plates between the base plate of all cantilever structures and the upright. The plates should be equally spaced about the base plate between the anchor bolt holes. All structures shall have at least six (6) anchor bolts per base plate. Also, the Contractor shall provide direct bolted connections of the sign to the structure sign hangers at the top and bottom of the signs. This shall be provided at all four corners of the sign. The top hole on each hanger shall be slotted to provide for adjustment.

Soil borings are not provided for the locations of the new Overhead Structures. The Contractor will be responsible for obtaining subsurface investigation data at the locations of the overhead structures shown in the plans for the purpose of overhead structure footing design. **Special Note: Footings shall be designed using a maximum allowable toe pressure of 2000 pounds per square foot**.

9. System Maintenance -

The Contractor will be responsible for all routine or preventive maintenance, repair (up to and including replacement) of defective parts, and any operating costs of the DMS System until final acceptance of the project. Any repair or replacement will be performed within twenty-four (24) hours of discovery or notification of a non-working piece of equipment or part.

The Engineer will have the option of placing individual DMS Systems in operation before the complete system is operational. This will not constitute acceptance of the individual DMS System nor relieve the Contractor of maintenance or operating costs for the individual DMS System.

10. Warranties -

The Contractor will warrant all equipment, devices, and components provided for this project from defects in workmanship for a period of five (5) years from the final acceptance date.

11. Training -

The Contractor will be required to furnish training for the operation and maintenance of the equipment installed on this contract. The training will consist of classroom and "hands-on" training. **Training will be furnished as part of the DMS bid item with no additional cost to the Department.**

The classroom training will consist of 16 hours of classroom instruction for the operators of the system and will include written instruction in the form of a notebook of operating procedures for all functions of the DMS System. This includes, but is not limited to, the operations required when polling signs for diagnostics, adding messages, changing a message, paging or flashing messages on the DMS, and diagnostics of the local controller.

The maintenance training will consist of a notebook of all preventive maintenance requirements for all equipment, devices, and components of the DMS System. In addition, the Contractor will furnish personnel to work with SCDOT maintainers of the DMS System during the construction period for any sign systems placed in operation, and for a period of six (6) months from the date of final acceptance. This person will be required to report to the central location of the SCDOT maintenance personnel daily and accompany the SCDOT maintenance person as he performs routine preventive maintenance and emergency repairs, offering instructions and assistance. The Contractor person will also be on call twenty-four (24) hours a day, seven (7) days a week, for emergencies. This person is expected to be located within thirty (30) minutes of the project for emergency calls.

12. DMS Spare Parts -

As part of the contract bid for DMS, at the time of final acceptance of the project, the Contractor shall furnish to the SCDOT the following for use as spare parts. These parts will be new.

Ten (10) spare SLMM 60502 R10 Pixel
Ten (10) spare LDC 31S04R20 Driver Card
Ten (10) spare sign controllers (LCA24 or equal)
Five (5) spare power units (PWR28)
Ten (10) spare CTL 23A01R10 Ground Controller with Ethernet 10/100 port
Five (5) CAS 36A04R11 ITS Cabinet for DMS includes CTL 23 Controller
Five (5) Optelecom 9245DT and 9245DR Sets
Ten (10) TMP 11 Temperature Sensor
Ten (10) PST12 Photo Sensor

13. Controller Functions -

The local controller shall respond to the following basic command types. The commands can come from the central controller or the laptop controller in the field. The DMS controller shall be NTCIP compliant. Remote RS232 port shall be provided in the DMS housing to access the local port of the DMS controller. **All Controllers shall be Ethernet IP compatible without any additional upgrades or firmware.**

- Blank sign
- Display message
- Report status of DMS displays
- Execute sign test
- Reset

The local controller will automatically report the following by initiating a phone call to the central computer. If the central computer's line is busy, the sign controller will keep trying until it gets through.

- Loss of AC power to the DMS.
- Restoration of AC power to the DMS.
- Loss of communication to the DMS.
- The inability of the DMS to respond to a command from the local controller or the local controller cannot respond to a command from the central or laptop controller.

- The failure of any pixel or module to operate when required and the identification of which pixel or module has failed.
- The local controller software will be programmed to produce a report once every twenty-four (24) hours, by time of day and duration, of the messages displayed on the DMS, any pixel outage, any power outages, and any errors experienced by the DMS. This report can be automatic or manual, at the discretion of the operator.

The local controller will, when polled from the central or laptop, respond to the following:

- Message being displayed
- Temperature inside the sign housing
- Status of all components
- Any error messages

CATALOG CUTS ARE REQUIRED

FURNISH AND INSTALL WOOD POLES

DESCRIPTION - This work consists of furnishing and installing CCA treated wood poles for electric services or in this project for overhead fiber installation, of the types and sizes shown on the Plans, in accordance with these Specifications, and in close conformity with the lines shown on the Plans, or as established by the Engineer. Each wood pole installation shall include all related overhead and underground hardware, and back guy assemblies.

1. MATERIALS -
Materials used shall meet the following requirements:

1.1 Wood Pole -

1.1.1 Wood -
Each pole shall be Southern Yellow Pine that is cut, stored, seasoned, and manufactured in accordance with specification ANSI 05, 1-19-79. Prohibited defects include: red heart, shakes in the tops of poles, short crooks, double-sweep, splits or through-checks, nails & spikes, and excessive knots. Scars shall not be deeper than 2.5 cm (1 inch), nor longer than one (1) metre (3 feet). Poles shall not have excessive butt-swell, nor more than one twist per pole length. Sweep in two planes is prohibited.

1.1.2 Straightness -
All poles shall be straight to the extent that a line drawn from the center of the butt end, to the center of the tip end shall lie within the middle two-thirds of the body of the pole at all points. Poles shall also be free from short crooks, in which the surface deviation from straightness in any 1.5 metres (5 feet) of length, exceeds 38 mm (1.5 inches) at any location, as determined by a straight edge.

1.1.3 Treatment -
Each pole shall be prepared and pressure-treated in accordance with American Wood Preservers Association (AWPA) Standards C1, C3, C4, and M1. Treatment shall be "SALT TREATED", CCA- CHROMATED COPPER ARSENATE, and shall conform to AWPA Standard P5. The retention of the treatment shall be tested in accordance with AWPA Standard M2. The minimum penetration shall be 7.6 cm (3 inches), or 90 percent of the sap-wood. The retention shall be at least 9.6 kgs per cubic metre (0.60 POUNDS PER CUBIC FOOT), as determined by AWPA Standards.

1.1.4 Size -
EACH POLE SHALL BE CLASS II. THE LENGTH SHALL BE EITHER:
10.7 METRE (35 FEET) -or- 12.2 METRE (40 FEET)
as stated on the Plans.

1.1.5 Brand -
Each pole shall have a "brand" 3.6 metres (12 feet) above the butt-end, showing the Manufacturer. Plant-location with month and year of treatment, "Southern Pine CCA 0.60 (9.8)", and the Pole Class and Length. A Metal Tag showing Pole Length and Class shall be fixed to the butt-end; and the Length and Class shall be stamped on the top-end.

1.1.6 Inspection -
Each pole shall have the "Brand Mark" of an inspection-company that has been approved by the Department.

1.2 Back-Guy Anchor -
Wood Poles require the installation of one-or-more back-guy cable assemblies, as needed. (See BACK-GUY.) The installation shall be made in accordance with the Installation Details, or the Standards.

1.3 Ground Wire -
Each pole shall be grounded in accordance with the Installation Details or the Standards. A No. 6 AWG, SOLID, bare-copper ground wire (ASTM B2) shall run the length of wooden poles, and extend 15 cm (6 inches) above the top end.

1.4 Ground Rod -
The Ground Rod shall be copper-clad, conforming to RUS 13, having a minimum size of 1.6 CM DIAMETER BY 2.4 METRES IN LENGTH (5/8 inch by (8 feet). A ground rod clamp shall also be used (heavy duty bronze or brass).

2. CONSTRUCTION -

2.1 Location -
The general location of each pole is shown on the Plans. The Contractor shall determine the final location of the pole, which shall be approved by the Engineer. Consideration shall be given to the property lines, underground utilities, and overhead clearances (including the guy anchor assembly).

2.2 Hole -
A hole shall be drilled TWO METRES (6 feet) DEEP, or as shown on the Plans. The diameter shall be larger than the pole by approximately 10 cm (4 inches) all around. The hole shall be of uniform diameter, and cleanly augured.

2.3 Sidewalk -
When the pole is installed in a side walk, then the hole shall be cleanly cut 15 cm (6 inches) larger than the pole on all sides. After installation of the pole, and back filling the hole, then expansion joint material shall be placed around the pole, and tacked in place. Conduit running to the pole shall be installed at this time, in the cut. Concrete shall be poured around the pole to a depth of 10 cm (4 inches) and neatly troweled level. This work shall be considered incidental to pole installation, unless a pay item has been established for concrete patching or side walk.

2.4 Installation -
Poles shall be vertical, except at corners, where they shall be RAKED away from the strain, 5 to 10 cm (2 to 4 inches) per 3 metre (10 feet) length. Back guy assemblies shall be installed in line with the strain of each span wire. After installing, the hole shall be back-filled with clean earth or sand (no rocks or debris), placed in 30 cm (1 foot) layers; each layer moistened and compacted. Excess earth shall be removed from the site. (A 5 cm (2 inch) mound around the pole base is acceptable.)

2.5 Utility Poles -
Where poles are to be used for joint-use UTILITIES, they shall be installed in accordance with all local codes, and with the requirements of the Utility Company. Cross Arms shall be provided if required by the Utility Company.

2.6 Grounding -
Each pole shall have a No. 6 Bare SOLID copper ground wire running the entire length. The ground wire shall be securely attached and bonded while the wood pole is laying on the ground. It shall extend 15 cm (6 inches) above the top end, have a 60 cm (2 foot) coil (slack) at the top end, and extend down to the

bottom, and have another 60 cm (2 foot) coil on the bottom end. The ground wire (and the coils) shall be attached using galvanized 30 mm (1-1/2 inch) wire staples, on 60 cm (2 foot) centers above 3 metres (14 feet), and on 30 cm (1 foot) centers below 3 metres (14 feet). (The spacing change will be at 2.4 metres (8 feet) above grade.)

2.7 Ground Rod -

One wood pole at each intersection shall have a GROUND ROD. Usually this would be the pole having the electrical service from the Power Company. The ground rod shall be driven vertically into the earth, until it extends about 5 cm (2 inches) above local grade. Then a separate No. 6 AWG bare, STRANDED copper wire shall be used to bond the electrical service and the overhead cable (and pole ground wire) system to the ground rod, using a grounding clamp.

2.8 Back Guying -

Wood poles used to support service wire could require back guying, especially at turns. (See BACK-GUY.) It is the responsibility of the Contractor to install sufficient numbers of back guy assemblies, to insure the stability of wood pole installations. This may include: double-guying; extra large anchors; or Re-guying Utility Company poles. The Contractor shall inform the Engineer when additional back guy assemblies are required. When the back guy is installed in a side walk, then the procedures of paragraph 2.3 above shall be followed.

3. ACCEPTANCE -

Acceptance of each wood pole shall include checking for the pressure-treatment inspection company Brand Mark, plus visual inspection by the Engineer. The visual inspection shall be made of the pole, overhead cables, grounding, and back guy assembly. The complete installation shall be structurally sound, and the final pole placement shall be vertical, or raked as specified. Poles NOT meeting this inspection, shall be replaced by the Contractor, without further cost to the project.

CATALOG CUTS ARE REQUIRED

FURNISH AND INSTALL STEEL CABLE

DESCRIPTION - This work shall consist of furnishing and installing splice-free lengths of Steel Cable with cable supports, installing back guys, etc., at locations shown on the Plans or as established by the Engineer.

1. MATERIALS -

Materials shall meet requirements listed below:

1.1 Fabrication -

1.1.1 Steel Cable shall be fabricated of seven (7) steel wires, Class A double galvanized in accordance with ASTM A-475, and twisted into a single concentric strand to conform with the following schedule:

Diameter mm	(inches)	Strand Size (AWG)	Tensile Strength Newtons (pounds)
6.35	(1/4)	14	14,011 (3,150)
9.53	(3/8)	11	30,913 (6,950)

1.2 Usage -

1.2.1 Span Wire -
All Steel Cable used as span wire shall be 9.53 mm (3/8 inch) in diameter, unless otherwise noted on the Plans.

1.2.2 Messenger Wire -
All Steel Cable used as messenger shall be 6.35 mm (1/4 inch) in diameter, unless otherwise noted on the Plans.

1.2.3 Tether Wire -
All Steel Cable used as tether wire shall be 6.35 mm (1/4 inch) in diameter, unless otherwise noted on the Plans.

1.2.4 Back Guy -
All Steel Cable used for back guying shall be 9.53 mm (3/8 inch) in diameter, unless noted otherwise on the Plans.

1.3 Cable Supports -

1.3.1 Aluminum Tie-wrap -
Shall be Flat Aluminum Armor Tape, 1.2 mm (0.05") Thick X 7.6 mm (0.30") Wide, typically furnished in 4.5 kg (10 pound) coils.

1.3.2 Where specifically required, Support Rings (also called "cable rings", "messenger rings") shall be galvanized in accordance with ASTM A-153, and the design approved by the Engineer, and shall be 3 to 8 cm (2 to 3 inches) in diameter (to contain the Electrical Cables), and sized to specifically match the Steel Cable.

1.4 Miscellaneous Hardware -

1.4.1 All hardware and fittings shall be of the type shown on the Standards or the Construction and Installations Details.

1.4.2 All hardware and fittings shall be made of galvanized steel or non-corrosive metal. The tensile strength of all hardware shall be equal-to or greater-than the Steel Cable installed.

1.4.3 All oval eye-bolts used to connect the automatic compression dead-end clamps to wooden poles, shall be 1.9 cm (3/4 inch) diameter. S-hooks shall be the same diameter as the cable. Fiberglass insulators shall be fabricated from epoxy-resin impregnated fiberglass strands, and have a tensile strength fifty (50%) percent greater than the Steel Cable.

2. CERTIFICATION -

2.1 The Bidder shall provide a Certification from the Manufacturer or Vendor, that the Steel Cable has been tested to meet or exceed the required tensile strength.

3. CONSTRUCTION METHODS -

3.1 Span Wire -

3.1.1 General -
All Span Wire shall be installed as shown the Standards, or on the Construction and Installation Details. Note that different methods and materials are required for Wood Poles and Steel Poles.

A. Before erecting the Span Wire, the Contractor shall determine the length of cable required to span the distance indicated on the Plans. Sufficient additional length shall be allowed to

compensate for sag, pole connections, and adjustments, to make the whole assembly consistent with the Design Details, or the Standards. NO MID-SPAN SPLICES SHALL BE PERMITTED.

B. The Contractor shall set the Span Wire so that the height of the installed signal heads, including all hardware, shall conform to the clearances shown on the Design Details or the Standards, or as directed by the Engineer.

C. The Span Wire shall not be permanently "tied-off" until all signal heads, signs, and cables are in place.

D. The Contractor shall not erect any Span Wire which lays on, or is likely to rub a Utility Company's cable. If a Span Wire, as erected, is within 15 cm (6 inches) of any other cable, wire, or structure, it shall be protected with plastic wire-guards.

E. When required by the Utility Company, or by the applicable electrical Code, strain-type fiberglass insulators shall be installed.

3.1.2 Cables from STEEL POLES -
Steel Poles are essentially electrical conductors.

A. A Roller Type Pole Clamp shall be used, attached at the proper height.

B. The free-end of the cable shall be secured with a 15 cm (6 inch) galvanized steel clamp, with 16 mm (5/8 inch) galvanized bolts. The clamp shall be placed approximately 30 cm (1 feet) from the pole. Cable-grips are not permitted.

C. The ends of the cable shall be covered with "servisleeves" to prevent unraveling.

D. The SAG shall be THREE (3%), TO FIVE (5%) PERCENT, fully loaded.

3.1.3 Cables from WOODEN POLES -
Wooden poles are essentially electrical insulators, and thus require extensive GROUNDING and BONDING procedures, as shown on the Construction and Installation Details, and the Standards.

A. The SAG shall be typically FIVE (5%) PERCENT, fully loaded.

B. The height of attachment shall be sufficient to provide the required road-clearance, including sag.

C. Shall be installed in accordance with the requirements of the Utility Company.

D. May require the installation of a back guy assembly as required in FURNISH AND INSTALL BACK GUY.

E. Shall be electrically bonded.

3.2 Messenger Wire -

3.2.1 Where Messenger Wire is attached to traffic signal poles, it shall be installed in the same manner as specified for span wire, but with relatively little sag.

3.2.2 Where Messenger Wire is attached to utility poles, it shall be installed in accordance with the UTILITY COMPANY'S SPECIFICATIONS.

3.3 Tether Wire -

Where Steel Cable is specified to tether signal heads and/or traffic signs, it shall be installed as indicated on the Construction Details, or Standards. Generally, galvanized S-hooks should be used at the pole ends to permit "break-away" action.

3.4 Back Guy -
See FURNISH AND INSTALL WOOD POLES. See FURNISH AND INSTALL BACK GUY. See the CONSTRUCTION AND INSTALLATION DETAILS.

3.5 Cable Supports -

3.5.1 Cable supports shall be used to support electrical cables from span wire and messenger wire. Cable Supports shall be spaced at 25 CM (10 INCH) INTERVALS.

3.5.2 When Aluminum Tie-Wraps are used, they shall be installed by wrapping 3-full turns TIGHTLY around the bundle formed by the steel cable and all electrical cables, then cutting off from the tape coil.

Furnish and Install Back Guys

DESCRIPTION - This work consists of furnishing and installing Back-Guy cable assemblies to secure wood poles, at locations shown on the Plans, and in accordance with these Specifications, and the Installation Details and Standards.

RESPONSIBILITY - It is the responsibility of the CONTRACTOR to assure that the number and size of Back-Guy assemblies is fully sufficient to anchor every wood pole, corner messenger cable pole, and Utility Company pole (where required).

1. MATERIALS -
Materials used shall meet the following requirements:

1.1 Assembly -
From the top-down, a Back-Guy Assembly shall consist of: eye-type thru-bolt, guy-hook, strandvise, jumper-bonding clamp, the steel cable (10 mm (3/8-inch) guy-cable stranded), another strandvise, and a Screw-type guy anchor.

1.2 Rust Proof -
All parts shall be as shown on the Installation Details or the Standards. All hardware shall be hot-dip galvanized in accordance with ASTM Standard A-153.

1.3 Parts List -
Acceptable parts are listed below:

1.3.1 Guy Anchors - One piece screw type guy-anchors, shall conform to EEI-TD-2, 25 mm (1 in.) diameter, 2.4 METRES (8 FEET) LONG, thimble eye type. (Joslyn No. J-6550-WCA or approved equal)

1.3.2 Guy Guards shall be Joslyn J5518 or approved equal yellow plastic (PVC) sunlight resistant, 2.4 metres (8 ft.) long.

1.3.3 Spool Insulators shall be a Joslyn J101 or approved equal.

1.3.3 Neutral Spool bracket (Clevises) shall be a Joslyn J251 or approved equal.

1.3.4 Machine Bolts shall be Joslyn J8812 through J8818 or J8912 through J8918 or approved equal.

1.3.6 Lock washers shall be Joslyn J139 or J140 or approved equal.

1.3.7 Reliable Universal Strandvise (or approved equal) shall be used for guy and messenger cable deadends.

1.3.8 Oval Bolts shall be Joslyn J9412 through J9418 or J9512 through J9518 or approved equal.

1.3.9 Oval Eye Nuts shall be Joslyn J1092 or J1093 or approved equal.

1.3.10 Square Washers shall be Joslyn J1074 or J1078 or approved equal.

1.3.11 Curved Square Washers shall be Joslyn J6822 or J133 or approved equal.

1.3.12 Cable- SEE FURNISH & INSTALL STEEL CABLE; using the 10 MM (3/8 IN) DIAMETER CABLE SIZE.

1.3.13 able Clamps: 3-bolt clamps shall conform to EEI-TDJ-23, (100 mm (4 in.) and 150 mm (6 in.) sizes)

1.3.14 Nuts shall be Joslyn J8563 or J8564-1 or approved equal.

1.3.15 Side-walk Bridge-over shall be Joslyn J1502 and J1501 with galvanized ridged conduit between or approved equal.

1.3.16 Lag Bolts shall be Joslyn J8652-1/2HH or J8754P or approved equal.

1.3.17 Guy Attachments (Hooks) shall be Joslyn P134AXW or approved equal.

1.3.18 Bonding Clamps shall be Joslyn J8300 or approved equal.

2. CONSTRUCTION -

2.1 A Back-Guy Assembly shall be installed: 1) Where shown on the plans; 2) In conjunction with installation of Steel Cable as span wire; 3) In conjunction with the installation of a wooden pole; 4) Where required by the Utility Company to "dress" pole to which signal equipment is attached; or, 4) At corner/turning wood poles that are used for messenger cable runs.

2.2 The installation of the wood pole, Back-Guy Assembly, and the span wire, shall have the construction staged for the safety of the motorist, pedestrian, and ITS construction worker.

2.3 See WOOD POLE.

2.4 The span wire, service wire, and Back-Guy Assembly shall be stretched, adjusted, and then RE-ADJUSTED to produce the specified amount of span wire sag, the proper clearance, and still create a nearly vertical wood pole.

2.5 The CONTRACTOR shall assure that the Back-Guy Assembly is sufficiently strong to handle the pull of all span wires. This shall include consideration of the earth/soil type into which the ground anchor is

buried. The CONTRACTOR shall furnish EXTRA LARGE ANCHORS and/or MULTIPLE-ANCHOR ASSEMBLIES if needed. Special anchors shall be used for solid rock.

2.6 Where a pedestrian sidewalk is adjacent to a wood pole, the CONTRACTOR shall furnish as an incidental item, a sidewalk "bridge-over" assembly.

2.7 The compass angle of the Back-Guy shall be reasonably IN LINE with the strain of the overhead cable: that is, in line with each span wire. Thus most signal poles should have two (2) Back-Guys, installed at right angles to each other. The use of a single diagonal Back-Guy is generally unacceptable.

2.8 The Back-Guy shall be installed (wherever possible) to provide as a minimum: rise=2 / run=1 (i.e. 2/1). For example, if the Back-Guy is attached at 8 metres (26 feet), the anchor should be at a minimum of 4 metres (13 feet) from the pole. This corresponds to an angle with the earth of about 60 degrees.

2.9 All work shall be performed within the public Right of Way, and particular care shall be taken to assure that the Back-Guy does not extend into private property.

2.10 The Back-Guy shall be installed where it will not interfere with traffic, giving particular attention to private driveways. Where damage is likely(say, edge of driveway), then a STEEL GUY GUARD shall be installed to protect the cable. When shown on the Plans, a CONCRETE TIRE/WHEEL STOP (curb) shall be placed at the base of the Back-Guy, anchored/pinned with 400 mm (2 ft.) pieces of reinforcement bar.

2.11 NO splices shall be allowed in the steel cable.

3. INSPECTION -

The Engineer shall inspect each installation of wood pole, span wire, and Back-Guy, for proper clearance, dress, and tension. At the direction of the Engineer, the CONTRACTOR shall re-install or replace improper installations, without further compensation.

CATALOG CUTS ARE REQUIRED

REMOVAL SALVAGE AND DISPOSAL OF EQUIPMENT AND MATERIALS

DESCRIPTION - This item consists of the Removal and Salvage, or the Removal and Disposal of equipment and materials, during the construction of this project. Construction includes new installations, and the modification, or removal of existing ITS devices. It shall be disposed of, as stated below:

1. GENERAL -

1.1 Removal and Salvage -

These items are to be carefully removed from the job site, salvaged, and returned to the Department. The items of major equipment to be salvaged are listed on the Plans. The Contractor shall deliver, (and obtain a RECEIPT for), the salvaged equipment, to:

**** SC DOT Intelligent Transportation Systems Maintenance Facility ****
Columbia, SC
Contact the ITS Field Operations Manager at (803)-315-4969 for deliveries.

1.2 Disposal -

Material NOT to be salvaged, shall be removed from the job site, become the property of the Contractor; and should be properly disposed of by the Contractor, at an APPROVED LAND FILL (or

material reclamation yard). Any materials designated as HAZARDOUS WASTE shall be disposed in accordance with regulations enforced by the SC Department of Health and Environmental Control (DHEC), Bureau of Solid and HAZARDOUS Waste; (803)-734-5000 for information.

1.3 Inspection -

Removal and disposal quantities will not be measured as pay items, but shall be included in the price bid for Removal, Salvage, and Disposal. FINAL ACCEPTANCE and Final Payment will be withheld, if the Contractor has not removed unneeded equipment from the job site, and if the Contractor cannot present RECEIPTS from the Shop showing that the salvaged equipment has been delivered to the Department as specified.

1.4 Holes -

Every hole caused by removing old equipment shall be filled THE SAME DAY. It shall be back-filled, compacted, and reseeded/sodded, to the satisfaction of the Engineer. Holes in PAVEMENT shall be cleanly side-trimmed, then brought to grade and finished with the same paving material as the adjacent pavement. Sidewalk "squares" shall be completely replaced (complete square), using forms and expansion material.

2. SPECIFIC ITEMS -

2.1 Controllers and Cabinets -

Prior to removal, every cabinet, controller, RVD unit, camera, concrete pole, fiber optic cable, fiber optic transceiver, modem, data share unit and other major equipment item shall be clearly tagged with the location address from which it is being removed. Then, each piece of equipment shall be carefully removed from the cabinet and boxed. The pins and threaded portion of the connectors shall be protected with plastic covers, or the harnesses left in place to prevent damage. The cabinet with all other related equipment (drawer, power unit, etc.) may then be removed and transported intact. The foundations of ground-mounted cabinets shall be removed completely, or cleared to 0.3 meters (1 ft.) below ground. If the cabinet foundation is a prefabricated concrete base it shall be removed and turned in to the Department.

2.2 Cameras and RVD-

Cameras and RVD units to be removed and salvaged shall be carefully dismounted, keeping as much of the hardware intact as possible. During the removal and delivery, special care should be taken to prevent damage to the domes.

2.3 Metal Poles -

This includes the removal and salvage of strain poles, pedestal poles, and their related hardware (pole caps, bolt covers, hand hole covers, nuts, transformer bases, etc.). The pole foundations shall be removed completely, or cleared to 0.3 meters (1 ft.) below ground.

Where shown on the Plans, some pole or cabinet foundations may be designated for complete removal (road widening, etc.). In these cases the concrete base shall be loosened, pulled out of the hole, and disposed.

2.4 Wood Poles -

Wood Poles that are not utilized in the new ITS system, and are not required by other utilities, shall be removed. The Engineer shall make the determination whether each wooden pole shall be salvaged or disposed. Back guys, grounding systems, and miscellaneous hardware shall be disposed.

2.5 Concrete Poles-

Concrete poles shall be carefully removed and turned in to the Department. Care shall be taken to insure the pole is not damaged during removal or delivery. If the pole is set in concrete the contractor shall carefully chip the concrete away from the pole before delivering to the Department.

2.6 Miscellaneous Equipment -

Minor equipment shall be removed from the site and discarded. This includes steel cable, electrical cable, conduit, and signs, concrete pads, and spliceboxes/pullboxes/handboxes not utilized in the new ITS design. Underground conduit and detector loops not utilized, shall be abandoned in place.

2.7 DMS and Structures –

DMS and Structure shall be carefully removed and turned in to the Department. Care shall be taken to insure the DMS sign and/or structure is not damaged during removal or delivery to the ITS Field Operations Office.

INSTALL DEPARTMENT SUPPLIED EQUIPMENT

DESCRIPTION - This work shall consist of installing equipment that will be supplied by the department, at the locations designated on the Plans, in accordance with the appropriate Specification, and the applicable Design Detail or Standard.

1. MATERIALS -

The Plans and BID or Proposal Forms, state specifically which material will be supplied by the Department. ALL OTHER MATERIALS SHALL BE ASSUMED TO BE FURNISHED BY THE CONTRACTOR. The Contractor should refer to the appropriate "Furnish and Install …" Specification to determine what other materials will be required to complete the installation. Those materials must be required to complete the installation. Those materials must then meet the physical Specifications stated. The Contractor shall also supply all miscellaneous materials that will result in a complete and acceptable project.

2. CERTIFICATION -

The Contractor shall provide certification that any material they supply for this item will meet the Specifications.

3. GUARANTEE -

For any materials they supply, the Contractor shall furnish the Department with all warranties offered by the manufacturer as normal trade practice.

4. CONSTRUCTION METHODS -

4.1 General - All workmanship and construction methods shall be in accordance with the appropriate Specification and in agreement with the applicable Design Detail or Standards.

4.2 Example - As an example, take the BID item – "INSTALL CONTROLLER BASE-MOUNTED CABINET-- EACH". The Contractor shall then refer to the Specification titled "INSTALL CONTROLLERS AND CABINET". They shall then furnish any other necessary materials, and shall complete the work needed to result in a finished installation. The Contractor shall also refer to the Plans, and to the Design Details and Standards.

4.3 The Contractor is responsible for picking up the equipment to be supplied, at the ITS Field Operations Office located in Columbia SC or appropriate DOT Depot or Shop, and for providing any loading equipment and trailers required. Receiving and pick up of Department furnished items shall be scheduled 48 hours in advance with the ITS Field Operations Manager located in Columbia SC. The Specified Units shall be that stated in the "Install…" specification.

1.5 Payment

Include all costs of elastomeric concrete in the contract unit price bid for Expansion Joint System with Concrete Header.

~~January 03, 2013~~

~~LANE CLOSURE RESTRICTIONS~~

~~Delete Subsection 601.1.3 of the Standard Specifications in their entirety and replace them with the following:~~

~~601.1.3 Restrictions~~

~~1 Installation and maintenance of a lane closure is PROHIBITED when not actively engaged in work activities specific to the location of the lane closure unless otherwise specified and approved by the~~

RCE. The length of the lane closure shall not exceed the length of roadway anticipated to be subjected to the proposed work activities within the work shift time frame or the maximum lane closure length specified within the contract unless otherwise specified and approved by the RCE. Also, a maximum lane closure length specified within a contract does not warrant installation of the specified lane closure length when the length of the lane closure necessary for conducting the work activity is less. The length and duration of each lane closure, within the contract specified parameters, shall require approval by the RCE prior to installation. The length and duration of each lane closure may be reduced by the RCE if the work zone impacts generated by a lane closure are deemed excessive or unnecessary.

2 When hourly lane closure prohibitions are specified, the presence of temporary signs, portable sign supports, traffic control devices, trailer mounted equipment, truck mounted equipment, vehicles and vehicles with trailers relative to the installation or removal of a closure and personnel are prohibited within the 15 to 30 foot clear zone based upon the roadway speed limit during the prohibitive hours specified.

3 The Department reserves the right to restrict the installation of lane closures, road closures, shoulder closures, pacing operations or any operations that will impact the efficient flow of traffic or hinder normal traffic operations on the roads of the South Carolina state highway system during peak travel hours, holidays, holiday weekends, extended holiday periods, weekends, special events or any time traffic volumes are high. Do not close travel lanes of high volume highways during peak traffic periods or at any time traffic volumes exceed the numerical values determined to be acceptable by the Department. Do not close lanes or roads with high volume commuter traffic in cities and urban areas during peak traffic periods. Waiver or modification of these restrictions or the established hourly lane closure prohibition hours shall require written approval from either the Deputy Secretary of Engineering, the District Engineering Administrator or the Director of Construction. When determined to request such a waiver or modification of these restrictions, submit the request to the RCE no less than 30 days prior to the day in question.

4 The Department prohibits lane closures on interstate highways and high volume multilane primary routes during holiday weekends, extended holiday periods or special events as defined below unless otherwise directed by the Department. The Department's holiday lane closure restrictions for holidays that are observed on a Monday will include the weekend and are considered a holiday weekend unless otherwise established by these specifications. The Department defines the typical Monday holiday weekend as from 6:00 am of the Friday before the weekend until 6:00 a.m. of the Tuesday after the holiday. Lane closures, road closures, shoulder closures, pacing operations or any operations that will impact the efficient flow of traffic or hinder normal traffic operations during these Monday holiday weekends as defined above are prohibited unless otherwise directed by the Department.

5 Easter and Thanksgiving holidays are varied and extended holiday periods of a holiday weekend. Easter holidays are defined as from 12:00 noon of the Thursday before Easter until 6:00 p.m. of the Monday after Easter. Thanksgiving holidays are defined as from 12:00 noon of the Wednesday before Thanksgiving Day until 6:00 a.m. of the Monday after Thanksgiving Day. Lane closures, road closures, shoulder closures, pacing operations or any operations that will impact the efficient flow of traffic or hinder normal traffic operations during the Easter and Thanksgiving holidays as defined above are prohibited unless otherwise directed by the Department.

[6] The 4th of July holiday is considered an extended holiday period. Considering the progressive nature of the calendar, this extended holiday period will vary from year to year depending the upon day of the week the holiday occurs. See the table below. Lane closures, road closures, shoulder closures, pacing operations or any operations that will impact the efficient flow of traffic or hinder normal traffic operations during the 4th of July holiday as defined below are prohibited unless otherwise directed by the Department.

4th of JULY HOLIDAY	
DAY OF WEEK	**DURATION**
MONDAY	6:00 AM FRIDAY, JULY 1ST through 10:00 PM SUNDAY JULY 10TH
TUESDAY	6:00 AM FRIDAY, JUNE 30TH through 10:00 PM SUNDAY JULY 9TH
WEDNESDAY	6:00 AM FRIDAY, JUNE 29TH through 10:00 PM SUNDAY JULY 8TH
THURSDAY	6:00 AM FRIDAY, JUNE 28TH through 10:00 PM SUNDAY JULY 7TH
FRIDAY	6:00 AM FRIDAY, JUNE 27TH through 10:00 PM SUNDAY JULY 13TH
SATURDAY	6:00 AM FRIDAY, JUNE 26TH through 10:00 PM SUNDAY JULY 12TH
SUNDAY	6:00 AM FRIDAY, JUNE 25TH through 10:00 PM SUNDAY JULY 11TH

[7] The Christmas holidays are considered an extended holiday period. Considering the progressive nature of the calendar, this extended holiday period will vary from year to year depending the upon day of the week the holiday occurs. See the table below. Lane closures, road closures, shoulder closures, pacing operations or any operations that will impact the efficient flow of traffic or hinder normal traffic operations during the Christmas holidays as defined below are prohibited unless otherwise directed by the Department.

CHRISTMAS HOLIDAYS	
DAY OF WEEK	**DURATION**
MONDAY	6:00 AM FRIDAY, DECEMBER 22ND through 10:00 PM WEDNESDAY JANUARY 3RD
TUESDAY	6:00 AM FRIDAY, DECEMBER 21ST through 10:00 PM THURSDAY JANUARY 3RD
WEDNESDAY	6:00 AM FRIDAY, DECEMBER 20TH through 10:00 PM FRIDAY JANUARY 3RD
THURSDAY	6:00 AM TUESDAY, DECEMBER 23RD through 10:00 PM SUNDAY JANUARY 4TH
FRIDAY	6:00 AM WEDNESDAY, DECEMBER 23RD through 10:00 PM SUNDAY JANUARY 3RD
SATURDAY	6:00 AM THURSDAY, DECEMBER 23RD through 10:00 PM MONDAY JANUARY 3RD
SUNDAY	6:00 AM FRIDAY, DECEMBER 23RD through 10:00 PM TUESDAY JANUARY 3RD

[8] Special events are events generating excessive traffic as determined by the Department. Lane closures, road closures, shoulder closures, pacing operations or any operation that would impact the efficient flow of traffic or hinder normal traffic operations during special events are prohibited unless otherwise directed by the Department.

[9] Observe all time restrictions regarding lane closures, road closures, shoulder closures or pacing operations. The RCE may extend these time restrictions as traffic conditions warrant. The Department reserves the right to suspend a lane closure, road closure, shoulder closure, pacing operation or any operation if the RCE determines a delay or a resulting traffic backup is excessive. Observe and maintain all project specific time restrictions as specified by the Plans, the Specifications and the RCE. Install and remove lane closures, road closures, shoulder closures or pacing operations including all relative traffic control devices and signs, within the time restrictions. Coordinate work activities requiring lane closures, road closures, shoulder closures or pacing operations in accordance with all restrictions.

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June 13, 1990

APPLICATION OF DAVIS-BACON AND RELATED ACTS TO INDEPENDENT TRUCK DRIVERS AND MISCELLANEOUS CONSTRUCTION ACTIVITIES

The Davis-Bacon and Related Acts apply when:

1) A Contractor or Subcontractor hires a trucking firm or fleet of trucks to haul materials from a plant, pit, or quarry, which has been established specifically to serve (or nearly so) a particular project or projects covered by Davis-Bacon and Related Acts.

2) A Contractor or Subcontractor hires a trucking firm or fleet of trucks to haul material from a non-commercial stockpile or non-commercial storage site outside the limits of the project to the project site.

3) A Contractor or Subcontractor hires a trucking firm or fleet of trucks to haul excavated materials away from a Davis-Bacon covered project.

4) A contractor or Subcontractor rents or leases equipment with an operator to perform work as called for under a Davis-Bacon construction contract.

5) A common carrier is used for the transportation of materials from an exclusive material supply facility to fulfill the specific need of a construction contract.

The fleet owner is not considered a Subcontractor with regard to the 70% subcontracting limitations and would not have to be approved as a Subcontractor. However, payrolls must be submitted by truck fleet owner covering the truck drivers, and all requirements such as predetermined wages, overtime, etc., are applicable. Legitimate owner-operators (truck owner driving his own truck) must appear on the payroll by name and notation “truck Owner Operator” with no hours, etc. shown.

The Davis-Bacon and Related Acts do not apply when:

1) A Contractor or Subcontractor hires a trucking firm or fleet of trucks to haul materials from a commercial plant, pit, or quarry which had previously been established for commercial use and regularly sell materials to the general public.

2) A Contractor or Subcontractor hires a trucking firm or fleet of trucks to haul materials from an established commercial plant, pit, or quarry to a stockpile outside the limits of the project.

3) Bona fide owner-operators of trucks, who are independent contractors, use their own equipment to haul materials to or from or on a Davis-Bacon covered project. (One man-One truck)

The fleet owner is not considered a Subcontractor with regard to the 70% subcontracting limitation and would not have to be approved as a Subcontractor.

March 1, 2010

REQUIREMENTS FOR FEDERAL AID CONTRACTS WHICH AFFECT SUBCONTRACTORS, DBE HAULERS, MATERIAL SUPPLIERS AND VENDORS

A. The contractor's attention is directed to the requirements of Section I.2 in Form FHWA 1273 that is included in your contract documents as the Supplemental Specification "Required Contract Provisions Federal-Aid Construction Contracts". Section I.2 requires that "the contractor shall insert in each subcontract all of the stipulations contained in the Required Contract Provisions". This requirement also applies to lower tier subcontractors or purchase orders. These provisions must be physically included in your subcontracts. A reference to the applicable specification will not suffice.

B. The contractor's attention is directed to the requirements of the Supplemental Specification "Standard Federal Equal Employment Opportunity Construction Contract Specifications". Section 2 requires that the provisions of this specification must be physically included in each subcontract with a value of $10,000 or greater.

C. The contractor's attention is directed to the requirements of the Equal Employment Opportunity Performance certifications in the Proposal Form Certifications and Signatures section of the contract. Section 1 concerning Equal Employment Opportunity must be physically included in each subcontract.

D. Prior to the issuance of formal approval, all DBE subcontracts must include a signed copy of the subcontract agreement between the Prime Contractor and the DBE Subcontractor.

E. Prior to the issuance of formal approval, of any DBE haulers, the contractor must submit a signed copy of the hauling agreement.

F. The contractor's attention is further directed that sections 1, 2, 3, 8, 9, and 11of Form FHWA 1273, or Sections 1, 3, 8 and 10 of Form 1316 (for Appalachian contracts only) must be physically included in each purchase agreement with a value of $10,000 or greater with a vendor or supplier, and in open-end contracts where individual purchases are less than $10,000 but where the total purchases accumulate to $100,000 or more per year.

May 2, 2014

DISADVANTAGED BUSINESS ENTERPRISE (DBE)
SUPPLEMENTAL SPECIFICATION

It is the policy of the South Carolina Department of Transportation (SCDOT) to ensure nondiscrimination in the award and administration of federally assisted contracts and to use Disadvantaged Business Enterprises (DBEs) in all types of contracting and procurement activities according to State and Federal laws. To that end the SCDOT has established a DBE program in accordance with regulations of the United States Department of Transportation (USDOT) found in 49 CFR Part 26.

This document, known as the "DBE Supplemental Specifications" includes two main parts:

Part A. "Instructions to Bidders – Pre-award Requirements"
Part B. "Instructions to Contractors – Post-award Requirements."

PART A. INSTRUCTIONS TO BIDDERS – PRE- AWARD REQUIREMENTS

When incorporated into Design Build and/or Local Public Agency procurements, the terms "bid", "bidder", and "bid letting" shall mean "proposal", "proposer" and "proposal opening."

1. DBE CONTRACT GOAL

A. The DBE participation goal for this contract is set forth in the DBE Special Provisions.

B. The successful bidder shall exercise all necessary and reasonable steps to ensure that DBEs perform services or provide materials on this contract in an amount that meets or exceeds the DBE contract goal and commitment. Submitting the bid, including electronically, shall constitute an agreement by the bidder that if awarded the contract, it will meet or exceed the DBE contract goal and commitment or make good faith efforts to meet the goal or commitment. Failure to meet the contract goal or make good faith efforts to meet the contract goal will result in the the bid being considered irregular and subject to rejection in accordance with Section 102.8(1)(D) of the SCDOT Standard Specification for Highway Construction, resulting in the contract being awarded to the next lowest responsible and responsive bidder.

2. DBE COMMITTAL

A. Each bidder shall enter all the information regarding how it intends to meet the DBE goal in the electronic bid folder found on the electronic bidding service website, *Bid Express*, entitled "DBE List." (See paragraph (D) below for non-electronic bid submissions.) The listing of DBEs shall constitute a commitment by the bidder to utilize the listed DBEs, subject to the replacement requirement set forth below in Section 2 of Part B. A DBE listed on the DBE List or DBE Committal Sheet hereinafter shall be referred to as a "committed DBE."

B. In meeting the DBE contract goal, the bidder shall use only certified DBEs included in the "South Carolina Unified Certification Program DBE Directory" (hereinafter referred to as the "Unified DBE Directory.") The DBE.BIN file used for the electronic bidding contains the names of the certified DBEs in the " Unified DBE Directory." For more information on the use of the DBE.BIN file in electronic bidding, see Section 6 below.

C. Failure to provide all information required in the electronic bid or DBE Committal Sheet will make the bid irregular and subject to rejection, resulting in the contract being awarded to the next lowest responsible and responsive bidder.

D. The DBE.BIN file listed for the letting must be downloaded for each particular letting because it is the data source for the DBEs listed in the "Unified DBE Directory" designated for use in the letting. ALL DBE data such as Name, Company ID, and Address must be selected from drop-down lists provided by the DBE. BIN file. If the DBE.BIN file is not downloaded, no data for the drop-down lists will be available. For non-electronic bidding in Design/Build or Local Public Agency procurements, use the attached DBE Committal Sheet in lieu of the DBE.BIN file.

The following information must be selected or entered in the electronic bid:

A. The names and addresses of certified DBEs whose services or materials will be used in the contract.

B. Work Type and Work Code selected from a drop-down list. When one of these is selected, the other will be filled in automatically. **[Note: Only select the Work Type and Work Code for which the selected DBE firm has been certified to perform].**

C. An Item of work, approximate Quantity of work to be performed or materials to be supplied, Unit (of measurement), Unit Price, and the extended dollar amount of participation by each DBE listed.

(a) Item: The Item is the bid item with which the DBE will be associated and must be selected from the Schedule of (Bid) Items found in the drop-down list. If the proposed work is for only a portion of an Item of work (i.e. hauling of materials, tying of reinforced steel, etc.) an adequate description of this work shall be included in the Note block.

(b) Quantity, Unit, & Unit Price: Initially when an Item is selected, the contract quantity, unit, and the bidder's unit price and extension will appear. If the proposed work is for only a portion of an item as described in (1) above, then the Quantity, Unit Price and /or Extension shall be changed to reflect the actual amount of work committed to the DBE. The Unit (of measurement) cannot be changed.

(4) The bidder must also submit a copy of a signed statement or quote from each of the DBEs listed in the DBE List folder of the electronic bid or DBE committal sheet. The signed statements or quotes should verify the items, quantities, units, unit prices, and dollar values listed in the DBE List folder of the electronic bid or DBE committal sheet. COPIES OF THE SIGNED STATEMENTS MUST BE SUBMITTED TO SCDOT CONTRACT ADMINISTRATION OFFICE WITHIN FOUR (4) BUSINESS DAYS OF THE BID LETTING from the apparent low bidder. Should the apparent low bid be rejected for failing to meet the goal, the next apparent low bidder will have three (3) business days from notification to submit the signed quotes. SCDOT will accept facsimiles of the verified statements with the caveat that the bidder must furnish the original document to SCDOT upon request. Signed quotes must be on the DBEs letterhead and contain the following information: date, printed name, address, and phone number of the authorized individual providing the quote, project name and identification number, quote needs to be addressed to contractor from DBE, and identify specific services being performed and/or material being supplied.

3. GOOD FAITH EFFORTS REQUIREMENTS

A. Requirements for Submission for Approval of a Good Faith Effort. If the bidder does not meet the DBE contract goal through the DBE committals submitted with the bid, it is the bidder's responsibility to request, in writing (faxes and emails are acceptable) a good faith effort review by 5:00 pm of the next business day after they submit their bid. Bidder must submit additional information to satisfy to SCDOT that good faith efforts have been made by the bidder in attempting to meet the DBE contract goal. **THIS SUPPORTING INFORMATION/DOCUMENTATION MUST BE FURNISHED TO SCDOT CONTRACT ADMINISTRATION OFFICE IN WRITING WITHIN THREE (3) BUSINESS DAYS OF THE BID LETTING.** One complete set and five (5) copies of this information must be received by Contract Administration no later than 12:00 noon of the third business day following the bid letting. Where the

information submitted includes repetitious solicitation letters, it will be acceptable to submit a sample representative letter along with the list of the firms being solicited. The documented efforts listed in item (C.) below are some of items SCDOT will consider in evaluating the bidder's good faith efforts. The documentation may include written subcontractor quotations, telephone log notations of verbal quotations, or other types of quotation documents.

B. Failure to Submit Required Material. If the bidder fails to provide this information by the deadline, the bid is considered irregular and may be rejected in accordance with Section 102.8(1)(D), SCDOT Standard Specifications for Highway Construction.

C. Evaluation of a Good Faith Effort. SCDOT may consider the following factors in judging whether or not the bidder made adequate and acceptable good faith efforts to meet the DBE contract goal:

(1) Did the bidder attend any pre-bid meetings that were scheduled by SCDOT or Local Public Agency to inform DBEs of subcontracting opportunities?

(2) Did the bidder provide solicitations through all reasonable and available means (e.g. posting a request for quotes from DBE subcontractors on SCDOT Construction Extranet webpage; attendance at pre-bid meetings, advertising and/or written notices at least 10 days prior to the letting; or showing the bidder provided written notice to all DBEs listed in the "Unified DBE Directory" that specialize in the areas of work in which the bidder will be subcontracting).

(3) Did the bidder follow-up initial solicitations of interest by contacting DBEs to determine with certainty whether they were interested or not? If a reasonable amount of DBEs in the area of work do not provide an intent to quote, or there are no DBEs that specialize in the area of work to be subcontracted, did the bidder call SCDOT Office of Business Development & Special Programs to give notification of the bidder's inability to obtain DBE quotes?

(4) Did the bidder select portions of the work to be performed by DBEs in order to increase the likelihood of meeting the contract goal? This includes, where appropriate, breaking out contract items of work into economically feasible units to facilitate DBE participation, even when the bidder might otherwise perform these items of work with its own forces.

(5) Did the bidder provide interested DBEs with adequate and timely information about the plans, specifications, and requirements of the contract?

(6) Did the bidder negotiate in good faith with interested DBEs, or reject them as unqualified without sound reasons based on a thorough investigation of their capabilities? Any rejection should be noted in writing with a description as to why an agreement could not be reached. The fact that the bidder has the ability or desire to perform the work with its own forces will not be considered as sound reason for rejecting a DBEs quote.

(7) Was a quote received from an interested DBE, but rejected as unacceptable because it was not the lowest quote received? The fact that the DBE firm's quotation for the work is not the lowest quotation received will not in and of itself be considered as a sound reason for rejecting the quotation as unacceptable, as long as the quote is not unreasonable.

(8) Did the bidder specifically negotiate with non-DBE subcontractors to assume part of the responsibility to meet the contract goal when the work to be sublet includes potential for DBE participation?

(9) Any other evidence that the bidder submits which demonstrates that the bidder has made reasonable good faith efforts to include DBE participation.

(10) The DBE commitments submitted by all other bidders who were able to meet the DBE contract goal.

(11) Did the bidder contact SCDOT for assistance in locating certified DBEs?

D. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy DBE contract goals.

E. SCDOT may give the bidder an opportunity to cure any deficiencies resulting from a minor informality or irregularity in the DBE commitment or waive any such deficiency when it is in the best interest of the State. A minor informality or irregularity is one which is merely a matter of form or is some immaterial variation from the exact requirements of the invitation for bids having no effect or merely a trivial or negligible effect on DBE contract goal, quality, quantity, or delivery of the supplies or performance of the contract, and the correct or waiver of which would not be prejudicial to bidders.

4. DETERMINATION AND RECONSIDERATION PROCEDURES

A. After the letting, SCDOT will determine whether or not the low bidder has met the DBE participation contract goal or made good faith efforts to meet the goal. If SCDOT determines that the apparent low bidder failed to meet the goal, did not demonstrate a good faith effort to meet the goal, or meet the requirements of a commercially useful function SCDOT will notify the apparent low bidder of its determination by email and by US Mail or hand-delivery. The apparent low bidder may request a reconsideration of this determination.

B. The bidder must make a request for reconsideration in writing within three (3) business days of receipt of the determination. Within six (6) business days of receipt of the determination, the bidder must provide written documentation to SCDOT Director of Construction supporting its position. Only documentation dated within three (3) business days of the bid letting may be used in support of its position. No DBE goal efforts performed after 3 business days of the bid will be allowed as evidence. If the bidder fails to request a reconsideration with three (3) business days, the determination shall be final.

C. To reconsider the bidder's DBE commitment or good faith efforts, the Deputy Secretary for Engineering will designate a panel of three (3) SCDOT employees, who did not take part in the original determination, comprised of: (1) one employee from the District Construction Engineer's (DCE) Office, (2) one employee from the Office of Business Development & Special Programs, and (3) one employee at large (hereinafter referred to as the "Reconsideration Panel"). The DCE Office representative will be appointed chairman of the Reconsideration Panel. A representative from FHWA may be a non-voting member of the Reconsideration Panel. The Reconsideration Panel will contact the bidder and schedule a meeting. The Reconsideration Panel will make reasonable efforts to accommodate the bidder's schedule; however, if the bidder is unavailable or not prepared for a hearing within ten (10) business days of receipt of SCDOT original written determination, the bidder's reconsideration rights will be considered to have been waived.

D. The meeting will be held at SCDOT Headquarters Building, 955 Park Street, Columbia, South Carolina. The bidder will be allowed up to two (2) hours to present written or oral evidence supporting its position.

E. The Reconsideration Panel will issue a written report and recommendation to the Deputy Secretary for Engineering. SCDOT shall not award the contract until the Deputy Secretary for Engineering issues a decision or the bidder waives its reconsideration right either through failure to request reconsideration or failure to be available for the meeting. The Deputy Secretary for Engineering will notify the bidder of the final decision in writing.

5. CONSEQUENCES OF FAILURE TO COMPLY WITH DBE PROVISIONS

A. Failure on the part of the bidder to meet the DBE contract goal or to demonstrate good faith efforts to meet the DBE contract goal will result in the bid being declared irregular and may be rejected resulting in the contract being awarded to the next lowest responsible and responsive bidder. Upon rejection, the award may be made to the next lowest responsible and responsive bidder.

B. After bid letting, but prior to award, SCDOT reserves the right to cancel the project, or any or all bids or proposals may be rejected in whole or part, when it is in the best interest of the State.

6. DIRECTORY OF SOUTH CAROLINA CERTIFIED DISADVANTAGED BUSINESS ENTERPRISES

A. The electronic DBE.BIN file found on the electronic bidding service website, *Bid Express*, contains data from the "Unified DBE Directory" approved for use in each particular letting. **The file must be downloaded for each letting because the directory approved for use in each letting is updated prior to the letting.** The bidder is advised that this directory pertains only to DBE certification and not to qualifications. It is the bidder's responsibility to determine the actual capabilities and/or limitations of the certified DBE firms. For non-electronic bid submissions, the directory can be found at http://www.scdot.org/doing/businessDevelop_SCUnified.aspx.

B. In meeting the DBE participation contract goal, the bidder shall use only DBEs that are included in the "Unified DBE Directory" contained in the DBE.BIN file, or on-line, current for the month the bid is submitted. The bidder may only count toward the DBE goal work in the areas for which the DBE has been certified, unless prior written approval from SCDOT is obtained. The bidder and the DBE must jointly apply to SCDOT's Director of Construction for approval of work in an area of work other than that in which the DBE has been certified. The requested work must be in an area related to the area of work in which the DBE has been certified. Such requests must be submitted in writing to the Director of Construction no later than ten (10) business days prior to the date of the letting. The Director of Construction has the right to approve or disapprove the request. The Director of Construction will give the bidder and the DBE written notice of his decision no later than five (5) business days prior to the date on which bids are received. If approved, a copy of the written approval must accompany the submission of the subcontractor's quote.

C. Certification of a DBE for work in a certain area of work or approval to perform work in a related area shall not constitute a guarantee that the DBE will successfully perform the work or that the work will be performed completely. Such certification or approval shall only imply that the successful completion of the work by the DBE can count toward satisfying the DBE contract goal in accordance with the counting rules set forth in 49 CFR Part 26 (see Section 3 of Part B below.)

D. The bidder may print a copy of the "Unified DBE Directory" from SCDOT web page at http://www.scdot.org/doing/businessDevelop_SCUnified.aspx.

7. ADDITIONAL DBE PARTICIPATION

The bidder is strongly encouraged to obtain the maximum amount of DBE participation feasible on the contract. Any DBE participation in excess of the DBE contract goal shall also be included in the DBE Quarterly Reports.

8. CONTRACTOR'S RESPONSIBILITY TO REPORT BIDDER INFORMATION

The bidder should keep a list of all subcontractors (DBE or non-DBE) who bid or quoted for subcontracts on this project. As a condition to prequalification or renewal of prequalification, Contractors must submit the names and addresses of all firms (DBE and non-DBE) who quoted the Contractor for subcontracts on SCDOT projects throughout the course of the previous year.

Part B. INSTRUCTIONS TO CONTRACTORS – POST AWAD REQUIREMENTS

1. CONTRACTOR'S OBLIGATIONS

A. 49 CFR 26. The Contractor shall carry out the applicable requirements of 49 CFR Part 26 and these DBE Supplemental Specifications in the award and administration of this contract. Failure by the Contractor to carry out these requirements is a material breach of the contract, and may result in the termination of the contract or such other remedy as SCDOT deems appropriate.

B. Meeting both the Goal and Commitment or Making Good Faith Efforts to Meet the Goal and Commitment. It is the Contractor's responsibility to meet or make good faith efforts to meet the DBE contract goal and commitments. Failure to meet the goal or commitments to the specific DBEs listed on the committal sheet or to demonstrate good faith efforts to meet the goal or commitments may result in any one or more of the following sanctions:

(1) Withholding monthly progress payments;
(2) Declaring the Contractor in default pursuant to Section 108.10 of the Standard Specifications and terminating the contract;
(3) Assessing sanctions in the amount of the difference in the DBE contract committal and the actual payments made to each certified DBEs;
(4) Disqualifying the Contractor from bidding pursuant to Regulation 63-306, Volume 25A, of the S. C. Code of Laws; and/or
(5) Requiring the Contractor to obtain DBE participation on future contracts to the extent the Contractor failed to meet or use good faith efforts to meet the DBE contract goal.

C. Using the DBEs shown on the Committal Sheet to Perform the Work. The Contractor must utilize the specific DBEs listed on the "DBE Committal Sheet" to perform the work and supply the materials for which each is listed unless the Contractor obtains prior written approval from the Director of Construction to perform the work with other forces or obtain the materials from other sources as set forth in Section 2 below. The Contractor shall not be entitled to any payment for such work or material unless it is performed or supplied by the listed DBE or, with prior written approval of the Director of Construction, by other forces (including those of the Contractor). Failure to meet a commitment to a specific DBE may result in the sanctions listed in Section 1(B) above, unless prior written approval is obtained for replacement of the committed DBE.

When SCDOT makes changes that result in the reduction or elimination of work to be performed by a committed DBE, the Contractor will not be required to seek additional participation. When the SCDOT makes changes that result in additional work to be performed by a DBE based upon the Contrator's commitment, the DBE shall participate in additional work to the same extent as the DBE participated in the original work.

D. Incorporating DBE Supplemental Provisions in Subcontracts. The Contractor shall make available, at the request of SCDOT, a copy of all DBE subcontracts. The Contractor shall ensure that all subcontracts or agreements with DBEs to supply labor or materials require that the subcontract and all lower tier subcontracts be performed in accordance with these DBE Supplemental Specifications. The contractor is advised to insert the following provision in each subcontract or agreement:

"This contract or agreement shall be performed in accordance with the requirements of the SCDOT DBE Supplemental Specifications dated January 1, 2014."

2. REPLACEMENT OF CERTIFIED DBES

A. Requirement for Replacement. The following shall apply to replacement of a DBE listed on the "DBE Committal Sheet":

(1) *When a DBE listed on the DBE committal sheet (hereafter referred to as a "committed DBE") is unable or unwilling to perform the work in accordance with the subcontract,* the Contractor shall follow the replacement procedures in Section 2(B) below. Failure on the part of the Contractor to comply with this requirement shall constitute a breach of contract and may be cause for the imposition of the sanctions set forth in Section 1(B) above.

(2) *When a committed or non-committed DBE is decertified or removed from the SC Unified DBE Directory after execution of a valid subcontract agreement with the Contractor*:

(a) The Contractor may continue to utilize the decertified DBE on the contract and receive credit toward the DBE contract goal for the DBEs work unless the Contractor is implicated in the DBE decertification. However, the Contractor is encouraged to replace the decertified DBE with a certified DBE where feasible, to assist SCDOT in meeting the overall statewide DBE goal.

(b) If a *committed or non-committed* DBE is removed from the SC Unified DBE Directory due to graduation from the DBE program, the Contractor may continue to utilize the graduated DBE on the contract and receive credit toward the DBE contract goal for the DBEs work.

(3) *When a committed DBE is decertified or removed from the SC Unified DBE Directory prior to execution of a valid subcontract agreement with the Contractor, the* Contractor shall follow the replacement procedures in Section 2(B) below. Failure on the part of the Contractor to comply with this requirement shall constitute a breach of the contract and may be cause for the imposition of the sanctions set forth in Section 1(B) above.

B. Replacement Procedures. In order to replace a *committed* DBE, the Contractor must obtain prior written approval from the Director of Construction. Prior to requesting SCDOT's approval to terminate and/or substitute a committed DBE, the Contractor is to give notice to the DBE subcontractor in writing (certified mail) with a copy provided to both the Director of Construction and the Director of Business Development & Special Programs. The purpose of this notice is to both inform the DBE subcontractor of the Contractor's intent to request SCDOT's approval to terminate and/or substitute as well as to outline the reasons for the request. The DBE subcontractor shall be given five business days from receipt of notice to provide a written response stating either its consent or its reasons why it objects to the proposed termination. On a case by case basis and at SCDOT's sole discretion, a shorter response period than five business days may be allowed as a matter of public necessity. If SCDOT determines a shorter response period is justified, the contractor and committed DBE will be advised in writing. In no case shall the Contractor's ability to negotiate a more advantageous contract with another subcontractor be considered a valid basis for replacement. If the Contractor obtains the Director of Construction's approval for the replacement, the Contractor shall replace the committed DBE with another certified DBE or make good faith efforts to do so as set forth in Section 2(C) below. Any DBE who is certified at the time of replacement may be used as a replacement. If the Director of Construction does not approve of replacement, the Contractor shall continue to use the *committed* DBE in accordance with the contract. Failure to do so may constitute cause for imposition of any of the sanctions set forth in Section 1(B) above.

C. Good Faith Efforts. After approval for replacement is obtained, if the Contractor is not able to find a replacement DBE, the Contractor shall provide the Director of Construction with documentation of its good faith efforts to find a replacement. This documentation shall include, but is not limited to, the following:

(1) Copies of written notification to certified DBEs that their interest is solicited in subcontracting the work defaulted by the previous certified DBE or in subcontracting other items of work in the contract.

(2) Statement of efforts to negotiate with certified DBEs for specific subbids including at a minimum:

(a) Names, addresses and telephone numbers of certified DBEs who were contacted;
(b) Description of the information provided to certified DBEs regarding the plans and specifications for portions of the work to be performed;
(c) Statement of why additional agreements with certified DBEs were not reached.

(3) For each certified DBE contacted but rejected, the reasons for the Contractor's rejection. Failure to find a replacement DBE at the original price is not in itself evidence of good faith.

(4) Documentation demonstrating that the Contractor contacted SCDOT's DBE Supportive Service Office for assistance in locating certified DBEs willing to take over that portion of work or do other work on the contract.

If SCDOT determines that the Contractor has made good faith efforts to replace the committed DBE with another certified DBE, then the remaining portion of the DBEs work shown on the "DBE Committal Sheet" can be completed by the Contractor's own forces or by a non-DBE subcontractor approved by SCDOT. The Contractor will not be required to make up that part of the DBE goal attributable to the portion of work not completed by the committed DBE, and this shortfall in meeting the DBE goal will be waived by SCDOT.

If SCDOT determines that the Contractor has not made good faith efforts to replace the committed DBE with another certified DBE, such failure may constitute cause for imposition of any of the sanctions set forth in Section 1(B) above.

D. Payment from SCDOT. The Contractor shall not be entitled to payment for work or material committed to a committed DBE unless:

(1) The work is performed by the *committed* DBE; or
(2) The work is performed by another certified DBE after the Director of Construction has given approval to replace the committed DBE as provided above; or
(3) The work is performed by a non-DBE after SCDOT determines that the Contractor has demonstrated good faith efforts to replace the committed DBE as provided above.

3. COUNTING CERTIFIED DBE PARTICIPATION TOWARD MEETING THE DBE GOAL

DBE participation shall be measured by the actual, verified payments made to DBEs subject to the following rules (all references to "DBE" herein shall mean "certified DBE"). The Contractor is bound by these rules in regard to receiving and reporting credit toward the DBE contract goal. The Contractor shall report on DBE Quarterly Reports only the amounts properly attributable toward the goal under these rules.

A. General Counting Rules.

(1) The entire amount of that portion of a construction contract (or other contract not covered by paragraph A(2) of this section) that is performed by the DBEs own forces may be counted toward the goal. The cost of supplies and materials obtained by the DBE for the work of the contract, including supplies purchased or equipment leased by the DBE (except supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate) can be counted toward the goal.

(2) When a DBE subcontracts part of the work of its contract to another firm, the value of the subcontracted work may be counted toward DBE goals only if the subcontractor is also a DBE. Work that a DBE subcontracts to a non-DBE firm does not count toward the DBE goals.

(3) The Contractor can count expenditures to a DBE only if the DBE is certified by SCDOT, except as provided in section 2(A)(2) above, in the event a DBE loses eligibility status after a subcontract is signed.

(4) The Contractor can count expenditures to a DBE only after the DBE has actually been paid.

B. Joint Ventures. When a DBE performs as a participant in a joint venture, the portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work of the contract that the DBE performs with its own forces can be counted toward DBE goals. A joint venture must be approved by the Director of Construction prior to start of the contract.

C. Commercially Useful Function. Expenditures to a DBE contractor can be counted toward DBE goals only if the DBE is performing a commercially useful function on that contract:

(1) A DBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself. To determine whether a DBE is performing a commercially useful function, SCDOT will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work, and other relevant factors.

(2) A DBE does not perform a commercially useful function if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of DBE participation. In determining whether a DBE is such an extra participant, SCDOT will examine similar transactions, particularly those in which DBEs do not participate.

(3) If a DBE does not perform or exercise responsibility for at least 30 percent of the total cost of its contract with its own work force, or the DBE subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved, SCDOT will presume that it is not performing a commercially useful function.

(4) When a DBE is presumed not to be performing a commercially useful function as provided in paragraph (3) of this section, the DBE may present evidence to rebut this presumption. SCDOT may determine that the firm is performing a commercially useful function given the type of work involved and normal industry practices.

(5) SCDOT's decisions on commercially useful function matters are subject to review by the Federal Highway Administration, but are not administratively appealable to the USDOT.

D. Special Rules for Trucking Companies. SCDOT will use the following rules to determine whether a DBE trucking company is performing a commercially useful function and what portion of the DBE work can be counted toward DBE goals:

(1) ***DBE must control all work.*** To be considered as performing a commercially useful function, the DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there cannot be a contrived arrangement for the purpose of meeting DBE goals.

(2) ***DBE must "own" at least one truck***. The DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the project. For purposes of this section, a DBE will be considered to "own" a truck if:

a) the truck is titled in the DBEs name; or,

b) the DBE leases the truck under a valid lease-to-own agreement and the driver of the truck is an employee of the DBE.

The DBE must submit documentation to SCDOT to establish the number of trucks the DBE owns, operates and insures. The DBE must submit the documentation to SCDOT's Office of Business Development & Special Programs at the time of certification, annual reporting on certification requirements, or at any time during the year that the DBE obtains additional trucks.

(3) ***Counting DBE trucking toward DBE goal***. The Contractor can count toward DBE goals the total value of the transportation services the DBE provides using trucks the DBE owns, insures, and operates using drivers the DBE employs.

(4) ***Counting subcontracted DBE trucking toward DBE goal.*** The DBE may subcontract with another DBE firm, including an owner-operator who is certified as a DBE, to provide trucks on a project. In this case, the Contractor may count toward the DBE goal the total value of the transportation services provided by the DBE subcontractor.

(5) ***Counting subcontracted non-DBE trucking toward the goal.*** The DBE may lease trucks from a non-DBE firm, including an owner-operator, to provide trucks on a project. Prior to beginning work, the DBE must provide SCDOT's Resident Construction Engineer with a list identifying all DBE and non-DBE trucks and truck numbers that will be used on the project. In this case, the Contractor may count toward the DBE goal the total value of the transportation services provided in each quarter by the non-DBE trucks, not to exceed the value of the transportation services provided by DBE-owned trucks in that quarter. For example, in a given quarter, if DBE-owned trucks provide transportation services of $50,000, while non-DBE trucks provide transportation services of $75,000, a maximum of $100,000 can be counted toward the DBE goal in that quarter.

For purposes of this paragraph (5), a lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the lease truck. Leased trucks must display a placard with the name and USDOT identification number of the DBE leasing the truck. The placard must be legible and visable when standing at least 15 feet from the driver's side of the truck. It may be affixed to the side of the truck or inside the cab window as long as it does not interfere with the safe operation of the truck. See example below.

Sample placard:

Operated by:

Bell's Trucking,LLC
USDOT 123456

NOTE: DBE firms may not receive credit for DBE participation when leasing non-DBE owned trucks from the Prime contractor with whom the DBE firm is subcontracted as 49 CFR 26.55(a)(1) applies.

E. DBE Manufacturers and Dealers. The Contractor can count expenditures with DBEs for materials or supplies toward DBE goals in accordance with the following rules:

(1) *DBE Manufacturers*. If the materials or supplies are obtained from a DBE manufacturer, the Contractor can count 100 percent of the cost of the materials or supplies toward DBE goals. For purposes of this paragraph, a manufacturer is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract and of the general character described by the specifications. The DBE must be listed as a "manufacturer" in the "South Carolina Unified DBE Directory" to be considered a manufacturer for purposes of these counting rules.

(2) *DBE Dealers*. If the materials or supplies are purchased from a DBE regular dealer, the Contractor can count 60 percent of the cost of the materials or supplies toward DBE goals. For purposes of this section, a regular dealer is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. The DBE must be listed as a "dealer" in the South Carolina Unified DBE Directory to be considered a dealer for purposes of these counting rules.

(3) *DBE Brokers*. With respect to materials or supplies purchased from a DBE which is neither a manufacturer nor a regular dealer, count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of material or supplies required on a job site, toward DBE goals.

F. Special Rules for Design Build and Local Public Agency Contracts

(1) When the Design Build team changes work that results in the reduction or elimination of work that the Design Build team committed to be performed by a DBE, the Design Build team shall seek additional participation by DBEs equal to the reduced DBE participation cause by the change.

4. **JOINT CHECKS**.

The Director of Construction must approve all requests for a Contractor to issue and use joint checks with a DBE. The following conditions apply:

a) The DBE must submit a request to the Director of Construction which includes a formalized agreement between all parties that specify the conditions under which the arrangement will be permitted;

b) The DBE remains responsible for all other elements of 49 CFR 26.55(c)(1). SCDOT must clearly determine that independence is not threatened because the DBE retains final decision making responsibility;

c) There can be no requirement by the prime contractor that a DBE use a specific supplier nor the prime contractor's negotiated unit price.

5. REPORTS

The Contractor shall furnish to the SCDOT the following reports and information. THIS REQUIREMENT APPLIES REGARDLESS OF WHETHER THERE IS A CONTRACT GOAL ASSIGNED TO THE CONTRACT.

A. DBE Quarterly Reports. The Contractor shall provide to the SCDOT, DBE Quarterly Reports showing the dollar amount of payments to each certified DBE. The Contractor and each DBE that received payment must sign the report. The Contractor's and DBE's signature on the Quarterly Report shall constitute certification that the DBE has performed the work and that the Contractor is entitled to credit toward the DBE goal for the amount shown in accordance with the counting rules set forth in Section 3 above. The report shall include the amount paid each DBE for the quarter and the total amount paid to each DBE on the contract. The report must include DBE subcontractors, hauling firms, and suppliers. The report shall be submitted in duplicate to the Resident Construction Engineer by the 15th of the month after each calendar quarter (January, April, July, and October 15). Failure to submit the quarterly report may result in the withholding of monthly progress and/or final payment. The Quarterly Report must be submitted for each quarter even if no payments have been made to a DBE in that quarter. When no payments have been made to a DBE in a quarter, DBEs are not required to sign the report.

B. Trucker's Reports. All DBE haulers must complete and submit a DBE Trucker's Report along with the DBE quarterly report when the DBE leases trucks from another firm. The DBE hauler must list all trucks leased, payments made to the lessee during the quarter, and identify whether each leased truck is owned by a certified DBE or non-DBE. DBE Haulers must also submit one copy of each lease agreement to the Resident Construction Engineer prior to the start of work for each truck leased. A lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE.

C. Other Documents. Upon request of SCDOT, the Contractor and all subcontractors shall furnish documents, including subcontracts, necessary to verify the amount and costs of the materials or services provided by certified DBE suppliers or subcontractors. The Contractor shall keep the documents that verify this information for at least three years from the date of final close-out of the contract. Failure to provide these documents upon request may result in the withholding of monthly progress and/or final payment or disqualifying the Contractor from bidding pursuant to R. 63-306, South Carolina State Regulations.

6. CONTRACT COMPLETION – DETERMINATION OF WHETHER CONTRACTOR HAS MET THE GOAL OR MADE GOOD FAITH EFFORTS

A. Review by SCDOT. After receipt of the final DBE Quarterly Reports, SCDOT will review the necessary contract documentation to determine whether the Contractor has met the DBE commitments and contract goal.

B. Notification of Failure to Meet Goal. If the documentation indicates that the Contractor has not met the DBE commitments and contract goal, the Director of Construction will notify the Contractor in writing and request documentation of the Contractor's good faith efforts to meet the goal.

C. Determination of Good Faith Efforts. The Contractor shall submit documentation demonstrating good faith efforts to meet the contract commitments and goal to the Director of Construction within thirty (30) days of the date of the "Notification of Failure to Meet Goal." The Director of Construction will provide the Contractor with written notice of SCDOT's determination whether good faith efforts have been demonstrated.

D. Request for Reconsideration. If the Contractor disagrees with SCDOT's determination of post construction compliance, the Contractor may request a reconsideration by filing a written request with the Director of Construction within ten (10) business days after receipt of the determination. The Contractor shall submit any additional documentation that it wishes to be considered in support of its position within ten (10) business days of its request for reconsidertation. If the Contractor fails to request a reconsideration within ten (10) days, the determination shall be final. If the Contractor requests reconsideration, the Director of Construction Office will appoint a Reconsideration Official who did not take part in the original determination to review the decision and supporting documentation (hereinafter referred to as the "Reconsideration Official"). FHWA may participate in the review process. The Reconsideration Official will contact the Contractor and schedule a meeting with the Contractor. The meeting will be held at the SCDOT Headquarters Building in Columbia. At the meeting, the Contractor will have an opportunity to present oral and written evidence to demonstrate that good faith efforts were made to meet the DBE commitments and contract goal. The Reconsideration Official may also consider evidence presented by SCDOT at the same meeting. After the meeting, the Reconsideration Official will issue a written report and recommendation to the Director of Construction. The Director of Construction shall make the final decision on the issue. The Director of Construction will notify the Contractor of the final decision in writing.

January 1, 2014

DISADVANTAGED BUSINESS ENTERPRISE (DBE)
SUPPLEMENTAL SPECIFICATION

It is the policy of the South Carolina Department of Transportation (SCDOT) to ensure nondiscrimination in the award and administration of federally assisted contracts and to use Disadvantaged Business Enterprises (DBEs) in all types of contracting and procurement activities according to State and Federal laws. To that end the SCDOT has established a DBE program in accordance with regulations of the United States Department of Transportation (USDOT) found in 49 CFR Part 26.

This document, known as the "DBE Supplemental Specifications" includes two main parts:

Part A. "Instructions to Bidders – Pre-award Requirements"
Part B. "Instructions to Contractors – Post-award Requirements."

PART A. INSTRUCTIONS TO BIDDERS – PRE- AWARD REQUIREMENTS

When incorporated into Design Build and/or Local Public Agency procurements, the terms "bid", "bidder", and "bid letting" shall mean "proposal", "proposer" and "proposal opening."

1. DBE CONTRACT GOAL

B. The DBE participation goal for this contract is set forth in the DBE Special Provisions.

B. The successful bidder shall exercise all necessary and reasonable steps to ensure that DBEs perform services or provide materials on this contract in an amount that meets or exceeds the DBE contract goal and commitment. Submitting the bid, including electronically, shall constitute an agreement by the bidder that if awarded the contract, it will meet or exceed the DBE contract goal and commitment or make good faith efforts to meet the goal or commitment. Failure to meet the contract goal or make good faith efforts to meet the contract goal will result in the the bid being considered irregular and subject to rejection in accordance with Section 102.8(1)(D) of the SCDOT Standard Specification for Highway Construction, resulting in the contract being awarded to the next lowest responsible and responsive bidder.

2. DBE COMMITTAL

A. Each bidder shall enter all the information regarding how it intends to meet the DBE goal in the electronic bid folder found on the electronic bidding service website, *Bid Express*, entitled "DBE List." (See paragraph (D) below for non-electronic bid submissions.) The listing of DBEs shall constitute a commitment by the bidder to utilize the listed DBEs, subject to the replacement requirement set forth below in Section 2 of Part B. A DBE listed on the DBE List or DBE Committal Sheet hereinafter shall be referred to as a "committed DBE."

B. In meeting the DBE contract goal, the bidder shall use only certified DBEs included in the "South Carolina Unified Certification Program DBE Directory" (hereinafter referred to as the "Unified DBE Directory.") The DBE.BIN file used for the electronic bidding contains the names of the certified DBEs in the " Unified DBE Directory." For more information on the use of the DBE.BIN file in electronic bidding, see Section 6 below.

C. Failure to provide all information required in the electronic bid or DBE Committal Sheet will make the bid irregular and subject to rejection, resulting in the contract being awarded to the next lowest responsible and responsive bidder.

D. The DBE.BIN file listed for the letting must be downloaded for each particular letting because it is the data source for the DBEs listed in the "Unified DBE Directory" designated for use in the letting. ALL DBE data such as Name, Company ID, and Address must be selected from drop-down lists provided by the DBE. BIN file. If the DBE.BIN file is not downloaded, no data for the drop-down lists will be available. For non-electronic bidding in Design/Build or Local Public Agency procurements, use the attached DBE Committal Sheet in lieu of the DBE.BIN file.

The following information must be selected or entered in the electronic bid:

D. The names and addresses of certified DBEs whose services or materials will be used in the contract.

E. Work Type and Work Code selected from a drop-down list. When one of these is selected, the other will be filled in automatically. **[Note: Only select the Work Type and Work Code for which the selected DBE firm has been certified to perform].**

F. An Item of work, approximate Quantity of work to be performed or materials to be supplied, Unit (of measurement), Unit Price, and the extended dollar amount of participation by each DBE listed.

(a) Item: The Item is the bid item with which the DBE will be associated and must be selected from the Schedule of (Bid) Items found in the drop-down list. If the proposed work is for only a portion of an Item of work (i.e. hauling of materials, tying of reinforced steel, etc.) an adequate description of this work shall be included in the Note block.

(b) Quantity, Unit, & Unit Price: Initially when an Item is selected, the contract quantity, unit, and the bidder's unit price and extension will appear. If the proposed work is for only a portion of an item as described in (1) above, then the Quantity, Unit Price and /or Extension shall be changed to reflect the actual amount of work committed to the DBE. The Unit (of measurement) cannot be changed.

(4) The bidder must also submit a copy of a signed statement or quote from each of the DBEs listed in the DBE List folder of the electronic bid or DBE committal sheet. The signed statements or quotes should verify the items, quantities, units, unit prices, and dollar values listed in the DBE List folder of the electronic bid or DBE committal sheet. COPIES OF THE SIGNED STATEMENTS MUST BE SUBMITTED TO SCDOT CONTRACT ADMINISTRATION OFFICE WITHIN THREE (3) BUSINESS DAYS OF THE BID LETTING from the apparent low bidder. Should the apparent low bid be rejected for failing to meet the goal, the next apparent low bidder will have three (3) business days from notification to submit the signed quotes. SCDOT will accept facsimiles of the verified statements with the caveat that the bidder must furnish the original document to SCDOT upon request. Signed quotes must be on the DBEs letterhead and contain the following information: date, printed name, address, and phone number of the authorized individual providing the quote, project name and identification number, quote needs to be addressed to contractor from DBE, and identify specific services being performed and/or material being supplied.

3. GOOD FAITH EFFORTS REQUIREMENTS

A. Requirements for Submission for Approval of a Good Faith Effort. If the bidder does not meet the DBE contract goal through the DBE committals submitted with the bid, it is the bidder's responsibility to request, in writing (faxes and emails are acceptable) a good faith effort review by 5:00 pm of the next business day after they submit their bid. Bidder must submit additional information to satisfy to SCDOT that good faith efforts have been made by the bidder in attempting to meet the DBE contract goal. **THIS SUPPORTING INFORMATION/DOCUMENTATION MUST BE FURNISHED TO SCDOT CONTRACT ADMINISTRATION OFFICE IN WRITING WITHIN THREE (3) BUSINESS DAYS OF THE BID LETTING.** One complete set and five (5) copies of this information must be received by Contract Administration no later than 12:00 noon of the third business day following the bid letting. Where the

~~information submitted includes repetitious solicitation letters, it will be acceptable to submit a sample representative letter along with the list of the firms being solicited. The documented efforts listed in item (C.) below are some of items SCDOT will consider in evaluating the bidder's good faith efforts. The documentation may include written subcontractor quotations, telephone log notations of verbal quotations, or other types of quotation documents.~~

~~B. Failure to Submit Required Material. If the bidder fails to provide this information by the deadline, the bid is considered irregular and may be rejected in accordance with Section 102.8(1)(D), SCDOT Standard Specifications for Highway Construction.~~

~~C. Evaluation of a Good Faith Effort. SCDOT may consider the following factors in judging whether or not the bidder made adequate and acceptable good faith efforts to meet the DBE contract goal:~~

~~(12) Did the bidder attend any pre-bid meetings that were scheduled by SCDOT or Local Public Agency to inform DBEs of subcontracting opportunities?~~

~~(13) Did the bidder provide solicitations through all reasonable and available means (e.g. posting a request for quotes from DBE subcontractors on SCDOT Construction Extranet webpage; attendance at pre-bid meetings, advertising and/or written notices at least 10 days prior to the letting; or showing the bidder provided written notice to all DBEs listed in the "Unified DBE Directory" that specialize in the areas of work in which the bidder will be subcontracting).~~

~~(14) Did the bidder follow up initial solicitations of interest by contacting DBEs to determine with certainty whether they were interested or not? If a reasonable amount of DBEs in the area of work do not provide an intent to quote, or there are no DBEs that specialize in the area of work to be subcontracted, did the bidder call SCDOT Office of Business Development & Special Programs to give notification of the bidder's inability to obtain DBE quotes?~~

~~(15) Did the bidder select portions of the work to be performed by DBEs in order to increase the likelihood of meeting the contract goal? This includes, where appropriate, breaking out contract items of work into economically feasible units to facilitate DBE participation, even when the bidder might otherwise perform these items of work with its own forces.~~

~~(16) Did the bidder provide interested DBEs with adequate and timely information about the plans, specifications, and requirements of the contract?~~

~~(17) Did the bidder negotiate in good faith with interested DBEs, or reject them as unqualified without sound reasons based on a thorough investigation of their capabilities? Any rejection should be noted in writing with a description as to why an agreement could not be reached. The fact that the bidder has the ability or desire to perform the work with its own forces will not be considered as sound reason for rejecting a DBEs quote.~~

~~(18) Was a quote received from an interested DBE, but rejected as unacceptable because it was not the lowest quote received? The fact that the DBE firm's quotation for the work is not the lowest quotation received will not in and of itself be considered as a sound reason for rejecting the quotation as unacceptable, as long as the quote is not unreasonable.~~

~~(19) Did the bidder specifically negotiate with non-DBE subcontractors to assume part of the responsibility to meet the contract goal when the work to be sublet includes potential for DBE participation?~~

~~(20) Any other evidence that the bidder submits which demonstrates that the bidder has made reasonable good faith efforts to include DBE participation.~~

~~(21) The DBE commitments submitted by all other bidders who were able to meet the DBE contract goal.~~

~~(22) Did the bidder contact SCDOT for assistance in locating certified DBEs?~~

~~D. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy DBE contract goals.~~

E. SCDOT may give the bidder an opportunity to cure any deficiencies resulting from a minor informality or irregularity in the DBE commitment or waive any such deficiency when it is in the best interest of the State. A minor informality or irregularity is one which is merely a matter of form or is some immaterial variation from the exact requirements of the invitation for bids having no effect or merely a trivial or negligible effect on DBE contract goal, quality, quantity, or delivery of the supplies or performance of the contract, and the correct or waiver of which would not be prejudicial to bidders.

5. DETERMINATION AND RECONSIDERATION PROCEDURES

A. After the letting, SCDOT will determine whether or not the low bidder has met the DBE participation contract goal or made good faith efforts to meet the goal. If SCDOT determines that the apparent low bidder failed to meet the goal and did not demonstrate a good faith effort to meet the goal, or meet the requirements of a commercially useful function, SCDOT will notify the apparent low bidder of its determination by email and by US Mail or hand-delivery. The apparent low bidder may request a reconsideration of this determination.

B. The bidder must make a request for reconsideration in writing within three (3) business days of receipt of the determination. Within six (6) business days of receipt of the determination, the bidder must provide written documentation to SCDOT Director of Construction supporting its position. Only documentation dated within three (3) business days of the bid letting may be used in support of its position. No DBE goal efforts performed after 3 business days of the bid will be allowed as evidence. If the bidder fails to request a reconsideration with three (3) business days, the determination shall be final.

C. To reconsider the bidder's DBE commitment or good faith efforts, the Deputy Secretary for Engineering will designate a panel of three (3) SCDOT employees, who did not take part in the original determination, comprised of: (1) one employee from the District Construction Engineer's (DCE) Office, (2) one employee from the Office of Business Development & Special Programs, and (3) one employee at large (hereinafter referred to as the "Reconsideration Panel"). The DCE Office representative will be appointed chairman of the Reconsideration Panel. A representative from FHWA may be a non-voting member of the Reconsideration Panel. The Reconsideration Panel will contact the bidder and schedule a meeting. The Reconsideration Panel will make reasonable efforts to accommodate the bidder's schedule; however, if the bidder is unavailable or not prepared for a hearing within ten (10) business days of receipt of SCDOT original written determination, the bidder's reconsideration rights will be considered to have been waived.

D. The meeting will be held at SCDOT Headquarters Building, 955 Park Street, Columbia, South Carolina. The bidder will be allowed up to two (2) hours to present written or oral evidence supporting its position.

E. The Reconsideration Panel will issue a written report and recommendation to the Deputy Secretary for Engineering. SCDOT shall not award the contract until the Deputy Secretary for Engineering issues a decision or the bidder waives its reconsideration right either through failure to request reconsideration or failure to be available for the meeting. The Deputy Secretary for Engineering will notify the bidder of the final decision in writing.

5. CONSEQUENCES OF FAILURE TO COMPLY WITH DBE PROVISIONS

A. Failure on the part of the bidder to meet the DBE contract goal or to demonstrate good faith efforts to meet the DBE contract goal will result in the bid being declared irregular and may be rejected resulting in the contract being awarded to the next lowest responsible and responsive bidder. Upon rejection, the award may be made to the next lowest responsible and responsive bidder.

B. After bid letting, but prior to award, SCDOT reserves the right to cancel the project, or any or all bids or proposals may be rejected in whole or part, when it is in the best interest of the State.

6. DIRECTORY OF SOUTH CAROLINA CERTIFIED DISADVANTAGED BUSINESS ENTERPRISES

A. The electronic DBE.BIN file found on the electronic bidding service website, *Bid Express*, contains data from the "Unified DBE Directory" approved for use in each particular letting. **The file must be downloaded for each letting because the directory approved for use in each letting is updated prior to the letting.** The bidder is advised that this directory pertains only to DBE certification and not to qualifications. It is the bidder's responsibility to determine the actual capabilities and/or limitations of the certified DBE firms. For non-electronic bid submissions, the directory can be found at http://www.scdot.org/doing/businessDevelop_SCUnified.aspx.

B. In meeting the DBE participation contract goal, the bidder shall use only DBEs that are included in the "Unified DBE Directory" contained in the DBE.BIN file, or on-line, current for the month the bid is submitted. The bidder may only count toward the DBE goal work in the areas for which the DBE has been certified, unless prior written approval from SCDOT is obtained. The bidder and the DBE must jointly apply to SCDOT's Director of Construction for approval of work in an area of work other than that in which the DBE has been certified. The requested work must be in an area related to the area of work in which the DBE has been certified. Such requests must be submitted in writing to the Director of Construction no later than ten (10) business days prior to the date of the letting. The Director of Construction has the right to approve or disapprove the request. The Director of Construction will give the bidder and the DBE written notice of his decision no later than five (5) business days prior to the date on which bids are received. If approved, a copy of the written approval must accompany the submission of the subcontractor's quote.

C. Certification of a DBE for work in a certain area of work or approval to perform work in a related area shall not constitute a guarantee that the DBE will successfully perform the work or that the work will be performed completely. Such certification or approval shall only imply that the successful completion of the work by the DBE can count toward satisfying the DBE contract goal in accordance with the counting rules set forth in 49 CFR Part 26 (see Section 3 of Part B below.)

D. The bidder may print a copy of the "Unified DBE Directory" from SCDOT web page at http://www.scdot.org/doing/businessDevelop_SCUnified.aspx.

8. ADDITIONAL DBE PARTICIPATION

The bidder is strongly encouraged to obtain the maximum amount of DBE participation feasible on the contract. Any DBE participation in excess of the DBE contract goal shall also be included in the DBE Quarterly Reports.

8. CONTRACTOR'S RESPONSIBILITY TO REPORT BIDDER INFORMATION

The bidder should keep a list of all subcontractors (DBE or non-DBE) who bid or quoted for subcontracts on this project. As a condition to prequalification or renewal of prequalification, Contractors must submit the names and addresses of all firms (DBE and non-DBE) who quoted the Contractor for subcontracts on SCDOT projects throughout the course of the previous year.

PART B. INSTRUCTIONS TO CONTRACTORS – POST-AWARD REQUIREMENTS

1. **CONTRACTOR'S OBLIGATIONS**

A. 49 CFR 26. The Contractor shall carry out the applicable requirements of 49 CFR Part 26 and these DBE Supplemental Specifications in the award and administration of this contract. Failure by the Contractor to carry out these requirements is a material breach of the contract, and may result in the termination of the contract or such other remedy as SCDOT deems appropriate.

B. Meeting both the Goal and Commitment or Making Good Faith Efforts to Meet the Goal and Commitment. It is the Contractor's responsibility to meet or make good faith efforts to meet the DBE contract goal and commitments. Failure to meet the goal or commitments to the specific DBEs listed on the committal sheet or to demonstrate good faith efforts to meet the goal or commitments may result in any one or more of the following sanctions:

(1) Withholding monthly progress payments;
(2) Declaring the Contractor in default pursuant to Section 108.10 of the Standard Specifications and terminating the contract;
(3) Assessing sanctions in the amount of the difference in the DBE contract committal and the actual payments made to each certified DBEs;
(4) Disqualifying the Contractor from bidding pursuant to Regulation 63-306, Volume 25A, of the S. C. Code of Laws; and/or
(5) Requiring the Contractor to obtain DBE participation on future contracts to the extent the Contractor failed to meet or use good faith efforts to meet the DBE contract goal.

C. Using the DBEs shown on the Committal Sheet to Perform the Work. The Contractor must utilize the specific DBEs listed on the "DBE Committal Sheet" to perform the work and supply the materials for which each is listed unless the Contractor obtains prior written approval from the Director of Construction to perform the work with other forces or obtain the materials from other sources as set forth in Section 2 below. The Contractor shall not be entitled to any payment for such work or material unless it is performed or supplied by the listed DBE or, with prior written approval of the Director of Construction, by other forces (including those of the Contractor). Failure to meet a commitment to a specific DBE may result in the sanctions listed in Section 1(B) above, unless prior written approval is obtained for replacement of the committed DBE.

When SCDOT makes changes that result in the reduction or elimination of work to be performed by a committed DBE, the Contractor will not be required to seek additional participation. When the SCDOT makes changes that result in additional work to be performed by a DBE based upon the Contrator's commitment, the DBE shall participate in additional work to the same extent as the DBE participated in the original work.

D. Incorporating DBE Supplemental Provisions in Subcontracts. The Contractor shall make available, at the request of SCDOT, a copy of all DBE subcontracts. The Contractor shall ensure that all subcontracts or agreements with DBEs to supply labor or materials require that the subcontract and all lower tier subcontracts be performed in accordance with these DBE Supplemental Specifications. The contractor is advised to insert the following provision in each subcontract or agreement:

"This contract or agreement shall be performed in accordance with the requirements of the SCDOT DBE Supplemental Specifications dated January 1, 2014."

2. REPLACEMENT OF CERTIFIED DBES

A. Requirement for Replacement. The following shall apply to replacement of a DBE listed on the "DBE Committal Sheet":

(1) *When a DBE listed on the DBE committal sheet (hereafter referred to as a "committed DBE") is unable or unwilling to perform the work in accordance with the subcontract,* the Contractor shall follow the replacement procedures in Section 2(B) below. Failure on the part of the Contractor to comply with this requirement shall constitute a breach of contract and may be cause for the imposition of the sanctions set forth in Section 1(B) above.

(2) *When a committed or non-committed DBE is decertified or removed from the SC Unified DBE Directory after execution of a valid subcontract agreement with the Contractor:*

(a) The Contractor may continue to utilize the decertified DBE on the contract and receive credit toward the DBE contract goal for the DBEs work unless the Contractor is implicated in the DBE decertification. However, the Contractor is encouraged to replace the decertified DBE with a certified DBE where feasible, to assist SCDOT in meeting the overall statewide DBE goal.

(b) If a *committed or non-committed* DBE is removed from the SC Unified DBE Directory due to graduation from the DBE program, the Contractor may continue to utilize the graduated DBE on the contract and receive credit toward the DBE contract goal for the DBEs work.

(3) *When a committed DBE is decertified or removed from the SC Unified DBE Directory prior to execution of a valid subcontract agreement with the Contractor, the* Contractor shall follow the replacement procedures in Section 2(B) below. Failure on the part of the Contractor to comply with this requirement shall constitute a breach of the contract and may be cause for the imposition of the sanctions set forth in Section 1(B) above.

B. Replacement Procedures. In order to replace a *committed* DBE, the Contractor must obtain prior written approval from the Director of Construction. To request such approval, the Contractor shall notify the Director of Construction and the DBE in writing, and provide documentation of the need and reasons for replacement. If the DBE consents to the replacement, the Contractor shall also provide the Director of Construction with the DBEs written consent. If the DBEs consent cannot be obtained, the Contractor shall notify the Director of Construction in writing that the DBEs consent could not be obtained. In no case shall the Contractor's ability to negotiate a more advantageous contract with another subcontractor be considered a valid basis for replacement. If the Contractor obtains the Director of Construction's approval for the replacement, the Contractor shall replace the committed DBE with another certified DBE or make good faith efforts to do so as set forth in Section 2(C) below. Any DBE who is certified at the time of replacement may be used as a replacement. If the Director of Construction does not approve of replacement, the Contractor shall continue to use the *committed* DBE in accordance with the contract. Failure to do so may constitute cause for imposition of any of the sanctions set forth in Section 1(B) above.

C. Good Faith Efforts. After approval for replacement is obtained, if the Contractor is not able to find a replacement DBE, the Contractor shall provide the Director of Construction with documentation of its good faith efforts to find a replacement. This documentation shall include, but is not limited to, the following:

(1) Copies of written notification to certified DBEs that their interest is solicited in subcontracting the work defaulted by the previous certified DBE or in subcontracting other items of work in the contract.

(2) Statement of efforts to negotiate with certified DBEs for specific subbids including at a minimum:

(a) Names, addresses and telephone numbers of certified DBEs who were contacted;
(b) Description of the information provided to certified DBEs regarding the plans and specifications for portions of the work to be performed;
(c) Statement of why additional agreements with certified DBEs were not reached.

(3) For each certified DBE contacted but rejected, the reasons for the Contractor's rejection. Failure to find a replacement DBE at the original price is not in itself evidence of good faith.

(4) Documentation demonstrating that the Contractor contacted SCDOT's DBE Supportive Service Office for assistance in locating certified DBEs willing to take over that portion of work or do other work on the contract.

If SCDOT determines that the Contractor has made good faith efforts to replace the committed DBE with another certified DBE, then the remaining portion of the DBEs work shown on the "DBE Committal Sheet" can be completed by the Contractor's own forces or by a non-DBE subcontractor approved by SCDOT. The Contractor will not be required to make up that part of the DBE goal attributable to the portion of work not completed by the committed DBE, and this shortfall in meeting the DBE goal will be waived by SCDOT.

If SCDOT determines that the Contractor has not made good faith efforts to replace the committed DBE with another certified DBE, such failure may constitute cause for imposition of any of the sanctions set forth in Section 1(B) above.

D. Payment from SCDOT. The Contractor shall not be entitled to payment for work or material committed to a committed DBE unless:

(1) The work is performed by the *committed* DBE; or
(2) The work is performed by another certified DBE after the Director of Construction has given approval to replace the committed DBE as provided above; or
(3) The work is performed by a non-DBE after SCDOT determines that the Contractor has demonstrated good faith efforts to replace the committed DBE as provided above.

3. **COUNTING CERTIFIED DBE PARTICIPATION TOWARD MEETING THE DBE GOAL**

DBE participation shall be measured by the actual, verified payments made to DBEs subject to the following rules (all references to "DBE" herein shall mean "certified DBE"). The Contractor is bound by these rules in regard to receiving and reporting credit toward the DBE contract goal. The Contractor shall report on DBE Quarterly Reports only the amounts properly attributable toward the goal under these rules.

A. General Counting Rules.

(1) The entire amount of that portion of a construction contract (or other contract not covered by paragraph A(2) of this section) that is performed by the DBEs own forces may be counted toward the goal. The cost of supplies and materials obtained by the DBE for the work of the contract, including supplies purchased or equipment leased by the DBE (except supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate) can be counted toward the goal.
(2) When a DBE subcontracts part of the work of its contract to another firm, the value of the subcontracted work may be counted toward DBE goals only if the subcontractor is also a

DBE. Work that a DBE subcontracts to a non-DBE firm does not count toward the DBE goals.

(3) The Contractor can count expenditures to a DBE only if the DBE is certified by SCDOT, except as provided in section 2(A)(2) above, in the event a DBE loses eligibility status after a subcontract is signed.

(4) The Contractor can count expenditures to a DBE only after the DBE has actually been paid.

B. Joint Ventures. When a DBE performs as a participant in a joint venture, the portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work of the contract that the DBE performs with its own forces can be counted toward DBE goals. A joint venture must be approved by the Director of Construction prior to start of the contract.

C. Commercially Useful Function. Expenditures to a DBE contractor can be counted toward DBE goals only if the DBE is performing a commercially useful function on that contract:

(1) A DBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself. To determine whether a DBE is performing a commercially useful function, SCDOT will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work, and other relevant factors.

(2) A DBE does not perform a commercially useful function if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of DBE participation. In determining whether a DBE is such an extra participant, SCDOT will examine similar transactions, particularly those in which DBEs do not participate.

(3) If a DBE does not perform or exercise responsibility for at least 30 percent of the total cost of its contract with its own work force, or the DBE subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved, SCDOT will presume that it is not performing a commercially useful function.

(4) When a DBE is presumed not to be performing a commercially useful function as provided in paragraph (3) of this section, the DBE may present evidence to rebut this presumption. SCDOT may determine that the firm is performing a commercially useful function given the type of work involved and normal industry practices.

(5) SCDOT's decisions on commercially useful function matters are subject to review by the Federal Highway Administration, but are not administratively appealable to the USDOT.

D. Special Rules for Trucking Companies. SCDOT will use the following rules to determine whether a DBE trucking company is performing a commercially useful function and what portion of the DBE work can be counted toward DBE goals:

(1) ***DBE must control all work.*** To be considered as performing a commercially useful function, the DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there cannot be a contrived arrangement for the purpose of meeting DBE goals.

(2) ***DBE must "own" at least one truck***. The DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the project. For purposes of this section, a DBE will be considered to "own" a truck if:

a) the truck is titled in the DBEs name; or,

b) the DBE leases the truck under a valid lease-to-own agreement and the driver of the truck is an employee of the DBE.

The DBE must submit documentation to SCDOT to establish the number of trucks the DBE owns, operates and insures. The DBE must submit the documentation to SCDOT's Office of Business Development & Special Programs at the time of certification, annual reporting on certification requirements, or at any time during the year that the DBE obtains additional trucks.

(3) ***Counting DBE trucking toward DBE goal***. The Contractor can count toward DBE goals the total value of the transportation services the DBE provides using trucks the DBE owns, insures, and operates using drivers the DBE employs.

(4) ***Counting subcontracted DBE trucking toward DBE goal.*** The DBE may subcontract with another DBE firm, including an owner-operator who is certified as a DBE, to provide trucks on a project. In this case, the Contractor may count toward the DBE goal the total value of the transportation services provided by the DBE subcontractor.

(5) ***Counting subcontracted non-DBE trucking toward the goal.*** The DBE may lease trucks from a non-DBE firm, including an owner-operator, to provide trucks on a project. Prior to beginning work, the DBE must provide SCDOT's Resident Construction Engineer with a list identifying all DBE and non-DBE trucks and truck numbers that will be used on the project. In this case, the Contractor may count toward the DBE goal the total value of the transportation services provided in each quarter by the non-DBE trucks, not to exceed the value of the transportation services provided by DBE-owned trucks in that quarter. For example, in a given quarter, if DBE-owned trucks provide transportation services of $50,000, while non-DBE trucks provide transportation services of $75,000, a maximum of $100,000 can be counted toward the DBE goal in that quarter.

For purposes of this paragraph (5), a lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the lease truck. Leased trucks must display a placard with the name and USDOT identification number of the DBE leasing the truck. The placard must be legible and visable when standing at least 15 feet from the driver's side of the truck. It may be affixed to the side of the truck or inside the cab window as long as it does not interfere with the safe operation of the truck. See example below.

Sample placard:

Operated by:

Bell's Trucking,LLC
USDOT 123456

NOTE: DBE firms may not receive credit for DBE participation when leasing non-DBE owned trucks from the Prime contractor with whom the DBE firm is subcontracted as 49 CFR 26.55(a)(1) applies.

E. DBE Manufacturers and Dealers. The Contractor can count expenditures with DBEs for materials or supplies toward DBE goals in accordance with the following rules:

(1) *DBE Manufacturers*. If the materials or supplies are obtained from a DBE manufacturer, the Contractor can count 100 percent of the cost of the materials or supplies toward DBE goals. For purposes of this paragraph, a manufacturer is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract and of the general character described by the specifications. The DBE must be listed as a "manufacturer" in the "South Carolina

Unified DBE Directory" to be considered a manufacturer for purposes of these counting rules.

(2) *DBE Dealers*. If the materials or supplies are purchased from a DBE regular dealer, the Contractor can count 60 percent of the cost of the materials or supplies toward DBE goals. For purposes of this section, a regular dealer is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. The DBE must be listed as a "dealer" in the South Carolina Unified DBE Directory to be considered a dealer for purposes of these counting rules.

(3) *DBE Brokers*. With respect to materials or supplies purchased from a DBE which is neither a manufacturer nor a regular dealer, count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of material or supplies required on a job site, toward DBE goals.

F. Special Rules for Design-Build and Local Public Agency Contracts

(1) When the Design-Build team changes work that results in the reduction or elimination of work that the Design-Build team committed to be performed by a DBE, the Design-Build team shall seek additional participation by DBEs equal to the reduced DBE participation cause by the change.

4. **JOINT CHECKS**.

The Director of Construction must approve all requests for a Contractor to issue and use joint checks with a DBE. The following conditions apply:

d) The DBE must submit a request to the Director of Construction which includes a formalized agreement between all parties that specify the conditions under which the arrangement will be permitted;

e) The DBE remains responsible for all other elements of 49 CFR 26.55(c)(1). SCDOT must clearly determine that independence is not threatened because the DBE retains final decision making responsibility;

f) There can be no requirement by the prime contractor that a DBE use a specific supplier nor the prime contractor's negotiated unit price.

5. **REPORTS**

The Contractor shall furnish to the SCDOT the following reports and information. THIS REQUIREMENT APPLIES REGARDLESS OF WHETHER THERE IS A CONTRACT GOAL ASSIGNED TO THE CONTRACT.

A. DBE Quarterly Reports. The Contractor shall provide to the SCDOT, DBE Quarterly Reports showing the dollar amount of payments to each certified DBE. The Contractor and each DBE that received payment must sign the report. The Contractor's and DBE's signature on the Quarterly Report shall constitute certification that the DBE has performed the work and that the Contractor is entitled to credit toward the DBE goal for the amount shown in accordance with the counting rules set forth in Section 3 above. The report shall include the amount paid each DBE for the quarter and the total amount paid to each DBE on the contract. The report must include DBE subcontractors, hauling firms, and suppliers. The report shall be submitted in duplicate to the Resident Construction Engineer by the 15th of

the month after each calendar quarter (January, April, July, and October 15). Failure to submit the quarterly report may result in the withholding of monthly progress and/or final payment. The Quarterly Report must be submitted for each quarter even if no payments have been made to a DBE in that quarter. When no payments have been made to a DBE in a quarter, DBEs are not required to sign the report.

B. Trucker's Reports. All DBE haulers must complete and submit a DBE Trucker's Report along with the DBE quarterly report when the DBE leases trucks from another firm. The DBE hauler must list all trucks leased, payments made to the lessee during the quarter, and identify whether each leased truck is owned by a certified DBE or non-DBE. DBE Haulers must also submit one copy of each lease agreement to the Resident Construction Engineer prior to the start of work for each truck leased. A lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE.

C. Other Documents. Upon request of SCDOT, the Contractor and all subcontractors shall furnish documents, including subcontracts, necessary to verify the amount and costs of the materials or services provided by certified DBE suppliers or subcontractors. The Contractor shall keep the documents that verify this information for at least three years from the date of final close-out of the contract. Failure to provide these documents upon request may result in the withholding of monthly progress and/or final payment or disqualifying the Contractor from bidding pursuant to R. 63-306, South Carolina State Regulations.

6. CONTRACT COMPLETION – DETERMINATION OF WHETHER CONTRACTOR HAS MET THE GOAL OR MADE GOOD FAITH EFFORTS

A. Review by SCDOT. After receipt of the final DBE Quarterly Reports, SCDOT will review the necessary contract documentation to determine whether the Contractor has met the DBE commitments and contract goal.

B. Notification of Failure to Meet Goal. If the documentation indicates that the Contractor has not met the DBE commitments and contract goal, the Director of Construction will notify the Contractor in writing and request documentation of the Contractor's good faith efforts to meet the goal.

C. Determination of Good Faith Efforts. The Contractor shall submit documentation demonstrating good faith efforts to meet the contract commitments and goal to the Director of Construction within thirty (30) days of the date of the "Notification of Failure to Meet Goal." The Director of Construction will provide the Contractor with written notice of SCDOT's determination whether good faith efforts have been demonstrated.

D. Request for Reconsideration. If the Contractor disagrees with SCDOT's determination of post construction compliance, the Contractor may request a reconsideration by filing a written request with the Director of Construction within ten (10) business days after receipt of the determination. The Contractor shall submit any additional documentation that it wishes to be considered in support of its position within ten (10) business days of its request for reconsidertation. If the Contractor fails to request a reconsideration within ten (10) days, the determination shall be final. If the Contractor requests reconsideration, the Director of Construction Office will appoint a Reconsideration Official who did not take part in the original determination to review the decision and supporting documentation (hereinafter referred to as the "Reconsideration Official"). FHWA may participate in the review process. The Reconsideration Official will contact the Contractor and schedule a meeting with the Contractor. The meeting will be held at the SCDOT Headquarters Building in Columbia. At the meeting, the Contractor will have an opportunity to present oral and written evidence to demonstrate that good faith efforts were made to meet the DBE commitments and contract goal. The Reconsideration Official may also consider evidence presented by SCDOT at the same meeting. After the meeting, the Reconsideration Official will issue a written report and recommendation to the Director of Construction. The Director of Construction shall make the final decision on the issue. The Director of Construction will notify the Contractor of the final decision in writing.

August 7, 1991

LATE DISCOVERY OF ARCHAEOLOGICAL/HISTORICAL REMAINS ON FEDERAL AID PROJECTS AND APPROVAL OF DESIGNATED BORROW PITS

A. Late Discovery of Archaeological/Historical Remains on Federal Aid Projects.

1. Responsibilities:

The Contractor and subcontractors must notify their workers to watch for the presence of any prehistoric or historic remains, including but not limited to arrowheads, pottery, ceramics, flakes, bones, graves, gravestones, or brick concentrations. If any such cultural remains are encountered, the Resident Construction Engineer shall be immediately notified and all work in the vicinity of the discovered materials or site shall cease until the Department's Staff Archaeologist or the State Highway Engineer directs otherwise.

2. Applicability:

This provision covers all areas of ground disturbance resulting from this federal - aid contract, including but not limited to road construction, Department designated borrow pits, Contractor furnished borrow pits, and/or staging areas.

3. Cost Reimbursement and Time Delays:

Any extra work required by A(1) above within the project right of way or on Department designated borrow pits (see below) will be paid for in accordance with Subsection 104.05 of the Standard Specifications. Extra contract time may be provided under Subsection 108.06 of the Standard Specifications for archaeological work within the project right of way or on designated borrow pits.

NOTE: On Contractor furnished borrow pits the contractor is not entitled to any additional time or money for delay on impact resulting from A(1) above or for extra work required by A(1) above. Therefore, contractors may wish to retain professional archaeological services to better ensure that borrow pit areas are cleared of archaeological/historical remains prior to use on Federal aid projects.

B. Approval of Designated Borrow Pits on Federal Aid Projects (Plant Sites which qualify as commercial are not included).

In instances where the Department specifically designates the location of borrow pits on project plans or in contract specifications for use on a Federal aid project, an archaeological survey will be performed by Department archaeologists prior to award of contract.

This provision also applies to designated disposal sites, staging areas, haul roads, and job site field offices.

August 20, 1975
Revised April 1, 2004

SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES TRAINING SPECIAL PROVISIONS

This Training Special Provision supersedes Subparagraph 7b of the Special Provision entitled "Specific Equal Employment Opportunity Responsibilities", (Attachment 1), and is in implementation of 23 U.S.C. 140(a).

As part of the contractor's equal employment opportunity affirmative action program, training shall be provided as follows:

> The contractor shall provide on-the-job training aimed at developing full journeymen in the type of trade or job classification involved.

THE NUMBER OF TRAINEES TO BE TRAINED UNDER THE SPECIAL PROVISION WILL BE.
Road – 12 (at 520 hours each)
Bridge – 11 (at 1040 hours each)

In the event that a Contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided however, that the Contractor shall retain the primary responsibility for meeting the training requirements imposed by this Special Provision. The Contractor shall also insure that this training Special Provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the Contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment. Prior to commencing construction, the Contractor shall submit to the State Highway Agency for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the Contractor shall specify the starting time for training in each of the classifications. The Contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Accordingly, the Contractor shall make every effort to enroll minority trainees and women (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority and women (trainees)) to the extent that such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the Contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The Contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the Contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the Contractor and approved by the State Highway Agency and the Federal Highway Administration. The State Highway Agency and the Federal Highway Administration shall approve a program if it is reasonably calculated to meet the equal employment opportunity obligations of the Contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S, Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved but not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal Aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the

classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the division office. Some off-site training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the cost for the training will be included in the contract price. There will be no reimbursement given by SCDOT for the hours of training that are provided on this project. However, a "Statement of Completed Training" will be required at the end of the project. The fact that the cost of the training must be included in the contract does not prohibit the contractor from receiving training program funds from other sources, if he so desires. Training hours may be counted if training is done off-site where the contractor does one or more of the following and the trainees are concurrently employed on a Federal Aid project: contributes to the cost of the training, provides the instruction to the trainee, or pays the trainee's wages during the off-site training period.

The training requirement will not be considered completed by the Contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the Contractor and evidences a lack of good faith on the part of the Contractor in meeting the requirements of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program. It is not required that all trainees be on board for the entire length of the contract. A Contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The Contractor shall furnish the trainee a copy of the program he will follow in providing the training. The Contractor shall provide each trainee with a certification showing the type and length of training satisfactorily completed.

The Contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision, as required under the SCDOT approved training program.

Meeting the On-the-job Training Requirements or Making Good Faith Efforts to Meet the On-the-job Training Requirements. It is the Contractor's responsibility to meet the On-the-job Training Requirements stated in this section. Failure to meet the requirement or demonstrate good faith efforts, as determined by SCDOT, to meet the requirement may result in any one or more of the following sanctions:

(1) Withholding monthly progress payments;
(2) Declaring the Contractor in default pursuant to Section 108.10 of the Standard Specifications and terminating the contract;

(3) Disqualifying the Contractor from bidding pursuant to Regulation 63-306, Volume 25A, of the S. C. Code of Laws; and/or
(4) Requiring the Contractor to obtain On-the-job Training participation on future contracts to the extent the Contractor failed to meet or use good faith efforts to meet the On-the-job training contract requirement.

FHWA-1273 -- Revised May 1, 2012

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by

reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-

job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. Davis-Bacon and Related Act Provisions

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension

of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds

for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508

of the Clean Water Act or Section 306 of the Clean Air Act.

2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1**. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of

the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

1. The Offeror's or Bidders attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
2. The goals and timetables for minority and female participation expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area are as follows:

Goals for Women Apply Nationwide

GOALS AND TIMETABLES

Timetable	*Goals (percent)*
From Apr. 1, 1976 until March 31, 1979----------	3.1
From Apr. 1, 1979 until March 31, 1980----------	5.1
From Apr. 1, 1980 until March 31, 1981----------	6.9

Goals for Minority Participation

South Carolina

SMSA Counties:…… Greenville, Pickens, Spartanburg	16.0
Non-SMSA Counties:…… Abbeville, Anderson, Cherokee, Greenwood, Laurens, Oconee, Union	17.8
SMSA Counties:…… Lexington, Richland	23.4
Non-SMSA Counties……. Calhoun, Clarendon, Fairfield, Kershaw, Lee, Newberry, Orangeburg, Saluda, Sumter	32.0
Non-SMSA Counties…… Chesterfield, Darlington, Dillon, Florence, Georgetown, Horry, Marion, Marlboro, Williamsburg	33.0
SMSA Counties:…… Berkeley, Charleston, Dorchester	30.0
Non-SMSA Counties…… Colleton	30.7
Non-SMSA Counties…… Beaufort, Hampton, Jasper	29.8
Non-SMSA Counties…… Chester Lancaster York	15.7
Non-SMSA Counties…… Barnwell, Edgefield, McCormick, Allendale, Bamberg	32.8
SMSA Counties:…… Aiken	27.2

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical areas where the work is actually performed. With regard to this second area, the Contractor is also subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 Shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a) and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees of trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor, employer identification number, estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.
4. As used in this Notice and in the contract resulting from this solicitation, the "covered area" is (insert description of the geographical areas where the contract is to be performed giving the state, county, and city, if any). The "covered area is the SMSA County or Counties or Non-SMSA County or Counties in which the contract work is performed.

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)

1. As used in these specifications:
   a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
   b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
   c. "Employer identification number" means the Federal Social Security number used on the Employers Quarterly Federal Tax Return, U. S. Treasury Department Form 941.
   d. "Minority" includes:
      (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
      (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin regardless of race);
      (iii) Asian or Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
      (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess

of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U. S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.
4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in which it has employees in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notices form and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.
5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U. S. Department of Labor.
7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:
    a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority of female individuals working at such sites or in such facilities.
    b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available and maintain a record of the organization's responses.
    c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may taken.
    d. Provide immediate written notification to the Director when union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet his obligations.
    e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.
    f. Disseminate the Contractor's EEO policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
    g. Review at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initialization of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
    h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.
    i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall sent written notification to organizations such as the

above, describing the openings, screening procedures and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that all seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.
9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).
10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.
11. The Contractor shall not enter into any Subcontract with any person or firm debarred from the Government contracts pursuant to the executive Order 11246.
12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and the Equal Opportunity Clause, including suspensions, termination and cancellation of the existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended. and its implementing regulations, by the Office if the Federal Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of the specifications and Executive Order 11246, as amended.
13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4-8.
14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, constriction trade, union affiliation if any employee identification number when assigned, social security number, race, sex status(e.g., Mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and location at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that the existing records satisfy this requirement, contractors shall not be required to maintain separate records.
15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents(e.g. those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

S. C. File Number 23.038111 - F. A. Project Number IM23 - 009 County -Greenville

General Decision Number: SC130044 01/04/2013 SC44

Superseded General Decision Number: SC20100071

State: South Carolina

Construction Type: Highway

Counties: Anderson, Greenville, Laurens, Pickens, Spartanburg and York Counties in South Carolina.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Modification Number Publication Date
0 01/04/2013

SUSC2011-035 09/15/2011

	Rates	Fringes
CARPENTER (Form Work Only)	$ 14.44	
CEMENT MASON/CONCRETE FINISHER	$ 12.64	
IRONWORKER, REINFORCING	$ 15.02	
LABORER		
Asphalt Includes Asphalt Distributor, Shoveler, and Spreader		
Anderson, Greenville, Laurens, Pickens, Spartanburg	$ 11.54	
York	$ 11.62	
Common or General		
Anderson	$ 9.71	
Greenville, Pickens	$ 9.87	
Laurens	$ 8.89	
Spartanburg	$ 10.05	
York	$ 9.63	
Luteman	$ 10.76	
Mason tender- Cement/Concrete	$ 10.40	
Pipelayer	$ 13.98	
Traffic Control-Cone Setter	$ 11.75	
Traffic Control Flagger		
Anderson, Spartanburg, York	$ 10.13	
Greenville, Laurens, Pickens	$ 10.62	

POWER EQUIPMENT OPERATOR:
Backhoe/Excavator/Trackhoe
Greenville, Laurens,
Pickens.....$ 13.82
Spartanburg, York.....$ 13.92
Bulldozer.....$ 12.95
Crane.....$ 19.73
Grader/Blade
Anderson, Spartanburg,
York.....$ 13.13
Greenville, Laurens,
Pickens.....$ 12.62
Hydroseeder.....$ 11.00
Loader (Front End).....$ 16.80
Mechanic.....$ 17.75
Milling Machine.....$ 11.84
Paver
Anderson, Spartanburg,
York.....$ 12.93
Greenville, Laurens,
Pickens.....$ 13.61
Roller
Anderson, Spartanburg,
York.....$ 12.11
Greenville.....$ 12.59
Laurens, Pickens.....$ 12.16
Scraper.....$ 12.71
Screed.....$ 13.09
Tractor.....$ 13.28

TRUCK DRIVER
Dump Truck
Anderson, Spartanburg,
York.....$ 12.75
Greenville.....$ 13.17
Laurens, Pickens.....$ 12.70
Lowboy Truck
Anderson, Spartanburg,
York.....$ 13.48
Greenville, Laurens,
Pickens.....$ 13.36

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical

order of "identifiers" that indicate whether the particular rate is union or non-union.

Union Identifiers

An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for that classification. Example: PLUM0198-005 07/01/2011. The first four letters , PLUM, indicate the international union and the four-digit number, 0198, that follows indicates the local union number or district council number where applicable , i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rate.

Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union rates, LA indicates the State of Louisiana; 2004 is the year of the survey; and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Wage Determination on that date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

S. C. File Number 23.038111 - F. A. Project Number IM23 - 009 County -Greenville

General Decision Number: SC140044 01/03/2014 SC44

Superseded General Decision Number: SC20130044
State: South Carolina
Construction Type: Highway
Counties: Anderson, Greenville, Laurens, Pickens, Spartanburg and York Counties in South Carolina.
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Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rates.
0000/9999: weighted union wage rates will be published annually each January.
Non-Union Identifiers
Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union majority rates, LA indicates the State of Louisiana; 2004 is the year of the survey; and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Wage Determination on that date.
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On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.
With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.
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END OF GENERAL DECISION

May 22, 1997 S. C. File Number 4754.037183A01

DISADVANTAGED BUSINESS ENTERPRISES (DBE) COMMITTAL SHEET

Information must be shown on this sheet as required by the supplemental specifications entitled *"Instructions to Bidders - Federal Projects"* and *"Disadvantaged Business Enterprises (DBE) - Federal Projects"* included in this proposal.

FAILURE TO PROVIDE ALL INFORMATION REQUIRED ON THIS FORM MAY RESULT IN THE AWARD BEING MADE TO THE NEXT LOWEST RESPONSIBLE BIDDER.

[1] Name & Address of DBE's (Subcontractor or Supplier)	[2] Percent	[3] Description of Work and Approximate Quantity [6] (show percent when appropriate)				[5] Dollar Value
		Item	Qty.	Unit	[4] Unit Price	

[1] The designation of Firm A and/or B is not considered acceptable. I hereby certify that this company has communicated with and received quotes from the DBE's listed above and that they are willing to perform the work as listed above and that this company is committed to utilizing the above firm(s) on this contract.

[2] Percent - show percent of total contract amount committed to each DBE listed.

[3] All information requested must be included unless item is listed in proposal on a lump sum basis.

[4] Unit Price - show unit price quoted by DBE.

[5] Dollar Value - extended amount based on Quantity and Unit Price.

[6] Applies to lump sum items only.

This form may be reproduced or additional sheets added in order to provide all requested information. (See *Instructions to Bidders - Federal Projects*).

SWORN to before me this _____
day of _____, 20

_____
Company

_____ (Seal) By: _____

Notary Public for _____

My commission expires: _____ Title: _____