



South Carolina
Department of Transportation

DM0699

May 28, 1999

MEMORANDUM TO GROUP LEADERS & CONSULTANTS

SUBJECT: NEW FIELD WELDING NOTE & SUPPLEMENTAL SPECIFICATION

The attached revised Bridge Design standard notes sheets should be used for bridge projects beginning with the August 1999 letting. Your attention is directed to a new note entitled, "**FIELD WELDING**".

This change was required to address concerns about the quality of welding done by the Contractor's personnel. The note and the new Supplemental Specification allows for selective inspection and testing of field welding.

The attached new Supplemental Specification entitled "FIELD WELDING" will be included in all bridge projects beginning with the August 1999 letting.

Plans that are complete and that will be let in August 1999 or later must be revised to include this revision. Your cooperation in this matter is appreciated.

Randy R. Cannon, P.E.
Bridge Design Engineer

Attachments:

cc: Assistant Bridge Design Engineers

File: PC/REL



July 19, 1999

FIELD WELDING

South Carolina Department of Transportation Standard Specifications for Highway Construction, Edition of 1986 are revised as follows:

Subsection 709.22 "Structural Welding" is revised by removing the last sentence in paragraph A.1.(b) and all of part B "Field Welding" and replaced with the following Subsection 709.22B "Field Welding".

709.22B "Field Welding":

- (1) General. All field welding, except welding of reinforced pile tips, temporary false-work (unless specified), SIP form-work, armor plate at bridge ends and armor plate at expansion joints shall be considered structural welding and shall be performed by a SCDOT certified welder. All field personnel welding structural steel, steel reinforcement, steel pile splices, and other types of field structural welds shall have been qualified to perform the type of welding in accordance with the qualification procedure of ANSI/AASHTO/AWS D 1.5 Bridge Welding Code as follows: A welder or tacker (hereafter known as "welder") may be qualified by preparing test specimens in accordance with section 5.22, figure 5.7A, Position 2G for limited thickness groove welding (butt welding) and section 5.23, figure 5.8A, Position 2F for fillet welding. Testing as shown in Figure 5.8B will not suffice for fillet welding qualification.

The above testing is minimum and will qualify the welder for general welding at the job site. By choice of the welder, he may qualify for additional positions and unlimited metal thickness as part of the above testing. Specialized welding and welding positions at the job site may require additional welder qualification testing if required by the Engineer.

The test specimens shall be prepared in the presence of and tested and evaluated by an independent laboratory person qualified as a Welding Inspector. All radiographic nondestructive testing shall be performed by an ASNT Level II or III technician. The independent laboratory shall furnish a welder qualification test report on company letterhead stationery stating the type welding approved, name of the welder, the welder's social security number, along with a statement that the welder is duly qualified as a field welder in accordance with the SCDOT requirements. The report shall show the name of the independent laboratory technician(s) making the evaluation and be signed by the independent laboratory manager.

The independent laboratory shall submit a copy of the report to: Research and Materials Engineer, Research and Materials Laboratory, SCDOT, P. O. Box 191, Columbia, SC 29202, for processing. The welder will be forwarded a SCDOT certification good for two years and renewable every two years provided the welder has been engaged in welding procedures during the preceding two year period.

A list of qualified independent laboratories capable of administering this testing may be obtained from the SCDOT Research and Materials Laboratory. An independent laboratory may request to be included on the list by furnishing to the Research and Materials Engineer a letter stating their qualifications to perform the testing and the names of their personnel who will be performing the evaluations.

(2) Submittals. The Contractor shall notify the Resident Construction Engineer and the Research and Material Engineer ten (10) calendar days prior to performing any field welding including the welding of reinforced pile tips, armored plated at bridge joints, temporary false-work and SIP form-work. The Contractor shall document this notification by completing the attached form Entitled "SCDOT Sample Welding Procedure Specification" and forwarding one copy each to the Resident Construction Engineer and the Research and Materials Engineer.

Date 99-07-19

SCDOT WELDING PROCEDURE SPECIFICATION

Material specification _____
Welding process _____
Manual or machine _____
Position of welding _____
Filler metal specification _____
Filler metal classification _____
Flux _____
Shielding gas _____ Flow rate _____
Single or multiple pass _____
Single or multiple arc _____
Welding current _____
Polarity _____
Welding progression _____
Root treatment _____
Preheat and interpass temperature _____
Postheat temperature _____
Heat input Min. _____ Max. _____
Welder's Name _____ Certified Welder Required: Yes _____ No _____
If required Welder's SCDOT Certification No. _____

WELDING PROCEDURE

Pass No.	Electrode size	Welding current		Travel speed	Joint detail
		Amperes	Volts		

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitations of variables given in AWS D1.5, section 5.

Procedure no. _____ Contractor _____
Revision no. _____ Authorized By _____
Date _____

