

SECTION 93

PAVEMENT MARKING AND PERMANENT SIGNAGE

93.1 DESCRIPTION

A. General

This work consists of furnishing and installing, or installing permanent pavement markings and permanent traffic signage. The specific combination of Contractor furnished and installed material or City furnished and Contractor installed material will be as called for in the Bidder's Proposal or as directed by the Engineer.

All traffic control remaining on the site following project acceptance shall become the property of the City. All existing traffic control devices shall remain the property of the City. All signs, signals, or delineators removed by the Contractor shall be delivered in the condition prior to removal to the City of Rapid City, Traffic Operations yard at 709 Steele Avenue (~~394-41188~~), unless directed otherwise by the Engineer. [All returned traffic control devices shall be delivered disassembled. A delivery list shall accompany all returned traffic control devices.](#)

B. Related Work

Section 90 Traffic Control
 Section 91 Traffic Control Devices
 Section 92 Traffic Signals and Roadway Lighting-[Materials](#)

93.2 MATERIALS

A. General

All Traffic Control Devices shall conform to the requirements of the Manual on Uniform Traffic Control Devices (MUTCD), South Dakota State Department of Transportation (SDDOT) design guidelines and specifications, City of Rapid City design requirements, and as directed by the Engineer.

B. Pavement Marking Tape

Permanent Pavement Marking Tape shall conform to SDDOT specification section 983 - Cold-Applied Thermoplastic Pavement Marking and Legends.

Pavement marking tape shall be 3M™ ~~†~~Type 380/381 [ES WR](#) grade for all longitudinal and diagonal lines. All transverse lines and pavement messages shall be 3M-™ type 420. Other cold plastic tape material may be used, only if pre-approved by the Traffic Engineer and are equal to the types specified.

C. Pavement Marking Paint

Paint pavement markings and beads, when specified, shall meet or exceed current State of South Dakota specification for such materials.

D. Signage

All signs shall be fabricated using an aluminum backing having a thickness of 0.080 inches and meeting the other requirement contained in SDDOT specification section 982.2A.1-2.

High Intensity Reflective Sheeting (Type III or higher) will be required for use on all signs except street name signs, which shall be Diamond Ggrade™ VIP sheeting (Type IX).

All sign facing shall use a pressure sensitive adhesive to attach the sign face to backing.

All facing materials and inks used in sign fabrication shall have a minimum five-year manufacturer's warranty.

All sign posts shall be galvanized square perforated tube in accordance with South Dakota Department of Transportation Specification 632. and 982.2, C.1., Perforated Tube Posts. Sign posts shall have a 12 gauge wall thickness.

93.3 CONSTRUCTION REQUIREMENTS

A. General

The Contractor shall furnish, and/or install required pavement marking material, signs and delineators.

B. Permanent Pavement Marking

Permanent Pavement Marking Tape installation shall conform to SDDOT specification section 983 - Cold-Applied Thermoplastic Pavement Marking and Legends, permanent Pavement Marking Tape shall be applied in accordance with the manufacturer's recommendations. Permanent Pavement Marking Tape shall carry to the City all standard manufacturers' warranties.

Installation of painted pavement markings and beads, when specified, shall meet or exceed current State of South Dakota specification for such materials.

Permanent centerline marking and, on multi-lane sections, permanent lane lines, and stop bars at traffic signals shall be placed prior to opening to traffic newly paved or

roto-milled surfaces, asphalt surface treatments, seal, prime, and tack coats. Marking of edge lines are not required prior to opening to traffic.

Permanent markings shall be of the design, size and color specified on the plans or as directed by the Engineer.

Permanent Road Markers shall be applied in accordance with the manufacturer's recommendations. Location, color and number shall be as shown on the plans, or, as directed by the Engineer. Specific type used shall be, approved by the Engineer prior to use.

C. Removal of Pavement Markings

Traffic stripes and pavement markings not matching current traffic flows, or as designated by the Engineer, shall be completely removed and obliterated. Existing and temporary markings, which the Engineer determines to be no longer applicable shall be completely removed and obliterated at no expense to the City. Removal of **ALL** conflicting existing and temporary markings shall be completed prior to opening the road to traffic. Temporary markings shall be removed prior to the installation of replacement permanent pavement markings.

Pavement markings shall be removed by any method that does not damage the surface or texture of the pavement. Sand or other material deposited on the pavement as a result of removing markings shall be removed as work progresses. Accumulations of blast media or other material, which might interfere with drainage or might constitute a hazard to traffic, will not be permitted.

Covering the markings is not acceptable.

Where blast cleaning is used for the removal of pavement markings or for removal of objectionable material, and such removal operation is being performed within ten (10) feet of a lane occupied by the traveling public, the residue, including dust, shall be removed immediately after contact between the blast media and the surface being treated. Removal shall be by a vacuum attachment operating concurrently with the blast cleaning operation or by other methods approved by the Engineer. Contractor shall take all necessary precautions to protect the traveling public during the removal operation.

Damage to the pavement or surfacing caused by pavement marking removal shall be repaired at the Contractor's expense by methods acceptable to the Engineer.

D. Installation of Pavement Markings

Permanent pavement marking installation shall occur in a manner and environment meeting all manufacturers' recommendations. Installation shall be done in such a manner so as to not void any applicable manufacturer's warranties.

Whenever a non-standard installation method is called for on the drawings, Detailed Specification will govern such installations.

When weather, time-of-year, or the Contractor's operation does not allow the installation of permanent pavement markings, the Contractor install temporary

markings and remain responsible for the maintenance of temporary pavement markings until such time as the permanent pavement markings are installed.

E. Permanent Traffic Signage

Permanent traffic signage shall meet all requirements of the City, State of South Dakota Department of Transportation (SDDOT) specifications and those contained in the Manual on Uniform Traffic Control Devices.

All signs shall be mounted in a manner that satisfies break-away requirements as set forth by the FHWA and SDDOT. Break-away support hardware shall be of a type similar to that in use by the City at the time of sign installation.

Permanent traffic signs shall be installed where shown on the plans, or, as modified by the Engineer. [A list of all traffic signs installed shall be furnished to the City.](#)

All signs shall be sized to meet the “standard” sign size as defined in the Manual on Uniform Traffic Control Devices. Over sized signs will be identified in the plans.

Permanent traffic sign installation shall include the sign face, backing, post, stub, and all incidental hardware.

[Sign post sleeves installed in pavement areas shall be installed within an approved casing.](#)

All signs installed during the period of construction shall remain the full responsibility of the contractor until acceptance by the City. All permanent traffic signs shall be installed prior to allowing traffic onto the adjacent section of roadway.

93.4 METHOD OF MEASUREMENT

Measurement for permanent pavement markings shall be as follows:

All line markings (longitudinal or transverse) shall be measured to the nearest linear foot.

All messages will be measured on a per each message basis.

Measurement for permanent traffic signs shall be on a per sign basis. Signs having similar legends shall be considered to have similar prices as long as the size and color of the sign is the same.

93.5 BASIS OF PAYMENT

Payment will be for the actual quantities furnished and/or installed. It shall remain the option of the City to determine which combination of furnish/install is used for each item.

Payment for permanent pavement markings will be made at the contract unit price as per the basis of measurement and shall be considered as full compensation for costs incidental thereto. Payment will be made following acceptance by the City. Prior to acceptance the contractor shall supply to the City all necessary warranty certifications. Payment will be full compensation for installation.

Payment for permanent traffic signage will be made at the contract unit price for each sign. If payment is made for a manufactured/installed sign, or sign installation, all posts, mounting hardware and incidentals shall be included in the payment cost. Payment will be made following acceptance by the City. Payment will be full compensation.

END OF SECTION