

PART E
SPECIFICATIONS

PART E - SPECIFICATIONS

GENERAL

E1. GENERAL

E1.1 These Specifications shall apply to the Work.

E2. GOODS

E2.1 The Contractor shall supply and deliver traffic signal head, bracket arm and shoe assembly in accordance with the requirements hereinafter specified.

E2.2 The bracket arm shall be made from a 1½ inch (Inner Diameter) I.P.S. ("iron pipe size") aluminum pipe. The aluminum pipe shall be 14 inches in length (overall length of the bracket arm with elbow attached shall be 16 inches in length). The aluminum pipe shall be threaded on one end.

E2.3 The threaded end of the bracket arm shall be screwed into a cast aluminum 90 degree elbow. The open (male) end of the elbow shall have the equivalent of a 1¼ inch (\pm ¼ inch) long straight nipple threaded to 1½ inch I.P.S non-tapered standard thread size. The elbow shall have at the top of the threaded nipple a 2½ inch outer diameter, 5/16 inch thick flange with 4 raised serrations to match the indentations on the mounting hole of a standard traffic signal head. Wire Raceways within the hollow cast bracket arms shall be of adequate size to carry all necessary wires without crowding (typically one City of Winnipeg 7 conductor 14 gauge cable [1/2-inch diameter], plus one 4-conductor 16 gauge cable pushbutton cable [1/4-inch diameter] to be accommodated). The threaded nipple on the bracket arm elbow shall be compatible with the Standard City of Winnipeg approved **SIGNAL HEAD ALUMINUM OCTAGON MOUNTING NUT** a sample of which shall be provided upon request by contacting the Contract Administrator as shown in Clause D5.1.

E2.4 Each bracket arm and elbow assembly shall have attached, at the non-threaded end of the bracket arm, an aluminum mounting "shoe" capable of being fastened to a pole by a single round of banding. The shoe shall be secured to the bracket arm with two stainless steel cap screws. The two stainless steel cap screws shall have anti-seize lubricant applied to the threads. The shoe shall have a stop to prevent the non-threaded end of the bracket arm pipe from entering too far into the shoe and the shoe shall have a cable exit slot. The shoe shall be arched on the end to fit either round or octagonal poles and shall have a tab on each side. Each tab shall have a ½ inch diameter hole for securing the shoe to a wooden pole by means of 2 lag bolts.

E2.5 All components of the bracket arms and shoes shall be manufactured from aluminum excepting the (stainless steel) cap screws which fasten the mounting shoe to the bracket arm. The two (2) stainless steel cap screws shall be ½ inch national coarse thread, 1-inch overall length and shall have a ½ inch square head, the bolt head being 3/8 inches high, and which shall have a cupped hollow-point base.

E2.6 All components shall be of sufficient strength that a bracket arm and shoe assembly, when used in an assembly, will support the maximum specified load. The maximum specified load shall be that imposed by a 5 section by 12 inch traffic signal head complete with backboard. Specifics of the design load shall be as prescribed by the latest revisions of the **AASHTO** (American Association of State Highway and Transportation Officials) "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals" under a design wind speed of 100 mph for the wind load calculations (design wind pressure $P = 25.6 C_d C_h$ pounds per square foot applied to the above traffic signal head and backboard weighing 80 pounds and having a wind load area 22.75-inches wide by 79.5-inches tall - 12.5 square feet).

- E2.7 All burrs and sharp edges shall be made smooth on exterior and interior surfaces to prevent injury to persons and/or cabling. The bracket arms shall be unpainted, however; they may have a clear protective coat if so provided by the manufacturer.
- E2.8 Each bracket arm shall be supplied complete with one aluminum octagon nut which shall fit the threaded 90 degree male end of the elbow. This aluminum nut shall be 2½ inches across flats and approximately 7/16 inches thick. The nut shall be threaded to 1½ I.P.S. non-tapered standard thread. A sample of this Standard City of Winnipeg Aluminum Octagon Nut shall be made available upon request by contacting the Contract Administrator as shown in Clause D5.1.
- E2.9 The bracket arms and shoes shall be packed in suitable quantities for handling manually.

E3. DELIVERY

- E3.1 Goods shall be delivered in accordance with the following approximate schedule, f.o.b. destination, freight prepaid to:

Date	Location	Item No.	Quantity
May 15, 2004	1277 Pacific Avenue	1	500
August 15, 2004	1277 Pacific Avenue	1	500
April 01, 2005	1277 Pacific Avenue	1	500
August 01, 2005	1277 Pacific Avenue	1	500
April 01, 2006	1277 Pacific Avenue	1	500
August 01, 2006	1277 Pacific Avenue	1	500

- E3.1.1 The Contractor shall provide the Contract Administrator with a detailed delivery schedule no later than seven (7) Calendar Days from notification of the award of the Contract.
- E3.1.2 The Contractor shall confirm each scheduled delivery with the User at least two (2) Business Days before delivery.
- E3.2 Goods shall be delivered between 8:30 a.m. and 3:30 p.m. on Business Days.