## ITEM P-640 SEGMENTED CIRCLE

DESCRIPTION

640-1.1Thisitem consists of furnishing and installing an airport segmented circle, according to the dimensions, design, details, and location shown on the Plans. Construct barrel-type or panel-type, as shown in the bid schedule.

If shown on the Plans, the segmented circle includes landing direction indicator, landing strip indicators, or traffic pattern indicators.

MATERIALS

640-2.1 Barrel-Type.

1. **Barrels.** Cylindrical, steel, 55-gallon, undamaged, contaminant-free, and rust-free.
2. **Primer Paint.** Zinc Oxide, raw linseed oil, and alkyd primer, meeting SSPC-Paint 25.
3. **Finish Paint.** Aviation Gloss Orange, No. 12197, meeting Federal Standard 595.

640-2.2 Panel-Type.

1. **Panels.** Sheet aluminum with a reflective covering and meeting the following requirements:
	1. Use 0.080-inch thick, alloy 6061-T6, 5052-H36, 5052-H38, or recycled aluminum meeting alloy 3105, as specified in ASTM B209.
	2. Make each panel a continuous sheet for the length and width shown on the Plans. Furnish panels that are cut to size and shape and free of buckles, warp, dents, cockles, burrs and any other defects resulting from fabrication. Complete all possible fabrication including shearing, cutting and hole punching prior to preparing the base metal for painting and application of reflective sheeting.
	3. Treat the aluminum base metal sheets with coating for aluminum conforming to the requirements of ASTM B921, Class 2. After cleaning and coating operations, protect the panels at all times from contact or exposure to greases, oils, dust or other contaminants.
	4. Prepare both sides of each panel and cover with orange retroreflective sheeting, meeting the requirements of ASTM D4956, Type IV, as recommended by the manufacturer in the configuration shown on the plans.
2. **Frames.** Perforated, galvanized, square steel tubing with the dimensions shown on the Plans and meeting the following requirements:
	1. Fabricate square tube with cold-rolled carbon steel sheets, 12 gage, commercial quality, meeting ASTM A653, coating designation G 90. Form tubes, roll to size, and continuously weld for the entire length.
	2. Perforate all members for their entire length with 7/16-inch diameter holes on 1-inch centers.
	3. Furnish members that are straight and with a smooth, uniform finish with no splices.
	4. Ensure that all perforations and cut off ends are free from burrs.
3. **Hardware and Fasteners.** Hardware and fasteners shall meet the following requirements:
	1. Gusset and splice plates shall be 1/4-inch thick steel, ASTM A36, galvanized.
	2. Fasteners shall be hot dip galvanized, Grade 2, 3/8-inch diameter bolts; with two 1-inch diameter washers and one nut, each bolt. Provide bolt lengths as required to fasten members.

CONSTRUCTION METHODS

640-3.1 GENERAL. The site may be either on a prepared pad constructed for that purpose under separate item or on natural ground, whichever is shown on the Plans.

If the segmented circle is to be placed on original ground, clear the site of all brush and vegetation to the limits shown on the Plans and level the site.

Use material excavated for installation of barrels or stanchions as backfill. Spread excess material evenly over ground adjacent to the barrels, stanchions, or pad so as to leave the site in a neat condition.

640-3.2 BARREL-TYPE. Clean the outside of each barrel with an approved solvent and paint with 1 coat of primer paint and 2 coats of finish paint.

Cut hole maximum of 6 inches in bottom of barrel. Fill barrel one third with clean sand or gravel. Bury the bottom one third of barrel at the location and in the configuration shown on the Plans.

640-3.3 PANEL-TYPE. Prepare and assemble panels, perforated steel tubes, and hardware as shown in the Plans. Bury stanchions to the depth, at the location, and in the configuration shown on the Plans.

METHOD OF MEASUREMENT

640-4.1 Segmented circle will not be measured for payment.

BASIS OF PAYMENT

640-5.1 Payment will be made at the contract lump sum price shown on the bid schedule. Clearing of the site is paid for under Item P-151 Clearing and Grubbing. If Item P-151 is not included in the bid schedule, clearing is subsidiary.

Payment will be made under:

Item P640.010.0000 Segmented Circle (Barrel-Type) – per lump sum

Item P640.020.0000 Segmented Circle (Panel-Type) – per lump sum

REFERENCES

ASTM A36 Structural Steel

ASTM A653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

ASTM B209 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate

ASTM B921 Standard Specification for Non-hexavalent Chromium Conversion Coatings on Aluminum and Aluminum Alloys

ASTM D4956 Standard Specification for Retroreflective Sheeting for Traffic Control

Federal Standard 595 Colors Used in Government Procurement

SSPC – Paint 25 Specification for Zinc Oxide, Raw Linseed Oil, and Alkyd Primer (Without Lead and Chromate Pigments)