Special Specification 4174
Prefabricated Pedestrian Steel Truss Bridge Span

1. DESCRIPTION

Design, fabricate, and install prefabricated pedestrian steel truss bridge spans including bearing devices, anchor bolts, bridge deck, and pedestrian railings. This Item does not govern the design or construction of bridge substructure, including piers, abutments, and foundations.

1.1. **Design.**

The Contractor is responsible for the structural adequacy of the prefabricated pedestrian steel truss bridge span design. Submit to the Engineer details and design calculations bearing the seal of a licensed Texas Professional Engineer for review and approval. Include the steel truss span superstructure, bearing devices, anchor bolts, bridge deck, and bridge railing with accessibility handrails when required. Provide at least 28 calendar days' notice before the start of fabrication. Design in compliance with the current AASHTO LRFD Guide Specifications for the Design of Pedestrian Bridges and AASHTO LRFD Bridge Design Specifications. The department will not grant additional time for rejection or correction of design submissions.

Design railing as 42 in. pedestrian railing in accordance with the latest AASHTO requirements for pedestrian railing. Railing may be integral with through truss members provided it satisfies LRFD Specification requirements.

Design bridge deck surfaces to meet the requirements of Pedestrian Facilities in the Public Right of Way (PROWAG) Section R302.7, "Surfaces."

Bridge deck grade shall be as shown in the plans. Provide accessible handrails meeting the requirements of the PROWAG Section R409, "Handrails."

2. MATERIALS

Provide materials that meet requirements of the following Items:

- Item 421, "Hydraulic Cement Concrete,"
- Item 422, "Concrete Superstructures,"
- Item 434, "Bridge Bearings,"
- Item 440, "Reinforcement for Concrete,"
- Item 441, "Steel Structures,"
- Item 442, "Metal for Structures,"
- Item 447, "Structural Bolting,"
- Item 448, "Structural Field Welding," and
- Item 449, "Anchor Bolts."

Paint, galvanize, or leave the steel truss surfaces exposed. When specified, galvanize as directed by Item 445, "Galvanizing." When painting, use Protection System II as directed by Item 446, "Field Cleaning and Painting Steel." Paint gray unless otherwise shown on the plans. Provide a Society for Protective Coatings SSPC SP6 cleaning for exposed weathering steel.

2.1. **Fabrication.**

Fabricate the trusses, bearing devices, and other permanent metal components for the steel truss span in accordance with Item 441, “Steel Structures.” Fabricators performing the work must be approved by the Department before producing the steel truss spans for department projects. A list of approved pedestrian steel truss bridge span fabricators is maintained by the Construction Division. Approval of the fabricator is based on the following:

- obtaining certification by the American Institute of Steel Construction (AISC) Quality Certification Program as a fabrication shop for Major Steel Bridges (CBR);
- obtaining an AISC Sophisticated Coatings Endorsement when painted bridges are specified;
- demonstrating the ability to design and fabricate pedestrian steel truss bridge spans that provide quality workmanship, detailing, structural integrity, and satisfactory aesthetics; and
- having readily available access to the services of a licensed professional engineer, experienced in the design of pedestrian steel truss bridge spans.

Prepare and submit detailed shop drawings for:

- Layout of the complete bridge assembly indicating span lengths, widths, location of bearing assemblies, and top of bearing seat elevations at bridge abutments.
- Steel truss span superstructure, bearing devices, anchor bolts and embedment, bridge deck, and bridge railing with accessibility handrails when required. Design must account for hydraulic loaded/stream flows as necessary.
- Details of cuts, connections, splices, camber, holes, and other pertinent information.
- Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld.
- Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify high-strength bolted slip-critical, direct-tension, or tensioned shear/bearing connections.

Submit six complete copies of the shop drawings for review and approval. Give the Engineer at least 28 calendar days to review and approve each shop drawing submittal. Include unique drawings that illustrate specific portions of the work to be done. Clearly show all relevant design information such as member sizes and connections.

Note that the bridge foundation design, substructure design, and dimensions are based on preliminary design coordination with a fabricator. Any substitutions to the bridge substructure design that would affect the foundation design and bridge substructure design (loading and dimensions) would be the responsibility of the Contractor for both re-design and construction costs.

3. CONSTRUCTION

Erect the bridge and construct the deck in accordance with the following Items:

- Item 422, “Concrete Superstructures,” and
- Item 441, “Steel Structures.”

Construct bridge deck surfaces that meet the requirements of PROWAG Section R302.7, Surfaces."

4. MEASUREMENT

This Item will be measured by each pedestrian truss bridge span in the completed and accepted final position.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured under “Measurement” will be paid for at the unit price bid for “Prefabricated Pedestrian Steel Truss Bridge Span” of

the length specified. This price is full compensation for design, fabrication, transport, erection, deck construction, and final finishing; and for equipment, labor, tools, and incidentals.