

EXPECTED IMPLEMENTATION JULY 2011

452 PRECAST SEGMENTAL BRIDGE CONSTRUCTION.

(REV 1-19-11) (FA 2-4-11) (7-11)

ARTICLE 452-4 (of the Supplemental Specifications) is deleted and the following substituted:

452-4 Shop Drawings, Calculations And Manuals.

452-4.1 General: Use methods and procedures providing adequate safety to the general public from construction/erection activities and/or falsework placed over or adjacent to traveled roadways, navigational or recreational waterways or any existing commercial, industrial or other facility.

452-4.2 Information Required: Submit detailed shop drawings, calculations, manuals and other information, including, but not limited to, the following:

452-4.2.1 Segment Shop Drawings:

(1) A schedule of materials for segment fabrication including concrete, reinforcing steel, prestressing steel, grout, and other similar items.

(2) Each segment number and the direction of erection.

(3) Segment dimensions including widths, lengths, thicknesses, tapers, fillets, radii, working points, post-tensioning, clearances, rebar dimensions and spacing, embedded items, holes, anchorages positions, and other similar items.

(4) Post-tensioning requirements as outlined in Section 462. Check post-tensioning for consistency with pre-approved post-tensioning hardware and provide part numbers for Department pre-approved systems on the shop drawings. Substitution of parts or materials is not allowed.

(5) The volume of concrete, weight of reinforcement and weight of post-tensioning in each precast segment and the total weight for reinforcement and post-tensioning for both the superstructure and substructure summarized and tabulated on the shop drawings.

(6) Details and calculations for any localized strengthening for concentrated supports and loads or reactions from any special erection equipment placed in locations not already allowed for in the plans.

(7) Details and supporting calculations for any modifications to segment geometry, cross section dimensions, or segment length including any required changes to reinforcing and post-tensioning.

(8) Details of permanent and temporary embedded items including inserts, blockouts, temporary openings, holes, and other similar items; and any localized required strengthening and the materials and methods to fill and finish the holes.

452-4.2.2 Casting Yard:

(1) Procedures for segment fabrication including layout of the casting yard, set up and operation of the casting cells, movable rain and sun shades, geometry control stations, the storage and handling of rebar cages, the preparation of as built geometry data, placing and finishing concrete, curing of concrete, form stripping, bond breaking, and other similar items.

(2) Calculations and details for lifting, storage and stacking of segments. Additional strengthening of the segments to accommodate stacking will be at no expense to the Department.

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D (3) Equipment for segments fabrication, including details of the forms and casting cells for the manufacture of the segments, surveying the segment, lifting and transportation of the segment in the yard, and other similar items.

(4) Segment storage including layout of the storage area, method of supporting the segments, single or double stacking, placing erection marks and segment identification, and other similar items.

(5) Segment transportation from the casting yard to the site.

452-4.2.3 Erection Manual: Meet the requirements in 452-8.

452-4.2.4 Manual for Geometry Control and Casting Curves: Meet the requirements in 452-6.3.

R SUBARTICLE 452-5.2 (of the Supplemental Specifications) is deleted and the following substituted:

452-5.2 Concrete: Use concrete as specified in Section 346 except as specifically modified herein. Use No. 67 coarse aggregate in the concrete for segments.

Screenings are not allowed as a substitute for silica sand for use in concrete for Precast Superstructure Segments.

A SUBARTICLE 452-8.1 (of the Supplemental Specifications) is deleted and the following substituted:

452-8.1 Erection Manual: Before commencing erection operations, submit proposals for all segment erection operations to the Engineer for approval. This submittal must be in the form of an "Erection Manual" and include but not necessarily be limited to:

(1) A detailed step-by-step sequence for the erection of each segment including all intermediate procedures relating to erection equipment, temporary and permanent post-tensioning and making of closures between spans and/or cantilevers and other required sequencing.

(2) Positioning, use and sequencing of falsework, jacking and/or releasing of falsework, temporary towers, supports, tie-downs, counterweights, closure devices and the like.

(3) Positioning, use and sequencing of erection equipment such as cranes, beam and winch devices, gantries, trusses and the like, including the movement, introduction and/or removal of any supports onto or connections with the structure. Include drawings and calculations for the structural effects of erection equipment on the structure.

(4) Detailed scheduling of all temporary and permanent post-tensioning operations and sequences in accordance with the segment erection and closure operations and other required scheduling.

(5) Stressing forces and elongations for post-tensioning.

(6) Sequencing of grouting operations.

(7) A method for the field survey control for establishing and checking the erected geometry (elevations and alignments) with particular attention to the setting of critical segments such as, for example, pier segments for balanced cantilever erection.

(8) Any other relevant operations as required and applicable to the structure type and construction method.

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Do not start erection without the Engineer's approval of the erection manual.

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