Figure 5-397.504
27" Prestressed Concrete Beam (Pretensioned) 27M-___

Approved, and signed, October 22, 2008. Last date revised: December 2, 2015

Revised 12-02-2015

At END VIEW:

- Changed the note under the END VIEW title to read: Cut strands flush with concrete. Cover ends with sealant per approved products list "Bridge-Prestressed Beams-Cut Strand Sealant."
- Slightly adjusted the location of the draped strands to show top strands 3" down from the top of the beam.
- Changed the G403E bar to G303E and the G507E to G307E.

At BEAM ELEVATION:

- Break lines, a designer note and additional reinforcement spacing dimensions were added to better clarify the G507E (now G307E) confinement bar.
- The term "Bursting" was changed to "Splitting" in the designer note at the beam end.
- Changed the G403E bar to G303E and the G507E to G307E.

At SECTION AT CL SPAN:

- Changed the note on the right side of the web from "1¼" CLR. (TYP.)" to "1¼" CLR."
- Added note "1 1/8" CLR. and circled note 11 at the lower left corner.
- Changed bar G403E to G303E.

At Y DISTANCES Table:

- Added circled note 5.

At CAMBER DIAGRAM:

- Changed the notes under the CAMBER DIAGRAM title. The 1ST note: "Erection camber shown is after diaphragms are in place" was removed since 27M beams don't use diaphragms.

At CONCRETE END DIAGHRAGM:

- Added Designer Note: "Min. Distance between threaded insert and end of beam is 3"".

At PRESTRESSING STRAND DIAMETER Table:

- Removed the table and changed the Designer Note from "Place an "X" in the appropriate box to indicate the strand diameter used for the design. Round concrete strength to one tenth KSI." to "Indicate min. required concrete strength, round concrete strength to one tenth KSI."

At GENERAL NOTES:

- Removed the note "Approximate weight of beam is __ tons."
- Changed circled note 5 from "Use 7-wire low relaxation prestressing strand, conforming to ASTM A416, grade 270." to "Use 0.6" dia. 7-wire low relaxation prestressing strand, conforming to ASTM A416, grade 270."
- Added circled note 11 "Typ. Clr. for entire bottom flange."

At Bar Details:

- Changed G403E to G303E and G507E to G307E.

Re-Approved 01-13-2015

At the Y DISTANCES TABLE:

- Changed note from "(IN INCHES)" to "(INCHES)" to the end of the table title.

At CAMBER DIAGRAM:

- Changed the "Initial Total Camber" *to* "Erection Camber" in the detail.
- Changed the 1st Camber Diagram note to read: "Erection camber given is after diaphragms are in place."
- Within the 2nd Camber Diagram note, changed the word "Railing" to "Barrier"
- Changed the 3rd Camber Diagram note to read: "Contractor will take elevations at top of beams after erection and will allow for deflection shown to enable building forms to correct grade and specified slab thickness. Provide copy of elevations to the engineer"

At GENERAL NOTES:

- Removed the 1st note: "Tops of beams shall be rough floated and broomed transversely for bond."
- Changed the 3rd note to read: Mark each beam showing bridge number, casting date, and individual identification letters and numbers on the face of the beam, near the end, so located that they will be exposed after the end diaphragms have been cast. Mark fascia beams on the inside face. Ensure all markings are stencilled and clearly legible. For location of beams, see framing plan.
- In the 4th note: Changed the word "shall" to "is" and removed the "Mn/DOT" reference.
- Added Note: "Apply an approved sealer to the sides of the beam near each end per the special provisions."
- Changed numbered note ⑤ to read: Use 7-wire low relaxation prestressing strand, conforming to ASTM A416, grade 270.
- Added to the end of numbered note ⑥: Beams detailed to include a tapered plate per standard figure B309 must include sole plate.
- Added numbered note ⑧: Two inside bars may be placed adjacent to vertical stirrup for tying convenience.
- Added numbered note ⑨: Steel trowel to smooth finish and apply bond breaker per approved products list.
- Added numbered note ⑩: Rough float and broom transversely for bond per spec. 2405.3.D.

At END VIEW:
- Added ¾" to the Chamfer at the bottom flange.
- Added numbered note ⑧ to the dimension for the G806E bar spacing.
- Changed the subtitle to read: Cut strands flush with concrete. Cover ends with one component polyurethane sealant per approved product list.

At BEAM ELEVATION:
- Changed the look of the sole plate to match the updated B303 detail.
- Added clearance dimension "G505E 2" CLR." in the top flange at the beam end.

At SECTION AT ℄ SPAN:
- Added dimension lines and numbered notes at the top flange location for smooth or rough finish guidance.

At DETAIL "A":
- Changed threaded rod note to read "3/4" dia. x 2'-0" rod 2" threaded. See spec. 2405.3.K for coating requirements"

Revised 04-17-2013
This standard was updated to convert reinforcing bar marks from metric to U.S. customary bar designations.

Revised 10-22-2009
Added "ROUND CONCRETE STRENGTH TO ONE TENTH KSI." to the designer note under the Minimum Concrete Strength Table.

At MINIMUM CONCRETE STRENGTH TABLE:
- Changed wording in the table title: from "P.S.I." to "K.S.I."
- Added KSI to the table that lists concrete strength.

At CALCULATED PRESTRESS LOSSES TABLE:
- Added "TOTAL LOSSES …..KSI" row to the table.

At SECTION AT CENTERLINE SPAN:
- Added bar designation "G1001E" to the top tie bar.

At DETAIL "A":
- Changed note to read "3/4" DIA. x 2'-0" ROD 2" THREADED. SEE SPECIAL PROVISIONS FOR COATING REQUIREMENTS"

At CONCRETE END DIAPHRAGM:

- Changed sub-title from "INTEGRAL ABUTMENT (SEE B815 FOR DIAPHRAGM DETAILS)" to "SEE SUPERSTRUCTURE DETAILS AND REINFORCEMENT FOR DIAPHRAGM DETAILS"

Revised 04-22-2009

ADDED: "CALCULATED PRESTRESS LOSSES" box to the sheet.

REVISED: The input data fields to show dashed lines to indicate where designer needs to input information.

At CONCRETE END DIAPHRAGM:

- Changed the sub-title to read: "INTEGRAL ABUTMENT (SEE B815 FOR DIAPHRAGM DETAILS)"

Re-Approved 10-22-2008

CHANGED: "CONTRACTOR SHALL PROVIDE TEMPORARY BRACING" block to "CONTRACTOR SHALL VERIFY STABILITY OF FASCIA BEAMS FROM OVERTURNING (NO PERMANENT BEAM DIAPHRAGMS ARE PRESENT). CONTRACTOR SHALL PROVIDE TEMPORARY BRACING."

ADDED: "OVERHANG SUPPORT CONCEPT SKETCH" detail with note referencing the "Construction Notes" on the front portion of the bridge plans.

ADDED: Designer note as reminder to include 27M temporary bracing note to the "Construction Notes" on the front portion of the plans.

Re-Approved 10-26-2005

Specified certain notes as "designer notes", which are to be removed prior to plotting final plan

At BEAM ELEVATION:

- Clarified 2-G1303E & G1607E spacing at end of beam
- Changed HOLD DOWN POINT *to* HOLD DOWN POINT ⑦

At G1303E bar bend: Changed $11^1/_2$" dimension *to* $12^1/_2$"

Under GENERAL NOTES: Added ⑦ CENTER OF GRAVITY OF HOLD DOWNS WHEN MULTIPLE HOLD DOWNS ARE USED.

Revised 03-31-2005

Under GENERAL NOTES: changed note ⑥ *from* FOR INTEGRAL ABUTMENT. SOLE PLATE CAN BE ELIMINATED OR BE REPLACED WITH APPROVED PROTECTION PLATE. *to* FOR INTEGRAL ABUTMENT, SOLE PLATE CAN BE ELIMINATED OR REPLACED WITH AN APPROVED PROTECTION PLATE.

Approved, and signed, April 29, 2003.