



Florida Department of Transportation

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GOVERNOR

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Tallahassee, FL 32399-0450

ANANTH PRASAD, P.E.
SECRETARY

December 17, 2012

Monica Gourdine
Program Operations Engineer
Federal Highway Administration
545 John Knox Road, Suite 200
Tallahassee, Florida 32303

Re: Office of Design, Specifications
Section **960**
Proposed Specification: **9600201 Post-Tensioning Components.**

Dear Ms. Gourdine:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

These changes were proposed by Charles Boyd of the State Structures Design Office to add vent holes to wedge plate, add a minimum size to the vent hole in the anchorage cap, and change the grade of anchorage cap bolts based on recent construction experiences and Vendor comments.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via email to SP965TT or trey.tillander@dot.state.fl.us.

If you have any questions relating to this specification change, please call me at 414-4140.

Sincerely,

V. Y. "Trey" Tillander, III, P.E.
State Specifications Engineer

TT/cah

Attachment

cc: Florida Transportation Builders' Assoc.
State Construction Engineer

POST-TENSIONING COMPONENTS.

(REV 912-1726-12)

SUBARTILCE 960-2.1 (Pages 1073 – 1074) is deleted and the following substituted:

960-2.1 Anchorage Assembly:

- (a) Construct anchorages from ferrous metal ~~per ASTM A536 Grade 65-45-12 minimum.~~
- (b) Anchorage shall develop at least 95% of PT steel guaranteed ultimate tensile strength (GUTS) when tested in an unbonded state, without exceeding anticipated anchor set.
- (c) Average concrete bearing stress shall be in compliance with AASHTO LRFD Bridge Design Specifications and “AASHTO LRFD Bridge Construction Specifications.”
- (d) Test anchorage with typical local zone reinforcement shown in system drawings.
- (e) Anchorages with grout outlets shall be suitable for inspection from either top or front of anchorage. Anchorage may be fabricated to facilitate both inspection locations or may be two separate anchorages of the same type, each providing singular inspection entry locations.
- (f) Geometry of grout outlets must facilitate access for endoscope inspection directly behind wedge plate using a straight 3/8 inch diameter drill bit. *For all PT systems other than 4 strand flat configurations, place vent hole(s) of 3/8 inch minimum diameter through wedge plate to allow for passage of grout and inspection.*
- (g) Ferrous metal components of an anchorage that are to be embedded in concrete shall be galvanized in accordance with Section 962. Other anchorage assembly components, including wedges, wedge plates, and local zone reinforcement need not be galvanized.
- (h) All anchorages shall have a permanent vented anchorage cap bolted to anchorage.

SUBARTICLE 960-2.2.2.1 (Page 1078) is deleted and the following substituted:

960-2.2.2.1 Anchorage Caps:

- (a) Provide permanent anchorage caps made of stainless steel, nylon, polyester, or Acrylonitrile Butadiene Styrene (ABS).
- (b) Seal Anchorage cap with “O”-ring seals or precision fitted flat gaskets placed against the bearing plate.
- (c) Place a vent *hole of 3/8 inch minimum diameter* suitable for grout venting and inspection of the content inside the anchorage cap from the top or front of the anchorage cap as appropriate (e.g. anchorage caps not accessible after grouting must have a vent at the top of the cap). Anchorage caps may be fabricated to facilitate both inspection locations.

- of 150 psi.
- (d) Anchorage caps shall have a minimum pressure rating
 - (e) Stainless steel bolts shall be used to attach cap to anchorage.
 - (f) Certified test reports documenting steel chemical analysis shall be provided when stainless steel anchorage caps are used.

SUBARTICLE 960-2.4.3 (Page 1079) is deleted and the following substituted:

960-2.4.3 Stainless Steel:

Conforms to the following:

- than bolts.
- (a) ASTM A240 Type 316 - for metallic components other
 - (b) ASTM ~~A593-93 Grade B8M~~ Type 316 - for bolts.

POST-TENSIONING COMPONENTS.
(REV 12-17-12)

SUBARTILCE 960-2.1 (Pages 1073 – 1074) is deleted and the following substituted:

960-2.1 Anchorage Assembly:

- (a) Construct anchorages from ferrous metal.
- (b) Anchorage shall develop at least 95% of PT steel guaranteed ultimate tensile strength (GUTS) when tested in an unbonded state, without exceeding anticipated anchor set.
- (c) Average concrete bearing stress shall be in compliance with AASHTO LRFD Bridge Design Specifications and “AASHTO LRFD Bridge Construction Specifications.”
- (d) Test anchorage with typical local zone reinforcement shown in system drawings.
- (e) Anchorages with grout outlets shall be suitable for inspection from either top or front of anchorage. Anchorage may be fabricated to facilitate both inspection locations or may be two separate anchorages of the same type, each providing singular inspection entry locations.
- (f) Geometry of grout outlets must facilitate access for endoscope inspection directly behind wedge plate using a straight 3/8 inch diameter drill bit. For all PT systems other than 4 strand flat configurations, place vent hole(s) of 3/8 inch minimum diameter through wedge plate to allow for passage of grout and inspection.
- (g) Ferrous metal components of an anchorage that are to be embedded in concrete shall be galvanized in accordance with Section 962. Other anchorage assembly components, including wedges, wedge plates, and local zone reinforcement need not be galvanized.
- (h) All anchorages shall have a permanent vented anchorage cap bolted to anchorage.

SUBARTICLE 960-2.2.2.1 (Page 1078) is deleted and the following substituted:

960-2.2.2.1 Anchorage Caps:

- (a) Provide permanent anchorage caps made of stainless steel, nylon, polyester, or Acrylonitrile Butadiene Styrene (ABS).
- (b) Seal Anchorage cap with “O”-ring seals or precision fitted flat gaskets placed against the bearing plate.
- (c) Place a vent hole of 3/8 inch minimum diameter suitable for grout venting and inspection of the content inside the anchorage cap from the top or front of the anchorage cap as appropriate (e.g. anchorage caps not accessible after grouting must have a vent at the top of the cap). Anchorage caps may be fabricated to facilitate both inspection locations.
- (d) Anchorage caps shall have a minimum pressure rating of 150 psi.

(e) Stainless steel bolts shall be used to attach cap to anchorage.

(f) Certified test reports documenting steel chemical analysis shall be provided when stainless steel anchorage caps are used.

SUBARTICLE 960-2.4.3 (Page 1079) is deleted and the following substituted:

960-2.4.3 Stainless Steel:

Conforms to the following:

(a) ASTM A240 Type 316 - for metallic components other than bolts.

(b) ASTM F593 Type 316 - for bolts.