ORIGINATION FORM

Proposed Revisions to a Standard Plans Index
(Please provide all information — Incomplete forms will be returned)

Contact Information:
Date: June 18, 2021
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Summary of the changes:

Sheet 1: Changed GENERAL NOTE 8 from "Class I" to "Class II".

Commentary / Background:
Changed to reflect Materials specification change that removes the designation for Class I Concrete.
Please see the attached Standard Specification Section 346 DRAFT for the Class I revisions proposed by the State Materials Office.

Other Affected Offices / Documents: (Provide name of person contacted)

Yes  No
☐  ✔ Other Standard Plans –
☐  ✔ FDOT Design Manual –
☐  ✔ Basis of Estimates Manual –
✔  ☐ Standard Specifications – Daniel Strickland
☐  ✔ Approved Product List –
☐  ✔ Construction –
☐  ✔ Maintenance –

Origination Package Includes:
(Email or hand deliver package to Rick Jenkins)

Yes  N/A
✔  ☐ Redline Mark-ups
☐  ☐ Proposed Standard Plan Instruction (SPI)
☐  ☐ Revised SPI
☐  ☐ Other Support Documents

Implementation:
☐ Design Bulletin (Interim)
☐ DCE Memo
☐ Program Mgmt. Bulletin
✔ FY-Standard Plans (Next Release)

Contact the Roadway Design Office for assistance in completing this form
Email to: Rick Jenkins rick.jenkins@dot.state.fl.us and Darren Martin darren.martin@dot.state.fl.us
SUB ARTICLE 346-2.3 is deleted and the following substituted:

346-2.3 Supplementary Cementitious Materials: Supplementary cementitious materials are required to produce binary or ternary concrete mixes in all classes of concrete specified in Table 346-3, except for the following when used in slightly aggressive environments: Class I, Class I (Pavement), and Class II.

The quantity of portland cement replaced with supplementary cementitious materials must be on an equal weight replacement basis of the total cementitious materials in accordance with Table 346-2.

346-2.3.1 Highly Reactive Pozzolans: Materials that have a very high degree of pozzolanic reactivity due to their very fine particle sizes, including silica fume, metakaolin and ultrafine fly ash.

346-2.3.2 Binary Concrete Mixes: Concrete mixes containing portland cement and one supplementary cementitious material.

346-2.3.3 Ternary Concrete Mixes: Concrete mixes containing portland cement and any two of supplementary cementitious materials, either fly ash, slag, or highly reactive pozzolans.

ARTICLE 346-3.1 is deleted and the following substituted:

346-3.1 General: The classifications of concrete are designated as Class I, Class I (Pavement), Class II, Class II (Bridge Deck), Class III, Class III (Seal), Class IV, Class IV (Drilled Shaft), Class V, Class V (Special), Class VI, and Class VII. The 28-day specified minimum compressive strength, maximum water to cementitious materials ratio and target slump of each class are detailed in Table 346-3. The required air content for all classes of concrete is less than or equal to 6.0%.

For purposes of this Specification the concrete is further classified as follows:

1. Conventional Concrete: The target slump is described in Table 346-3 with a tolerance of ± 1.5 inches.
2. Increased Slump Concrete: The maximum target slump is 7 inches with a tolerance of ± 1.5 inches when a Type F, G, I or II admixture is used.
3. Slip-form Concrete: The target slump is 1.5 inches with a tolerance of ± 1.5 inches.
4. Flowing Concrete: Use flowing concrete only in the manufacturing of precast and prestressed products. Request Engineer’s authorization to use flowing concrete for cast-in-place applications. The target slump is 9 inches with a tolerance of ± 1.5 inches. Meet the requirements of Section 8.6 Volume II of the Materials Manual.
5. Self-Consolidating Concrete (SCC): Use SCC only in the manufacturing of precast and prestressed products. The minimum target slump flow is 22.5 inches with a tolerance of ± 2.5 inches. Meet the requirements of Section 8.4 Volume II of the Materials Manual.

ARTICLE 346-3.3 is deleted and the following substituted:

**346-3.3 Master Proportion Table:** Propportion the materials to produce the classes of concrete in accordance with Table 346-3.

The calculation of the water to cementitious materials ratio (w/cm) is based on the total cementitious materials including portland cement and any supplementary cementitious materials used in the mix.

<table>
<thead>
<tr>
<th>Class of Concrete</th>
<th>28-day Specified Minimum Compressive Strength (f’c) (psi)</th>
<th>Maximum Water to Cementitious Materials Ratio (pounds per pounds)</th>
<th>Target Slump Value (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I (1)</td>
<td>3,000</td>
<td>0.52</td>
<td>3 (2)</td>
</tr>
<tr>
<td>I (Pavement)</td>
<td>3,000</td>
<td>0.50</td>
<td>1.5 or 3 (3)</td>
</tr>
<tr>
<td>II (1)</td>
<td>3,400</td>
<td>0.53</td>
<td>3 (2)</td>
</tr>
<tr>
<td>II (Bridge Deck)</td>
<td>4,500</td>
<td>0.44</td>
<td>3 (2)</td>
</tr>
<tr>
<td>III (4)</td>
<td>5,000</td>
<td>0.44</td>
<td>3 (2)</td>
</tr>
<tr>
<td>III (Seal)</td>
<td>3,000</td>
<td>0.53</td>
<td>8</td>
</tr>
<tr>
<td>IV</td>
<td>5,500</td>
<td>0.41(4)</td>
<td>3 (2)</td>
</tr>
<tr>
<td>IV (Drilled Shaft)</td>
<td>4,000</td>
<td>0.41</td>
<td>8</td>
</tr>
<tr>
<td>V (Special)</td>
<td>6,000</td>
<td>0.37(4)</td>
<td>3 (2)</td>
</tr>
<tr>
<td>V</td>
<td>6,500</td>
<td>0.37(4)</td>
<td>3 (2)</td>
</tr>
<tr>
<td>VI</td>
<td>8,500</td>
<td>0.37(4)</td>
<td>3 (2)</td>
</tr>
<tr>
<td>VII</td>
<td>10,000</td>
<td>0.37(4)</td>
<td>3 (2)</td>
</tr>
</tbody>
</table>

Notes:
1. For precast three-sided culverts, box culverts, endwalls, inlets, manholes and junction boxes, the target slump value and air content will not apply. The maximum allowable slump is 6 inches, except as noted in (2). The Contractor is permitted to use concrete meeting the requirements of ASTM C478 (4,000 psi) in lieu of the specified Class I or Class II concrete for precast endwalls, inlets, manholes and junction boxes.
2. Increased slump and slip form concrete as defined in 346-3.1
3. Meet the requirements of Section 350.
4. When silica fume or metakaolin is required, the maximum water to cementitious material ratio will be 0.35. When ultrafine fly ash is used, the maximum water to cementitious material ratio will be 0.30.
1. This fence to be provided generally in rural areas. For supplemental information see Specifications 550.

2. Fabric shall be woven wire, either galvanized steel, meeting the requirements of ASTM A516, No. 9 Grade 40, Design Number 1047-6-9, with Class 3 zinc coating; No. 12 1/2 Grade 175, Design Number 1047-6-12 1/2, with a 10 1/2 gage top and bottom wire and with Class 3 zinc coating; or aluminum coated steel, meeting the requirements of ASTM A589, No. 9 Farm, Design Number 1047-8-9, with a minimum coating weight of 0.40 oz./ft.². For additional information see payment note below.

3. Fences shall be wired with steel wire to private property except on horizontal curvatures greater than 3°; the fence shall be installed so as to pull against all posts.

4. Posts may be either timber, steel, recycled plastic or concrete. Unless a specific post material is called for in the plans, the Contractor may elect to use either a single material or a combination of timber, steel, recycled plastic or concrete materials, but must comply with the electrical grounding requirements in Specification 347. Line posts of one material may be used with corner, pull and approach post assemblies or a different material. One post of only one optional material and pull post assemblies of only one optional material will be permitted between corner and post assemblies. Within individual corner and end post assemblies only one optional material will be permitted.

5. Timbers shall meet the material requirements of Specification 964. Timber line post parts are to be minimum 4" diameter. Timber corner, pull, approach and end posts are to be a minimum 3" diameter. Timber braces are to be minimum 4" diameter.

6. Line posts: 8' long; 1.33 lbs./ft.; hot rolled studded; anchor plate attached, ASTM A702 (18 in.²).

7. Approach posts: 2 1/2" x 2 1/2" x 1" angles, 8' long; fabricated for attaching brace; with necessary hardware, clamps, etc.

8. Pull post assemblies shall be fabricated of two strands of 0.110-inch wire with 0.08-inch diameter four-point barbs spaced at approximately 3/8", and at a maximum spacing of 6". The wire for the strands and for the barbs shall be of ASTM A121, with a minimum of two tight turns around the line wire. Tie wires shall be steel wire not less than 0.120" diameter, zinc coating Class II, soft temper, in accordance with ASTM 464.

9. Steel Barbed Wire may be either of the following types:
   - **Type I:** This type shall conform to the requirements of ASTM A121, with two strands of 1/2 gage wire; four-point barbs, wire size 14 gage, twisted around both line wires; and, Class 3 coating, Design No. 12-4-5-24.
   - **Type IIA:** This type same as Type I except the two strand wires are twisted in alternating directions between consecutive barbs.
   - **Type IIB:** This type shall conform to the requirements of ASTM A121 with two strands of 1 1/2 gage high tension wire; four-point barbs, wire size 18 1/2 gage twisted around both line wires; and, Class 3 coating, Design No. 15-4-5-28.

10. The woven wire shall be attached to steel and concrete posts by a minimum of four tie wires. The single wire ties shall be applied to the top, bottom and three intermittent line wires. The ends of each tie wire shall have a minimum of two tight turns, around the line wire. Tie wires shall be steel wire not less than 0.120" diameter, zinc coating Class II, soft temper, in accordance with ASTM A464.

11. All bars, bracing and accessory framing hardware shall not be used unless the plans specifically detail their application or the Engineer specifically approves their incorporation in fence construction or repair. Aluminum framed gates are permitted as described in General Note 18.

12. The woven wire shall be stretched only until one-half (the tension curl) has been pulled out of the line wires.

13. Posts to be set by driving or digging. If by digging, the posts shall be set at the center of the hole and the soil tamped securely on all sides.

14. Longer posts than those indicated above may be required by the plans or for deeper installations.

15. Concrete bases for angular steel posts (up, corner, end and approach) shall be Class Rs in accordance with Specification 447. Materials for Class Rs concrete may be proportioned by volume and/or by weight.

16. Pull post assemblies shall be installed at approximately 330° centers except that this maximum interval may be reduced by the Engineer on curves where the radius is less than 3°.

17. Corner post assemblies are to be installed at all horizontal and vertical breaks in fence of 13° or more.

18. A maximum length of 1320' of wire may be installed as a unit. For pulls through a pull post assembly the fabric shall be spliced by crimping sleeves only. Pulls through a corner post assembly will not be permitted.

19. Unless otherwise called for in the plans, gates shall be commercially available metal swing gates assembled and installed in accordance with the manufacturer’s specifications as approved by the Engineer. Chain link swing gates in accordance with Index 550-002 may be substituted for metal swing gates as approved by the Engineer. Gate size is full opening width whether single leaf or double leaves. Payment for gates shall include the gate, single or double, all necessary hardware for installation and any additional length and/or size for posts at the corners. Gates shall be paid for under the contract unit price for Fence Gates, EA.

20. For construction purposes, assemblies are defined as follows: End post assemblies shall consist of:
   - one end post, one approach post, two braces, four diagonal tension wires and all necessary fittings and hardware.
   - Pull post assemblies shall consist of:
     - one pull post, two braces, four diagonal tension wires and necessary fittings and hardware.
   - Corner post assemblies shall consist of:
     - one corner post, two approach posts, four braces, eight diagonal tension wires and all necessary fittings and hardware.

21. All posts, bracing, tension wires, fabric, tie wires, Class Rs concrete, and all miscellaneous fittings and hardware to be included in the cost for Fencing, EA. Fencing shall be inclusive of the lengths of pull, end and corner post assemblies, but exclusive of gate widths.
1. This fence to be provided generally in rural areas. For supplemental information see Specifications 550.

2. Fabrics shall be woven wire, either galvanized steel, meeting the requirements of ASTM A121, No. 9 Grade 60, Design Number 1047-6-9; with Class 3 zinc coating; No. 12 ½ Grade 173, Design Number 1047-8-12 ½, with a 10 ½ gauge top and bottom wire and with Class 3 zinc coating; or aluminum coated steel, meeting the requirements of ASTM A584, No. 9 Farm, Design Number 1047-6-9, with a minimum weight of 0.40 oz./ft.². For additional information see payment note below.

3. Fencing shall be wired with side privacy except over horizontal curves greater than 3° the fence shall be installed so as to pull against all posts.

4. Posts may be either timber, steel, recycled plastic or concrete. Unless a specific post material is called for in the plans, the Contractor may elect to use either a single material or a combination of timber, steel, recycled plastic or concrete materials, but must comply with the electrical grounding requirements in Specification 550. Line posts of one material may be used with corner, pull and end post assemblies or a different material. Line posts of only one optional material and pull post assemblies of only one optional material will be permitted between corner and out post assemblies. Within individual corner and end post assemblies only one optional material will be permitted.

5. The post assembly shall meet the material requirements of Specification 550. Timber line posts are to be a minimum 4" diameter. Timber corner post, pull, end and approach posts are to be a minimum 8" diameter. Wood braces are to be a minimum 2" diameter.

6. Wood posts and braces shall be standard pine, galvanized at the rate of 2 oz./ft., together with necessary hardware and wire clamps and meeting the following requirements:
   - (A) Line posts: 8 long; 1.33 lbs./ft., hot rolled studded, anchor plate attached, ASTM A702 (18 in²).
   - (B) Approach posts: 2 1/2"x2"x1/2" angles, 8 long; fabricated for attaching brace; with necessary hardware, clamps, etc.
   - (C) Pull, end and corner posts: 2 1/2"x2"x1/2" angles, 8 long; fabricated for attaching brace; with necessary hardware, clamps, etc.
   - (D) Braces: 2 1/2"x2"x1/2" angles with necessary hardware and fabricated for attaching to post.
   - (E) The pull, corner, approach and end posts are to be cut in concrete as per detail. (Also see General Note 15).

7. Recycled plastic posts shall meet the following material requirements. Line posts shall have a minimum section of 2 1/4"x2 1/4" and 1/4" wall thickness. Plastic posts shall not be upturned as corner, pull, end or approach posts unless such use is specifically detailed in the plans. The straightness of the post shall comply with Specification 550 for timber post. All plastic posts shall meet the requirements of the latest edition of the Southern Pine InspecƟon Bureau's Standard Grading Rules for Southern Pine lumber for No. 2SR Stress Rated Grade Timber. Plastic posts can be set by either digging and tamped backfill or by driving into full depth preformed holes, soil tamped securely on all sides. Staples for fabric and barbed wire connection to plastic line posts shall be the same size, count and location as that for timber posts.

8. The Contractor, at his option, may use any suitable precast or prestressed concrete posts, however, approved by the Engineer. Diameters of posts not shown on this index, will be required prior to construction of the fence. Precast concrete posts shall be Class 1 concrete. Prestressed posts shall be Class 111 concrete. Lengths of concrete post to be as indicated for timber posts.

9. Aluminum post, braces and accessory framing hardware shall not be used unless the plans specifically detail their application or the Engineer specifically approves their incorporation in fence construction or repair. Aluminum framed grades are permitted as described in General Note 19.

10. The woven wire shall be attached to steel and concrete posts by a minimum of five tie wires. The single tie wire shall be applied to the top, bottom and three intermittent line wires. The ends of each tie wire shall have a minimum of two turn wraps around the line wire. Tie wires shall be steel wire not less than 0.120" diameter, zinc coating Class 3, soft temper, in accordance with ASTM A467.

11. Steel Barbed Wire can be either of the following types:
   - Type I: This type shall conform to the requirements of ASTM A121, with two strands of 12½ gage wire:
     - four point barbs, wire size 14 gage, twisted around both line wires; and, Class 3 coating.
     - Design No. 12-4-5-14R.
   - Type IIA: This type same as Type I except the two strand wires are twisted in alternating directions between consecutive barbs.
   - Type IB: This type shall conform to the requirements of ASTM A121 with two strands of 13 1/2 gage high tensile wire, four-point barbs, wire size 18 1/2 gage twisted around both line wires; and, Class 3 coating.
   - Design No. 13-4-5-16R.
   - Aluminum Barbed Wire shall be fabricated of two 0.110-inch wire with 0.08-inch diameter four-point barbs spaced at approximately 30°, and at a maximum spacing of 6". The wire for the strands and for the barbs shall be of ASTM B211M Alloy 5052-H38 or equal.

12. The woven wire shall be stretched only until one-half the tension curl has been pulled out of the line wires.

13. Posts to be set by driving or digging. If by digging, the posts shall be set at the center of the hole and the soil tamped securely on all sides.

14. Longer lengths than those indicated above may be required by the plans or for deeper installations.

15. Concrete bases for angular steel posts (pull, corner, end and approach) shall be Class R5 in accordance with Specification 550. Materials for Class R5 concrete may be proportioned by volume and/or by weight.

16. Pull post assemblies shall be installed at approximately 230' centers unless that maximum interval may be reduced by the Engineer on curvatures where the radius is less than 300'.

17. Corner post assemblies are to be installed at all horizontal and vertical breaks in fence of 15° or more.

18. A maximum length of 1320' of wire may be installed as a unit. For pulls through a pull post assembly the fabric shall be spliced by crimping sleeves only. Pulls through a corner post assembly will not be permitted.

19. Unless otherwise called for in the plans gates shall be commercially available metal swing gates assembled and installed in accordance with the manufacturer's specifications as approved by the Engineer. Chain link swing gates in accordance with Index 550-002 may be substituted for metal swing gates as approved by the Engineer. Gate size is full opening width whether single leaf or double leaves. Payment for gates shall include the gate, single or double, all necessary hardware for installation and any additional length and/or size for posts at the contract unit price for Fence Gates, EA.

20. For construction purposes, assemblies are defined as follows: End post assemblies shall consist of: one end post, one approach post, two braces, four diagonal tension wires and all necessary fittings and hardware. Pull post assemblies shall consist of: one pull post, two braces, four diagonal tension wires and necessary fittings and hardware. Corner post assemblies shall consist of: one corner post, two approach posts, four braces, eight diagonal tension wires and all necessary fittings and hardware.

21. All posts, braces, tension wires, fabric, tie wires, Class R5 concrete, and all miscellaneous fittings and hardware to be included in the cost for Fencing. Fencing shall be inclusive of the lengths of pull, end and corner post assemblies, but exclusive of gate widths.