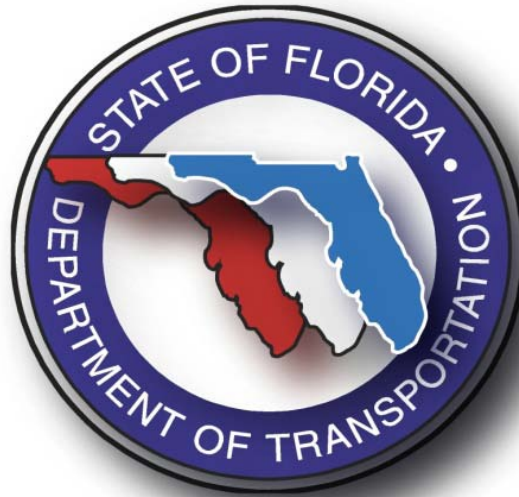


PPM & Drainage Manual Updates



Design Update Training - Hydraulics

February 2013

Background

- ◆ DDrEs Annual Meeting: CPR with Districts' Policies
- ◆ See DM Transmittal Memo for Full List of Changes
 - ✓ <http://www.dot.state.fl.us/rddesign/dr/files/2013DMTransmittal.pdf>
- ◆ Only More Significant Changes Discussed Here



PPM Changes – Volume 1

- ◆ **Superelevation (Section 2.9)**
 - ✓ Longitudinal Slope $\geq 0.5\%$ in Transitional Areas
 - Minimum in AASHTO Greenbook, Chapter 3
 - Reduce hydroplaning potential

- ◆ **Wildlife Shelves (Section 33.12)**
 - ✓ Not in Hydraulic Structures
 - ✓ Wildlife Crossings
 - Locations determined by EMO
 - Natural bottom, no shelves



PPM Changes – Volume 2

- ◆ Drainage Map Requirements (Section 5.1)
 - ✓ All projects that add capacity or significant changes to drainage
 - ✓ Aerial base
 - ✓ Included in all contract plans submittals

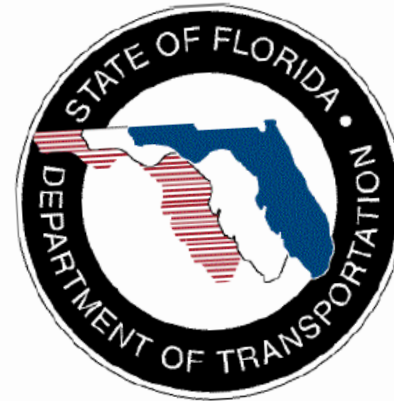
- ◆ Flood Data Summary Box (Section 5.1.3)
 - ✓ Flood Data Shown for Cross Structures Where Modifications Affect the Existing Hydraulic Calculations

- ◆ Pipes Extended With Like Materials (Section 8.2)
 - ✓ Optional Materials Tabulation NOT Required



2013
Drainage
Manual
Changes

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION



STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

DRAINAGE MANUAL

OFFICE OF DESIGN, DRAINAGE SECTION JANUARY 2013
TALLAHASSEE, FLORIDA



Storm Drains – Ch. 3

- ◆ Pipe Slopes (3.6.1)
 - ✓ Permissible 2.0 fps Design Velocity
 - Flowing full under gravity
 - Pressure flow
 - Verify hardship case with DDrE
 - ✓ Min. 0.1% Physical Slope for Pressure Flow
 - Encourage sediment movement through pipe

- ◆ Parking Lot Drainage Policy (3.7.1.1)
 - ✓ From the Turnpike
 - ✓ Focused on Pedestrian Safety

- ◆ Shoulder Gutter Locations (3.7.3)
 - ✓ Embankment Height / Longitudinal and Cross Slope
 - ✓ Superelevation



Storm Drains – Ch. 3

- ◆ Temporary MOT Drainage (3.9.2)
 - ✓ Flexible Language to Conform with Approach in Construction
 - ✓ “Additional Attention” for More Difficult Conditions

- ◆ French Drain Placement (3.11.2)
 - ✓ From D6
 - ✓ Very “Common Sense”

- ◆ Restrictions on Resilient Connectors (3.11.3)
 - ✓ Available in Specs for Years
 - ✓ Pioneered in D7
 - ✓ Based on Product Availability



Cross Drain Hydraulics – Ch. 4

Emergency Access Reference Deleted (4.3.1)

- ◆ Turnpike Targets 100-year Stage on Mainline
 - ✓ PPM Volume I, Section 2.6
- ◆ Higher Stage for Emergency Access, **if Warranted**
- ◆ Coastal Roads

US-98 during Hurricane Dennis:

Cat 3 - July 10, 2005



Cross Drain Hydraulics – Ch. 4

New Target Design for Standard Rubble (4.9.3.2)

- ◆ July Workbook: SG 2.3 → 2.2
- ◆ Spill-through Abutments
 - ✓ Velocity ≤ 7.7 fps
 - ✓ Waves ≤ 2.4 ft.
- ◆ Bulkhead Abutments: Velocity ≤ 7.2 fps
- ◆ Rectangular Piers / Piling: Velocity ≤ 7.2 fps
- ◆ Circular Piers / Shafts: Velocity ≤ 8.2 fps



Stormwater Management – Ch. 5

Rule 14-86 Not on All Projects (5.2.1 & 5.3.1.2)

- ◆ Only in Closed Basins or In Flood Prone Areas
- ◆ Rule 14-86 Still Applies to Inflows
- ◆ DDrE Will Provide Direction



Optional Pipe – Ch. 6

HDPE Class II Now Under Final Acceptance (6.7)

- ◆ Still Not Allowed in Keys Due to Service Temperature
- ◆ Interim Restrictions Removed in April 2012 (RDB 12-09)
 - ✓ Interstates – OK
 - ✓ 8-lane sections - OK



Questions & Comments?

