



**Design Update
Training
2013**

February 19th & 20th

The Office of Design
Florida's Transportation Engineers



Roadway Design

Florida's Transportation Engineers



Plans Preparation Manual January 1, 2013 Updates

Roadway Design Office Criteria and Standards Section

Benjamin Gerrell, P.E.

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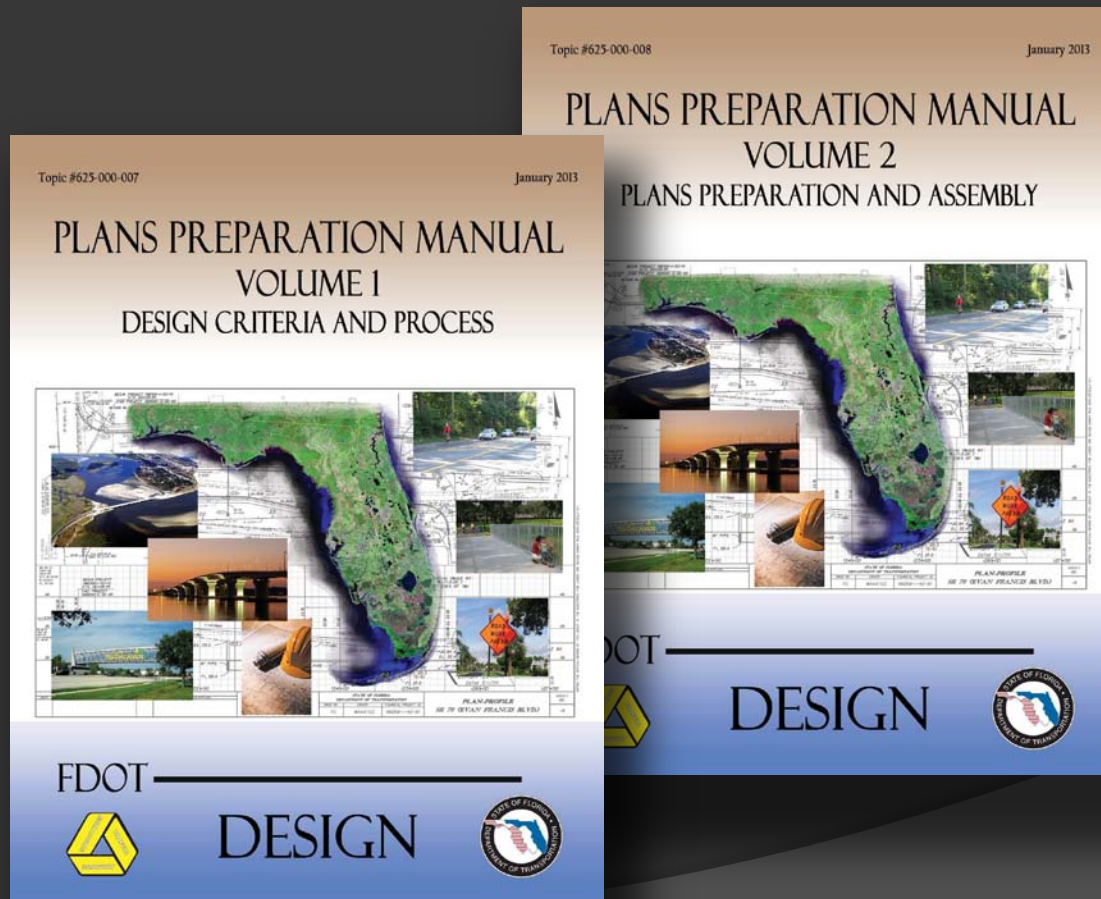
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Plans Preparation Manual

Overview of PPM Update Process



Overview of PPM Update Process

- Two Volumes
- English Units
- Electronic Version



<http://www.dot.state.fl.us/rd/design/PPMManual/PPM.shtm>

PPM Update Process

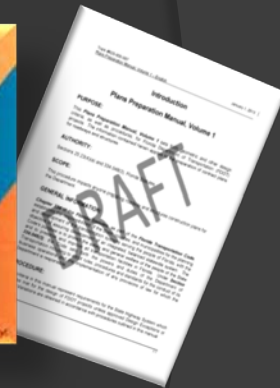
◎ Senior Design Engineers Team

- Primary designer from each district
- Monthly meetings



◎ Draft Submittals

- Received throughout the year
- Reviewed at SDE meetings



◎ District Design Engineers

- Review Final PPM Draft
- Provide Comments

◎ Adoption of PPM Updates



Updates

- Implementation Memo
- Complete Manual
- Updated Forms
- Contact Mailer - Notifications

<http://www.dot.state.fl.us/rddesign/PPMManual/PPM.shtm>

Roadway Design Office



Roadway Design
Florida's Transportation Engineers



Plans Preparation Manual (PPM)

REGISTER!

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[2013-Volume 2](#)

[2013-Implementation Memo](#)

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[2012-Volume 1](#)

[2012-Volume 2](#)

[2012-Implementation Letter](#)

Archived Manuals

[Archived Manuals 1967 - 2011](#)

Tools

[PPM User Survey Results](#)

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[Sample Exhibits](#)

[Urban Area 1-Mile Buffer Maps](#)

Links

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[Specifications and Estimates Office](#)

[Structures Design Office](#)

[Training Homepage](#)

PLEASE NOTE:

This site contains all available electronic files (in *.PDF format) for the Plans Preparation Manual (PPM). This includes update packages, implementation letters, and the complete manual.

Hardcopies and CD versions of the Plans Preparation Manual ARE NO LONGER AVAILABLE.

All PPM users (and other Roadway Design manual users) must register their e-mail addresses in the contact management database in order to receive future update notices, design memos, or other important information concerning the Department's design manuals used. Users can register at the following link:

<http://www2.dot.state.fl.us/contactmanagement/>

If you should have any questions, comments or suggestions regarding the PPM, please contact:

[Benjamin Gerrell](#)

Phone:(850) 414-4318

Design Bulletins

- ① Contact Mailer Notifications
- ① Our website:

<http://www.dot.state.fl.us/rddesign/>



About the State Roadway Design Office

The Roadway Design Office develops and provides policies, procedures, training, criteria and standards for the design of Florida roadways. Our functional areas include [Criteria and Standards](#), [Drainage](#), [Pavement Management](#), [Quality Assurance](#) and [Utilities](#). Our customer has direct access to [Design Standards](#), [Florida Greenbook](#), [Utility Accommodation](#), [Drainage](#), [Training](#) and other [Publications](#). For more Topics, navigate selections on the left under "Office Level Navigation" and select items under "Functional Areas"; "Special Topics" or "Other Misc".

News & Recent Update Information



Design Update Training

February 19th & 20th
1:00 PM – 4:30 PM



[Day 1 Agenda - Register NOW](#)-Day1

[Day 2 Agenda - Register NOW](#)-Day2

Visit our [2013 Design Update Training Website](#) for more information as it is made available

[Design Bulletin 13-01](#) - Design Standards, Index 430 "Crash Cushion Details"

Posted: January 9, 2013

[Design Memorandum - 2013 Implementation](#) - Plans Preparation Manual - January 1, 2013

Posted: January 9, 2013

[2013 Drainage Manual](#) - 2013 Drainage Manual - January 2013

Posted: January 2, 2013

[Design Bulletin 12-19/Traffic Operations Bulletin 02-12/Design Standards Revision R2013-03](#) - Pivotal Adjustable Hanger Use on Two Point Span Wire Traffic Signal Projects

Posted: November 5, 2012

[Design Bulletin 12-18/Design Standards Revision R2013-02](#) - Removal of Chevrons in Interstate Gores Areas and at Raised Urban Islands - Design Standards Revision (R2013-02), Dated January 1, 2013

Posted: October 26, 2012

[Design Bulletin 12-17](#) - Use of Overhead Signs on Freeways and Expressways

Posted: September 9, 2012

[Design Bulletin 12-16/Structures Design Bulletin 12-13](#) - Design Standards Revisions (DSR) - Inclusion of Revised Index Drawings in Plans

Posted: August 30, 2012




[Design Bulletins](#) <--Click on this link

Design Bulletins

- Contact Mailer Notifications
- Our website:

<http://www.dot.state.fl.us/rddesign/Bulletin/default.shtm>

Roadway Design Office



Design Bulletin
Current - 2011 - Present

For details or questions, please call (850) 414-4318. The files listed below are in Adobe Acrobat Portable Document Format (PDF). You must have the free [Adobe Acrobat Reader](#) to view and/or print these files.

[Lump Sum Project Guidelines](#) - (Scroll down to the bottom of the page)

File Name	Description	Effective Date
2013		
RDB13-01.pdf	Roadway Design Bulletin 13-01 Design Standards, Index 430 "Crash Cushion Details"	1/08/13
2012		
RDB12-19.pdf	Roadway Design Bulletin 12-19/Traffic Operations Bulletin 02-12/Design Standards Revision R2013-03 Pivotal Adjustable Hanger Use on Two Point Span Wire Traffic Signal Projects	11/02/12
RDB12-18.pdf	Roadway Design Bulletin 12-18/Design Standards Revision R2013-02 Removal of Chevrons in Interstate Gores Areas and at Raised Urban Islands - Design Standards Revision (R2013-02), Dated January 1, 2013	10/26/12
RDB12-17.pdf	Roadway Design Bulletin 12-17 Use of Overhead Signs on Freeways and Expressways	09/06/12
RDB12-16.pdf	Roadway Design Bulletin 12-16/Structures Design Bulletin 12-13 Design Standards Revisions (DSR) - Inclusion of Revised Index Drawings in Plans	08/30/12
RDB12-15.pdf	Roadway Design Bulletin 12-15/Structures Design Bulletin 12-11 Developmental Design Standards Index D477, Thrie-Beam Panel Retrofit (Concrete Handrail)	07/25/12
RDB12-14.pdf	Roadway Design Bulletin 12-14/DCE Memorandum 23-12 High Visibility Safety Apparel - Index 600, Sheet 3 - Design Standards Revision (R1303), Dated July 23, 2012	07/20/12
RDB12-13.pdf	Roadway Design Bulletin 12-13/DCE Memorandum 22-12 Permanent and Temporary Crash Cushion Selection	07/17/12
RDB12-12.pdf	Roadway Design Bulletin 12-12/Structures Design Bulletin C12-10 2013 Design Standards	07/02/12
RDB12-11R.pdf	REVISED: Roadway Design Bulletin 12-11/DCE Memorandum 21-12/Structures Design Bulletin 12-09/Estimates Bulletin 12-07 Barrier and Traffic Railing Mounted Signs Design Standard Revision (R1302), dated July 1, 2012	07/27/12
RDB12-10.pdf	Roadway Design Bulletin 12-10/Structures Bulletin 12-07 Every Day Counts (EDC) Training Website	04/25/12

As customers, your input
is important to us!

**We want to hear
from you!**



Cross Slope Correction & Typical Sections



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Typical Sections

- ◎ Typical Sections and Details
 - Milling and layering details shall be shown in plans
 - ***Exhibits*** in ***PPM*** Volume 2, Chapter 6
- ◎ Refer to ***FDOT Flexible Pavement Design Manual***

<http://www.dot.state.fl.us/rddesign/PM/pcs/FlexiblePavementManualMarch152008.pdf>

Typical Sections

◎ Resurfacing

- Match Existing
- Cross Slope Correction



Match Existing

(*PPM* Vol.1, Introduction)

This term is used when the existing cross slopes are to remain. This is applicable to constant depth milling and resurfacing projects.

Match Existing



Typical Sections

◎ Resurfacing

- Match Existing

- Existing cross slope is to remain.

- Allowable ranges

- ***Table 25.4.6*** or ***Table 25.4.7*** in ***PPM*** Volume 1, Chapter 25.

Typical Sections

◎ Resurfacing

Table 25.4.6 Roadway Cross Slopes

Facility or Feature	Standard	Allowable Range
Two-Lane Roads	0.02	0.015-0.030
Multilane Roads	0.02	0.015-0.040
Shoulders	0.06	Adjacent Lane Cross Slope- 0.080
Parking Lanes	0.05	0.015-0.050

The multilane standard cross slope value shown is applicable for up to two lanes in one direction. See Section 2.1.5 for additional guidance.

Existing multilane curb and gutter sections may have outside lanes with a maximum cross slope of 0.05.

Existing curb and gutter sections originally constructed with a parabolic crown section may be resurfaced using a series of tangents with a cross slope range from 0.015 to 0.05.

The maximum algebraic difference between adjacent through lanes shall not exceed 0.06.

When existing shoulders are to remain, the algebraic difference between the shoulder slope and adjoining roadway pavement slope shall be ≤ 0.07 .

Parking spaces and access aisles dedicated to serving persons with disabilities shall have cross slopes no steeper than 0.02 (1:50) in any direction.

Typical Sections

◎ Resurfacing

Table 25.4.7 Freeway Cross Slopes

Facility or Feature	Standard	Allowable Range
Travel Lanes	0.02*	0.015-0.025
Travel Lanes	0.03*	0.025-0.035

* Applies to lanes as designated in Figure 2.1.1.

The algebraic difference in cross slope between adjacent travel lanes shall not exceed 0.04. The maximum algebraic difference in cross slope between a through lane and an auxiliary lane at a turning roadway terminal shall meet Table 2.1.4.

Paved shoulder cross slopes do not need to be corrected if they meet the values in Table 25.4.6 and the algebraic difference in cross slope between the shoulder and adjacent travel lane is 0.07 or less.

Match Existing

- ⦿ Constant depth milling
- ⦿ Resurface at constant thickness



Constant Depth Milling

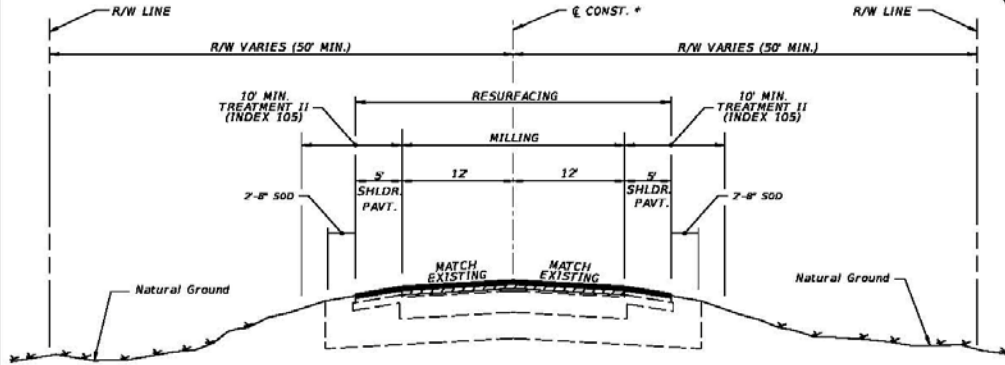
* SURVEY AND/OR CONSTRUCTION, AS APPLICABLE.

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-1, THIS CHAPTER.

NOTES:
 1. CROSS SLOPE CORRECTION IS REQUIRED IF EXISTING CONDITIONS ARE NOT WITHIN THE RANGES OF PPM VOLUME 1, CHAPTER 25 CRITERIA.
 2. WHEN CROSS SLOPE CORRECTION IS NECESSARY, SPECIAL MILLING, OVERBUILD, AND LAYERING DETAILS MUST BE PROVIDED TO SUPPLEMENT TYPICAL SECTION. THE NEED FOR AND LOCATION OF PROFILE GRADE POINTS WILL DEPEND ON SITE SPECIFIC CONDITIONS.

EXISTING 2-LANE (2-WAY) ARTERIAL/COLLECTOR MILLING AND RESURFACING UNDIVIDED RURAL (WITH EXISTING BIKE LANES OR PAVED SHOULDERS) WITH PROJECTED 20 YR. AADT OF 1500 OR GREATER

SOME PROJECTS MAY REQUIRE SHOULDER WORK. WHEN REQUIRED THIS SHOULD BE IDENTIFIED ON THE TYPICAL SECTION SHEET.



TYPICAL SECTION SR 300B

TRAFFIC DATA
 STA. 10+53.00 TO STA. 368+41.21
 CURRENT YEAR = 1998 AADT = 9670
 ESTIMATED OPENING YEAR = 2000 AADT = 11900
 ESTIMATED DESIGN YEAR = 2010 AADT = 20200
 K = 10% D = 60% T = 7% (24 HOUR)
 DESIGN HOUR T = 3%
 DESIGN SPEED = 55 MPH

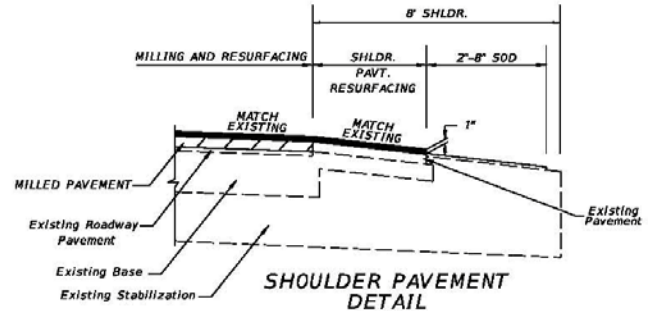
CONSTANT DEPTH MILLING AND RESURFACING
 STA. 10+53.00 TO STA. 368+41.21

MILLING
 MILL EXISTING ASPHALT PAVEMENT FOR DEPTH (2")

RESURFACING
 TYPE SP STRUCTURAL COURSE (TRAFFIC B) (2")
 AND FRICTION COURSE FC-9.5 (TRAFFIC B) (1") (RUBBER)

SHOULDER PAVEMENT RESURFACING
 FRICTION COURSE FC-9.5 (TRAFFIC B) (1") (RUBBER)

TRAFFIC DATA IS REQUIRED TO BE NOTED FOR CURRENT YEAR, OPENING YEAR AND DESIGN YEAR.



SHOULDER PAVEMENT DETAIL

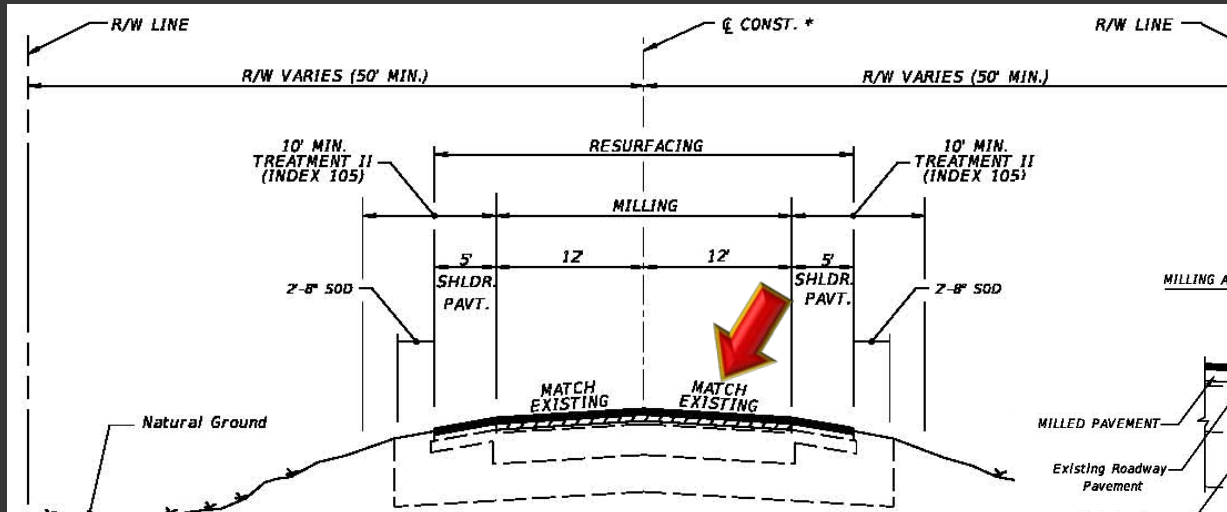
EXHIBIT TYP-7
 Date: 1/1/13

REVISIONS		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		TYPICAL SECTION	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		

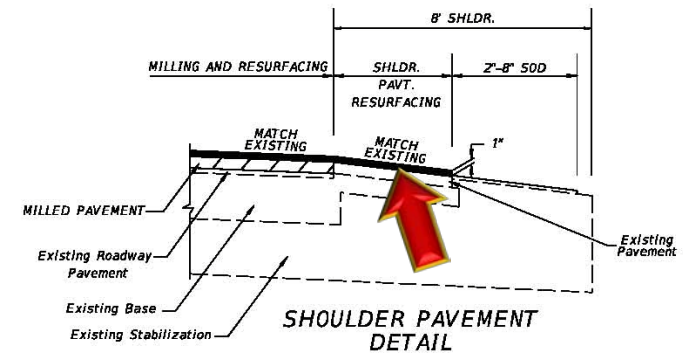
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
300B	LEON	123456-1-52-01

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Constant Depth Milling



TYPICAL SECTION
SR 300B



TRAFFIC DATA

STA. 10+53.00 TO STA. 368+41.21

CURRENT YEAR = 1998 AADT = 9670
 ESTIMATED OPENING YEAR = 2000 AADT = 11900
 ESTIMATED DESIGN YEAR = 2010 AADT = 20200
 K = 10% D = 60% T = 7% (24 HOUR)
 DESIGN HOUR T = 3%
 DESIGN SPEED = 55 MPH

CONSTANT DEPTH MILLING AND RESURFACING

STA. 10+53.00 TO STA. 368+41.21

MILLING

MILL EXISTING ASPHALT
PAVEMENT FOR DEPTH (2")

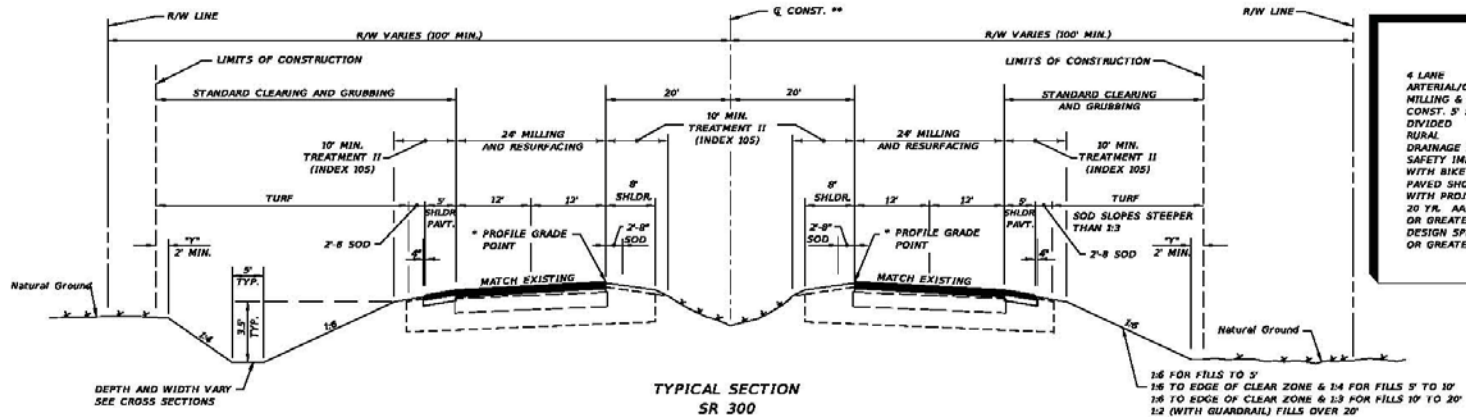
RESURFACING

TYPE SP STRUCTURAL COURSE (TRAFFIC B) (2")
AND FRICTION COURSE FC-9.5
(TRAFFIC B) (1") (RUBBER)

SHOULDER PAVEMENT RESURFACING

FRICTION COURSE FC-9.5
(TRAFFIC B) (1") (RUBBER)

Constant Depth Milling



4 LANE
ARTERIAL/COLLECTOR
MILLING & RESURFACING
CONST. 5' SHLDR. PAVT
DIVIDED
RURAL
DRAINAGE IMPROVEMENTS
SAFETY IMPROVEMENTS
WITH BIKE LANES OR
PAVED SHOULDERS
WITH PROJECTED
20 YR. AADT OF 1500
OR GREATER
DESIGN SPEED 45 MPH
OR GREATER

**CONSTANT DEPTH MILLING AND RESURFACING
STA. 190+00.00 TO STA. 204+34.58**

- MILLING**
MILL EXISTING ASPHALT PAVEMENT FOR DEPTH (1 1/2")
- RESURFACING**
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2")
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2") (PG 76-22)
AND FRICTION COURSE FC-5 (3/4") (PG 76-22)
- SHOULDER PAVEMENT**
OPTIONAL BASE GROUP 1 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2") (PG 76-22)
AND FRICTION COURSE FC-5 (3/4") (PG 76-22)

TRAFFIC DATA
CURRENT YEAR = 1998 AADT = 18100
ESTIMATED OPENING YEAR = 2000 AADT = 21000
ESTIMATED DESIGN YEAR = 2012 AADT = 38900
K = 10% D = 38% T = 22% (24 HOUR)
DESIGN HOUR T = 10%
DESIGN SPEED = 60 MPH
POSTED SPEED = 55 MPH

TRAFFIC DATA IS REQUIRED TO BE NOTED FOR
CURRENT YEAR, OPENING YEAR, AND DESIGN YEAR.
POSTED SPEED (MPH) IS OPTIONAL.

** R SURVEY AND/OR
Q CONSTRUCTION, AS APPLICABLE.

* WHEN CROSS SLOPE CORRECTION IS NECESSARY
SPECIAL MILLING, OVERBUILD AND LAYING DETAILS
MUST BE PROVIDED TO SUPPLEMENT TYPICAL SECTION.
THE NEED FOR AND LOCATION OF PROFILE GRADE
POINTS WILL DEPEND ON SITE SPECIFIC CONDITIONS.

** THE AREA DISTURBED BY CONSTRUCTION VARIES.

FOR STANDARD TYPICAL SECTION NOTES
REFER TO EXHIBIT 6-3, THIS CHAPTER.

NOTE:
HEIGHT OF FILL IS THE VERTICAL DISTANCE
FROM THE EDGE OF THE OUTSIDE TRAVEL LANE
TO TGE OF FRONT SLOPE.

FOR MILLING AND RESURFACING DETAILS SEE
TYPICAL SECTION DETAILS SHEET 2-5

EXHIBIT TYP-11
Date: 1/1/13

SHEET 1 OF 1

REVISIONS		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		TYPICAL SECTION	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		
				ROAD NO. 300	
				COUNTY LEON	
				FINANCIAL PROJECT ID 123456-1-52-01	

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Typical Sections

◎ Resurfacing

- Match Existing

- Cross Slope Correction

 - Method

 - Variable depth milling

 - Constant depth milling & Overbuild

 - Variable depth milling & Overbuild

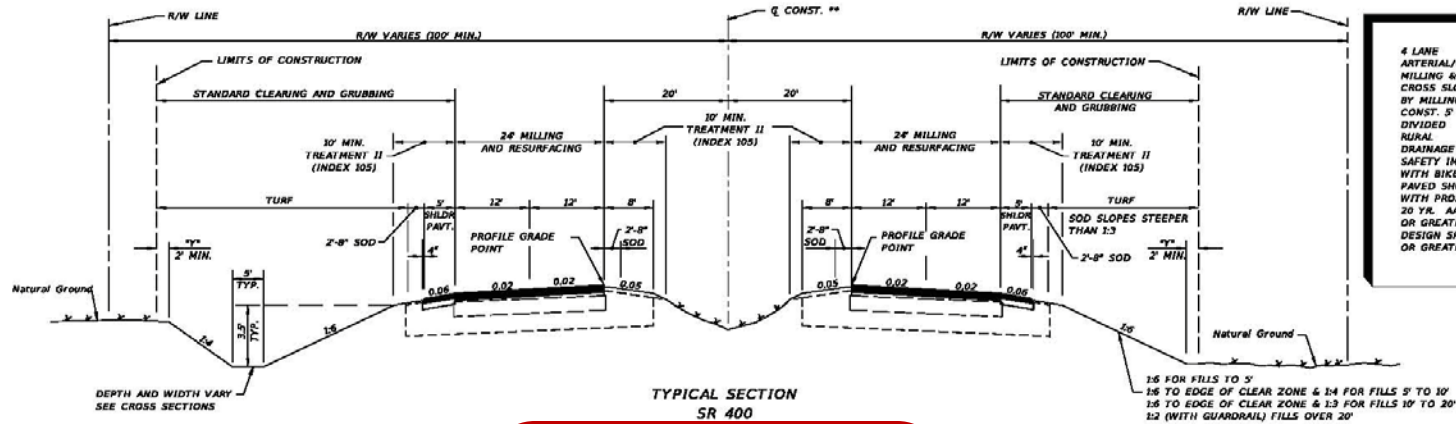


Variable Depth Milling

- ◎ Slope correction by:
 - Variable depth milling
- ◎ Resurface at constant thickness



Variable Depth Milling



TYPICAL SECTION
SR 400

CROSS SLOPE CORRECTION
STA. 204+34.58 TO STA. 225+00.00
VARIABLE DEPTH MILLING
 MILL EXISTING ASPHALT PAVEMENT FOR SLOPE (1 1/2" AVG. DEPTH)
RESURFACING
 TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2")
 TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2") (PG 76-22)
 AND FRICTION COURSE FC-5 (3/4") (PG 76-22)
SHOULDER PAVEMENT
 OPTIONAL BASE GROUP I WITH
 TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2") (PG 76-22)
 AND FRICTION COURSE FC-5 (3/4") (PG 76-22)

NOTES:
 1. CROSS SLOPE CORRECTION IS REQUIRED IF EXISTING CONDITIONS ARE NOT WITHIN THE RANGES OF PPM VOLUME 1, CHAPTER 25 CRITERIA.
 2. WHEN CROSS SLOPE CORRECTION IS NECESSARY, SPECIAL MILLING, OVERBUILD, AND LAYERING DETAILS MUST BE PROVIDED TO SUPPLEMENT TYPICAL SECTION. THE NEED FOR AND LOCATION OF PROFILE GRADE POINTS WILL DEPEND ON SITE SPECIFIC CONDITIONS.

NOTE:
 HEIGHT OF FILL IS THE VERTICAL DISTANCE FROM THE EDGE OF THE OUTSIDE TRAVEL LANE TO TOE OF FRONT SLOPE.

FOR MILLING AND RESURFACING DETAILS SEE TYPICAL SECTION DETAILS SHEET 2-5

EXHIBIT TYP-12
 Date: 1/1/13

SHEET 1 OF 2

1" = THE AREA DISTURBED BY CONSTRUCTION VARIES.

TRAFFIC DATA

CURRENT YEAR = 1998 AADT = 18100
 ESTIMATED OPENING YEAR = 2000 AADT = 20000
 ESTIMATED DESIGN YEAR = 2022 AADT = 38900
 K = 1% D = 58% T = 22% (24 HOUR)
 DESIGN HOUR T = 1%
 DESIGN SPEED = 60 MPH
 POSTED SPEED = 35 MPH

TRAFFIC DATA IS REQUIRED TO BE NOTED FOR CURRENT YEAR, OPENING YEAR, AND DESIGN YEAR. POSTED SPEED (MPH) IS OPTIONAL.

** Q SURVEY AND/OR Q CONSTRUCTION, AS APPLICABLE.

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-3, THIS CHAPTER.

REVISIONS				STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			TYPICAL SECTION	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
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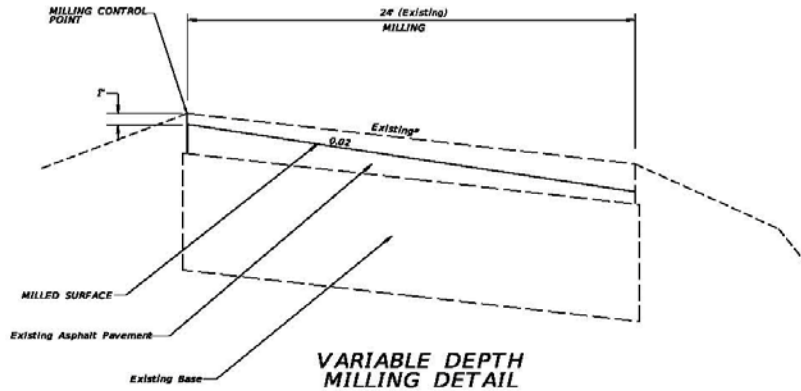
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Variable Depth Milling

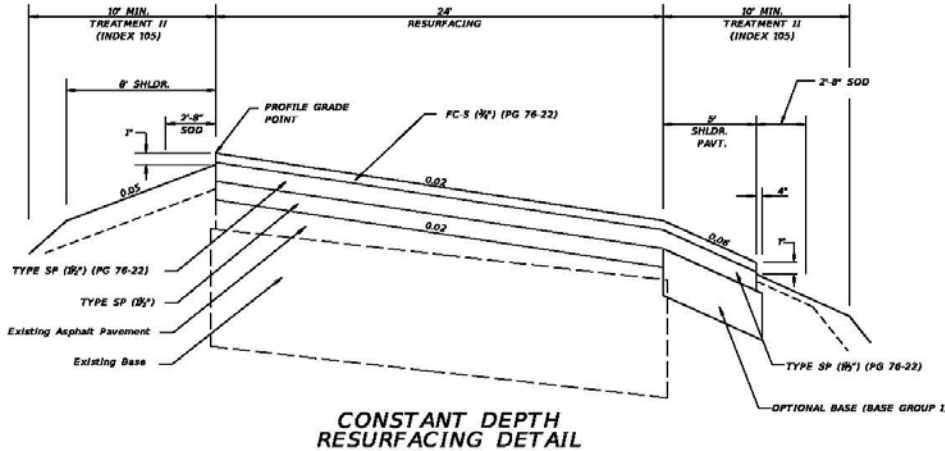


VARIABLE DEPTH MILLING DETAIL

EXAMPLE OF CROSS SLOPE CORRECTION BY MILLING AND PAVING WITH CONSTANT DEPTH.

WHEN CROSS SLOPE CORRECTION IS NECESSARY SPECIAL MILLING AND LAYERING DETAILS MUST BE PROVIDED TO SUPPLEMENT TYPICAL SECTION. THE NEED FOR AND LOCATION OF PROFILE GRADE POINTS WILL DEPEND ON SITE SPECIFIC CONDITIONS.

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-1, THIS CHAPTER.



CONSTANT DEPTH RESURFACING DETAIL

STA. 204+34.58 TO STA. 225+00

STATION	*EXISTING PAVEMENT CROSS SLOPES	
	EASTBOUND LANES	
	INSIDE	OUTSIDE
205+00	0.014	0.013
206+00	0.012	0.012
207+00	0.013	0.013
208+00	0.011	0.012
209+00	0.013	0.014
210+00	0.013	0.015
211+00	0.014	0.015
212+00	0.013	0.013
213+00	0.012	0.012
214+00	0.012	0.011
215+00	0.013	0.011
216+00	0.014	0.012
217+00	0.015	0.013

STATION	*EXISTING PAVEMENT CROSS SLOPES	
	EASTBOUND LANES	
	INSIDE	OUTSIDE
218+00	0.015	0.013
219+00	0.014	0.014
220+00	0.013	0.016
221+00	0.012	0.015
222+00	0.013	0.014
223+00	0.013	0.013
224+00	0.014	0.013
225+00	0.016	0.016

EXHIBIT TYP-12A
Date: 1/1/13

SHEET 2 OF 2

REVISIONS	
DATE	DESCRIPTION

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400	LEON	123456-1-52-01

TYPICAL SECTION DETAILS	
SHEET NO.	

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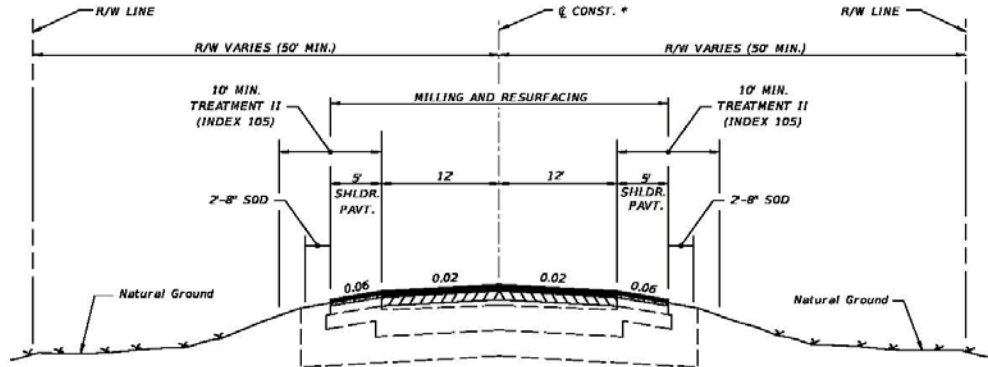
Variable Depth Milling

* SURVEY AND/OR
CONSTRUCTION, AS APPLICABLE.

FOR STANDARD TYPICAL SECTION NOTES
REFER TO EXHIBIT 6-1, THIS CHAPTER.

NOTES:
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SPECIAL MILLING, OVERBUILD, AND LAYERING DETAILS
MUST BE PROVIDED TO SUPPLEMENT TYPICAL SECTION.
THE NEED FOR AND LOCATION OF PROFILE GRADE
POINTS WILL DEPEND ON SITE SPECIFIC CONDITIONS.

EXISTING
2-LANE (2-WAY)
ARTERIAL/COLLECTOR
MILLING AND RESURFACING
UNDIVIDED
RURAL
(WITH EXISTING BIKE LANES
OR PAVED SHOULDERS)
WITH PROJECTED 20 YR.
AADT OF 1500 OR GREATER



TYPICAL SECTION
SR 400B

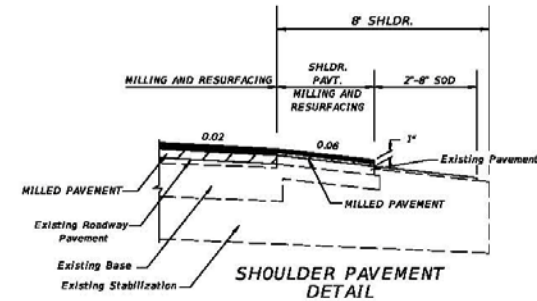
TRAFFIC DATA
STA. 130+77.00 TO STA. 206+82.28
CURRENT YEAR = 1998 AADT = 9670
ESTIMATED OPENING YEAR = 2000 AADT = 11900
ESTIMATED DESIGN YEAR = 2010 AADT = 20200
K = 10% D = 60% T = 7% (24 HOUR)
DESIGN HOUR T = 3%
DESIGN SPEED = 55 MPH

CROSS SLOPE CORRECTION
STA. 130+77.00 TO STA. 157+00.00
VARIABLE MILLING
MILL EXISTING ASPHALT
PAVEMENT FOR SLOPE (2 3/4\"/>

RESURFACING
TYPE SP STRUCTURAL COURSE (TRAFFIC B) (2\")
AND FRICTION COURSE FC-9.5
(TRAFFIC B) (1\") (RUBBER)

SHOULDER MILLING
MILL EXISTING ASPHALT
PAVEMENT (1\"/>

SHOULDER PAVEMENT RESURFACING
FRICTION COURSE FC-9.5
(TRAFFIC B) (1\") (RUBBER)



SHOULDER PAVEMENT
DETAIL

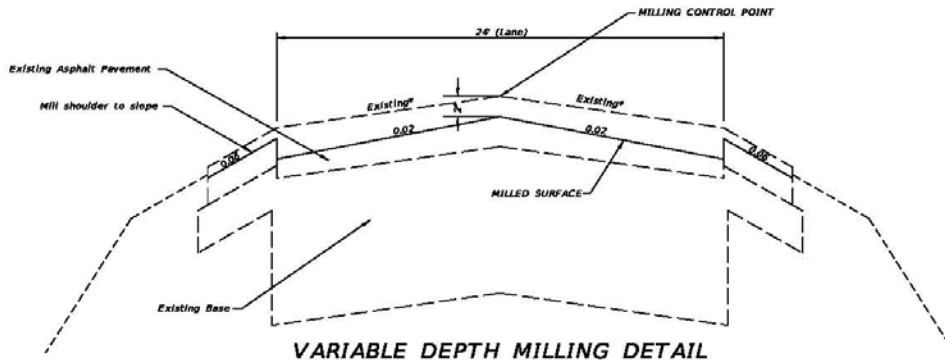
TRAFFIC DATA IS REQUIRED TO BE NOTED FOR
CURRENT YEAR, OPENING YEAR AND DESIGN YEAR.

EXHIBIT TYP-8
Date: 1/1/13
SHEET 1 OF 2

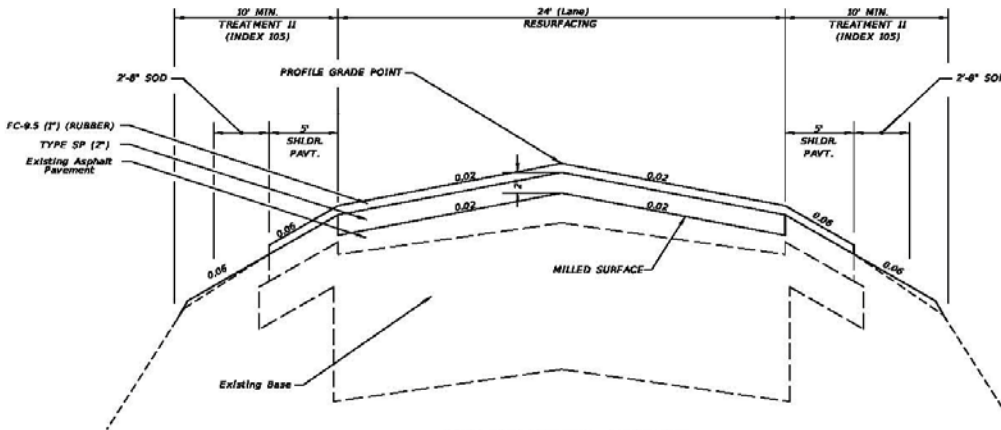
REVISIONS		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		TYPICAL SECTION	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		

1/8/2013 8:55:36 AM T11E

Variable Depth Milling



VARIABLE DEPTH MILLING DETAIL



RESURFACING DETAIL

EXAMPLE OF CROSS SLOPE CORRECTION BY VARIABLE DEPTH MILLING AND RESURFACE.

WHEN CROSS SLOPE CORRECTION IS NECESSARY SPECIAL MILLING, OVERBUILD AND LAYERING DETAILS MUST BE PROVIDED TO SUPPLEMENT TYPICAL SECTION. THE NEED FOR AND LOCATION OF PROFILE GRADE POINTS WILL DEPEND ON SITE SPECIFIC CONDITIONS.

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-1, THIS CHAPTER.

SUGGESTED CONSTRUCTION SEQUENCES SHOWN. OTHER SEQUENCES THAT MEET SPECIFICATIONS. THICKNESS AND CROSS SLOPE REQUIREMENTS MAY BE CONSIDERED BY THE ENGINEER.

STA. 130+77.00 TO STA. 157+00.00

*EXISTING PAVEMENT CROSS SLOPES			*EXISTING PAVEMENT CROSS SLOPES		
STATION	ROADWAY		STATION	ROADWAY	
	LT	RT		LT	RT
131+00	0.014	0.014	145+00	0.014	0.010
132+00	0.014	0.014	146+00	0.013	0.010
133+00	0.013	0.013	147+00	0.012	0.010
134+00	0.013	0.012	148+00	0.013	0.012
135+00	0.013	0.013	149+00	0.013	0.012
136+00	0.013	0.013	150+00	0.014	0.012
137+00	0.012	0.013	151+00	0.016	0.012
138+00	0.012	0.013	152+00	0.013	0.012
139+00	0.013	0.014	153+00	0.014	0.012
140+00	0.012	0.013	154+00	0.016	0.012
141+00	0.013	0.011	155+00	0.013	0.012
142+00	0.014	0.011	156+00	0.013	0.012
143+00	0.015	0.011	157+00	0.014	0.012
144+00	0.015	0.011			

EXHIBIT TYP-BA
Date: 1/1/13

SHEET 2 OF 2

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
400B	LEON	123456-1-52-01

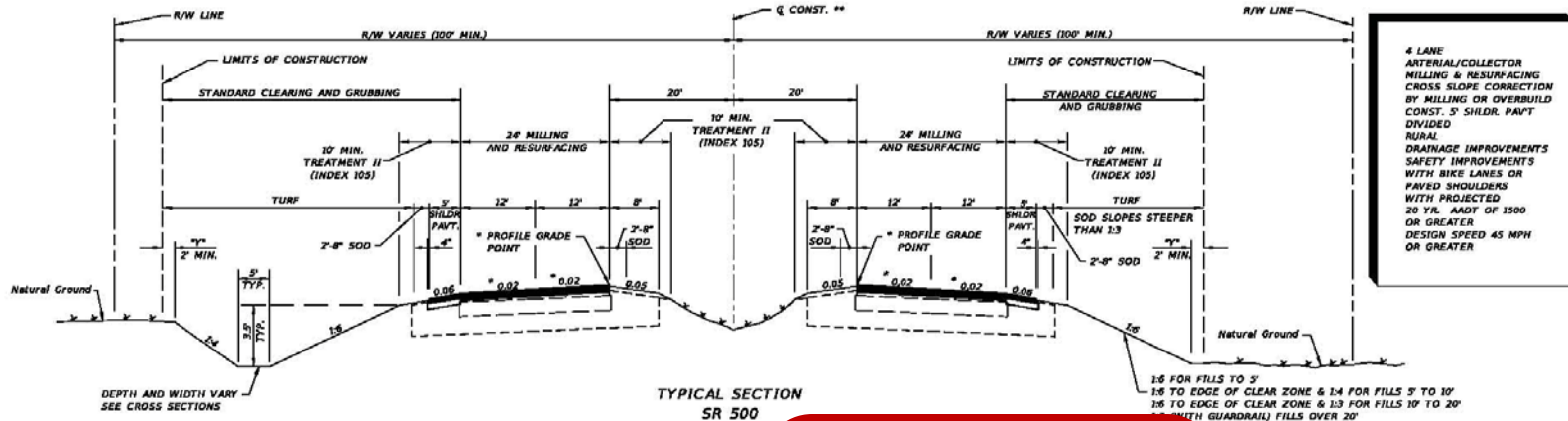
TYPICAL SECTION DETAILS

SHEET NO.

Constant Depth Milling and Overbuild

- Constant depth milling
- Slope Correction by Overbuild
- Resurface at constant thickness

Constant Depth Milling and Overbuild



4 LANE
ARTERIAL/COLLECTOR
MILLING & RESURFACING
CROSS SLOPE CORRECTION
BY MILLING OR OVERBUILD
CONST. 5' SHLDR. PAVT
DIVIDED
RURAL
DRAINAGE IMPROVEMENTS
SAFETY IMPROVEMENTS
WITH BIKE LANES OR
PAVED SHOULDER
WITH PROJECTED
20 YL. AADT OF 1500
OR GREATER
DESIGN SPEED 45 MPH
OR GREATER

STA. 316+53.67 TO STA. 347+00.00
VARIABLE DEPTH MILLING
MILL EXISTING ASPHALT PAVEMENT (1 1/2" AVG. DEPTH)

OVERBUILD
TYPE SP OVERBUILD (TRAFFIC D) THICKNESS VARIES (1" TO 1 1/2")

RESURFACING
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2")
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2") (PG 76-22)
AND FRICTION COURSE FC-5 (3/4") (PG 76-22)

SHOULDER PAVEMENT
OPTIONAL BASE GROUP 1 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2") (PG 76-22)
AND FRICTION COURSE FC-5 (3/4") (PG 76-22)

STA. 600+00.00 TO STA. 620+00.00
CONSTANT DEPTH MILLING
MILL EXISTING ASPHALT PAVEMENT (1 1/2" DEPTH)

OVERBUILD
TYPE SP OVERBUILD (TRAFFIC D) THICKNESS VARIES (1" TO 2 1/2")

RESURFACING
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2")
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2") (PG 76-22)
AND FRICTION COURSE FC-5 (3/4") (PG 76-22)

SHOULDER PAVEMENT
OPTIONAL BASE GROUP 1 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2") (PG 76-22)
AND FRICTION COURSE FC-5 (3/4") (PG 76-22)

TRAFFIC DATA
CURRENT YEAR = 1998 AADT = 18100
ESTIMATED OPENING YEAR = 2000 AADT = 21000
ESTIMATED DESIGN YEAR = 2012 AADT = 38900
K = 10% D = 58% T = 22% (24 HOUR)
DESIGN HOUR T = 11%
DESIGN SPEED = 60 MPH
POSTED SPEED = 55 MPH

** Q SURVEY AND/OR
Q CONSTRUCTION, AS APPLICABLE.

** THE AREA DISTURBED BY CONSTRUCTION VARIES.

NOTE:
HEIGHT OF FILL IS THE VERTICAL DISTANCE
FROM THE EDGE OF THE OUTSIDE TRAVEL LANE
TO TOE OF FRONT SLOPE.

TRAFFIC DATA IS REQUIRED TO BE NOTED FOR
CURRENT YEAR, OPENING YEAR, AND DESIGN YEAR.
POSTED SPEED (MPH) IS OPTIONAL.

* WHEN CROSS SLOPE CORRECTION IS NECESSARY
SPECIAL MILLING, OVERBUILD AND LAYERING DETAILS
MUST BE PROVIDED TO SUPPLEMENT TYPICAL SECTION.
THE NEED FOR AND LOCATION OF PROFILE GRADE
POINTS WILL DEPEND ON SITE SPECIFIC CONDITIONS.

FOR STANDARD TYPICAL SECTION NOTES
REFER TO EXHIBIT 6-1, THIS CHAPTER.

FOR MILLING AND RESURFACING DETAILS SEE
TYPICAL SECTION DETAILS SHEET 2-4

EXHIBIT TYP-13
Date: 1/1/13
SHEET 1 OF 4

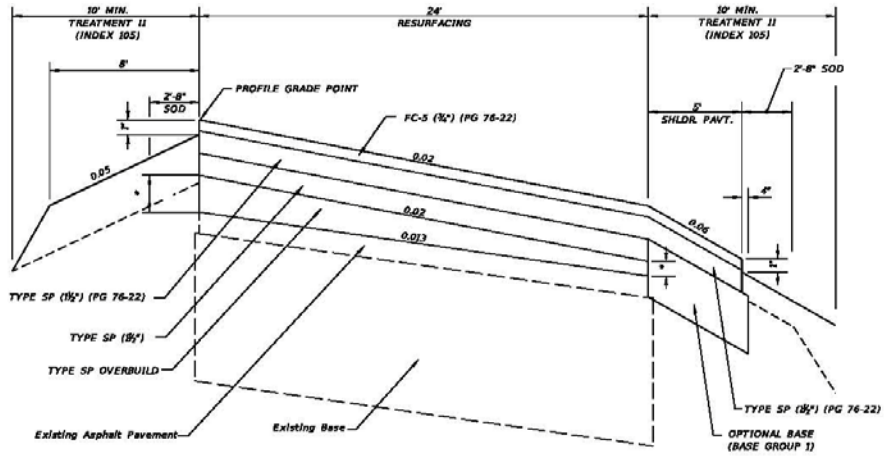
REVISIONS	
DATE	DESCRIPTION

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
500	LEON	123456-1-52-01

TYPICAL SECTION

SHEET NO.

Constant Depth Milling and Overbuild



OVERBUILD AND RESURFACING DETAIL

* TYPE SP OVERBUILD THICKNESSES (PER FOOT SPECIFICATION 334)

EXAMPLE OF CROSS SLOPE CORRECTION BY CONSTANT DEPTH MILLING AND OVERBUILD.

WHEN CROSS SLOPE CORRECTION IS NECESSARY SPECIAL MILLING, OVERBUILD AND LAYERING DETAILS MUST BE PROVIDED TO SUPPLEMENT TYPICAL SECTION. THE NEED FOR AND LOCATION OF PROFILE GRADES POINTS WILL DEPEND ON SITE SPECIFIC CONDITIONS.

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-1, THIS CHAPTER.

SUGGESTED CONSTRUCTION SEQUENCES SHOWN. OTHER SEQUENCES THAT MEET SPECIFICATIONS, THICKNESS AND CROSS SLOPE REQUIREMENTS MAY BE CONSIDERED BY THE ENGINEER.

STA. 600+10.00 TO STA. 620+00.00

STATION	EXISTING PAVEMENT CROSS SLOPES	
	EASTBOUND LANES	
	INSIDE	OUTSIDE
600+00	0.015	0.015
601+00	0.014	0.014
602+00	0.013	0.013
603+00	0.013	0.012
604+00	0.013	0.013
605+00	0.013	0.015
606+00	0.012	0.015
607+00	0.012	0.015
608+00	0.012	0.014
609+00	0.012	0.013
610+00	0.013	0.011

STATION	EXISTING PAVEMENT CROSS SLOPES	
	EASTBOUND LANES	
	INSIDE	OUTSIDE
611+00	0.014	0.011
612+00	0.015	0.012
613+00	0.015	0.013
614+00	0.014	0.014
615+00	0.013	0.016
616+00	0.013	0.015
617+00	0.013	0.014
618+00	0.013	0.013
619+00	0.014	0.013
620+00	0.016	0.016

EXHIBIT TYP-13B
Date: 1/1/12
SHEET 3 OF 4

REVISIONS		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			TYPICAL SECTION DETAILS	SHEET NO.
DATE	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
		500	LEON	123456-1-52-01		

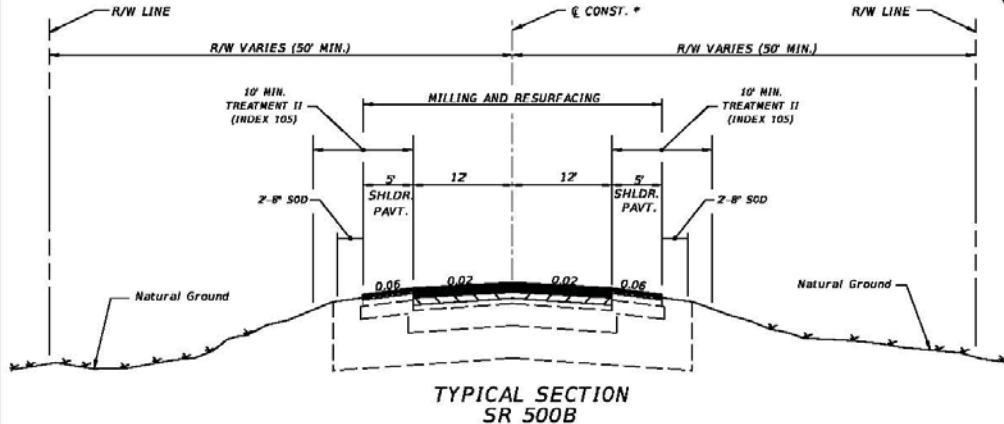
Constant Depth Milling and Overbuild

* SEE SURVEY AND/OR CONSTRUCTION, AS APPLICABLE.

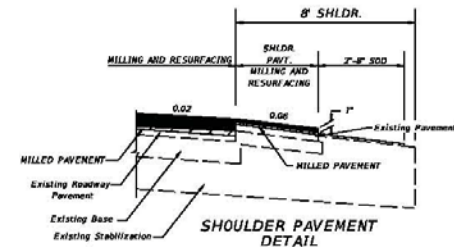
FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-1, THIS CHAPTER.

NOTES:
 1. NO CROSS SLOPE CORRECTION REQUIRED IF EXISTING CONDITIONS ARE WITHIN THE RANGES OF PPM VOLUME 1, CHAPTER 25 CRITERIA.
 2. WHEN CROSS SLOPE CORRECTION IS NECESSARY, SPECIAL MILLING, OVERBUILD, AND LAYERING DETAILS MUST BE PROVIDED TO SUPPLEMENT TYPICAL SECTION. THE NEED FOR AND LOCATION OF PROFILE GRADE POINTS WILL DEPEND ON SITE SPECIFIC CONDITIONS.

EXISTING 2-LANE (2-WAY) ARTERIAL/COLLECTOR MILLING AND OVERBUILD FOR SLOPE UNDIVIDED RURAL (WITH EXISTING BIKE LANES OR PAVED SHOULDERS) WITH PROJECTED 20 YR. AADT OF 1500 OR GREATER



TYPICAL SECTION SR 500B



TRAFFIC DATA
 STA. 10+53.00 TO STA. 130+77.00
 CURRENT YEAR = 1998 AADT = 9670
 ESTIMATED OPENING YEAR = 2000 AADT = 11900
 ESTIMATED DESIGN YEAR = 2010 AADT = 20200
 K = 10% D = 60% T = 7% (24 HOUR)
 DESIGN HOUR T = 3%
 DESIGN SPEED = 55 MPH

CROSS SLOPE CORRECTION
 STA. 10+53.00 TO STA. 130+77.00

MILLING FOR DEPTH
 MILL EXISTING ASPHALT PAVEMENT FOR DEPTH (2")

OVERBUILD FOR SLOPE
 TYPE SP OVERBUILD (TRAFFIC B)
 THICKNESS VARIES (3/8" TO 1 1/2")

RESURFACING
 TYPE SP STRUCTURAL COURSE (TRAFFIC B) (2")
 AND FRICTION COURSE FC-9.5
 (TRAFFIC B) (1") (RUBBER)

SHOULDER MILLING
 MILL EXISTING ASPHALT PAVEMENT (1" AVG. DEPTH)

SHOULDER PAVEMENT RESURFACING
 FRICTION COURSE FC-9.5
 (TRAFFIC B) (1") (RUBBER)

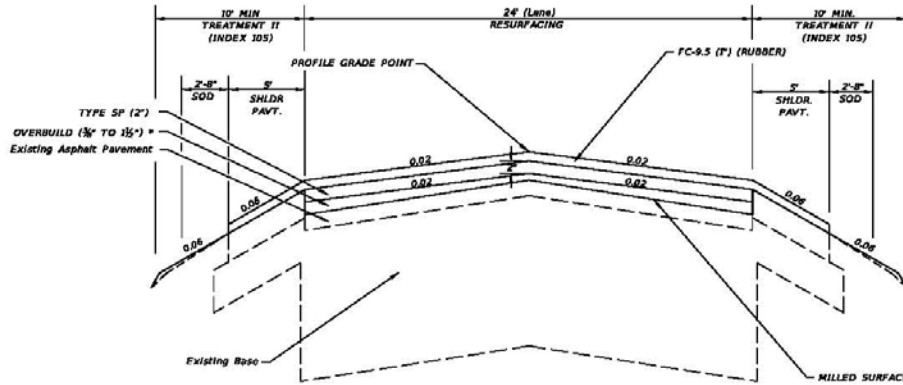
TRAFFIC DATA IS REQUIRED TO BE NOTED FOR CURRENT YEAR, OPENING YEAR AND DESIGN YEAR.

EXHIBIT TYP-9
 Date: 1/1/13

SHEET 1 OF 2

REVISIONS				STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			TYPICAL SECTION	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
				500B	LEON	123456-1-52-01		

Constant Depth Milling and Overbuild



OVERBUILD AND RESURFACING DETAIL

* TYPE SP OVERBUILD THICKNESSES
(PER FDOT SPECIFICATION 334)

EXAMPLE OF CROSS SLOPE CORRECTION BY
CONSTANT DEPTH MILLING AND OVERBUILD.

WHEN CROSS SLOPE CORRECTION IS NECESSARY
SPECIAL MILLING, OVERBUILD AND LATERING DETAILS
MUST BE PROVIDED TO SUPPLEMENT TYPICAL SECTION.
THE NEED FOR AND LOCATION OF PROFILE GRADES
POINTS WILL DEPEND ON SITE SPECIFIC CONDITIONS.

SUGGESTED CONSTRUCTION SEQUENCES SHOWN.
OTHER SEQUENCES THAT MEET SPECIFICATIONS,
THICKNESS AND CROSS SLOPE REQUIREMENTS MAY
BE CONSIDERED BY THE ENGINEER.

FOR STANDARD TYPICAL SECTION NOTES
REFER TO EXHIBIT 6-1, THIS CHAPTER.

EXHIBIT TYP-9A
Date: 1/1/13
SHEET 2 OF 2

REVISIONS				STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			TYPICAL SECTION DETAILS	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
				500B	LEON	123456-1-52-01		

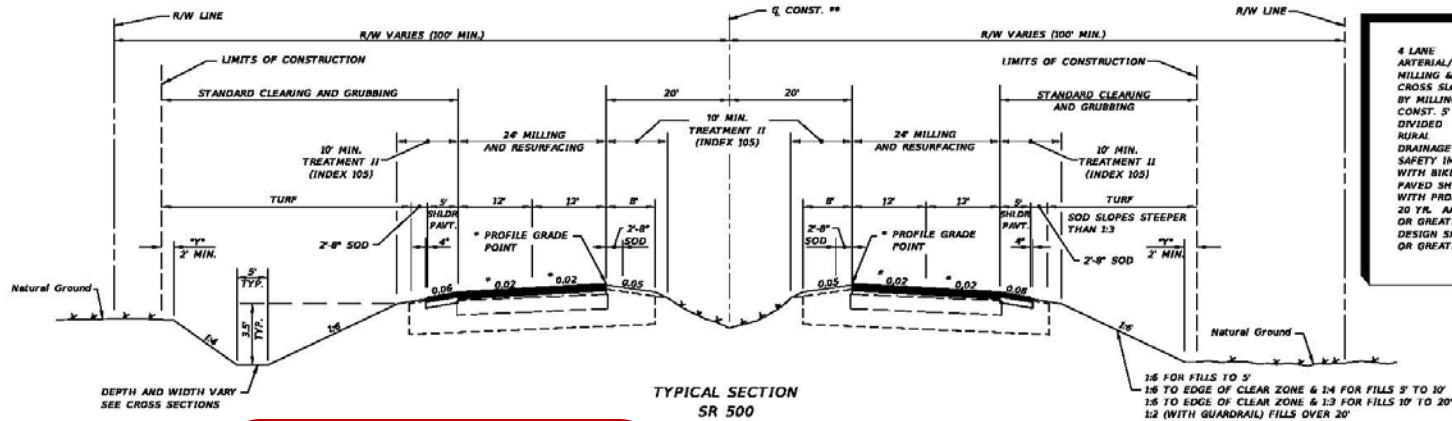
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Variable Depth Milling and Overbuild

- ◎ Slope correction by:
 - Variable depth milling
 - Overbuild
- ◎ Resurface at constant thickness



Variable Depth Milling and Overbuild



4 LANE ARTERIAL/COLLECTOR MILLING & RESURFACING CROSS SLOPE CORRECTION BY MILLING OR OVERBUILD CONST. 5' SHldr. PAVT DIVIDED RURAL DRAINAGE IMPROVEMENTS SAFETY IMPROVEMENTS WITH BIKE LANES OR PAVED SHOULDERS WITH PROJECTED 20 YR. ADT OF 1500 OR GREATER DESIGN SPEED 45 MPH OR GREATER

STA. 316+53.67 TO STA. 347+00.00
VARIABLE DEPTH MILLING
 MILL EXISTING ASPHALT PAVEMENT (1 1/2" AVG. DEPTH)
OVERBUILD
 TYPE SP OVERBUILD (TRAFFIC D) THICKNESS VARIES (1" TO 1 1/2")
RESURFACING
 TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2")
 TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2") (PG 76-22)
 AND FRICTION COURSE FC-5 (3/4") (PG 76-22)
SHOULDER PAVEMENT
 OPTIONAL BASE GROUP 1 WITH
 TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2") (PG 76-22)
 AND FRICTION COURSE FC-5 (3/4") (PG 76-22)

STA. 600+10.00 TO STA. 620+00.00
CONSTANT DEPTH MILLING
 MILL EXISTING ASPHALT PAVEMENT (1 1/2" DEPTH)
OVERBUILD
 TYPE SP OVERBUILD (TRAFFIC D) THICKNESS VARIES (1" TO 2 1/2")
RESURFACING
 TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2")
 TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2") (PG 76-22)
 AND FRICTION COURSE FC-5 (3/4") (PG 76-22)
SHOULDER PAVEMENT
 OPTIONAL BASE GROUP 1 WITH
 TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2") (PG 76-22)
 AND FRICTION COURSE FC-5 (3/4") (PG 76-22)

TRAFFIC DATA
 CURRENT YEAR = 1998 AADT = 18100
 ESTIMATED OPENING YEAR = 2000 AADT = 21000
 ESTIMATED DESIGN YEAR = 2012 AADT = 38900
 K = 20% D = 58% T = 22% (24 HOUR)
 DESIGN HOUR T = 15%
 DESIGN SPEED = 60 MPH
 POSTED SPEED = 55 MPH

** @ SURVEY AND/OR Q CONSTRUCTION, AS APPLICABLE.

** THE AREA DISTURBED BY CONSTRUCTION VARIES.

NOTE: HEIGHT OF FILL IS THE VERTICAL DISTANCE FROM THE EDGE OF THE OUTSIDE TRAVEL LANE TO TOE OF FRONT SLOPE.

TRAFFIC DATA IS REQUIRED TO BE NOTED FOR CURRENT YEAR, OPENING YEAR, AND DESIGN YEAR. POSTED SPEED (MPH) IS OPTIONAL.

* WHEN CROSS SLOPE CORRECTION IS NECESSARY SPECIAL MILLING, OVERBUILD AND LAYERING DETAILS MUST BE PROVIDED TO SUPPLEMENT TYPICAL SECTION. THE NEED FOR AND LOCATION OF PROFILE GRADE POINTS WILL DEPEND ON SITE SPECIFIC CONDITIONS.

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-3, THIS CHAPTER.

FOR MILLING AND RESURFACING DETAILS SEE TYPICAL SECTION DETAILS SHEET 2-4

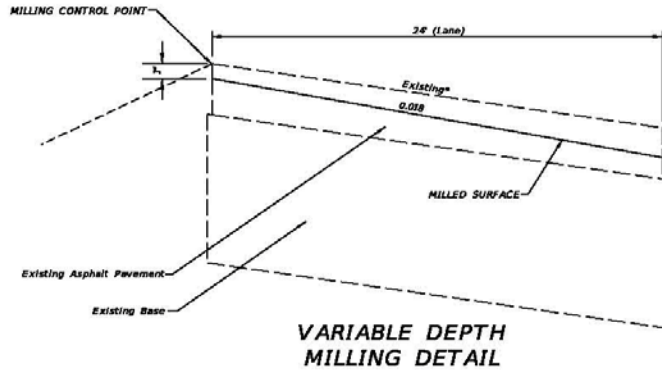
EXHIBIT TYP-13
 Date: 1/1/13

SHEET 1 OF 4

REVISIONS				STATES OF FLORIDA DEPARTMENT OF TRANSPORTATION			TYPICAL SECTION	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
				500	LEON	123456-1-52-01		

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Variable Depth Milling and Overbuild



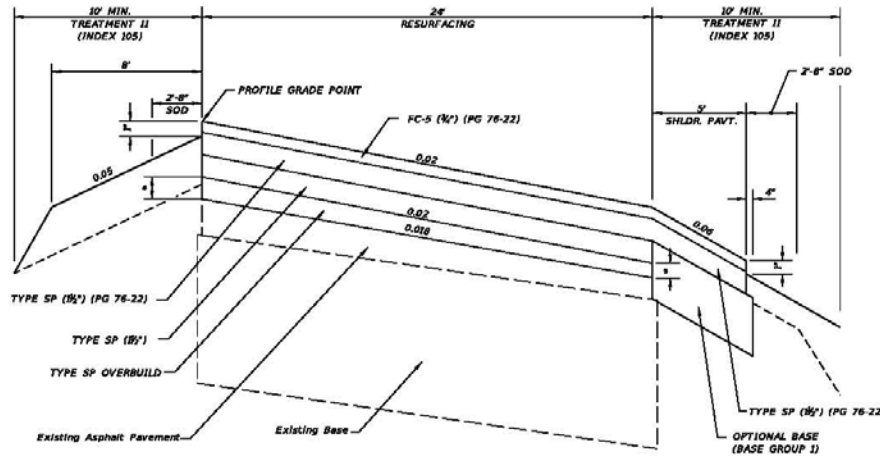
VARIABLE DEPTH MILLING DETAIL

EXAMPLE OF CROSS SLOPE CORRECTION BY VARIABLE MILLING AND OVERBUILD.

WHEN CROSS SLOPE CORRECTION IS NECESSARY SPECIAL MILLING, OVERBUILD AND LAYERING DETAILS MUST BE PROVIDED TO SUPPLEMENT TYPICAL SECTION. THE NEED FOR AND LOCATION OF PROFILE GRADES POINTS WILL DEPEND ON SITE SPECIFIC CONDITIONS.

SUGGESTED CONSTRUCTION SEQUENCES SHOWN. OTHER SEQUENCES THAT MEET SPECIFICATIONS, THICKNESS AND CROSS SLOPE REQUIREMENTS MAY BE CONSIDERED BY THE ENGINEER.

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-1, THIS CHAPTER.



VARIABLE DEPTH OVERBUILD AND RESURFACING DETAIL

* TYPE SP OVERBUILD THICKNESSES (PER FDOT SPECIFICATION 334)

STA. 316+53.67 TO STA. 347+00.00

STATION	*EXISTING PAVEMENT CROSS SLOPES	
	EASTBOUND LANES	
	INSIDE	OUTSIDE
317+00	0.014	0.013
318+00	0.012	0.012
319+00	0.013	0.013
320+00	0.011	0.012
321+00	0.013	0.014
322+00	0.013	0.015
323+00	0.014	0.015
324+00	0.013	0.013
325+00	0.012	0.012
326+00	0.012	0.011
327+00	0.013	0.011
328+00	0.014	0.012
329+00	0.015	0.013
330+00	0.015	0.013
331+00	0.014	0.014
332+00	0.013	0.016

STATION	*EXISTING PAVEMENT CROSS SLOPES	
	EASTBOUND LANES	
	INSIDE	OUTSIDE
333+00	0.012	0.015
334+00	0.013	0.014
335+00	0.013	0.013
336+00	0.014	0.012
337+00	0.016	0.015
338+00	0.015	0.015
339+00	0.012	0.014
340+00	0.013	0.013
341+00	0.014	0.013
342+00	0.016	0.014
343+00	0.013	0.014
344+00	0.013	0.012
345+00	0.014	0.013
346+00	0.016	0.015
347+00	0.016	0.016

EXHIBIT TYP-13A
Date: 1/1/13

SHEET 2 OF 4

REVISIONS		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		TYPICAL SECTION DETAILS	SHEET NO.
DATE	DESCRIPTION	ROAD NO.	COUNTY		
		500	LEON		

NOTICE: THE ORIGINAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE & RECORD. ANY REVISIONS WILL BE FILED IN THE ELECTRONIC FILE & RECORD.

Summary

◎ Cross Slope Correction

- Match Existing cross slope
- Determine appropriate cross slope correction method
 - Variable depth milling
 - Constant depth milling & Overbuild
 - Variable depth milling & Overbuild
- Correction method in milling and resurfacing details (*PPM Vol.2, Chapter 6 – Exhibits*)

Thank You!



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