

# Pavement

PV

**Pavement**

NO.	DATE	TITLE
<b>General</b>		
PV-3	10-18-11	Safety Edge
PV-10	04-19-11	Rumble Strip Panel for Intersection Approach
PV-11	04-20-10	Structural Rumble Strips
PV-12	04-19-16	Milled Shoulder Rumble Strips
PV-13	04-19-16	Milled Centerline Rumble Strips
PV-20	10-21-14	Paved Islands
<b>PCC</b>		
PV-101	04-19-16	Joints
PV-102	10-18-16	PCC Curb Details
PV-103	04-19-11	Manhole Boxouts in PCC Pavement
PV-104	04-19-11	Ramped Median Nose
PV-105	10-21-14	PCC Pavement Widening
PV-106	04-21-15	PCC Railroad Approach Section
PV-121	04-21-15	Jointing PCC Pavement Widening
<b>HMA</b>		
PV-201	04-19-11	Manhole Boxouts in HMA Pavement and HMA Overlays
PV-202	04-16-13	Hot Mix Asphalt Resurfacing
PV-203	10-15-13	HMA Base Widening
PV-204	04-21-15	HMA Railroad Approach Section
<b>Superelevation</b>		
PV-301	04-19-11	Superelevation Details Two Lane Roadway
PV-302	04-17-12	Superelevation Details Four Lane Roadway Depressed Median
PV-303	04-19-11	Superelevation Details Ramps
PV-304	04-17-12	Superelevation Details Six Lane Roadway Depressed Median
PV-305	04-17-12	Superelevation Details Six Lane Roadway Closed Median
PV-306	04-19-11	Superelevation Details Eight Lane Roadway Closed Median

# Pavement

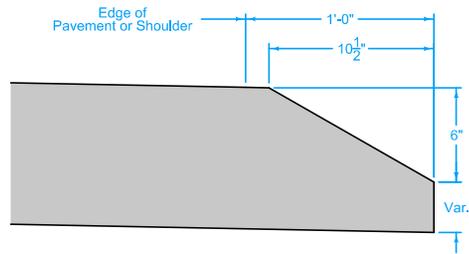
NO.	DATE	TITLE
<b>Ramp Tapers</b>		
PV-410	10-18-11	Deceleration Taper for 16' Exit Ramp
PV-411	10-18-11	Acceleration Taper for 16' Entrance Ramp
PV-412	10-18-11	Deceleration Taper for 18' Exit Loop
PV-414	10-18-11	Acceleration Taper for 18' Entrance Loop
<b>Detours and Median Crossovers</b>		
PV-418	10-21-14	One- Lane Detour Connection
PV-428	10-21-14	Two-Lane Detour Connection
PV-500	04-21-15	Median Crossover (50' Median)
PV-501	10-15-13	Median Crossover (50' Median) 16' Wide 1 Lane
PV-502	10-15-13	Median Crossover (50' Median) 28' Wide 2 Lane
PV-503	04-21-15	Median Crossover (64' Median)
PV-504	10-15-13	Median Crossover (64' Median) 16' Wide 1 Lane
PV-505	10-15-13	Median Crossover (64' Median) 28' Wide 2 Lane
PV-506	04-21-15	Median Crossover (68.24' Median)
PV-507	10-15-13	Median Crossover (68.24' Median) 16' Wide 1 Lane
PV-508	10-15-13	Median Crossover (68.24' Median) 28' Wide 2 Lane
PV-509	04-21-15	Median Crossover (82' Median)
PV-510	04-15-14	Median Crossover (82' Median) 16' Wide 1 Lane
PV-511	04-15-14	Median Crossover (82' Median) 28' Wide 2 Lane
PV-512	04-21-15	Median Crossover (100' Median)
PV-513	04-15-14	Median Crossover (100' Median) 16' Wide 1 Lane
PV-514	04-15-14	Median Crossover (100' Median) 28' Wide 2 Lane

Quantities for Safety Edge are included in the estimated quantity of the pavement or shoulder. For HMA quantities calculated by area, the Safety Edge is measured as one foot of width regardless of thickness.

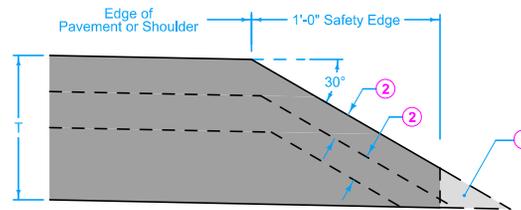
See paving typicals for placement within roadway.

The number of HMA lifts shown are for illustration purposes only.

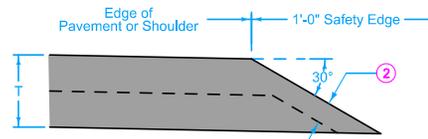
- ① Material in excess of 1' width is contractor's option.
- ② Coverage thickness to exceed nominal maximum aggregate size.



**PCC**

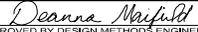


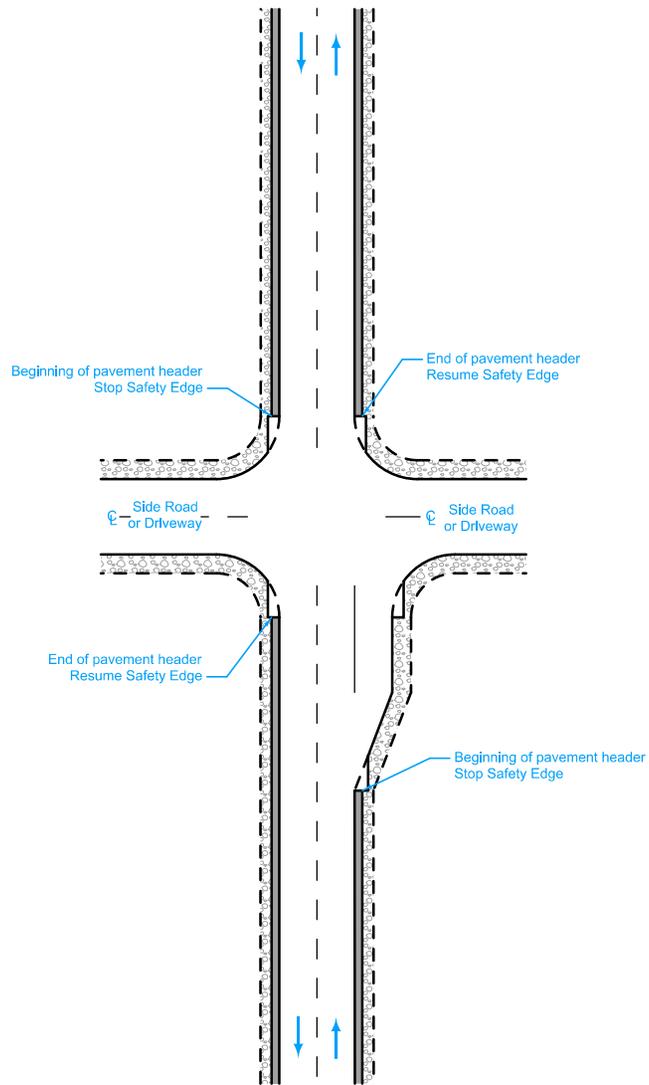
$T > 8''$



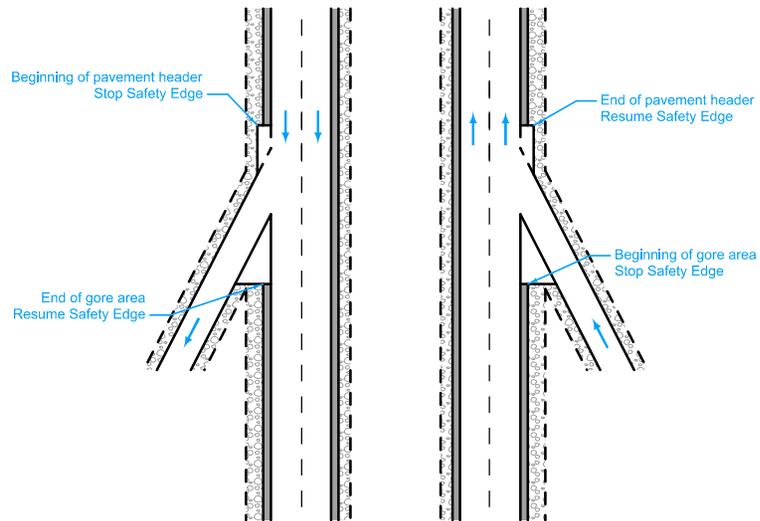
$T < 8''$

**HMA**

 Iowa Department of Transportation	REVISION	
	1	10-18-11
<b>STANDARD ROAD PLAN</b>		<b>PV-3</b>
		SHEET 1 of 2
REVISIONS: Modified HMA drawings. Added circle notes 1 and 2.		
 <small>APPROVED BY DESIGN METHODS ENGINEER</small>		
<b>SAFETY EDGE</b>		



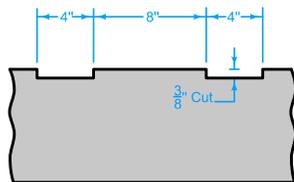
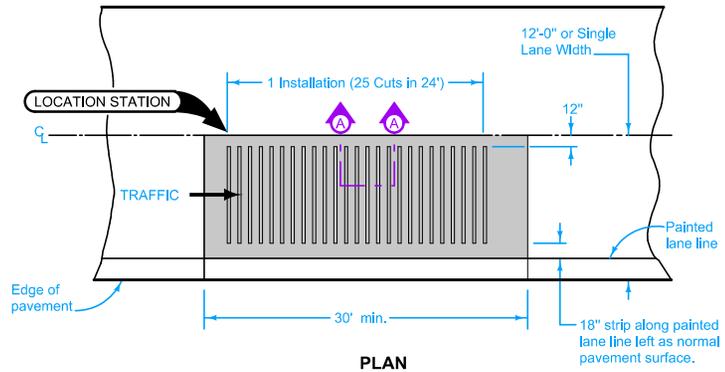
**AUXILIARY LANES  
AND INTERSECTIONS**



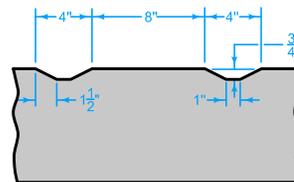
**RAMPS AND LOOPS**

 Iowa Department of Transportation	REVISION 1   10-18-11	
	<b>PV-3</b> SHEET 2 of 2	
REVISIONS: Modified HMA drawings. Added circle notes 1 and 2.		
<i>Deanna Maifield</i> APPROVED BY DESIGN METHODS ENGINEER		
<b>SAFETY EDGE</b>		

Construct rumble strip panel prior to opening to traffic.  
 Refer to the contract documents for pavement patching and jointing information.



**SECTION A-A**  
 (RUMBLE STRIP CUT IN PAVEMENT)

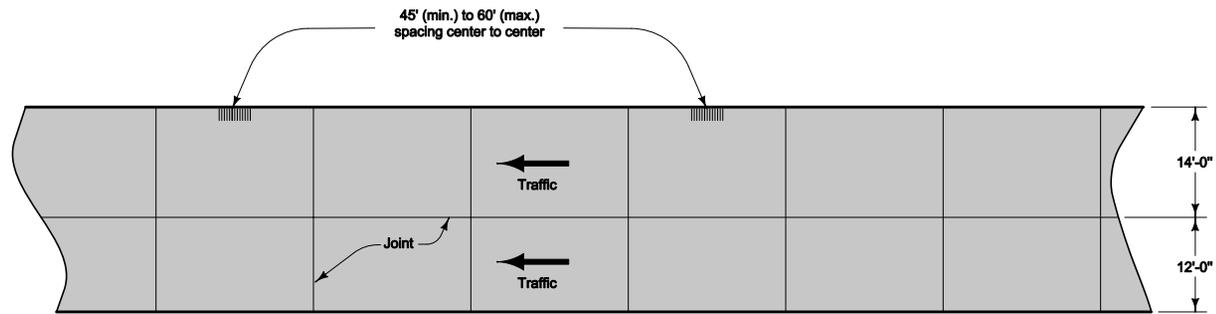


**SECTION A-A**  
 (RUMBLE STRIP PLACED IN PLASTIC P.C. CONCRETE)

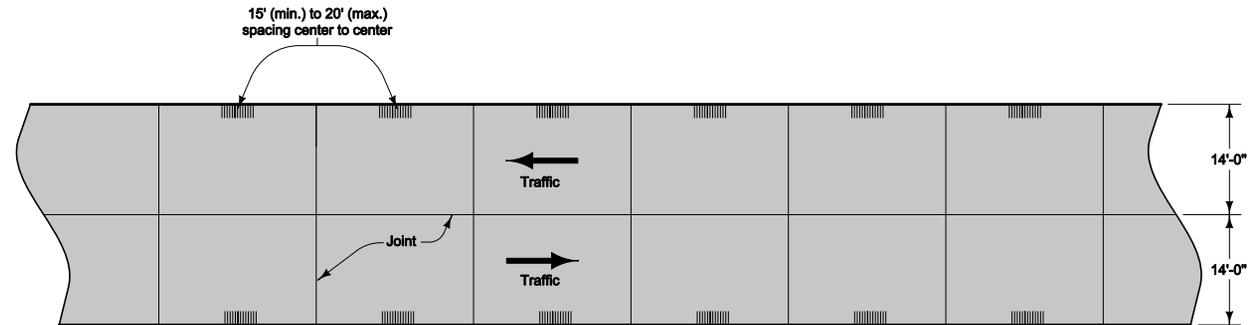
Possible Contract Items:  
 CD Joint Assembly  
 CT Joint  
 Patches, Full-Depth Finish, by Area  
 Patches, Full-Depth Finish, by Count  
 Rumble Strip Panel (In Full Depth Patch)  
 Rumble Strip Panel (PCC Surface)  
 Rumble Strip Panel (HMA Surface)

Possible Tabulations:  
 102-6C  
 112-7

	REVISION	1	04-19-11
	STANDARD ROAD PLAN	PV-10	
REVISIONS: Updated references to renamed standards and referenced contract documents for joints and patches.		SHEET 1 of 1	
<i>Deanna Macfild</i> APPROVED BY DESIGN METHODS ENGINEER			
<b>RUMBLE STRIP PANEL          FOR INTERSECTION APPROACH</b>			



**PLAN**  
(4-Lane Divided Roadway)



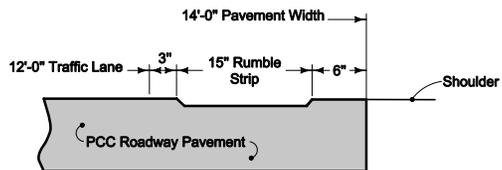
**PLAN**  
(2-Lane Roadway)

Do not place structural rumble strips areas where

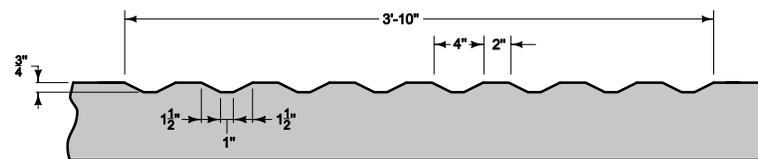
- a lane's paved width is less than 14 feet
- milled shoulder rumble strips will be placed

Placement of structural rumble strips will be incidental to "Standard or Slip Form Portland Cement Concrete Pavement".

**STRUCTURAL RUMBLE STRIP**



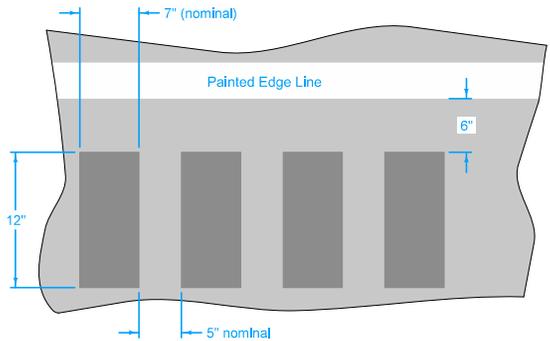
**SECTION THROUGH PAVEMENT EDGE**



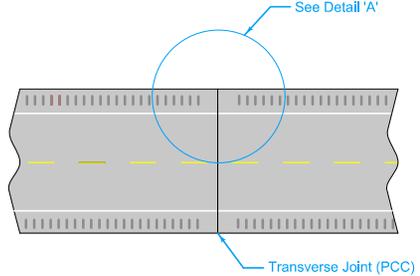
**PROFILE**

Possible Contract Item:  
Standard or Slip Form Portland Cement Concrete Pavement

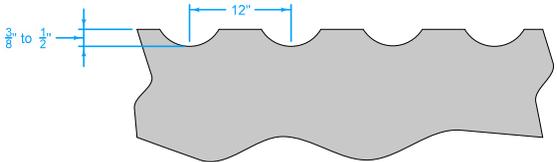
<p>Iowa Department of Transportation</p>	REVISION
	New 04-20-10
<b>STANDARD ROAD PLAN</b>	<b>PV-11</b>
REVISIONS: New. Replaces RH-80.	SHEET 1 of 1
<i>Deanna Mifflin</i> APPROVED BY DESIGN METHODS ENGINEER	
<b>STRUCTURAL RUMBLE STRIPS</b>	



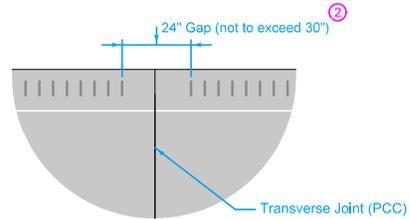
**PLAN**



Transverse Joint (PCC)



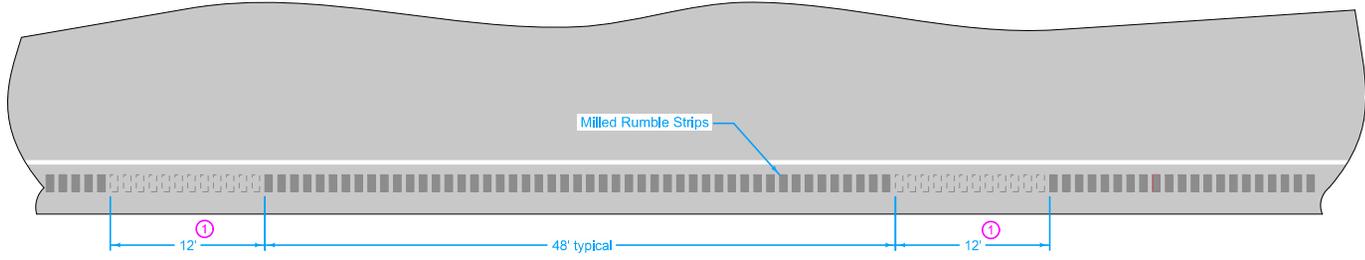
**SECTION**



**Detail 'A'**

**MILLED RUMBLE STRIP**

- ① Place continuous Milled Rumble Strips (no 12 foot gaps) on all median side shoulders and on all interstate shoulders.
- ② Gap rumble strips at transverse joints. Centering the gap about the joint is desirable. Maintain a minimum of 3 inches between rumble and transverse joint.



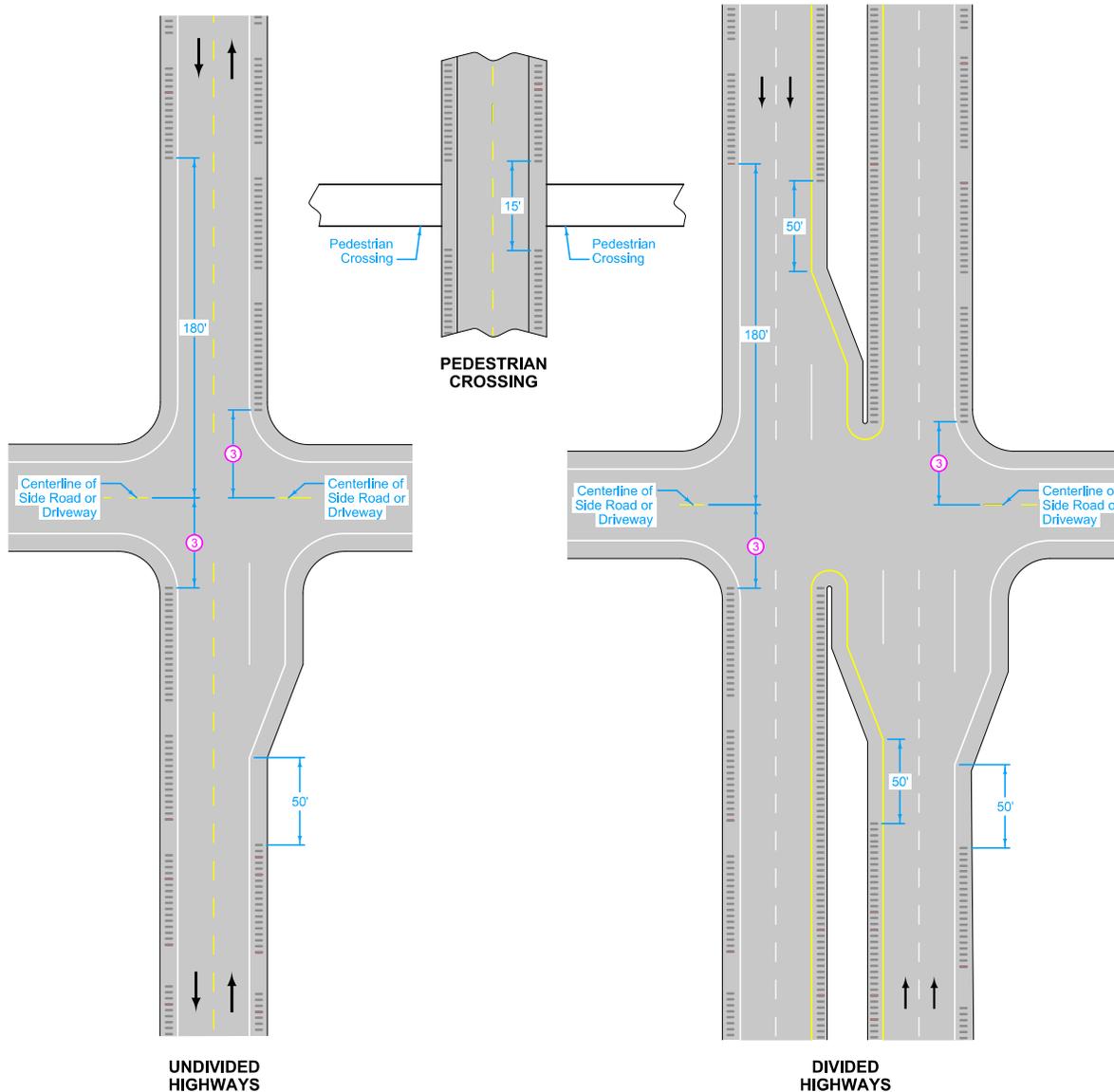
**GAP DETAILS**

Possible Contract Items:  
 Asphalt Emulsion for Fog Seal (Shoulder Rumble Strips)  
 Milled Shoulder Rumble Strips, HMA Surface  
 Milled Shoulder Rumble Strips, PCC Surface

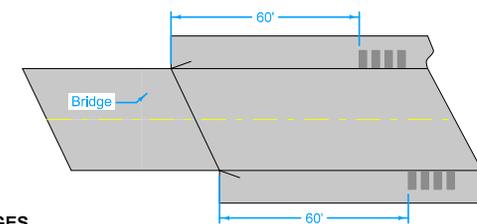
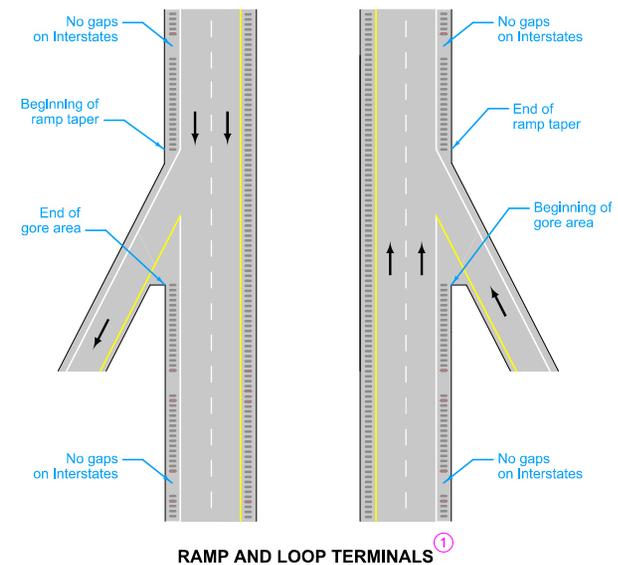
Possible Tabulation:  
 112-10

<b>IOWA DOT</b>	REVISION	
	6	04-19-16
	<b>PV-12</b>	
<b>STANDARD ROAD PLAN</b>		SHEET 1 of 2
REVISIONS: Added Detail 'A' and circle note 2 on page 1. Reduced depth of rumble 1/8\"/>		
<i>Brian Smith</i>		
APPROVED BY DESIGN METHODS ENGINEER		

**MILLED SHOULDER RUMBLE STRIPS**



**INTERSECTION SITUATIONS**

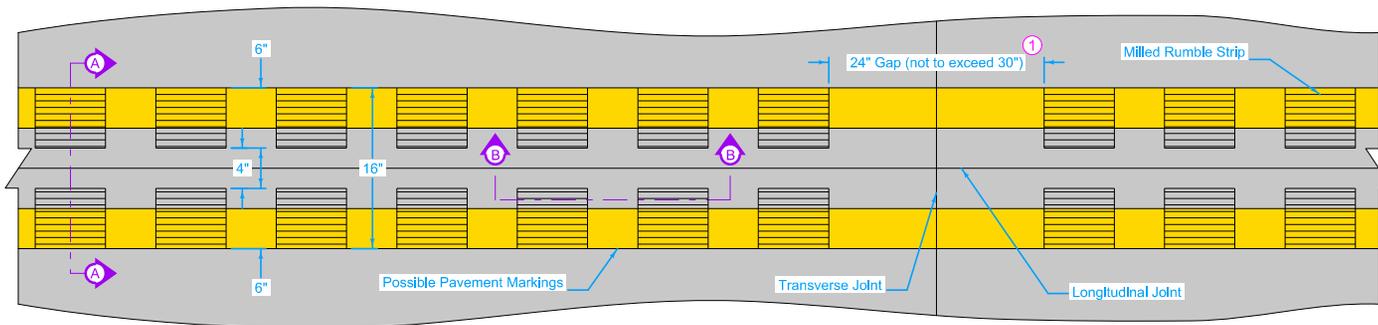


- ① Place continuous Milled Rumble Strips (no 12 foot gaps) on all median side shoulders and on all interstate shoulders.
- ③ Begin rumbles 100 feet beyond paved side roads or 50 feet for driveways or granular side roads.

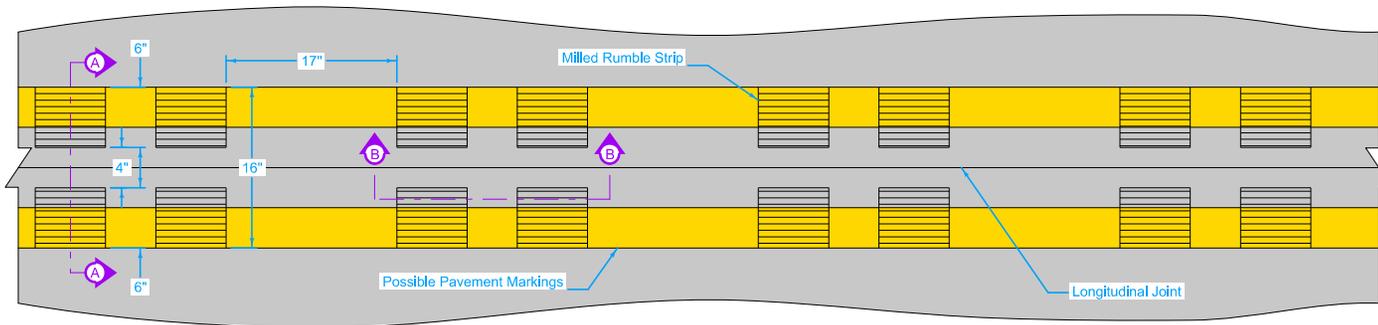
	REVISION	
	6	04-19-16
<b>STANDARD ROAD PLAN</b>		<b>PV-12</b>
		SHEET 2 of 2
<small>REVISIONS: Added Detail 'A' and circle note 2 on page 1. Reduced depth of rumble 1/8".</small>		

*Brian Smith*  
 APPROVED BY DESIGN METHODS ENGINEER

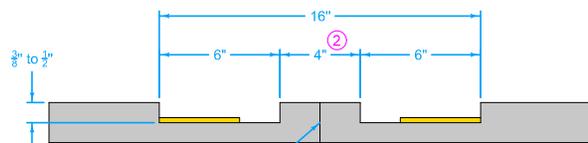
**MILLED SHOULDER RUMBLE STRIPS**



PLAN (PCC)



PLAN (HMA)



SECTION A-A



SECTION B-B

Centerline rumble strip placement is the same regardless of centerline pavement marking.

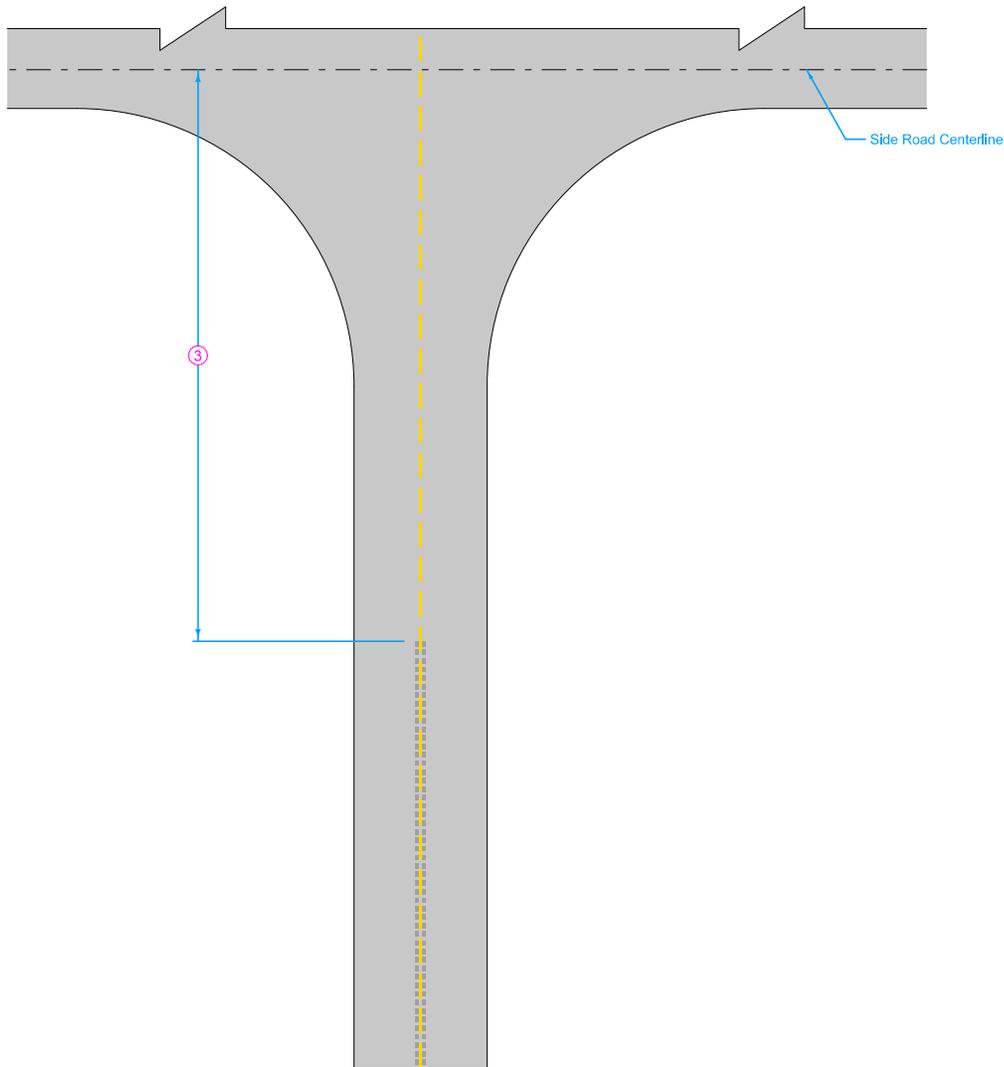
Gap areas where painted median is present.

- ① Gap rumble strips at PCC transverse joints. Centering the gap about the joint is desirable. Maintain a minimum of 3 inches between rumble and transverse joint.
- ② Center 4 inch gap over longitudinal joint.

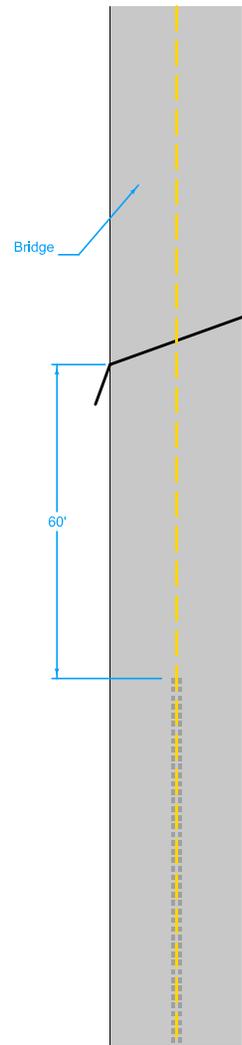
Possible Contract Items:  
 Milled Centerline Rumble Strips, HMA Surface  
 Milled Centerline Rumble Strips, PCC Surface

Possible Tabulation:  
 112-10

	REVISION
	4   04-19-16
STANDARD ROAD PLAN	PV-13
SHEET 1 of 3	
REVISIONS: Split 16" rumble into 6" mill-4" gap-6" mill and reduced depth 1/8". Added circle notes 1 and 2 on page 1. Separated PCC and HMA patterns.	
APPROVED BY DESIGN METHODS ENGINEER	
MILLED CENTERLINE RUMBLE STRIPS	



INTERSECTION WITH  
SIDE ROAD

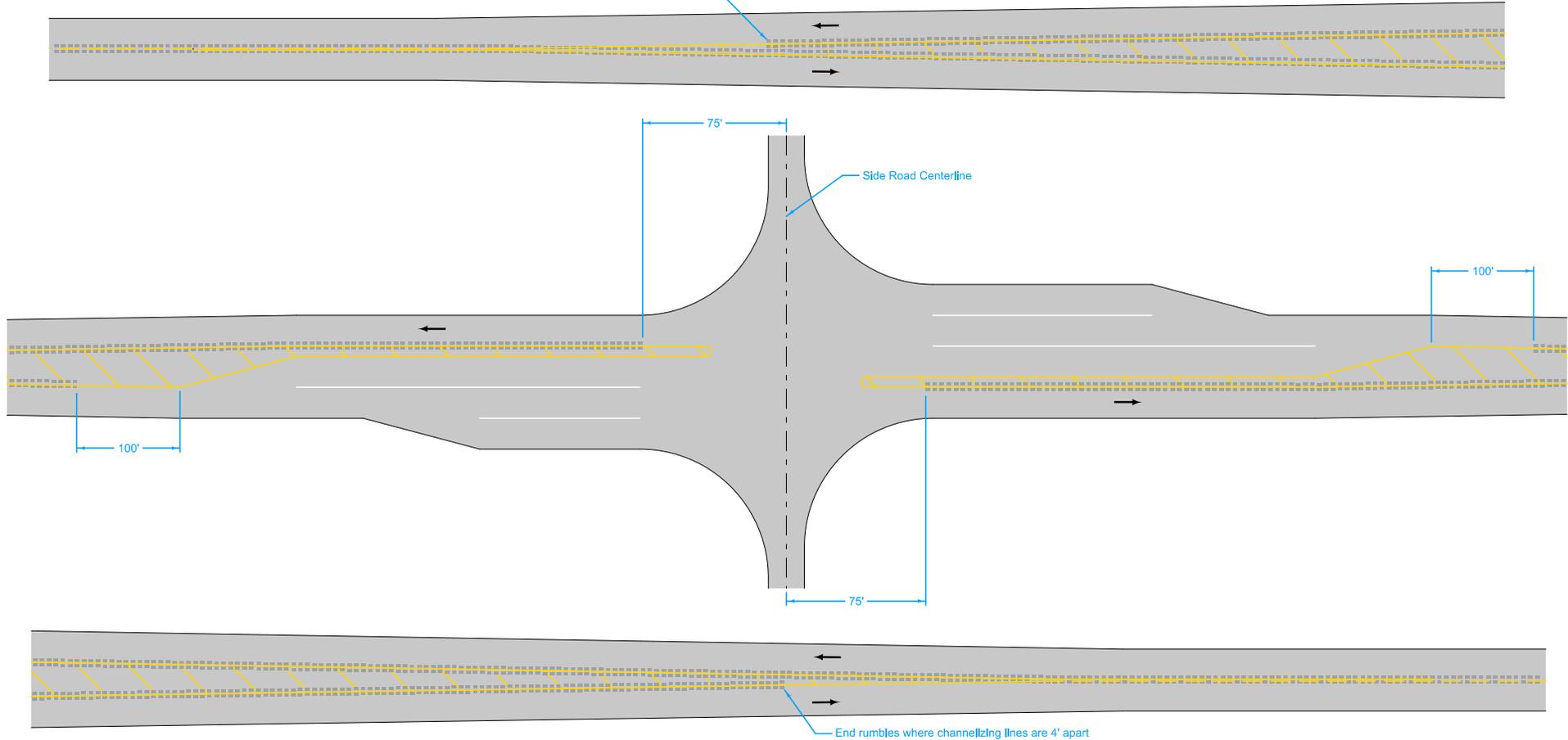


BRIDGE APPROACH

- ③ Stop rumbles 180 feet in advance of paved side roads or 75 feet for granular side roads.

	REVISION
	4   04-19-16
STANDARD ROAD PLAN	PV-13
SHEET 2 of 3	
<small>REVISIONS: Split 16" rumble into 6" mill-4" gap-6" mill and reduced depth 1/8". Added circle notes 1 and 2 on page 1. Separated PCC and HMA patterns.</small>	
<small>APPROVED BY DESIGN METHODS ENGINEER</small>	
<b>MILLED CENTERLINE RUMBLE STRIPS</b>	

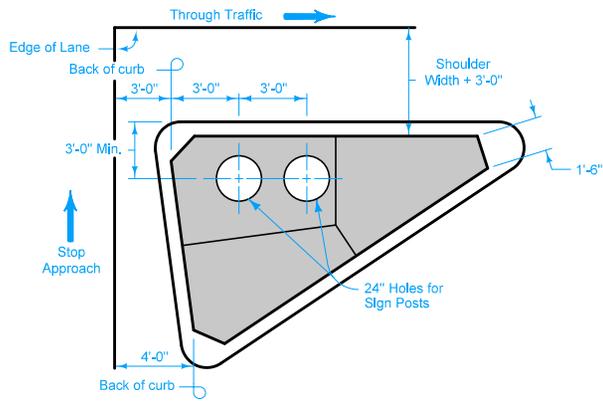
End rumbles where channelizing lines are 4' apart



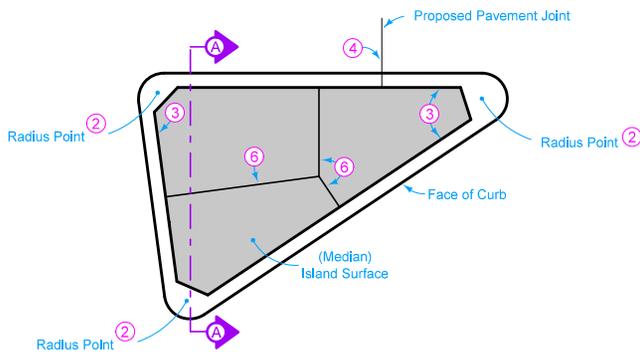
LEFT TURN LANE  
(PAINTED MEDIAN)

End rumbles where channelizing lines are 4' apart

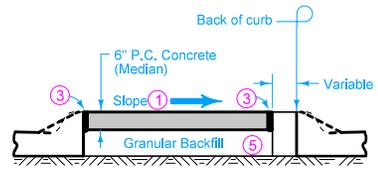
 <b>STANDARD ROAD PLAN</b>	REVISION 4   04-19-16
	<b>PV-13</b> SHEET 3 of 3
REVISIONS: Split 16" rumble into 6" mill-4" gap-6" mill and reduced depth 1/8". Added circle notes 1 and 2 on page 1. Separated PCC and HMA patterns.	
 APPROVED BY DESIGN METHODS ENGINEER	
<b>MILLED CENTERLINE RUMBLE STRIPS</b>	



Plan



Jointing



Section A-A

After required signs have been placed, fill any unused holes for sign posts with Flowable Mortar meeting the requirements of Section 2506 of the Standard Specifications. This work is incidental to sign placement.

Refer to Standard Road Plan [PV-102](#) for curb information.

- ① Shape surface of island as necessary to drain.
- ② Radius point is located at back of curb. Pave across and between curbs on a straight line. See tabulation 112-4.
- ③ 'E' Joint, see [PV-101](#).
- ④ Construct 'C' Joint In Curb as needed to continue intersection pavement joints. See [PV-101](#).
- ⑤ The furnishing and placing of granular backfill is incidental to the price bid for 6 inch P.C. Concrete Median.
- ⑥ 'C' Joints as required. See [PV-101](#).

Possible Contract Items:  
Curb and Gutter, P.C. Concrete  
Median, P.C. Concrete, 6 inch

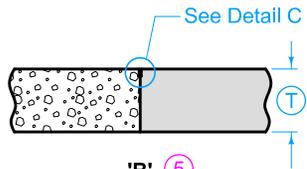
Possible Tabulation:  
112-4

<b>IOWA DOT</b>	REVISION	
	2	10-21-14
STANDARD ROAD PLAN	PV-20	
SHEET 1 of 1		

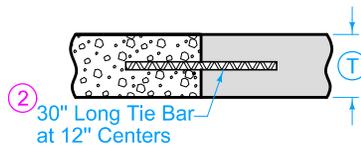
REVISIONS: Changed reference from tabulation 101-13 to 112-4 in circle note 2 and changed title as Painted Islands are being introduced.

APPROVED BY DESIGN METHODS ENGINEER  
*Brian Smith*

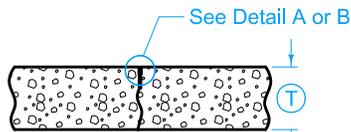
RAISED ISLANDS



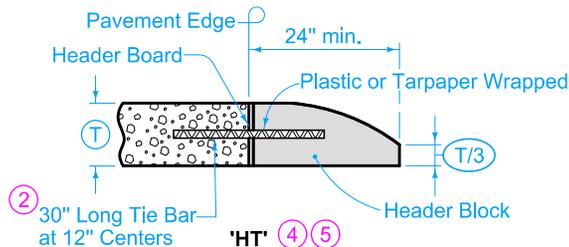
**'B' 5**  
**PLAIN JOINT**  
(Abutting Pavement Slabs)



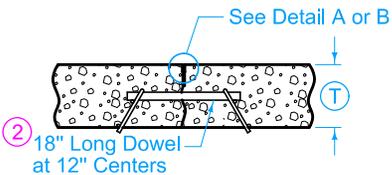
**2** 30" Long Tie Bar  
at 12" Centers  
**'DW' 3 4 7**  
**DAY'S WORK JOINT (Non-working)**



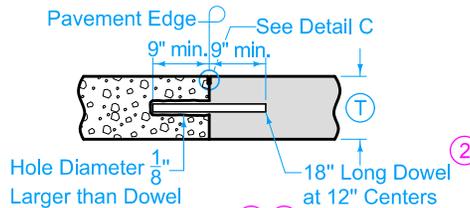
**'C' 6**  
**CONTRACTION JOINT**



**2** 30" Long Tie Bar  
at 12" Centers  
**'HT' 4 5**  
**HEADER JOINT**  
(End Rigid Pavement)

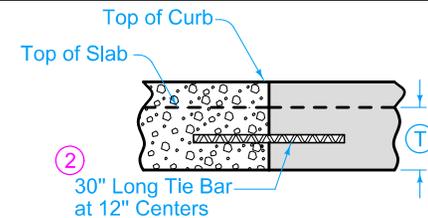


**2** 18" Long Dowel  
at 12" Centers  
**'CD' 1 4 6**  
**DOWELED CONTRACTION JOINT**



**2**  
**'RD' 4 5**  
**ABUTTING PAVEMENT JOINT**

- 1 See dowel assemblies for fabrication details.
- 2 See Bar Size Table.
- 3 Locate 'DW' joint at a mid-panel location between future 'C' or 'CD' joints. Place no closer than 5 feet to a 'C' or 'CD' joint.
- 4 Place bars within the limits shown under dowel assemblies.
- 5 Edge with 1/8 inch tool for length of joint. For HT joint, remove header block and board when second slab is placed.
- 6 Unless otherwise specified, use 'CD' transverse contraction joints in mainline pavement when T is greater or equal to 8 inches. Use 'C' joints when T is less than 8 inches.
- 7 'RT' joint may be used in lieu of 'DW' joint at the end of the days work. Remove any pavement damaged due to the drilling at no additional cost to the Contracting Authority.



**2**  
**'DW - CG' 3 4**  
**DAY'S WORK JOINT**  
**CURB AND GUTTER UNIT**

LEGEND	
	Existing Pavement
	Proposed Pavement

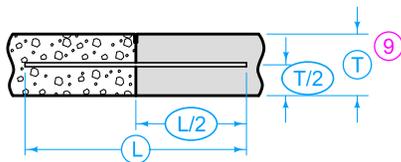
		REVISION
		6 04-19-16
FIGURE 7010.101	STANDARD ROAD PLAN	<b>PV-101</b>
		SHEET 1 of 8

REVISIONS: Revised note 5 on page 1. Revised notes 19, 22, and 23 on pages 6, 7, and 8. Added shading and a Legend to define existing and proposed pavement.

*Paul D. Wigand* SUDAS DIRECTOR *Brian Smith* DESIGN METHODS ENGINEER

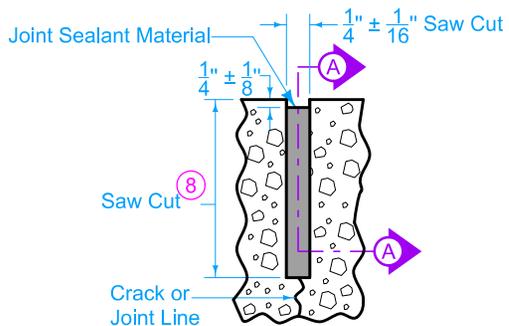
**JOINTS**

**TRANSVERSE CONTRACTION**



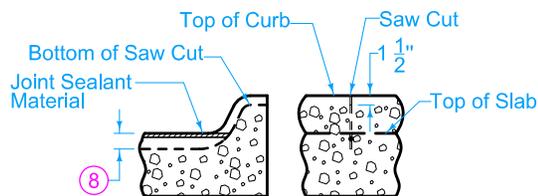
**BAR PLACEMENT**

(Applies to all joints unless otherwise detailed.)



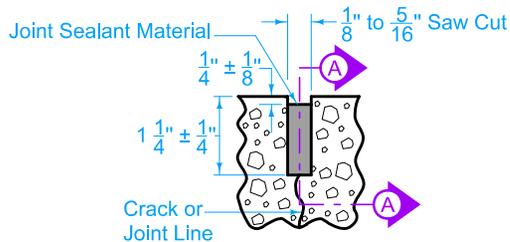
**DETAIL A**

(Saw cut formed by conventional concrete sawing equipment.)



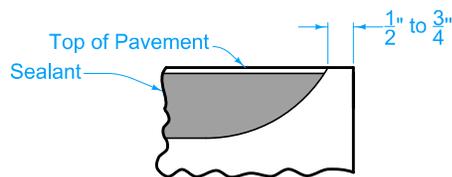
**'C' JOINT IN CURB**

(Match 'CT', 'CD', or 'C' joint in pavement.)



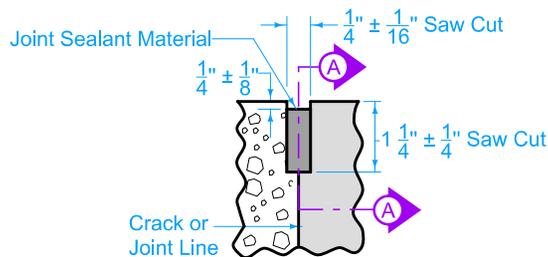
**DETAIL B**

(Saw cut formed by approved early concrete sawing equipment.)



**SECTION A-A**

(Detail at Edge of Pavement)



**DETAIL C**

- 8 Saw 'CD' joint to a depth of  $T/3 \pm 1/4"$ ; saw 'C' joint to a depth of  $T/4 \pm 1/4"$ .
- 9 When tying into old pavement, T represents the depth of sound PCC.

BAR SIZE TABLE		
T	Dowel Diameter	Tie Bar Size
< 8"	$\frac{3}{4}$ "	#6
$\geq 8"$ but < 10"	$1 \frac{1}{4}$ "	#10
$\geq 10"$	$1 \frac{1}{2}$ "	#11

LEGEND	
	Existing Pavement
	Proposed Pavement

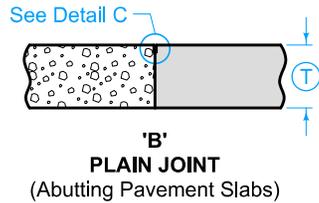
SUDAS	IOWADOT	REVISION
		6   04-19-16
FIGURE 7010.101	STANDARD ROAD PLAN	<b>PV-101</b>
SHEET 2 of 8		

REVISIONS: Revised note 5 on page 1. Revised notes 19, 22, and 23 on pages 6, 7, and 8. Added shading and a Legend to define existing and proposed pavement.

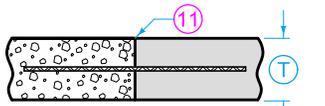
*Paul D. Wigand* SUDAS DIRECTOR      *Brian Smith* DESIGN METHODS ENGINEER

**TRANSVERSE CONTRACTION**

**JOINTS**

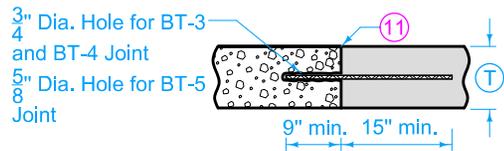


**'B'**  
PLAIN JOINT  
(Abutting Pavement Slabs)



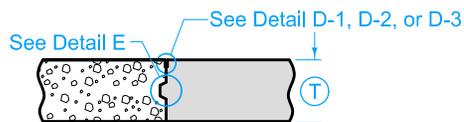
**'BT'**  
ABUTTING PAVEMENT JOINT - RIGID TIE

(T)	Joint	Bars	Bar Length and Spacing
< 8"	'BT-1'	#4	36" Long at 30" Centers
≥ 8"	'BT-2'	#5	36" Long at 30" Centers

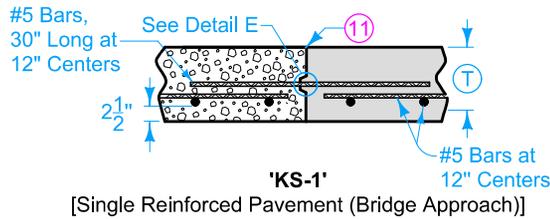


**'BT'**  
ABUTTING PAVEMENT JOINT - RIGID TIE (Drilled)

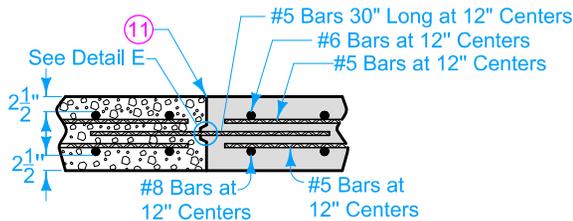
(T)	Joint	Bars	Bar Length and Spacing
< 8"	'BT-5'	#4	24" Long at 30" Centers
≥ 8"	'BT-3'	#5	24" Long at 30" Centers
	'BT-4'		24" Long at 15" Centers



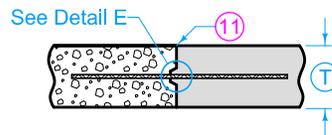
**'K'**  
KEYED JOINT FOR ADJACENT SLABS  
(Where T is 8" or more)



**'KS-1'**  
[Single Reinforced Pavement (Bridge Approach)]



**'KS-2'**  
[Double Reinforced Pavement (Bridge Approach)]

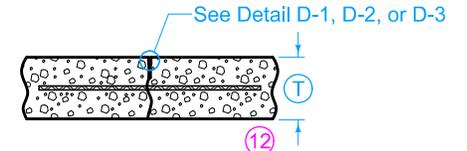


**'KT'**  
ABUTTING PAVEMENT JOINT - KEYWAY TIE

(T)	Joint	Bars	Bar Length and Spacing
< 8"	'KT-1'	#4	30" Long at 30" Centers
≥ 8"	'KT-2'	#5	30" Long at 30" Centers
	'KT-3'		30" Long at 15" Centers

**LONGITUDINAL CONTRACTION**

- 10 Bar supports may be necessary for fixed form paving to ensure the bar remains in a horizontal position in the plastic concrete.
- 11 Sawing or sealing of joint not required.
- 12 The following joints are interchangeable, subject to the pouring sequence:  
'BT-1', 'L-1', and 'KT-1'  
'KT-2' and 'L-2'  
'KT-3' and 'L-3'



**'L'**  
CONTRACTION JOINT

(T)	Joint	Bars	Bar Length and Spacing
< 8"	'L-1'	#4	36" Long at 30" Centers
≥ 8"	'L-2'	#5	36" Long at 30" Centers
	'L-3'		36" Long at 15" Centers

LEGEND

Existing Pavement

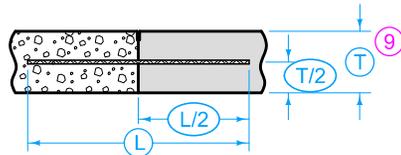
Proposed Pavement

		REVISION
		6 04-19-16
FIGURE 7010.101	STANDARD ROAD PLAN	<b>PV-101</b>
		SHEET 3 of 8

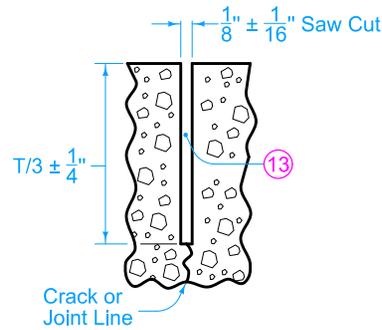
REVISIONS: Revised note 5 on page 1. Revised notes 19, 22, and 23 on pages 6, 7, and 8. Added shading and a Legend to define existing and proposed pavement.

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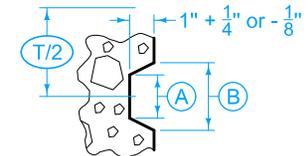
**JOINTS**



**TIE BAR PLACEMENT**  
(Applies to all joints unless otherwise detailed.)



**DETAIL D-1**  
(Required when specified in the contract documents.)

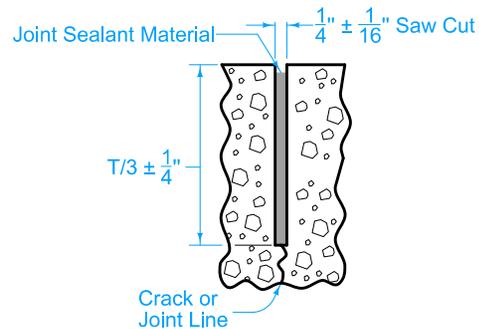


**DETAIL E**

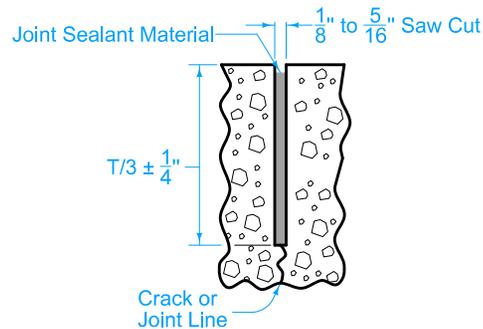
- ⑨ When tying into old pavement, (T) represents the depth of sound PCC.
- ⑬ Sealant or cleaning not required.

**KEYWAY DIMENSIONS**

Keyway Type	Pavement Thickness (T)	(A)	(B)
Standard	8" or greater	1 3/4"	2 3/4"
Narrow	Less than 8"	1"	2"



**DETAIL D-2**  
(Required when the Department of Transportation is not the Contracting Authority, or when specified in the contract documents)



**DETAIL D-3**  
(Required when the Department of Transportation is the Contracting Authority, or when specified in the contract documents)

**LEGEND**

	Existing Pavement
	Proposed Pavement

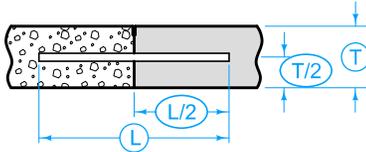
		REVISION
		6 04-19-16
<b>FIGURE 7010.101</b>	<b>STANDARD ROAD PLAN</b>	<b>PV-101</b>
SHEET 4 of 8		

REVISIONS: Revised note 5 on page 1. Revised notes 19, 22, and 23 on pages 6, 7, and 8. Added shading and a Legend to define existing and proposed pavement.

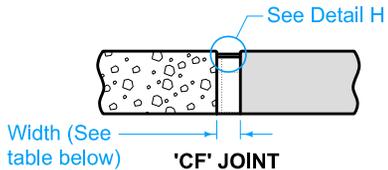
*Paul D. Wigand* SUDAS DIRECTOR      *Brian Smith* DESIGN METHODS ENGINEER

**JOINTS**

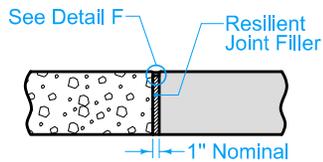
**LONGITUDINAL CONTRACTION**



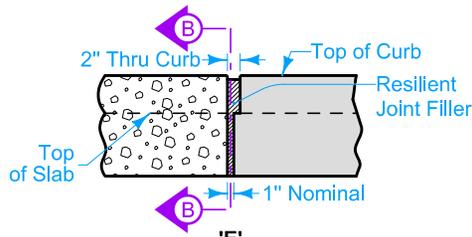
**DOWEL PLACEMENT**  
(Applies to all joints unless otherwise detailed.)



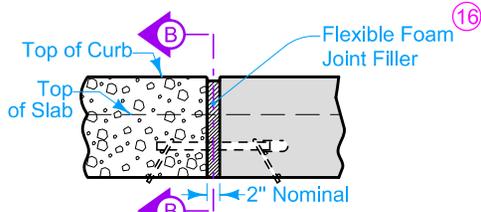
TYPE	WIDTH
CF-1	2"
CF-2	2 1/2"
CF-3	3"
CF-4	3 1/2"



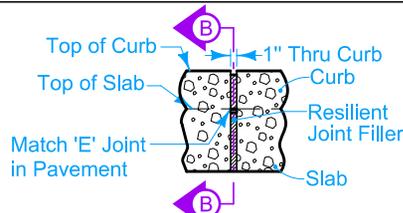
**'E'**  
**1" EXPANSION JOINT**



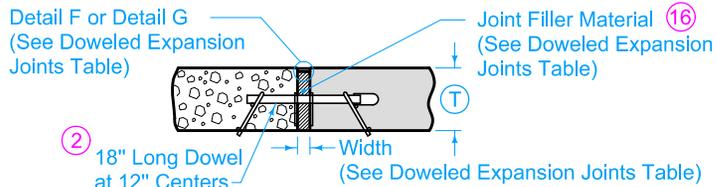
**'E'**  
**JOINT IN CURB**  
(View at Back of Curb)



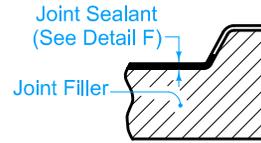
**'EE'**  
**JOINT IN CURB**  
(View at Back of Curb)



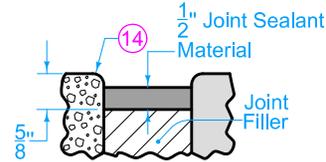
**'ES'**  
**JOINT IN CURB**  
(View at Back of Curb)



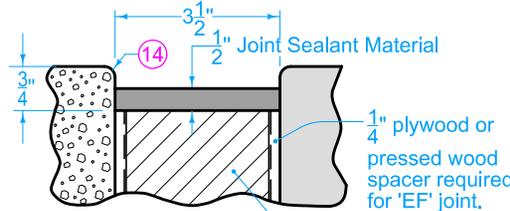
**'ED', 'EE', 'EF'**  
**DOWELED EXPANSION JOINT**



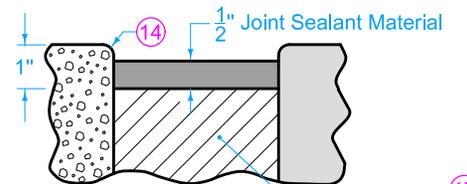
**SECTION B-B**



**DETAIL F**



**DETAIL G**



**DETAIL H**

**EXPANSION**

- ② See Bar Size Table.
- ⑭ Edge with 1/4 inch tool for length of joint indicated if formed; edging not required when cut with diamond blade saw.
- ⑮ See Dowel Assemblies for fabrication details and placement limits. Coat the free end of dowel bar to prevent bond with pavement. At intake locations, dowel bars may be cast-in-place.
- ⑯ Predrill or preform holes in joint material for appropriate dowel size.
- ⑰ Compact tire buffings by spading with a square-nose shovel.

DOWELED EXPANSION JOINTS		
TYPE	WIDTH	FILLER MATERIAL ⑯
ED	1"	Resilient (Detail F)
EE	2"	Flexible Foam (Detail F)
EF	3 1/2"	Flexible Foam (Detail G)

BAR SIZE TABLE			
T	< 8"	≥ 8" but < 10"	≥ 10"
Dowel Diameter	3/4"	1 1/4"	1 1/2"

LEGEND	
	Existing Pavement
	Proposed Pavement

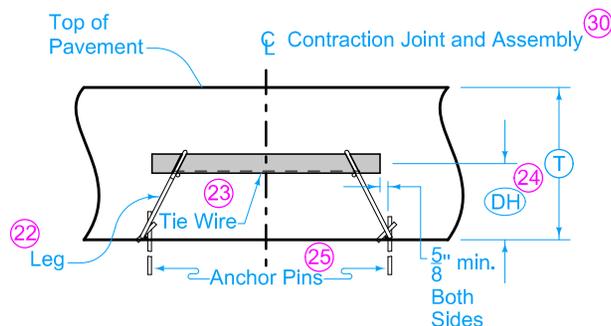
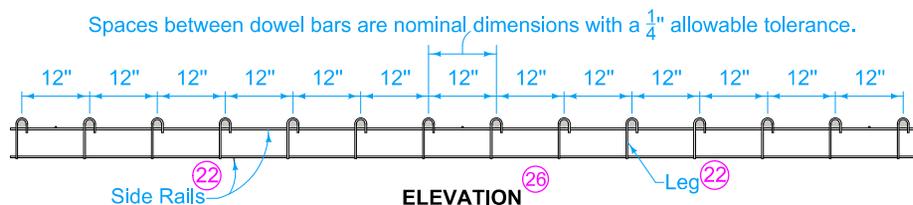
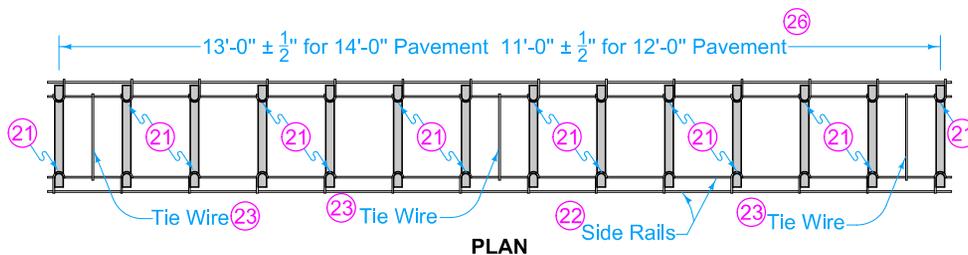
		REVISION
		6 04-19-16
FIGURE 7010.101	STANDARD ROAD PLAN	<b>PV-101</b>
		SHEET 5 of 8

REVISIONS: Revised note 5 on page 1. Revised notes 19, 22, and 23 on pages 6, 7, and 8. Added shading and a Legend to define existing and proposed pavement.

*Paul D. Wigand* SUDAS DIRECTOR      *Brian Smith* DESIGN METHODS ENGINEER

**JOINTS**

### CONTRACTION JOINTS



LONGITUDINAL SECTION

DOWEL ASSEMBLIES

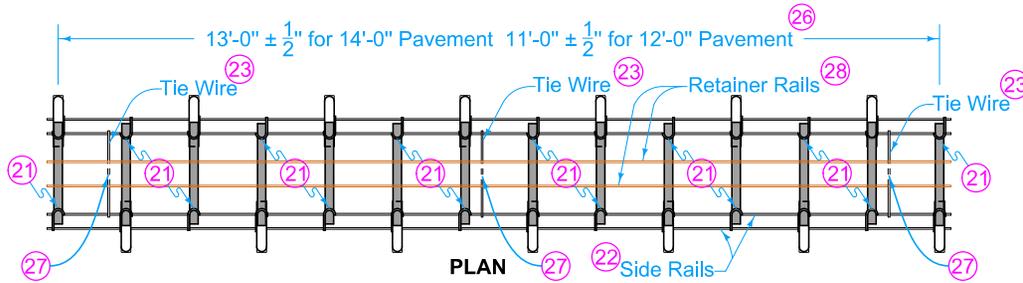
(18)(19)(20)

DOWEL HEIGHT AND DIAMETER		
T	DH (24)	Diameter
7" to 7 $\frac{1}{2}$ "	3 $\frac{1}{2}$ "	3/4"
8" to 9 $\frac{1}{2}$ "	4 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "
10" to 11 $\frac{1}{2}$ "	5 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "
12" to 13"	6 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "

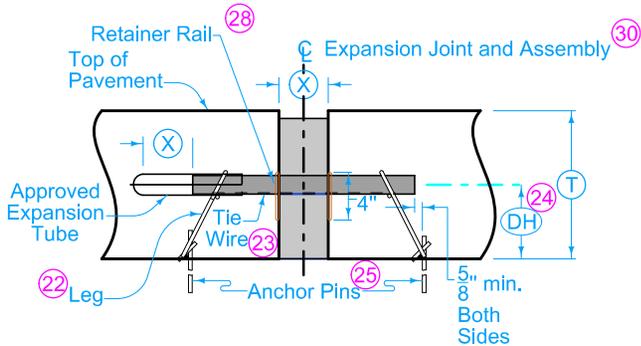
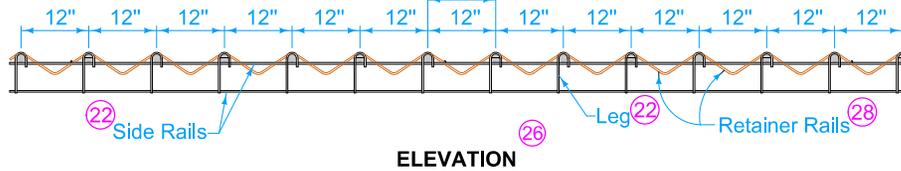
- (18) Use 18 inch long dowel bars with a tolerance of  $\pm 1/8$  inch. Ensure the centerlines of individual dowels are parallel to the other dowels in the assembly within  $\pm 1/8$  inch.
- (19) Use wires with a minimum tensile strength of 50 ksi.
- (20) Details apply to both transverse contraction and expansion joints.
- (21) Weld alternately throughout.
- (22) #1/0 gauge (0.306 inch diameter) wire. Wire sizes shown are the minimum required.
- (23) #10 gauge (0.177 inch diameter) wire, welded or friction fit to upper side rail, both sides.
- (24) Measured from the centerline of dowel bar to bottom of lower side rail + 1/4 inch.
- (25) Per lane width, install a minimum of 8 anchor pins evenly spaced (4 per side), to prevent movement of assembly during construction. Anchor assemblies placed on pavement or PCC base with devices approved by the Engineer.
- (26) If dowel basket assemblies are required for curbed pavements, the assembly length is based on the jointing layout. See PV-101, sheet 8.
- (30) Ensure dowel basket assembly centerline is within 2 inches of the intended joint location longitudinally and has no more than 1/4 inch horizontal skew from end of basket to end of basket.

		REVISION
		6 04-19-16
FIGURE 7010.101	STANDARD ROAD PLAN	PV-101
SHEET 6 of 8		
<small>REVISIONS: Revised note 5 on page 1. Revised notes 19, 22, and 23 on pages 6, 7, and 8. Added shading and a Legend to define existing and proposed pavement.</small>		
SUDAS DIRECTOR		DESIGN METHODS ENGINEER
JOINTS		

**EXPANSION JOINTS**



Spaces between dowel bars are nominal dimensions with a 1/4" allowable tolerance.



**SECTION THRU EXPANSION JOINT**

DOWEL HEIGHT AND DIAMETER		
T	DH (24)	Diameter
7" to 7 1/2"	3 1/2"	3/4"
8" to 9 1/2"	4 1/4"	1 1/4"
10" to 11 1/2"	5 1/4"	1 1/2"
12" to 13"	6 1/4"	1 1/2"

JOINT OPENING AND EXPANSION TUBE EXTENSION		
Joint Type	X	Minimum Tube Length
"ED"	1"	6"
"EE"	2"	7"
"EF"	3 1/2"	9"

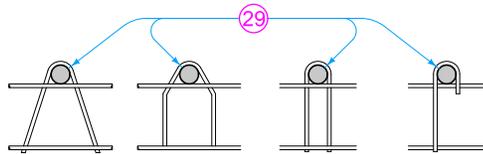
**DOWEL ASSEMBLIES**

(18) (19) (20)

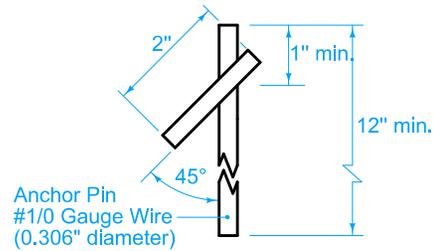
- (18) Use 18 inch long dowel bars with a tolerance of ± 1/8 inch. Ensure the centerlines of individual dowels are parallel to the other dowels in the assembly within ± 1/8 inch.
- (19) Use wires with a minimum tensile strength of 50 ksi.
- (20) Details apply to both transverse contraction and expansion joints.
- (21) Weld alternately throughout.
- (22) #1/0 gauge (0.306 inch diameter) wire. Wire sizes shown are the minimum required.
- (23) #10 gauge (0.177 inch diameter) wire, welded or friction fit to upper side rail, both sides.
- (24) Measured from the centerline of dowel bar to bottom of lower side rail + 1/4 inch.
- (25) Per lane width, install a minimum of 8 anchor pins evenly spaced (4 per side), to prevent movement of assembly during construction. Anchor assemblies placed on pavement or PCC base with devices approved by the Engineer.
- (26) If dowel basket assemblies are required for curbed pavements, the assembly length is based on the jointing layout. See PV-101, sheet 8.
- (27) Clip and remove center portion of tie during field assembly.
- (28) 1/4 inch diameter wire.
- (30) Ensure dowel basket assembly centerline is within 2 inches of the intended joint location longitudinally and has no more than 1/4 inch horizontal skew from end of basket to end of basket.

FIGURE 7010.101 SHEET 7 OF 8

		REVISION
		6 04-19-16
FIGURE 7010.101	STANDARD ROAD PLAN	<b>PV-101</b>
SHEET 7 of 8		
<small>REVISIONS: Revised note 5 on page 1. Revised notes 19, 22, and 23 on pages 6, 7, and 8. Added shading and a Legend to define existing and proposed pavement.</small>		
 SUDAS DIRECTOR		 DESIGN METHODS ENGINEER
<b>JOINTS</b>		

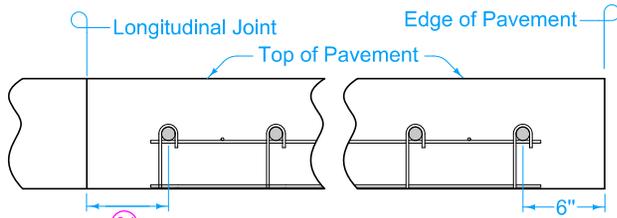


OPTIONAL LEG SHAPES

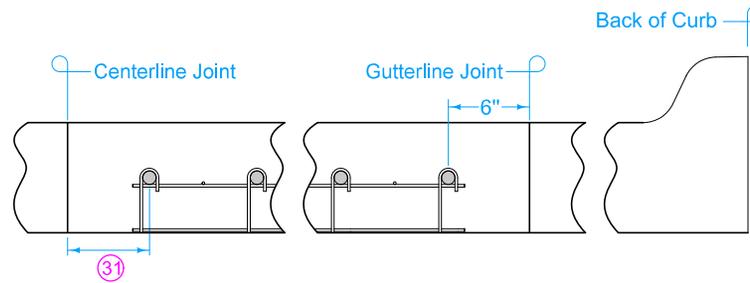


ANCHOR PIN

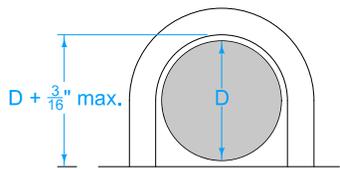
- 18 Use 18 inch long dowel bars with a tolerance of  $\pm 1/8$  inch. Ensure the centerlines of individual dowels are parallel to the other dowels in the assembly within  $\pm 1/8$  inch.
- 19 Use wires with a minimum tensile strength of 50 ksi.
- 20 Details apply to both transverse contraction and expansion joints.
- 29 Diameter of bend around dowel is dowel diameter +  $1/8$  to  $3/16$  inches.
- 31 For uniform lane widths: 3" - 6". For taper and variable width pavements: 3" - 12".



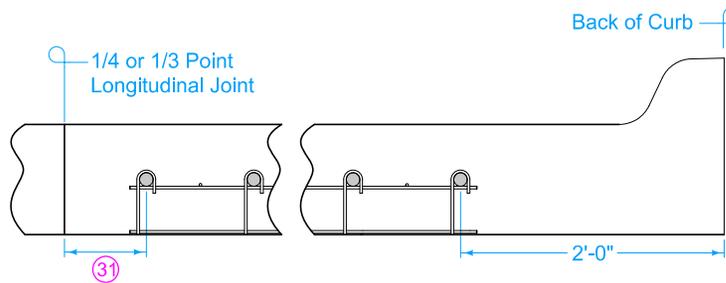
PLACEMENT LIMITS  
(Rural Section)



PLACEMENT LIMITS  
(Curb and Gutter - Gutterline Jointing)



BEND AROUND DOWEL

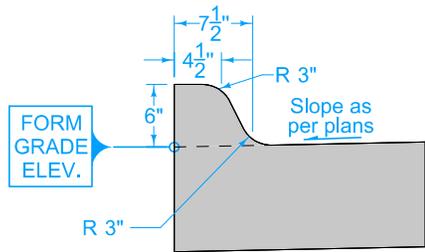


PLACEMENT LIMITS  
(Curb and Gutter - 1/4 or 1/3 Point Jointing)

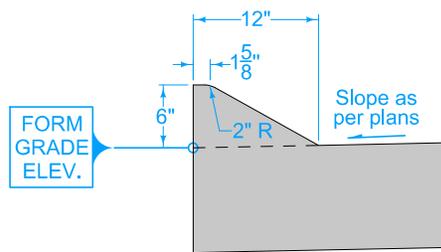
**DOWEL ASSEMBLIES**

18 19 20

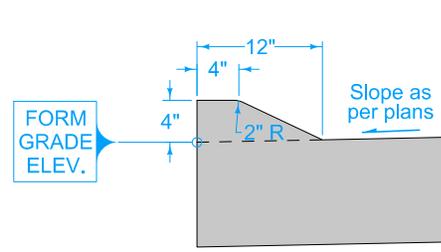
		REVISION
		6 04-19-16
FIGURE 7010.101	STANDARD ROAD PLAN	PV-101
		SHEET 8 of 8
<small>REVISIONS: Revised note 5 on page 1. Revised notes 19, 22, and 23 on pages 6, 7, and 8. Added shading and a Legend to define existing and proposed pavement.</small>		
<i>Paul D. Wigand</i> SUDAS DIRECTOR		<i>Brian Smith</i> DESIGN METHODS ENGINEER
<b>JOINTS</b>		



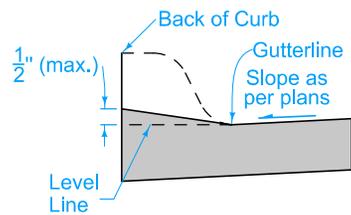
**6" STANDARD CURB**



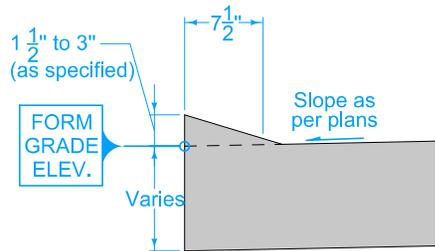
**6" SLOPED CURB**



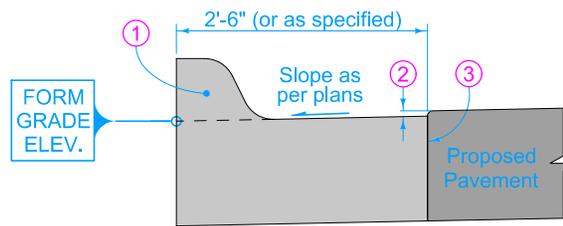
**4" SLOPED CURB**



**DROP CURB AT SIDEWALK**



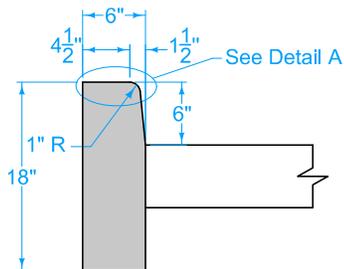
**DRIVEWAY DROP CURB**



**CURB AND GUTTER UNIT**

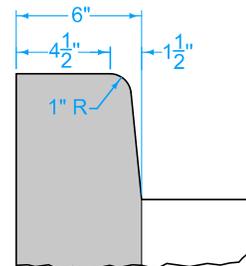
For joint details, see [PV-101](#).

- ① 6" Standard Curb, 6" Sloped Curb, or 4" Sloped Curb as specified.
- ② 1/8" if Proposed Pavement is HMA. No elevation difference if Proposed Pavement is PCC.
- ③ 'BT', 'KT', or 'L' joint if Proposed Pavement is PCC. 'B' joint if Proposed Pavement is HMA.



**BEAM CURB\***

\*For short replacement sections, match existing curb profile

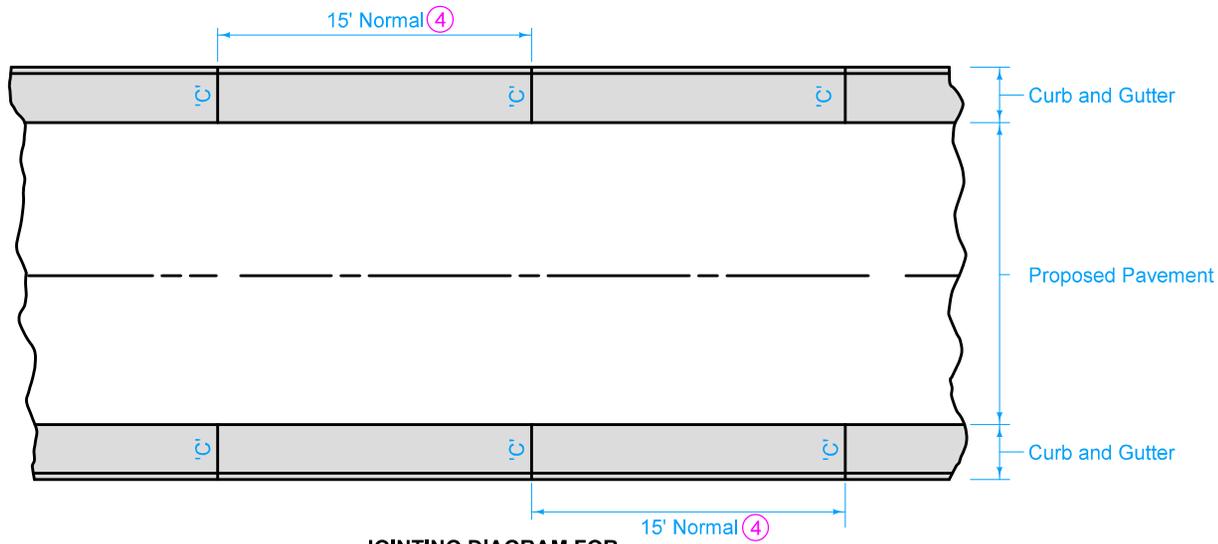


**DETAIL A**

SUDAS	IOWADOT	REVISION
		4   10-18-16
FIGURE 7010.102	STANDARD ROAD PLAN	<b>PV-102</b>
		SHEET 1 of 2

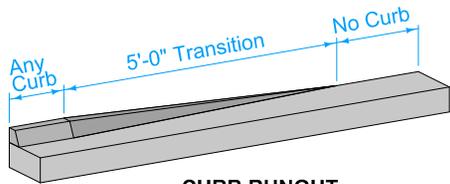
REVISIONS: Added note, 'Slope as per plans' on Drop Curb views on page 1. Updated DOT logo to new version.

*Paul D. Wigand* SUDAS DIRECTOR | *Brian Smith* DESIGN METHODS ENGINEER

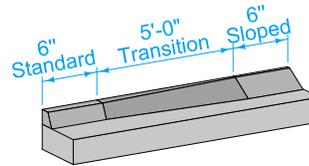


JOINTING DIAGRAM FOR CURB AND GUTTER UNIT

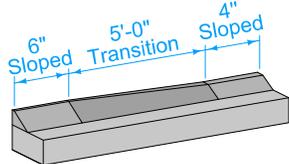
(4) If proposed pavement is PCC, match joint spacing for proposed pavement. Place 'E' joints in curb and gutter section where expansion joints are to be placed in proposed pavement.



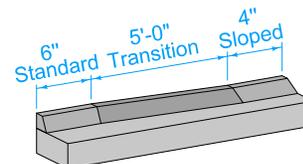
CURB RUNOUT FOR ALL CURBS



CURB TRANSITION FROM 6" STANDARD TO 6" SLOPED



CURB TRANSITION FROM 6" SLOPED TO 4" SLOPED



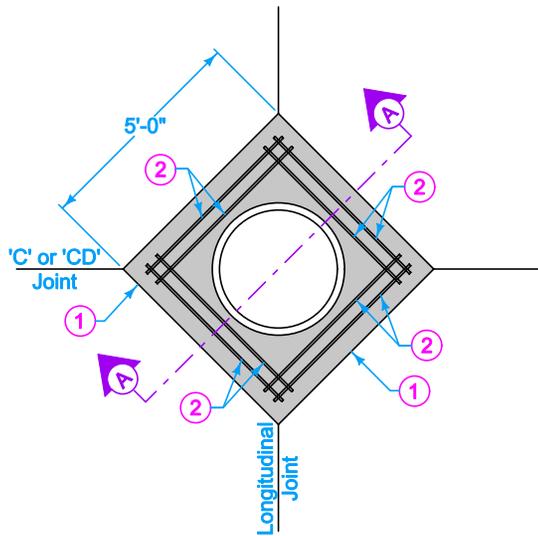
CURB TRANSITION FROM 6" STANDARD TO 4" SLOPED

FIGURE 7010.102

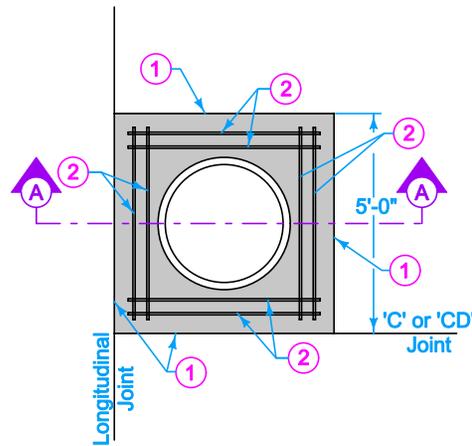
SHEET 2 OF 2

SUDAS	IOWADOT	REVISION
		4   10-18-16
FIGURE 7010.102	STANDARD ROAD PLAN	PV-102
		SHEET 2 of 2
REVISIONS: Added note, 'Slope as per plans' on Drop Curb views on page 1. Updated DOT logo to new version.		
Paul D. Wigand SUDAS DIRECTOR		Brian Smith DESIGN METHODS ENGINEER

PCC CURB DETAILS



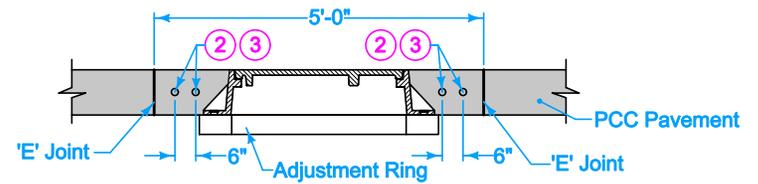
**AT JOINT INTERSECTION**



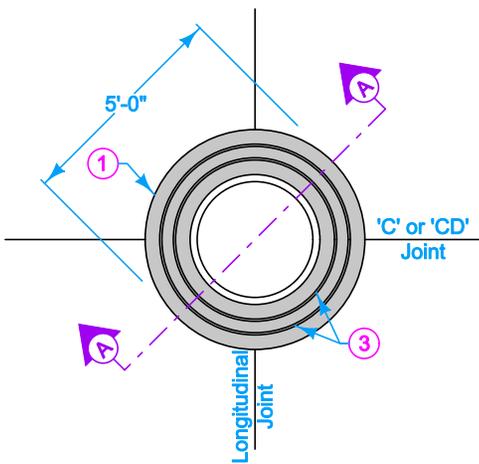
**OFFSET AT JOINT INTERSECTION**

Construct boxout with Class C concrete or match pavement class. Minimum 2 inches clear on reinforcement. Center casting within boxout area.

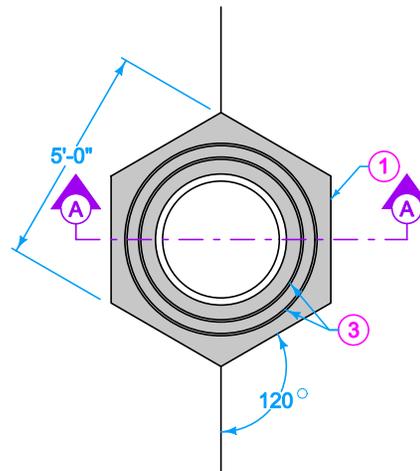
- ① 'KT-1', 'KT-2', 'BT-1', or 'BT-2' joint if three-piece floating casting (SW 601 Type B and D or SW-602 Type F) is used. 'E' joint if two-piece fixed casting (SW 601 Type A and C or SW-602 Type E) is used.
- ② 4 foot 8 inch (typ.) #4 bar. Place at mid-slab.
- ③ #4 hoops (variable length). Place at mid-slab.
- ④ No boxout is required for three-piece floating castings (SW 601 Type B and D or SW-602 Type F). If a boxout is used with a three-piece casting, construct as detailed in Section A-A for three-piece floating casting.



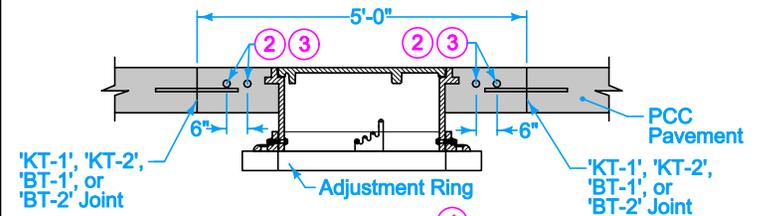
**SECTION A-A**  
(For two-piece fixed casting)



**CIRCULAR**



**AT A SINGLE JOINT**



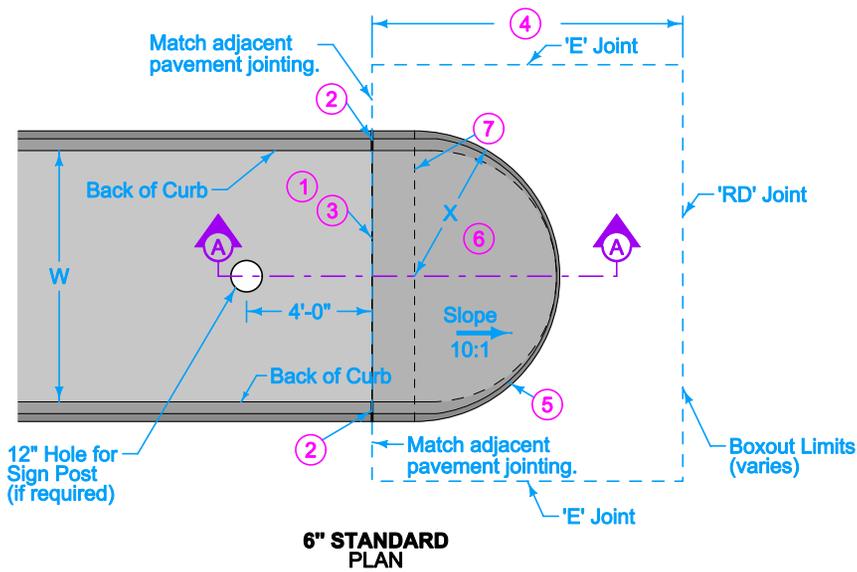
**SECTION A-A** ④  
(For three-piece floating casting)

FIGURE 7010.103 SHEET 1 OF 1

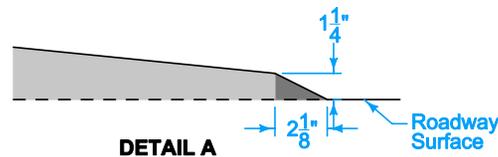
SUDAS	Iowa Department of Transportation	REVISION
		New 04-19-11
FIGURE 7010.103	STANDARD ROAD PLAN	<b>PV-103</b>
REVISIONS: New Joint Standard with SUDAS.		SHEET 1 of 1

*Paul D. Weigand* SUDAS DIRECTOR      *Deanna Mairfeld* DESIGN METHODS ENGINEER

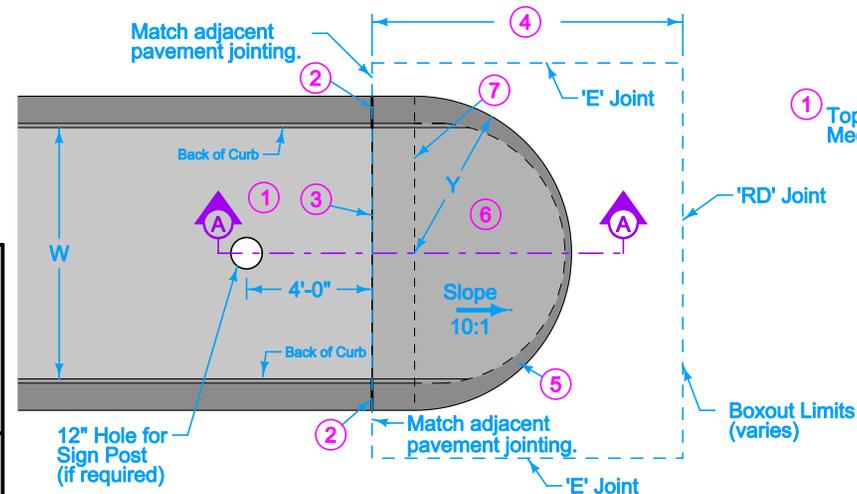
**MANHOLE BOXOUTS IN PCC PAVEMENT**



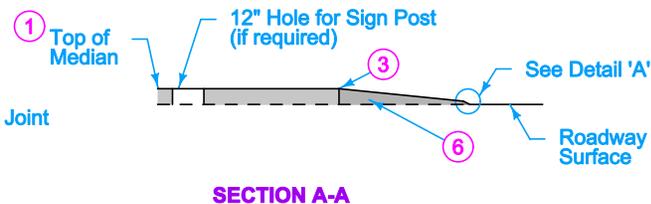
**6" STANDARD PLAN**



**DETAIL A**



**6" SLOPED PLAN**

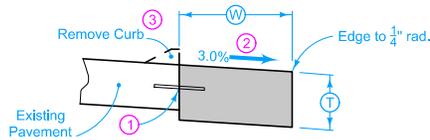


**SECTION A-A**

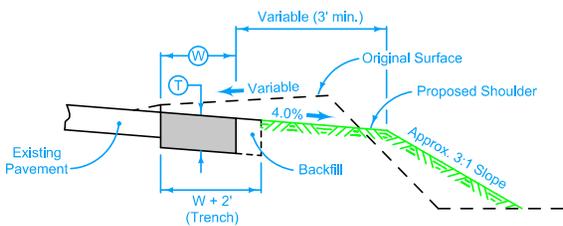
**RAMPED MEDIAN NOSE**  
(Median Width 8'-0" or Less)

- ① For details of paved median, see contract documents.
- ② 'EE' Joint. Expansion joints located at the end of normal curb.
- ③ 'E' Joint. If median is paved, place expansion joints at the end of normal curb.
- ④ If boxout length is less than or equal to 12 feet, provide 'C' Joint. If boxout length is greater than 12 feet, provide 'RD' joint.
- ⑤ Special shaping of curb.
- ⑥ Quantities for ramped median nose area is included in roadway pavement quantities.
- ⑦ When X or Y is 4 feet or greater the expansion joints will be at the beginning of the rounded median.  
W = Width from back of curb to back of curb  
X =  $W/2 + 7.5"$   
Y =  $W/2 + 12"$

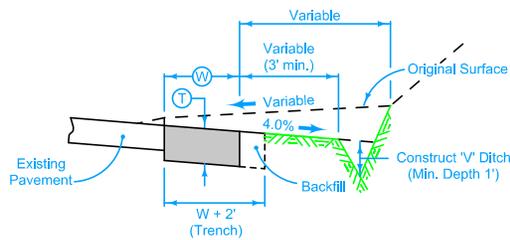
SUDAS	Iowa Department of Transportation	REVISION
		New 04-19-11
FIGURE 7010.104	STANDARD ROAD PLAN	<b>PV-104</b>
		SHEET 1 of 1
REVISIONS: New. Previously page 2 of PV-2.		
Paul D. Weigand SUDAS DIRECTOR		Deanna Mairfield DESIGN METHODS ENGINEER
<b>RAMPED MEDIAN NOSE</b>		



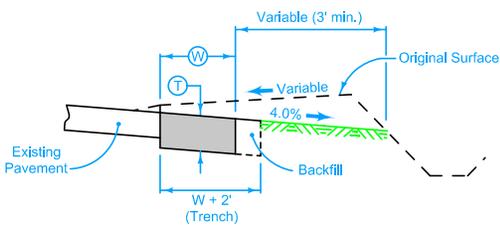
**PAVEMENT WIDENING**



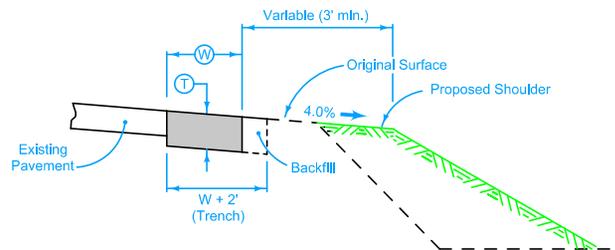
TYPE 'A'



TYPE 'B'



TYPE 'C'



TYPE 'D'

**SHOULDERS FOR PAVEMENT WIDENING**

'W' and 'T' are specified by the individual project plans. Dimensions may vary for superelevated curves or at locations specifically designated by the Engineer.

For joint details, refer to [PV-101](#) and [PV-121](#).

Install contraction joints adjacent to all existing joints or at the interval specified on the plans. Extend existing expansion joint through the widening unit. This work is incidental to other work on the project.

Construct special shaping of widening units through bridge approach sections as directed by the Engineer. The joint between the widening unit and the end of a bridge consists of a 3 inch wide joint filled with full depth bituminous resilient filler as specified in [Article 4136.03, A](#) of the Standard Specifications

Excavation in excess of that indicated is incidental to other work on the project.

- ① 'BT-3' placed at mid-height unless noted otherwise.
- ② For ramps and superelevated curves, match the cross-slope of the widening unit to the existing pavement.
- ③ See Section [2514](#) (for Portland Cement Concrete Widening) or Section [2213](#) (for Base Widening) of the Standard Specifications.

**Possible Contract Items:**

- Portland Cement Concrete Pavement Widening
- Base Widening, Portland Cement Concrete
- Removal of Curb
- Removal of Flumes
- Shoulders
- Excavation, Class 13, For Widening
- Special Backfill

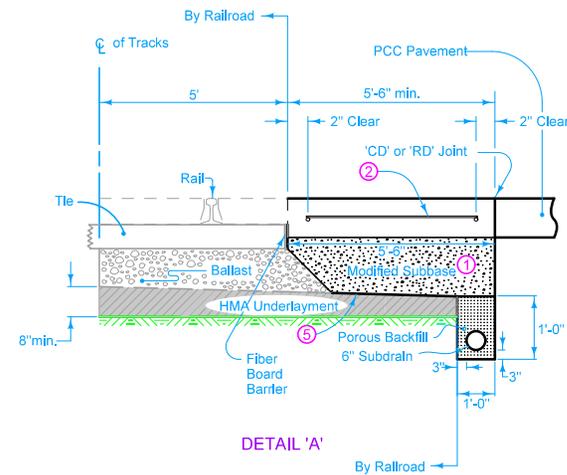
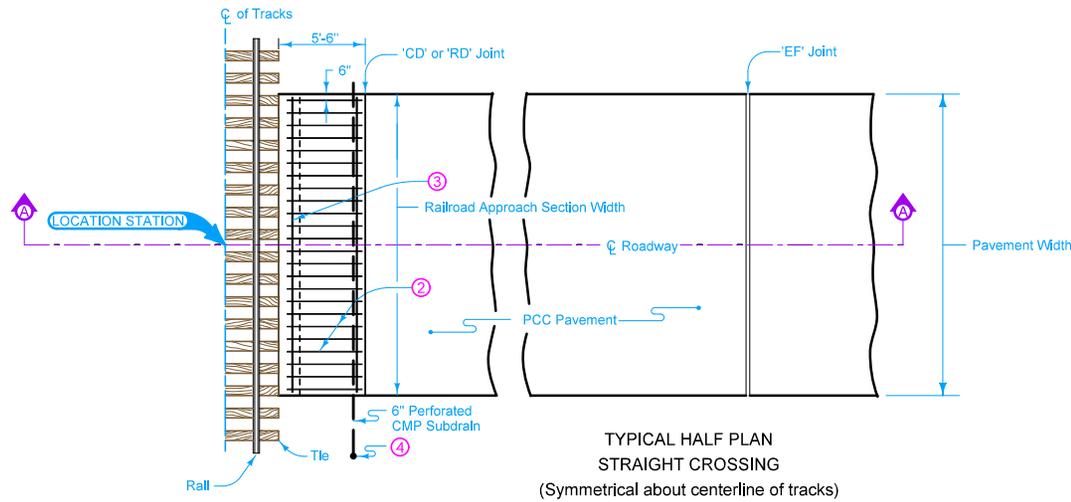
**Possible Tabulations:**

- 106-5
- 106-4
- 110-4
- 110-3

<b>IOWA DOT</b>	REVISION
	2   10-21-14
STANDARD ROAD PLAN	PV-105
SHEET 1 of 1	
REVISIONS: Changed the P dimension to W in each of the drawings.	
APPROVED BY DESIGN METHODS ENGINEER	
PCC PAVEMENT WIDENING	

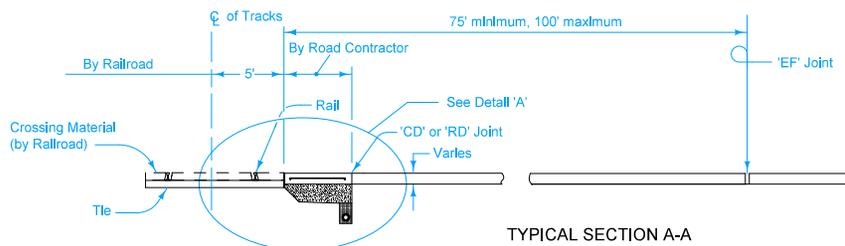
For joint details, see PV-101.

- ① Ballast meeting Railroad specifications may be substituted for modified subbase.
- ② #5 Bars at 12" centers located at half of the pavement thickness. Wire tie at all intersections with other bars. Lap a minimum of 1 foot when necessary and securely wire tie.
- ③ #5 Bars x (Approach Width - 4").
- ④ Outlet subdrain into ditch or storm sewer. See DR-303 and DR-304. Slope subdrain to drain.
- ⑤ Slope according to AREMA specifications



Possible Contract Item:  
Railroad Approach Section, P.C.C.

Possible Tabulation:  
112-3

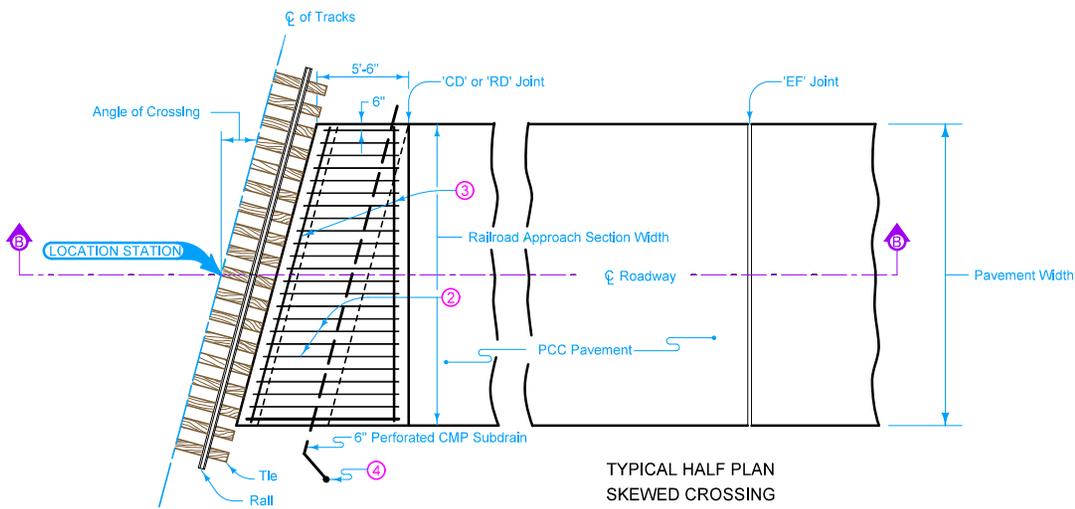


 <b>STANDARD ROAD PLAN</b>	REVISION
	1   04-21-15
	<b>PV-106</b>
SHEET 1 of 2	

REVISIONS: Changed subdrain for skewed crossings to match skew. Replaced the DOT logo in the title block with the new version.

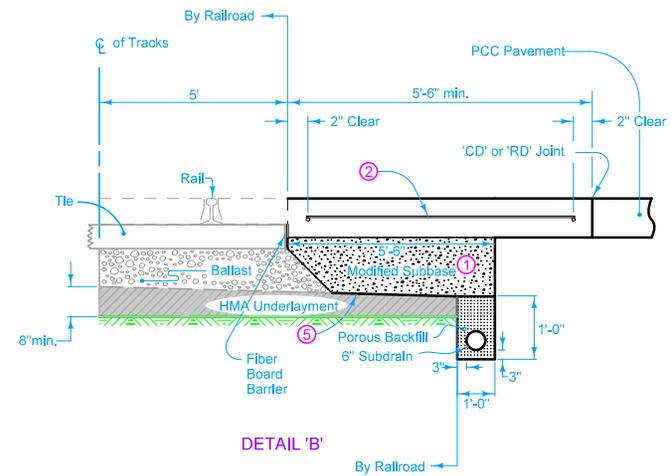
*Brian Smith*  
APPROVED BY DESIGN METHODS ENGINEER

**PCC RAILROAD  
APPROACH SECTION**

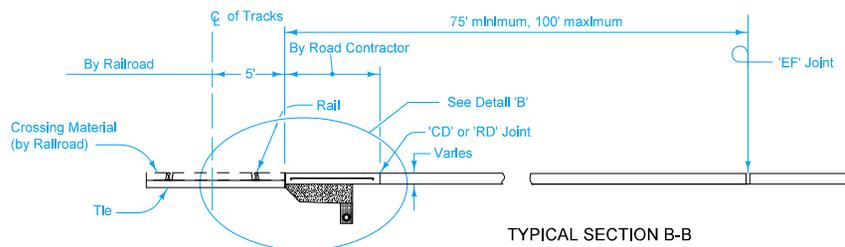


TYPICAL HALF PLAN  
SKEWED CROSSING  
(Symmetrical about centerline of tracks)

- ① Ballast meeting Railroad specifications may be substituted for modified subbase.
- ② #5 Bars at 12" centers located at half of the pavement thickness. Wire tie at all intersections with other bars. Lap a minimum of 1 foot when necessary and securely wire tie.
- ③ #5 Bars x (Approach Width - 4").
- ④ Outlet subdrain into ditch or storm sewer. See DR-303 and DR-304. Slope subdrain to drain.
- ⑤ Slope according to AREMA specifications



DETAIL 'B'

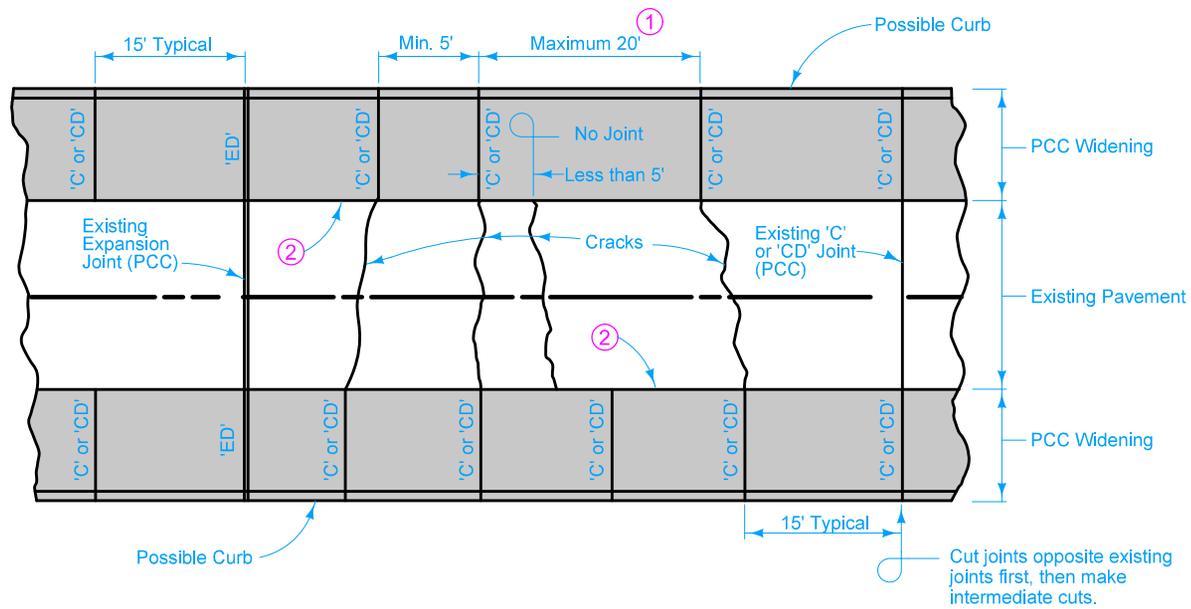


TYPICAL SECTION B-B

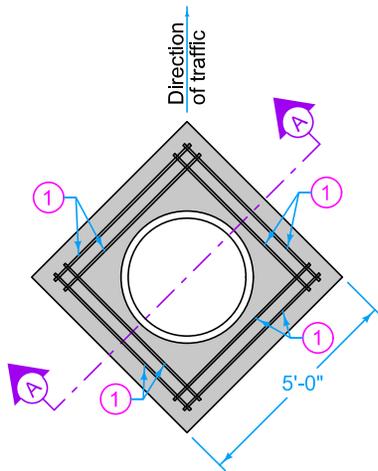
 <b>STANDARD ROAD PLAN</b>	REVISION 1 04-21-15
	<b>PV-106</b>
	SHEET 2 of 2
REVISIONS: Changed subdrain for skewed crossings to match skew.	
 APPROVED BY DESIGN METHODS ENGINEER	
<b>PCC RAILROAD APPROACH SECTION</b>	

For joint details, see [PV-101](#).  
 For curb details, see [PV-102](#).

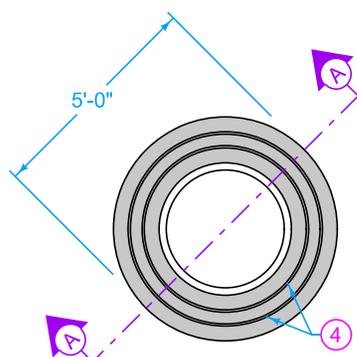
- ① If more than 20 feet, add extra joint at midpoint.
- ② 'BT' Joint.



SUDAS	IOWADOT	REVISION
		1   04-21-15
FIGURE 7010.121	STANDARD ROAD PLAN	<b>PV-121</b>
		SHEET 1 of 1
<small>REVISIONS: Added circle note 2 and replaced the DOT logo in the title block with the new version.</small>		
Paul D. Wigand <small>SUDAS DIRECTOR</small>		Brian Smith <small>DESIGN METHODS ENGINEER</small>
<b>JOINTING PCC PAVEMENT WIDENING</b>		



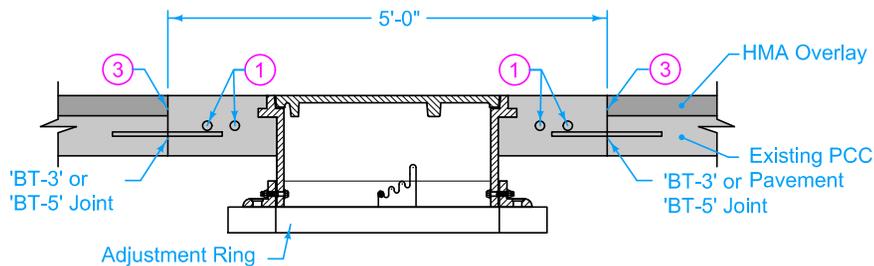
**RECTANGULAR**



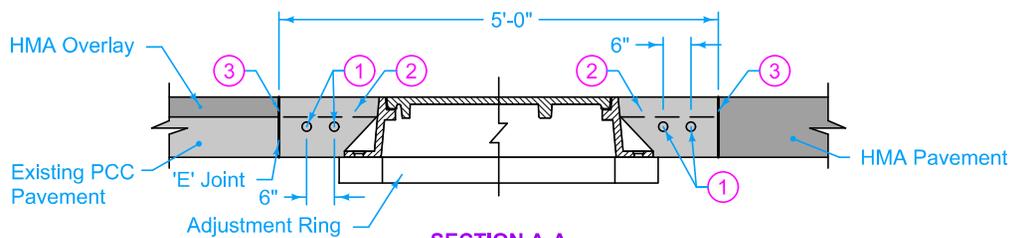
**CIRCULAR**

Construct boxout with Class C concrete. Minimum 2 inches clear on reinforcement. Center casting within boxout area.

- ① 4 foot 8 inch (typ.) #4 bar. Place at mid-slab.
- ② If boxout is constructed prior to placement of HMA overlay or final lift of HMA pavement, boxout may be constructed low and then final lift or overlay placed.
- ③ Apply tack coat.
- ④ #4 hoops (variable length). Place at mid-slab.



**SECTION A-A**  
(For three-piece floating casting)



**SECTION A-A**  
(For two-piece fixed casting)

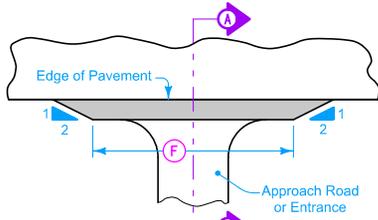
FIGURE 7020.201 SHEET 1 OF 1

		REVISION
		New 04-19-11
FIGURE 7020.201	STANDARD ROAD PLAN	<b>PV-201</b>
		SHEET 1 of 1

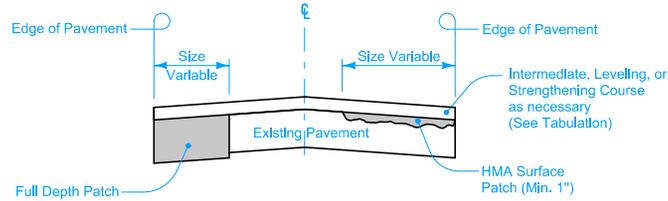
REVISIONS: New. Joint Standard with SUDAS.

*Paul D. Wigand* SUDAS DIRECTOR  
*Deanna Marfield* DESIGN METHODS ENGINEER

**MANHOLE BOXOUTS IN  
HMA PAVEMENT AND  
HMA OVERLAYS**



TYPICAL PLAN FOR FILLET  
AT ENTRANCE OR INTERSECTING ROAD



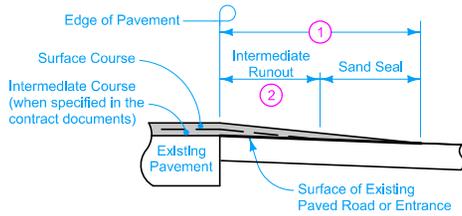
TYPICAL SECTION  
FULL DEPTH AND SURFACE PATCHES

Unless specified otherwise, construct full runouts for HMA resurfacing at a rate of 50 feet for each 1 inch of resurfacing thickness.

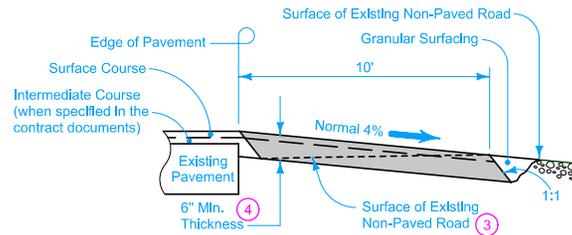
Construct temporary runouts at a length of 10 feet for each 1 inch of resurfacing thickness. Place subgrade paper, burlap, or similar material over adjacent surfaces to facilitate removal of wedges.

Construct wedge shaped HMA fillets at all paved entrances and paved intersecting roads. Construct full thickness fillets at all non-paved entrances and non-paved side roads.

Fillet sizes as listed in the Normal Fillet Sizes table are recommended and are to be used for design and estimating purposes. The Engineer will establish the length and width of each individual fillet to accommodate conditions at the site.



SECTION A-A  
(WEDGE SHAPED FILLET)

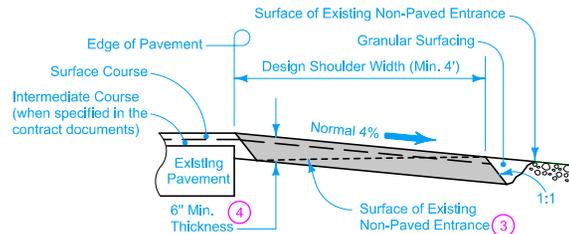


SECTION A-A  
(FULL THICKNESS FILLET - NON-PAVED ROAD)

- ① Fillet width is 3.33 feet for each inch of overlay thickness.
- ② The ratio of the Intermediate Course runout length to the total runout length is the same as the ratio of the Intermediate Course resurfacing thickness to the total resurfacing thickness.
- ③ Special shaping of existing surface prior to placement of fillet may be required by the Engineer and is incidental to other work on the project.
- ④ For existing fillets at non-paved roads and entrances, construct a wedge shaped fillet matching the thickness of the resurfacing.

NORMAL FILLET SIZES	
TYPE OF ACCESS	Min. - ft. <span style="color: red;">Ⓡ</span>
Residential Entrance	40
Farm Entrance	60
Commercial Entrance	80
Non-Paved Road	100
Paved Road	Variable*

\* See layout drawing for details of construction of special areas.



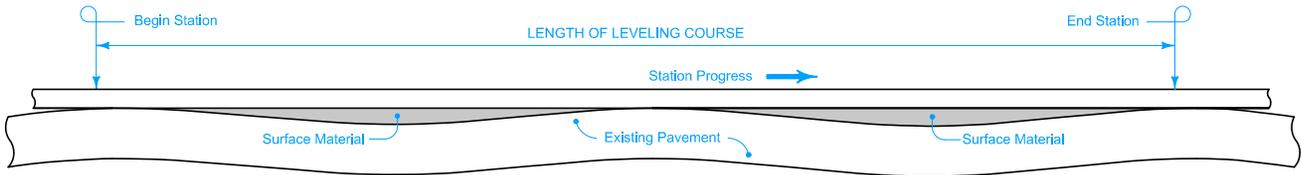
SECTION A-A  
(FULL THICKNESS FILLET - NON-PAVED ENTRANCE)

GENERAL DETAILS

 Iowa Department of Transportation	REVISION
	New 4-16-13
<b>STANDARD ROAD PLAN</b>	<b>PV-202</b>
REVISIONS: New, Combined RG-2 and RG-6.	SHEET 1 of 2

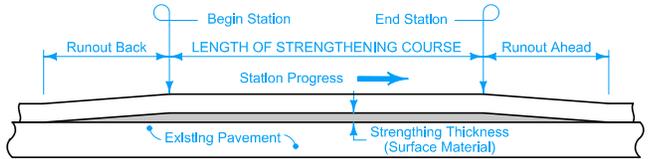
APPROVED BY DESIGN METHODS ENGINEER

**HOT MIX ASPHALT  
RESURFACING**



**LEVELING COURSE**

(See Tabulation for Location)



**STRENGTHENING COURSE**

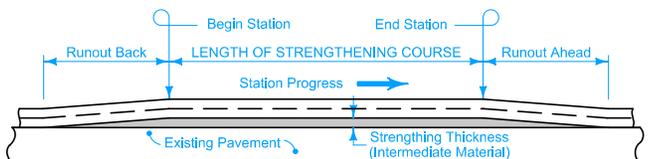
(See Tabulation for Location)

**SINGLE COURSE RESURFACING**



**LEVELING COURSE**

(See Tabulation for Location)

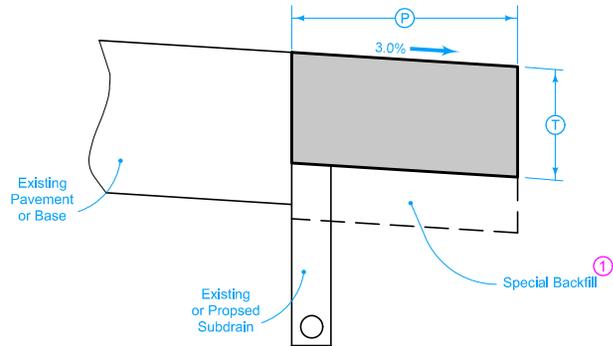


**STRENGTHENING COURSE**

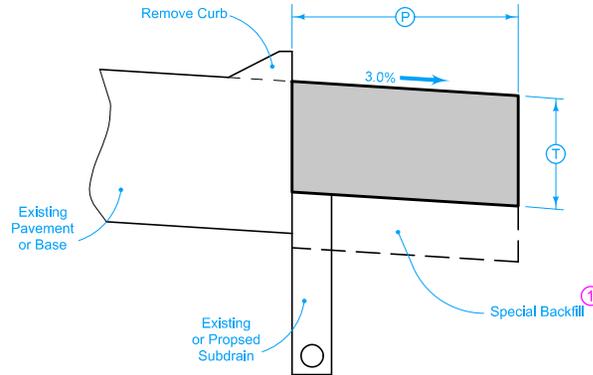
(See Tabulation for Location)

**DOUBLE COURSE RESURFACING**

 <b>Iowa Department of Transportation</b>	REVISION
	New 4-16-13
<b>STANDARD ROAD PLAN</b>	<b>PV-202</b>
REVISIONS: New, Combined RG-2 and RG-6.	SHEET 2 of 2
<i>Deanna Maifield</i> APPROVED BY DESIGN METHODS ENGINEER	
<b>HOT MIX ASPHALT RESURFACING</b>	



Hot Mix Asphalt  
Widening on Existing  
Pavement Without Curb



Hot Mix Asphalt  
Widening on Existing  
Pavement With Curb

'P' and 'T' are specified by the individual project plans. Dimensions may vary for superelevated curves or at locations specifically designated by the Engineer.

Handle excavated asphalt materials as detailed elsewhere in the project plans.

Construct special shaping of widening units through bridge approach sections as directed by the Engineer.

Excavation in excess of that indicated is incidental to other work on the project.

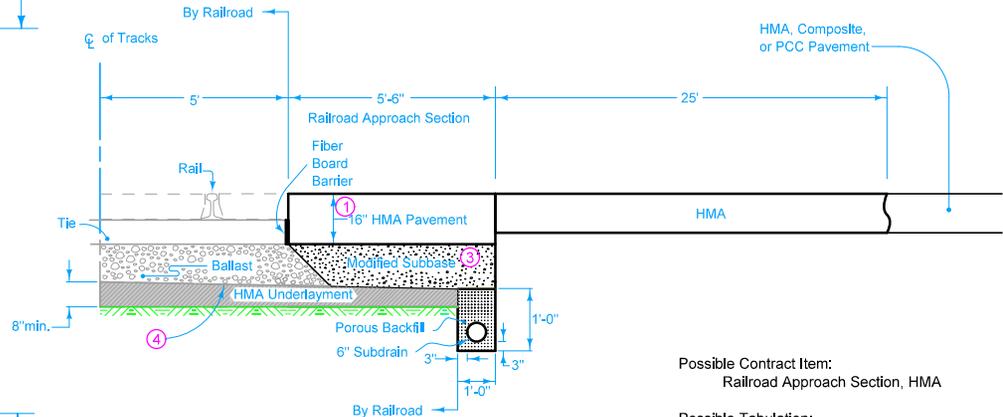
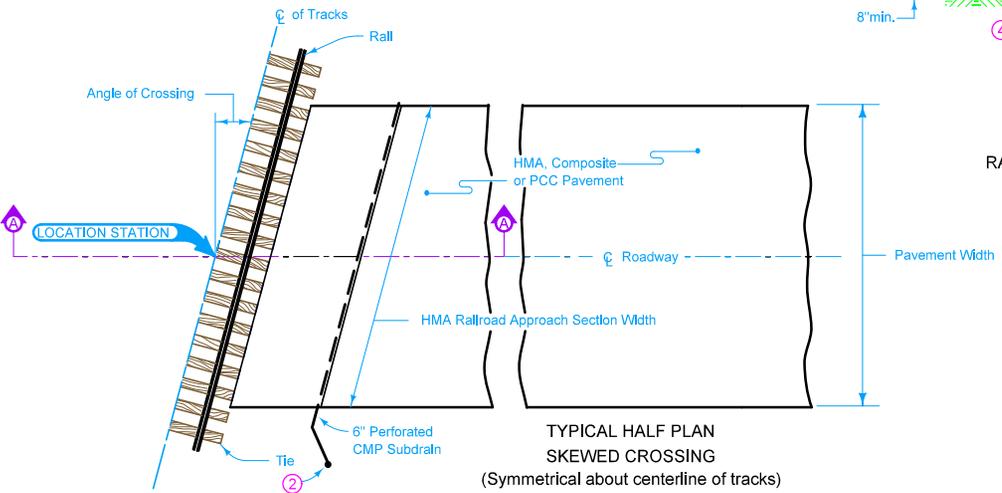
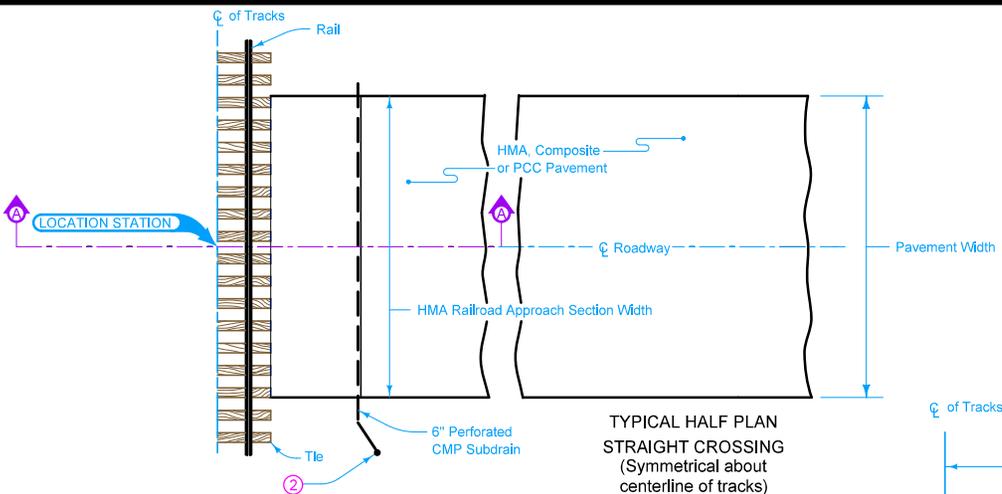
Place Special Backfill only at locations where specifically required by the Engineer. This work will be paid for as "Extra Work" as per Article 1109.03 of the Standard Specifications.

① 6 inches of Special Backfill required when widening unit is part of the proposed traffic lane or when noted in project plans.

Possible Contract Items:  
 Base Widening, Hot Mix Asphalt Mixture  
 Removal of Curb  
 Removal of Flumes  
 Excavation, Class 13, For Widening  
 Special Backfill  
 Asphalt Binder

Possible Tabulations:  
 106-5  
 110-4  
 110-3

 Iowa Department of Transportation	REVISION
	NEW 10-15-13
<b>STANDARD ROAD PLAN</b>	<b>PV-203</b>
REVISIONS: New. Replaces RC-8.	SHEET 1 of 1
 APPROVED BY DESIGN METHODS ENGINEER	
<b>HMA BASE WIDENING</b>	

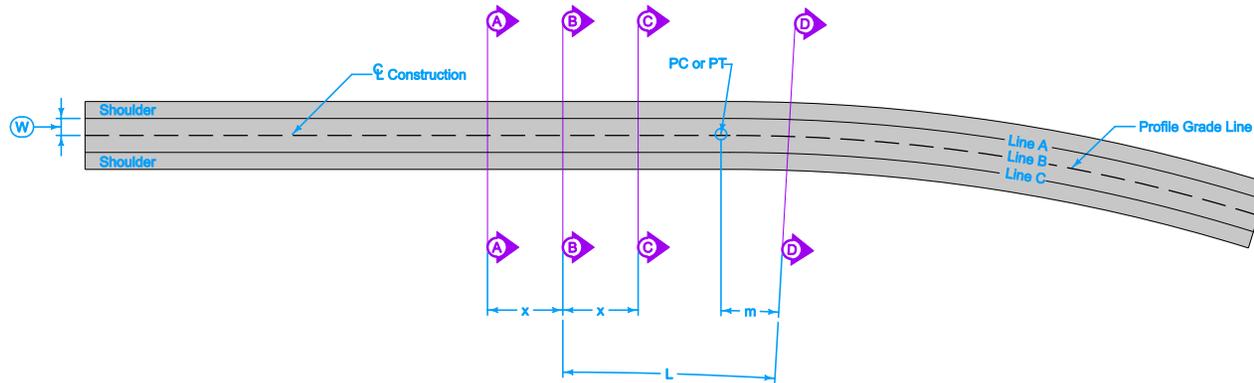


- ① 16 inch approach thickness includes thickness of HMA resurfacing.
- ② Outlet subdrain in ditch or sewer. See DR-303 and DR-304. Slope subdrain to drain.
- ③ Ballast meeting Railroad specifications may be substituted for modified subbase.
- ④ Slope subgrade toward drain according to AREMA specs.
- ⑤ Geosynthetic material need not be placed under modified subbase.

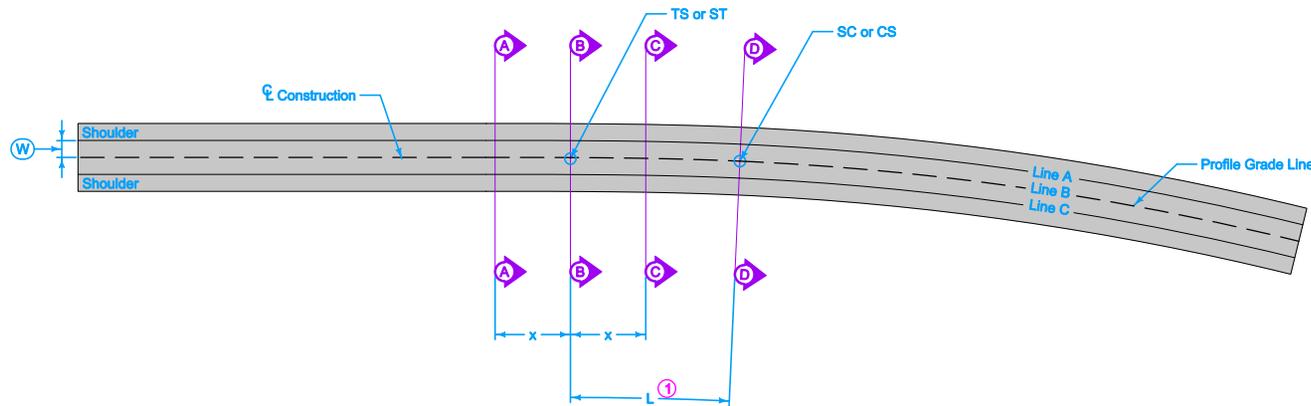
Possible Contract Item:  
Railroad Approach Section, HMA

Possible Tabulation:  
112-3

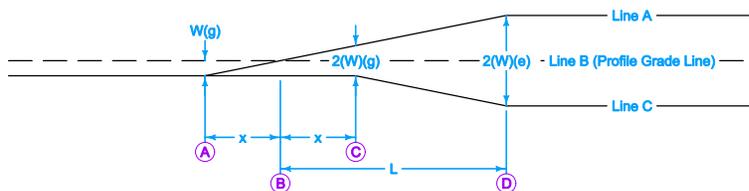
<p style="font-weight: bold; font-size: 1.2em; margin-top: 5px;">STANDARD ROAD PLAN</p>	REVISION
	1   04-21-15
	PV-204
SHEET 1 of 1	
REVISIONS: Updated references to renamed standards and replaced the DOT logo in the title block with the new version. Added Designer Info button.	
APPROVED BY DESIGN METHODS ENGINEER	
HMA RAILROAD APPROACH SECTION	



**TRANSITION DETAILS - TANGENT TO CURVE**



**TRANSITION DETAILS - SPIRAL CURVE**



**DIAGRAMMATIC PROFILES OF THE PAVEMENT EDGE LINES**

Refer to specific curve data contained in project plans for tangent runoff length (x), runoff length (L) and full superelevation (e).

When spiral curve transitions are not required:  
Place 70% of full superelevation at the PC and PT  
Place 30% of the runoff length within the curve.

Unless otherwise specified, all lengths are measured along the centerline of construction.

Superelevations on this standard are shown for curves to the right. Curves to the left are a mirror image of what is shown.

Smooth curves should be established at the time of construction at sections A-D along the profile edges of lines A-C.

Axis of rotation coincides with profile grade location.

$m$  = 30% of Runoff Length (L)

$W$  = 12' Regardless of Pavement Width

$g$  = Normal Cross Slope (2%)

$L$  = Distance to Change Cross Slope from 0% to  $e$

$e$  = Superelevation Rate

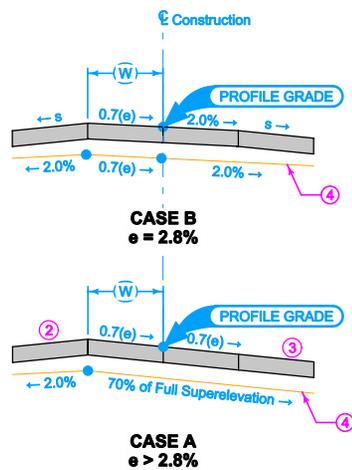
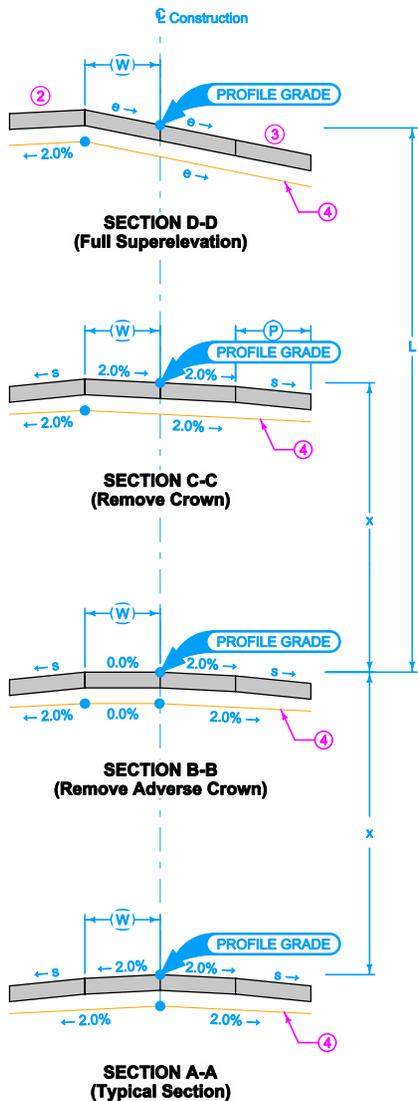
$x$  = Distance to Change Cross Slope from 0% to 2%

$s$  = Normal Shoulder Slope

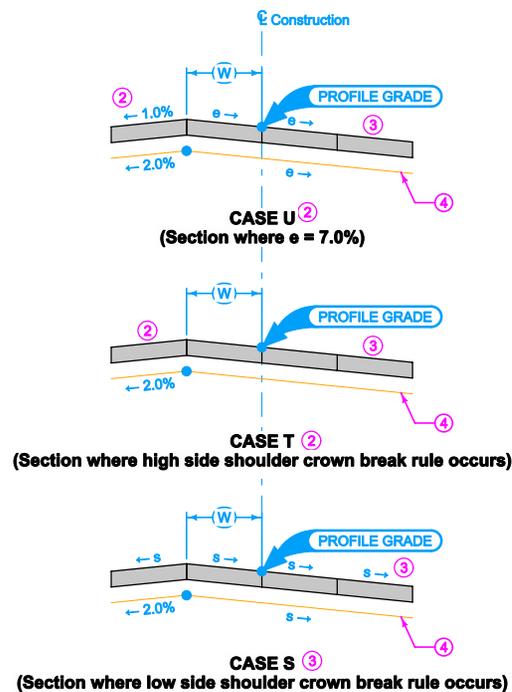
① Spiral curve length coincides with runoff length (L)

Possible Tabulation:  
101-18

 Iowa Department of Transportation	REVISION 1 04-19-11
	<b>STANDARD ROAD PLAN</b>
	<b>PV-301</b> SHEET 1 of 2
REVISIONS: Revised graphics. Added additional cross sections and notes.	
 APPROVED BY DESIGN METHODS ENGINEER	
<b>SUPERELEVATION DETAILS</b> <b>TWO LANE ROADWAY</b>	



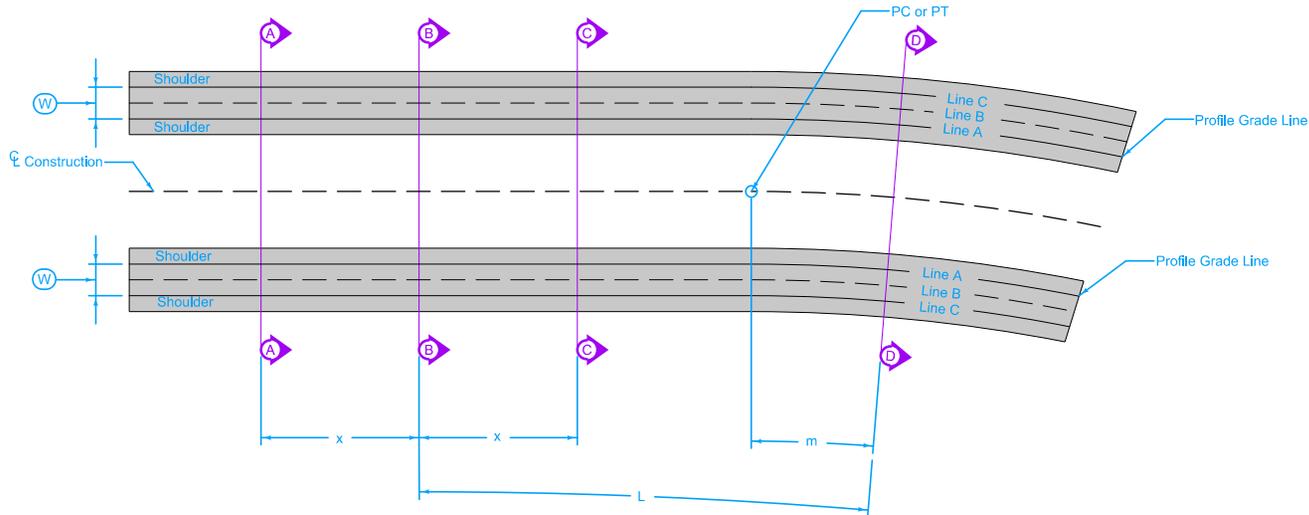
SECTION AT THE PC OR PT



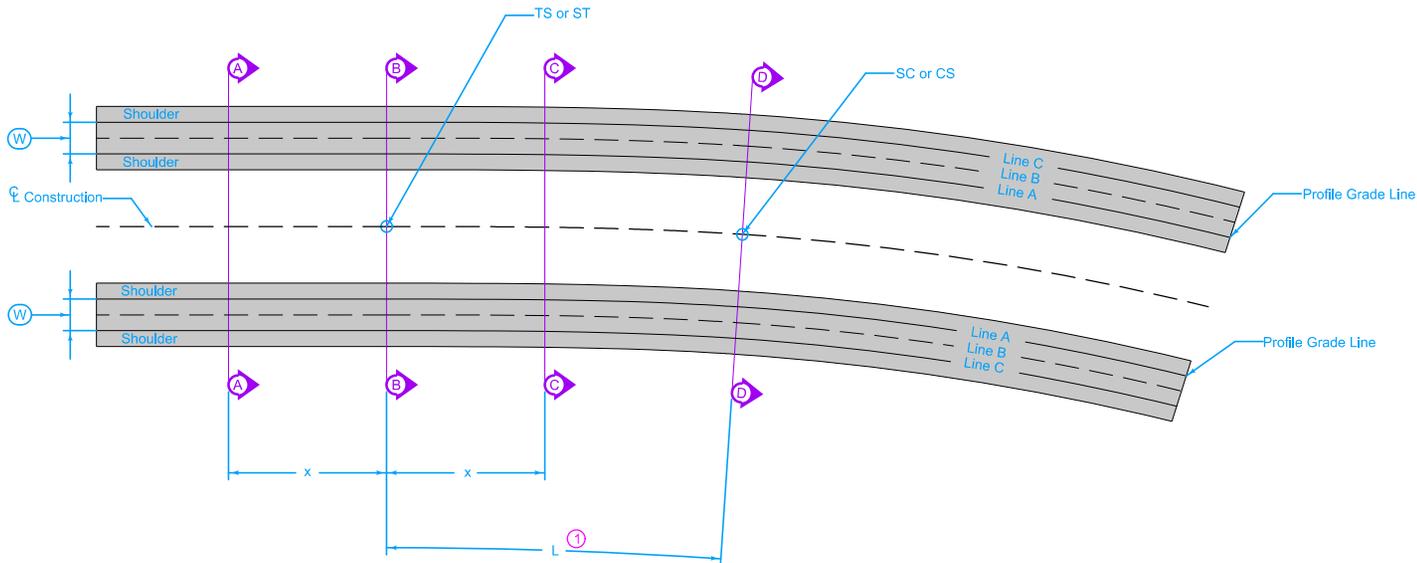
SECTION WHERE SHOULDER  
SLOPE TRANSITION BEGINS

- ② High Side Shoulder: Maintain normal shoulder cross slope ( $s$ ), until the cross slope break with the adjacent pavement reaches 8.0%. Maintain 8% breakover until superelevation rate reaches 7%. If superelevation rate exceeds 7.0%, maintain a 1% shoulder cross slope away from the adjacent pavement.
- ③ Low Side Shoulder: Maintain normal shoulder cross slope ( $s$ ) until the adjacent pavement slope equals  $s$ , then slope the shoulder at the same cross slope as the adjacent pavement.
- ④ Subgrade Surface: Subgrade surface cross slope parallel to pavement surface cross slope.

 Iowa Department of Transportation	REVISION
	1   04-19-11
<b>STANDARD ROAD PLAN</b>	<b>PV-301</b>
SHEET 2 of 2	
REVISIONS: Revised graphics. Added additional cross sections and notes.	
 APPROVED BY DESIGN METHODS ENGINEER	
<b>SUPERELEVATION DETAILS</b> <b>TWO LANE ROADWAY</b>	



TRANSITION DETAILS - TANGENT TO CURVE



TRANSITION DETAILS - SPIRAL CURVE

Refer to specific curve data contained in project plans for tangent runoff length (x), runoff length (L) and full superlevation (e).

When spiral curve transitions are not required:  
Place 70% of full superlevation at the PC and PT  
Place 30% of the runoff length within the curve.

Unless otherwise specified, all lengths are measured along the centerline of construction.

Superelevations on this standard are shown for curves to the right. Curves to the left are a mirror image of what is shown.

Smooth curves should be established at the time of construction at sections A-D along the profile edges of lines A-C.

Axis of rotation coincides with profile grade location.

$m$  = 30% of Runoff Length (L)

$W$  = 24' Regardless of Pavement Width

$g$  = Normal Cross Slope (2%)

$L$  = Distance to Change Cross Slope from 0% to  $e$

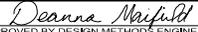
$e$  = Superelevation Rate

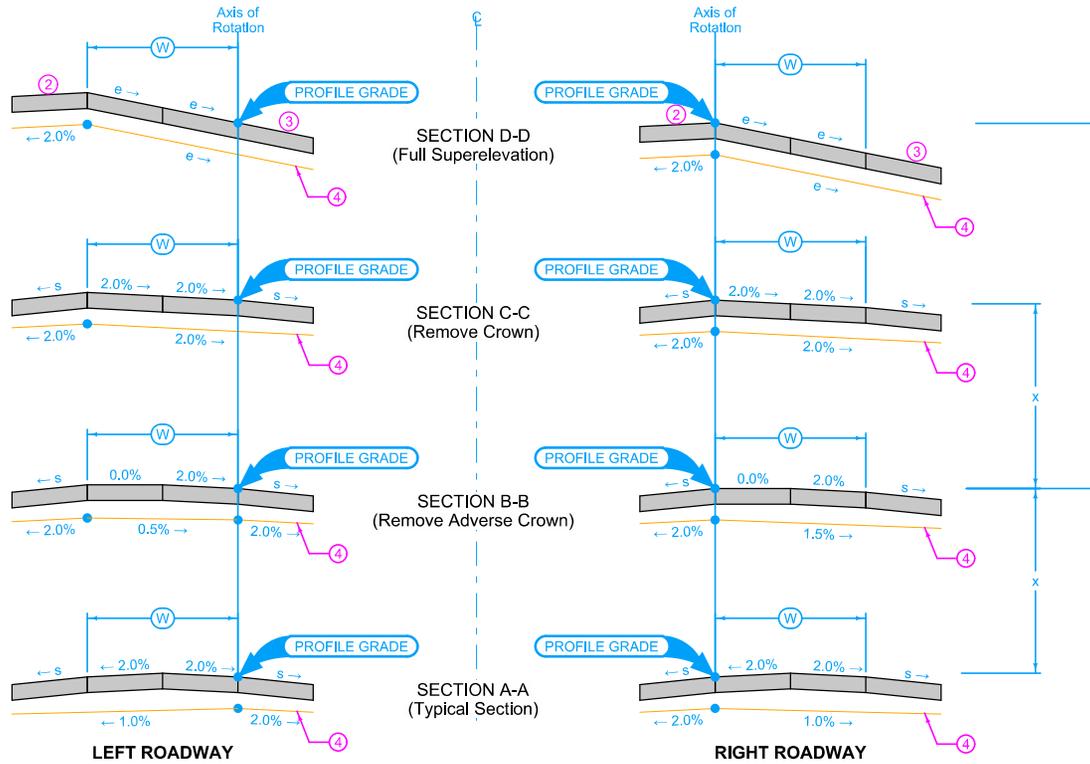
$x$  = Distance to Change Cross Slope from 0% to 2%

$s$  = Normal Shoulder Slope

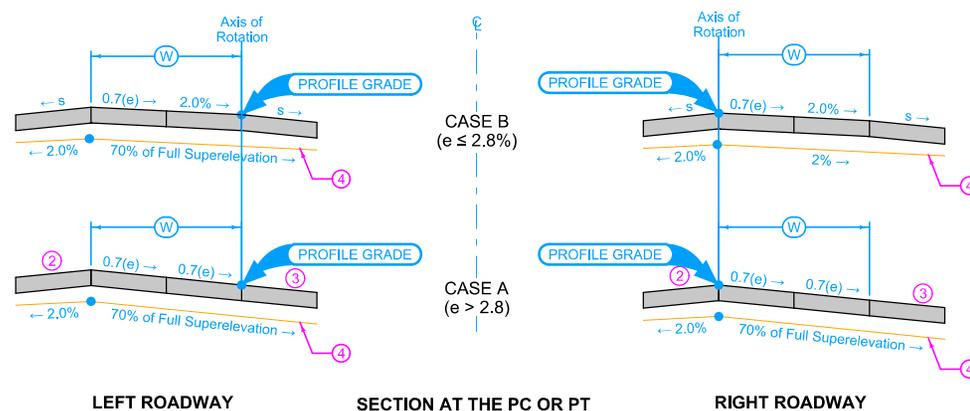
① Spiral curve length coincides with runoff length (L)

Possible Tabulation:  
101-18

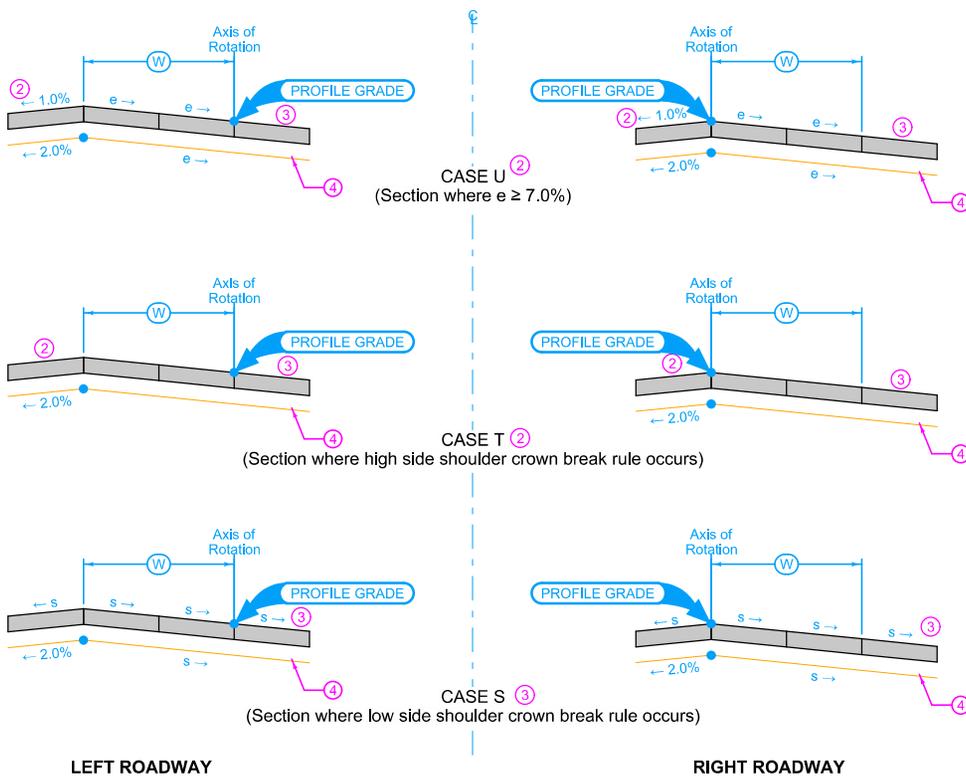
 Iowa Department of Transportation	REVISION	
	2	04-17-12
<b>STANDARD ROAD PLAN</b>	<b>PV-302</b>	
	SHEET 1 of 3	
REVISIONS: Added Possible Tabulation.		
 APPROVED BY DESIGN METHODS ENGINEER		
<b>SUPERELEVATION DETAILS</b> <b>FOUR LANE ROADWAY</b> <b>DEPRESSED MEDIAN</b>		



- ② High Side Shoulder: Maintain normal shoulder cross slope (s), until the cross slope break with the adjacent pavement reaches 8.0%. Maintain 8% breakover until superelevation rate reaches 7%. If superelevation rate exceeds 7.0%, maintain a 1% shoulder cross slope away from the adjacent pavement.
- ③ Low Side Shoulder: Maintain normal shoulder cross slope (s) until the adjacent pavement slope equals s, then slope the shoulder at the same cross slope as the adjacent pavement.
- ④ Subgrade Surface

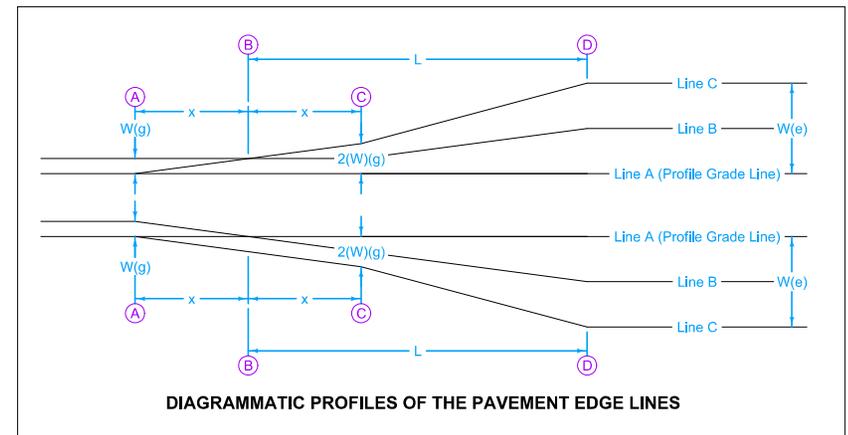


 Iowa Department of Transportation	REVISION
	2   04-17-12
<b>STANDARD ROAD PLAN</b>	<b>PV-302</b>
REVISIONS: Added Possible Tabulation.	SHEET 2 of 3
 APPROVED BY DESIGN METHODS ENGINEER	
<b>SUPERELEVATION DETAILS</b> <b>FOUR LANE ROADWAY</b> <b>DEPRESSED MEDIAN</b>	

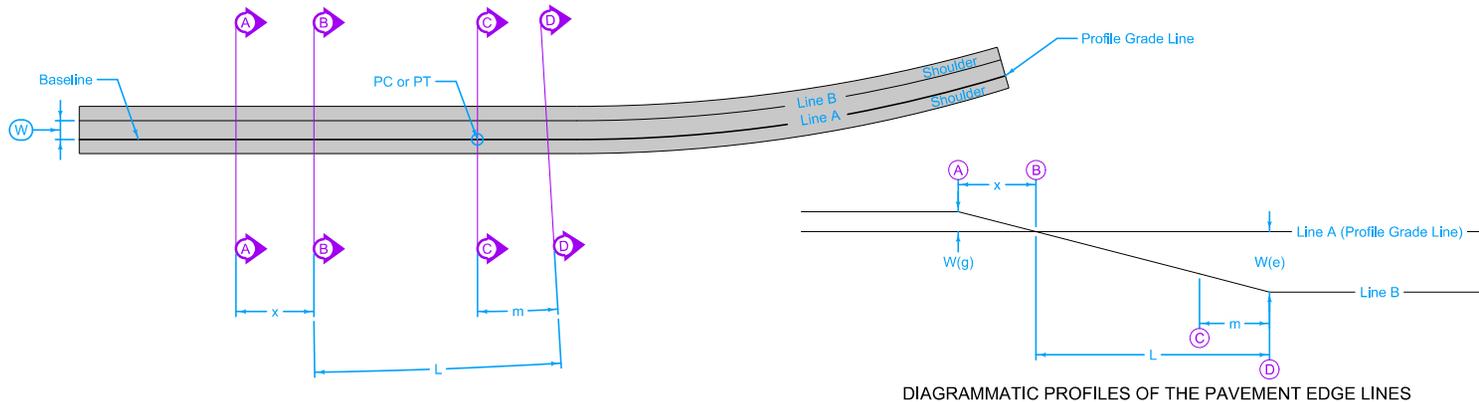


SECTION WHERE SHOULDER SLOPE TRANSITION BEGINS

- ② High Side Shoulder: Maintain normal shoulder cross slope ( $s$ ), until the cross slope break with the adjacent pavement reaches 8.0%. Maintain 8% breakover until superelevation rate reaches 7%. If superelevation rate exceeds 7.0%, maintain a 1% shoulder cross slope away from the adjacent pavement.
- ③ Low Side Shoulder: Maintain normal shoulder cross slope ( $s$ ) until the adjacent pavement slope equals  $s$ , then slope the shoulder at the same cross slope as the adjacent pavement.
- ④ Subgrade Surface

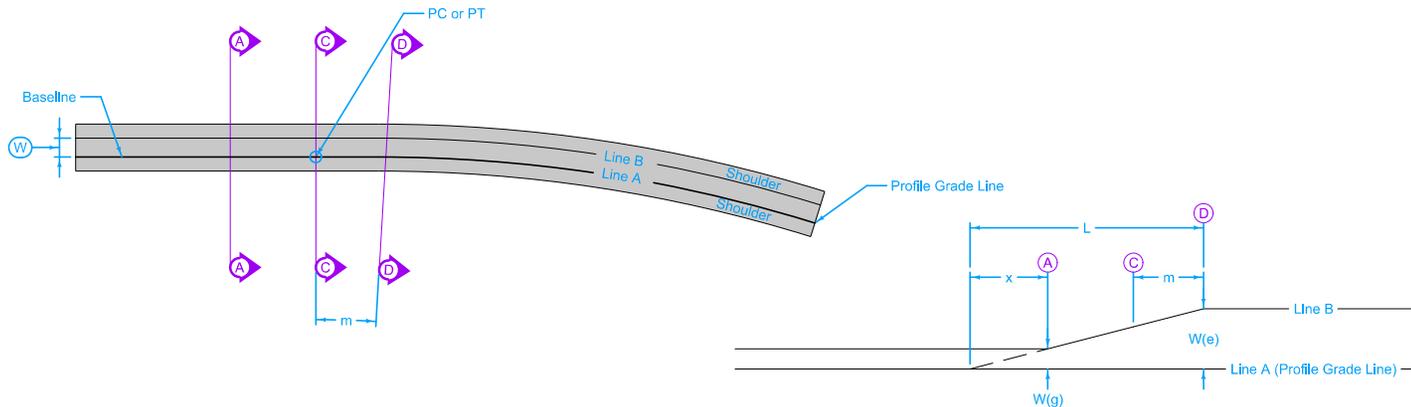


	Iowa Department of Transportation <b>STANDARD ROAD PLAN</b>	REVISION 2   04-17-12
	<b>PV-302</b> SHEET 3 of 3	REVISIONS: Added Possible Tabulation.
<i>Deanna Maifield</i> APPROVED BY DESIGN METHODS ENGINEER		
<b>SUPERELEVATION DETAILS          FOUR LANE ROADWAY          DEPRESSED MEDIAN</b>		



DIAGRAMMATIC PROFILES OF THE PAVEMENT EDGE LINES

**CASE A**  
**TRANSITION DETAILS - TANGENT TO CURVE**  
**WHEN NORMAL CROSS SLOPE IS IN THE OPPOSITE DIRECTION AS SUPERELEVATION**



DIAGRAMMATIC PROFILES OF THE PAVEMENT EDGE LINES

**CASE B**  
**TRANSITION DETAILS - TANGENT TO CURVE**  
**WHEN NORMAL CROSS SLOPE IS IN THE SAME DIRECTION AS SUPERELEVATION**

Refer to specific curve data contained in project plans for tangent runoff length (x), runoff length (L) and full superlevation (e).

Place 70% of full superlevation at the P.C. and P.T.

Place 30% of the runoff length within the curve.

Unless otherwise specified, all lengths are measured along the baseline.

Smooth curves should be established at the time of construction at sections A-D along the profile edge of lines A and B.

Axis of rotation coincides with profile grade location.

$m$  = 30% of Runoff Length (L)

$W$  = Pavement Width

$g$  = Normal Cross Slope (2%)

$L$  = Distance to Change Cross Slope from 0% to e

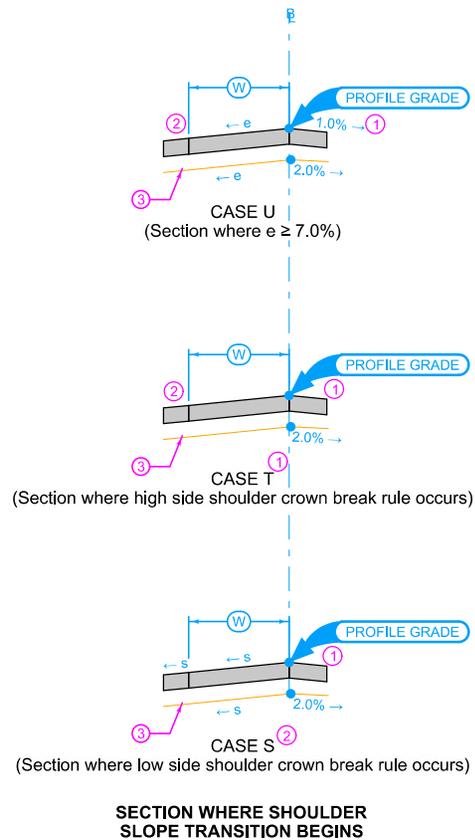
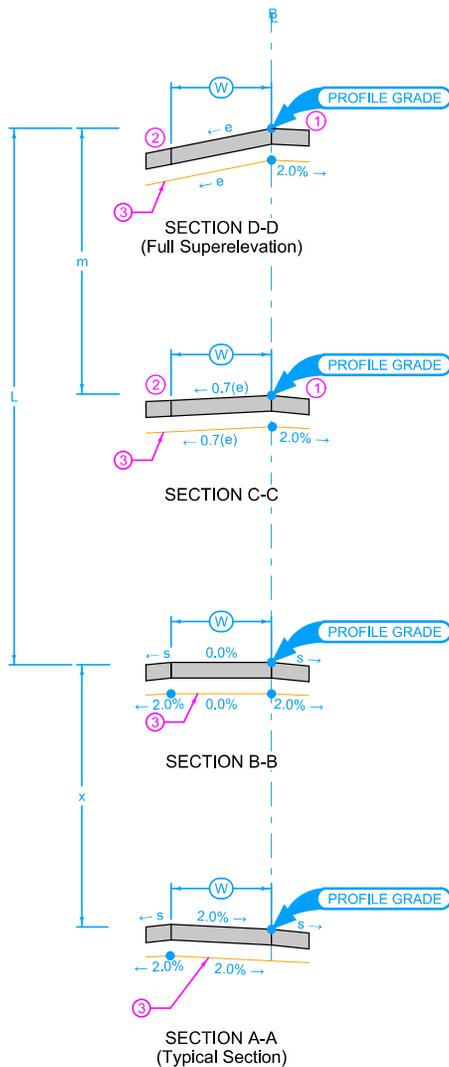
$e$  = Superlevation Rate

$x$  = Distance to Change Cross Slope from 0% to 2%

$s$  = Normal Shoulder Slope

Possible Tabulation:  
101-18

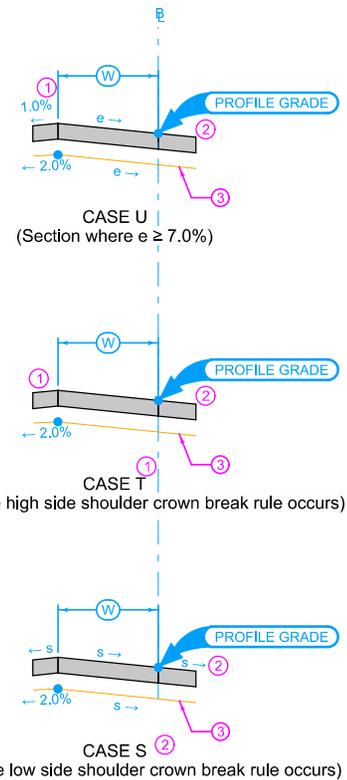
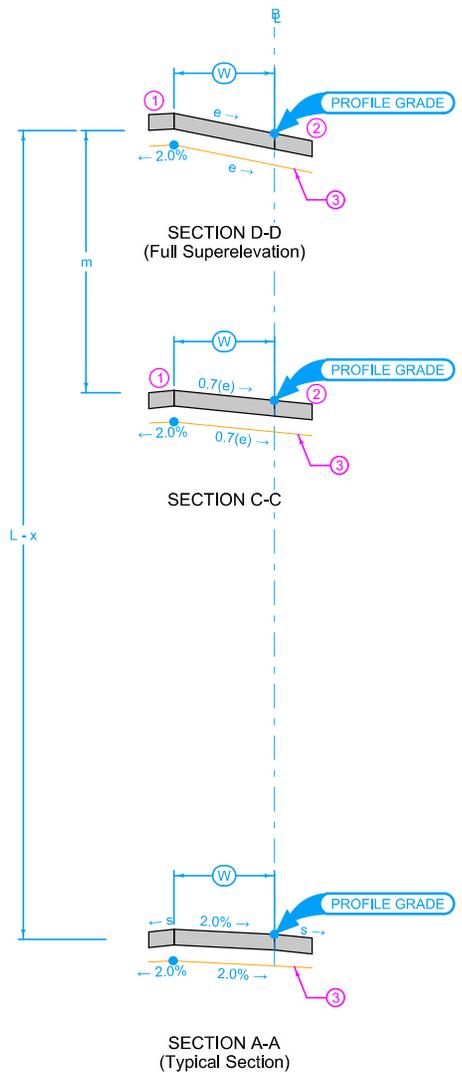
<p>Iowa Department of Transportation</p>	REVISION
	1   04-19-11
<b>STANDARD ROAD PLAN</b>	<b>PV-303</b>
SHEET 1 of 3	
<small>REVISIONS: Revised graphics. Added additional cross sections and notes.</small>	
<p>Deanna Maifield  <small>APPROVED BY DESIGN METHODS ENGINEER</small></p>	
<b>SUPERELEVATION DETAILS</b> <b>RAMPS</b>	



- ① High Side Shoulder: Maintain normal shoulder cross slope ( $s$ ), until the cross slope break with the adjacent pavement reaches  $8.0\%$ . Maintain  $8\%$  breakover until superelevation rate reaches  $7\%$ . If superelevation rate exceeds  $7.0\%$ , maintain a  $1\%$  shoulder cross slope away from the adjacent pavement.
- ② Low Side Shoulder: Maintain normal shoulder cross slope ( $s$ ) until the adjacent pavement slope equals  $s$ , then slope the shoulder at the same cross slope as the adjacent pavement.
- ③ Subgrade Surface: Subgrade surface cross slope parallel to pavement surface cross slope.

CASE A

 Iowa Department of Transportation	REVISION 1   04-19-11
	<b>PV-303</b> SHEET 2 of 3
REVISIONS: Revised graphics. Added additional cross sections and notes.	
<i>Deanna Maifield</i> APPROVED BY DESIGN METHODS ENGINEER	
<b>SUPERELEVATION DETAILS RAMPS</b>	

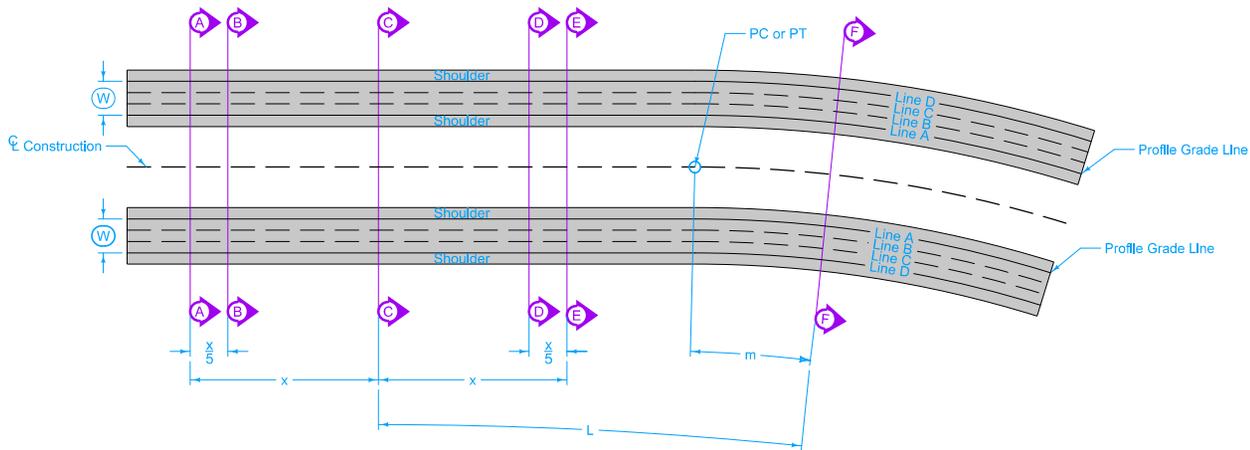


**SECTION WHERE SHOULDER SLOPE TRANSITION BEGINS**

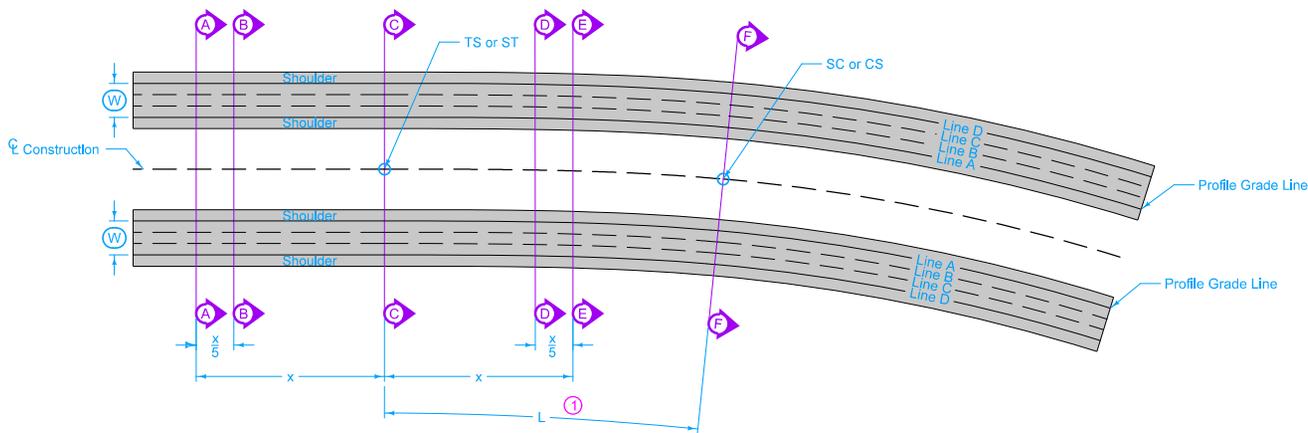
CASE B

- ① High Side Shoulder: Maintain normal shoulder cross slope (s), until the cross slope break with the adjacent pavement reaches 8.0%. Maintain 8% breakover until superelevation rate reaches 7%. If superelevation rate exceeds 7.0%, maintain a 1% shoulder cross slope away from the adjacent pavement.
- ② Low Side Shoulder: Maintain normal shoulder cross slope (s) until the adjacent pavement slope equals s, then slope the shoulder at the same cross slope as the adjacent pavement.
- ③ Subgrade Surface: Subgrade surface cross slope parallel to pavement surface cross slope.

 <b>Iowa Department of Transportation</b>	<small>REVISION</small> 1   04-19-11
	<b>PV-303</b> <small>SHEET 3 of 3</small>
<small>REVISIONS: Revised graphics. Added additional cross sections and notes.</small>	
 <small>APPROVED BY DESIGN METHODS ENGINEER</small>	
<b>SUPERELEVATION DETAILS</b> <b>RAMPS</b>	



TRANSITION DETAILS - TANGENT TO CURVE



TRANSITION DETAILS - SPIRAL CURVE

Refer to specific curve data contained in project plans for tangent runoff length (x), runoff length (L) and full superlevation (e).

When spiral curve transitions are not required:  
Place 70% of full superlevation at the PC and PT.  
Place 30% of the runoff length within the curve.

Unless otherwise specified, all lengths are measured along the centerline of construction.

Superelevations on this standard are shown for curves to the right. Curves to the left are a mirror image of what is shown.

Smooth curves should be established at the time of construction at sections A-F along the profile edges of lines A-D.

Axis of rotation coincides with profile grade location.

$m = 30\%$  of Runoff Length (L)

$W = 36'$  Regardless of Pavement Width

$g =$  Normal Cross Slope (2.5%)

$L =$  Distance to Change Cross Slope from 0% to e

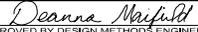
$e =$  Superlevation Rate

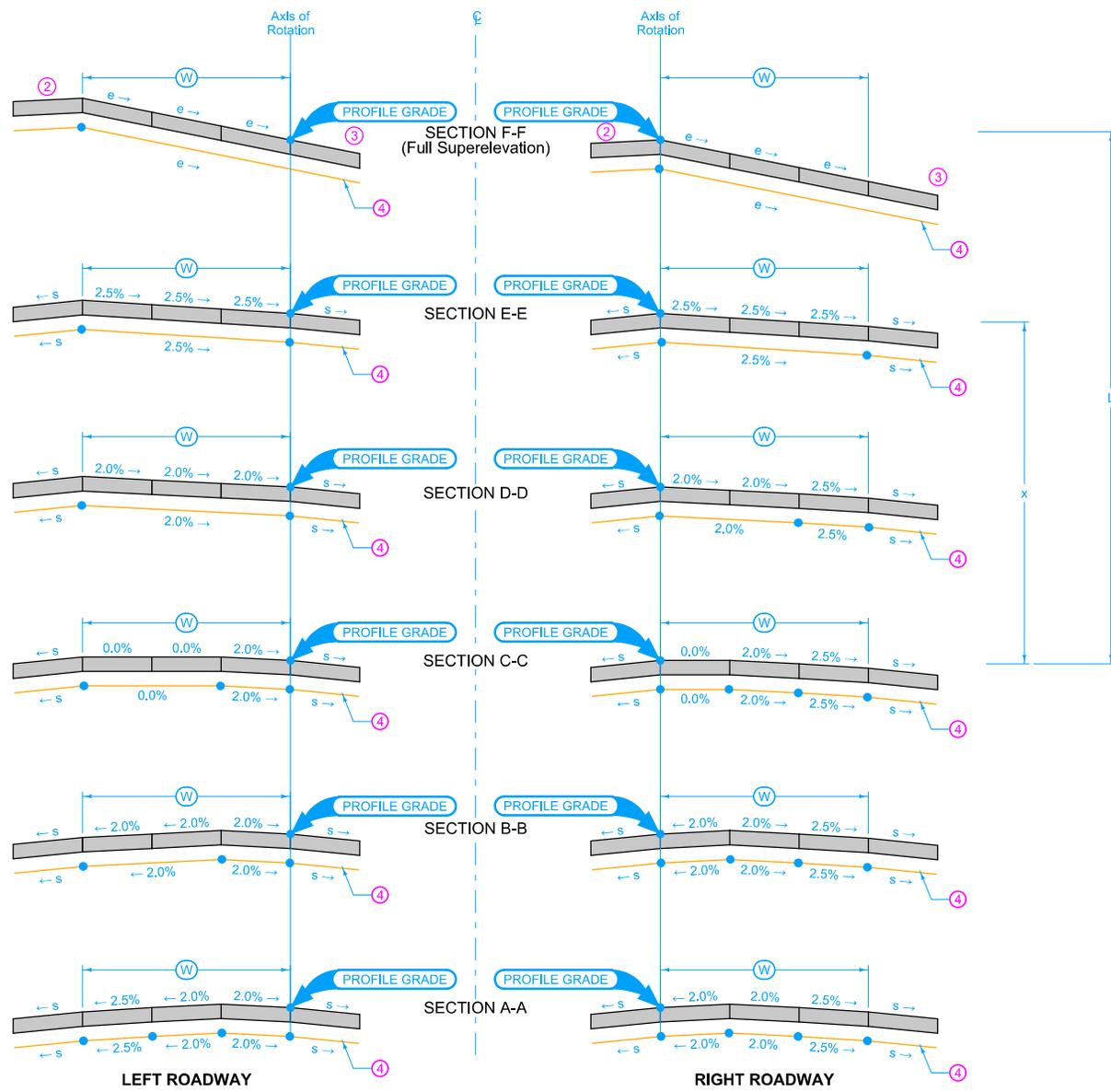
$x =$  Distance to Change Cross Slope from 0% to 2.5%

$s =$  Normal Shoulder Slope

① Spiral curve length coincides with runoff length (L)

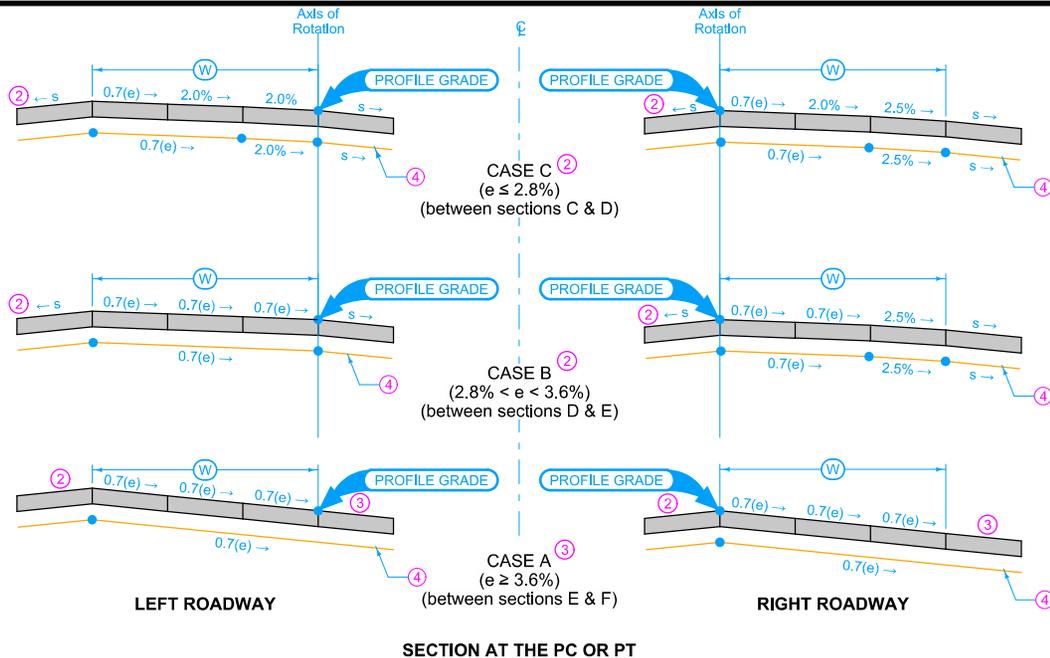
Possible Tabulation:  
101-18

 Iowa Department of Transportation	REVISION
	1   04-17-12
<b>STANDARD ROAD PLAN</b>	<b>PV-304</b>
SHEET 1 of 4	
REVISIONS: Updated Diagrammatic Profiles of the Pavement Edge Lines on sheet 4. Added Possible Tabulation, Modified circle note 2.	
 APPROVED BY DESIGN METHODS ENGINEER	
<b>SUPERELEVATION DETAILS</b> <b>SIX LANE ROADWAY</b> <b>DEPRESSED MEDIAN</b>	

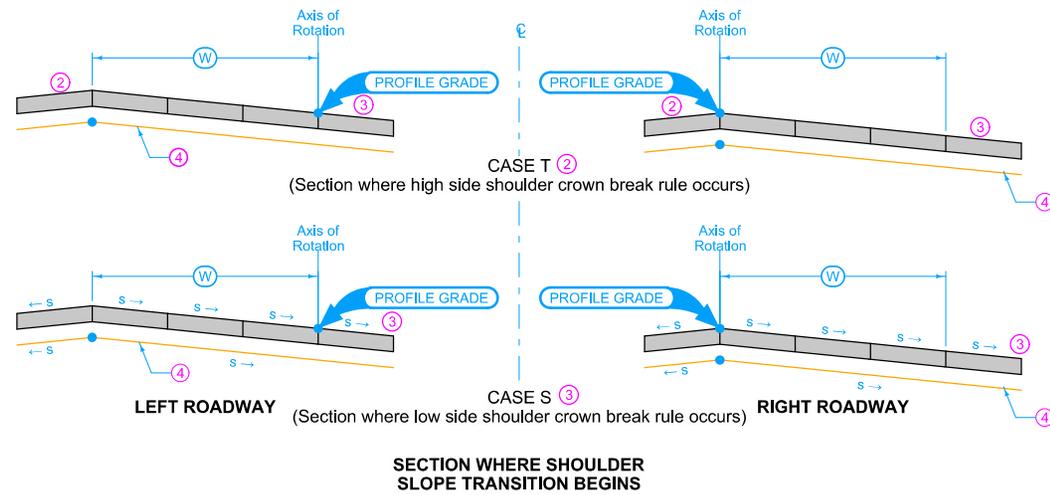


- ② High Side Shoulder: Maintain normal shoulder cross slope (s), until the cross slope break with the adjacent pavement reaches 8.0%. Maintain 8% breakover until superelevation rate reaches 7%. If superelevation rate exceeds 7.0%, maintain a 1% shoulder cross slope away from the adjacent pavement.
- ③ Low Side Shoulder: Maintain normal shoulder cross slope (s) until the adjacent pavement slope equals s, then slope the shoulder at the same cross slope as the adjacent pavement.
- ④ Subgrade Surface: Subgrade surface cross slope parallel to pavement surface cross slope.

 <b>Iowa Department of Transportation</b>	<small>REVISION</small> 1   04-17-12
	<b>PV-304</b> <small>SHEET 2 of 4</small>
<small>REVISIONS: Updated Diagrammatic Profiles of the Pavement Edge Lines on sheet 4. Added Possible Tabulation, Modified circle note 2.</small>	
<i>Deanna Maifield</i> <small>APPROVED BY DESIGN METHODS ENGINEER</small>	
<b>SUPERELEVATION DETAILS</b> <b>SIX LANE ROADWAY</b> <b>DEPRESSED MEDIAN</b>	

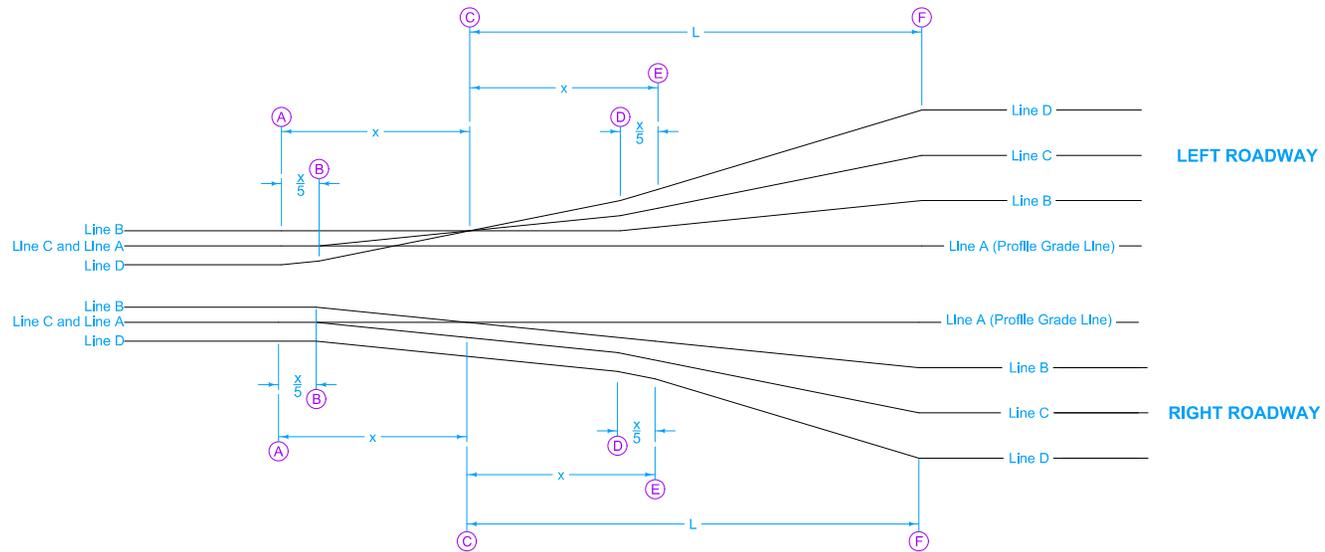


- ② High Side Shoulder: Maintain normal shoulder cross slope (s), until the cross slope break with the adjacent pavement reaches 8.0%. Maintain 8% breakover until superelevation rate reaches 7%. If superelevation rate exceeds 7.0%, maintain a 1% shoulder cross slope away from the adjacent pavement.
- ③ Low Side Shoulder: Maintain normal shoulder cross slope (s) until the adjacent pavement slope equals s, then slope the shoulder at the same cross slope as the adjacent pavement.
- ④ Subgrade Surface: Subgrade surface cross slope parallel to pavement surface cross slope.



 <b>Iowa Department of Transportation</b>	<small>REVISION</small> 1    04-17-12
	<b>PV-304</b> <small>SHEET 3 of 4</small>
<small>REVISIONS: Updated Diagrammatic Profiles of the Pavement Edge Lines on sheet 4. Added Possible Tabulation, Modified circle note 2.</small>	
 <small>APPROVED BY DESIGN METHODS ENGINEER</small>	
<b>SUPERELEVATION DETAILS</b> <b>SIX LANE ROADWAY</b> <b>DEPRESSED MEDIAN</b>	

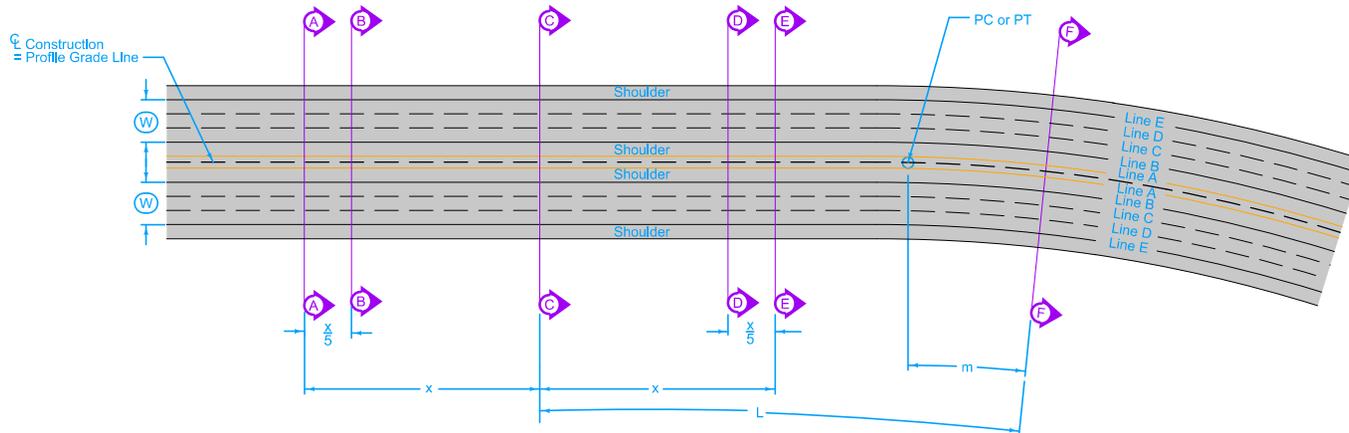
TABLE OF OFFSETS AND DROPS FOR LEFT ROADWAY							
Location of Cross Sections		(A)	(B)	(C)	(D)	(E)	(F)
From Line A To Line B	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	2.0	2.0	2.0	2.0	2.5	e
	Drop (Ft.)	0.24	0.24	0.24	0.24	0.30	12(e)
From Line B To Line C	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	-2.0	-2.0	0.0	2.0	2.5	e
	Drop (Ft.)	-0.24	-0.24	0.0	0.24	0.30	12(e)
From Line C To Line D	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	-2.5	-2.0	0.0	2.0	2.5	e
	Drop (Ft.)	-0.30	-0.24	0.0	0.24	0.30	12(e)
From Line A To Line D	Offset (Ft.)	36	36	36	36	36	36
	Drop (Ft.)	-0.30	-0.24	0.24	0.72	0.90	36(e)



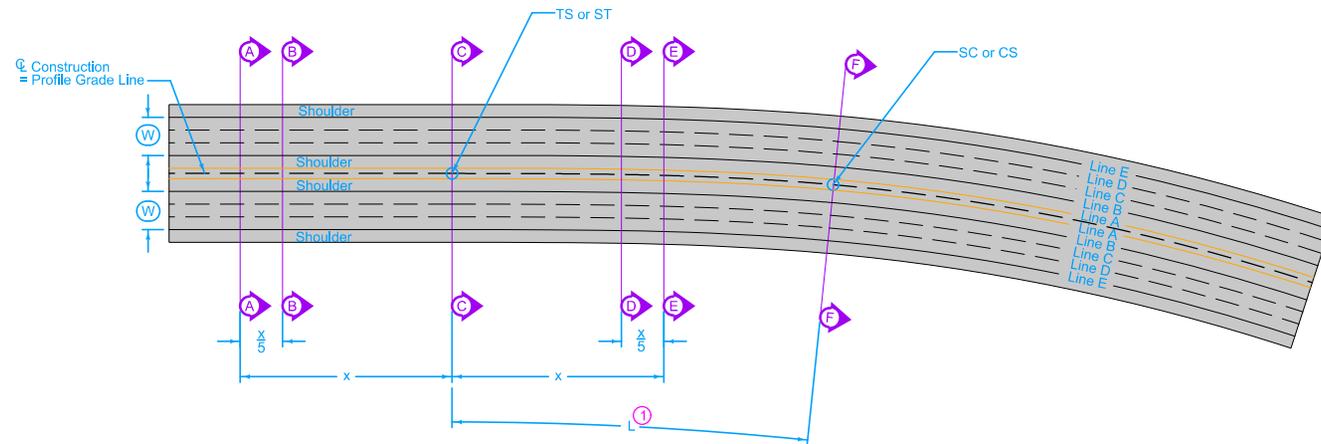
DIAGRAMMATIC PROFILES OF THE PAVEMENT EDGE LINES

TABLE OF OFFSETS AND DROPS FOR RIGHT ROADWAY							
Location of Cross Sections		(A)	(B)	(C)	(D)	(E)	(F)
From Line A To Line B	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	2.0	2.0	0.0	-2.0	-2.5	-e
	Drop (Ft.)	0.24	0.24	0.0	-0.24	-0.30	-12(e)
From Line B To Line C	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	-2.0	-2.0	-2.0	-2.0	-2.5	-e
	Drop (Ft.)	-0.24	-0.24	-0.24	-0.24	-0.30	-12(e)
From Line C To Line D	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	-2.5	-2.5	-2.5	-2.5	-2.5	-e
	Drop (Ft.)	-0.30	-0.30	-0.30	-0.30	-0.30	-12(e)
From Line A To Line D	Offset (Ft.)	36	36	36	36	36	36
	Slope (%)	-0.30	-0.30	-0.54	-0.78	-0.90	-36(e)
	Drop (Ft.)	-0.30	-0.30	-0.54	-0.78	-0.90	-36(e)

	REVISION
	1 04-17-12
<b>STANDARD ROAD PLAN</b>	<b>PV-304</b>
SHEET 4 of 4	
<small>REVISIONS: Updated Diagrammatic Profiles of the Pavement Edge Lines on sheet 4. Added Possible Tabulation, Modified circle note 2.</small>	
<i>Deanna Maifield</i> <small>APPROVED BY DESIGN METHODS ENGINEER</small>	
<b>SUPERELEVATION DETAILS</b> <b>SIX LANE ROADWAY</b> <b>DEPRESSED MEDIAN</b>	



TRANSITION DETAILS - TANGENT TO CURVE



TRANSITION DETAILS - SPIRAL CURVE

Refer to specific curve data contained in project plans for tangent runoff length (x), runoff length (L) and full superelevation (e).

When spiral curve transitions are not required:  
Place 70% of full superelevation at the P.C. and P.T.  
Place 30% of the runoff length within the curve.

Unless otherwise specified, all lengths are measured along the centerline of construction.

Superelevations on this standard are shown for curves to the right. Curves to the left are a mirror image of what is shown.

Smooth curves should be established at the time of construction at sections A-F along the profile edge of lines A-E.

See Detail A for profile grade location.

$m$  = 30% of Runoff Length (L)

$W$  = 36'

$L$  = Distance to Change Cross Slope from 0% to e

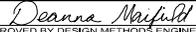
$e$  = Superelevation Rate

$x$  = Distance to Change Cross Slope from 0% to 2.5%

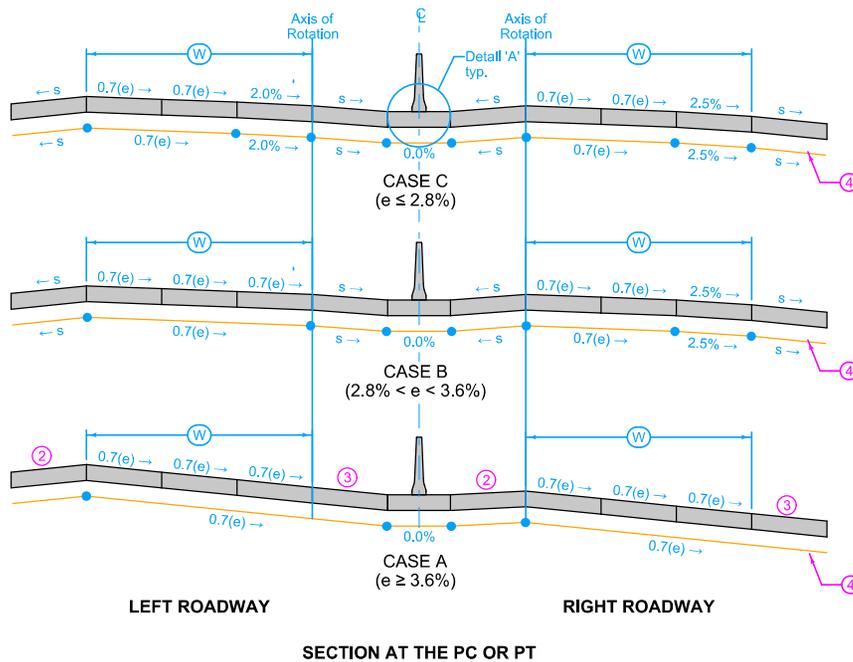
$s$  = Normal Shoulder Slope

① Spiral curve length coincides with runoff length (L)

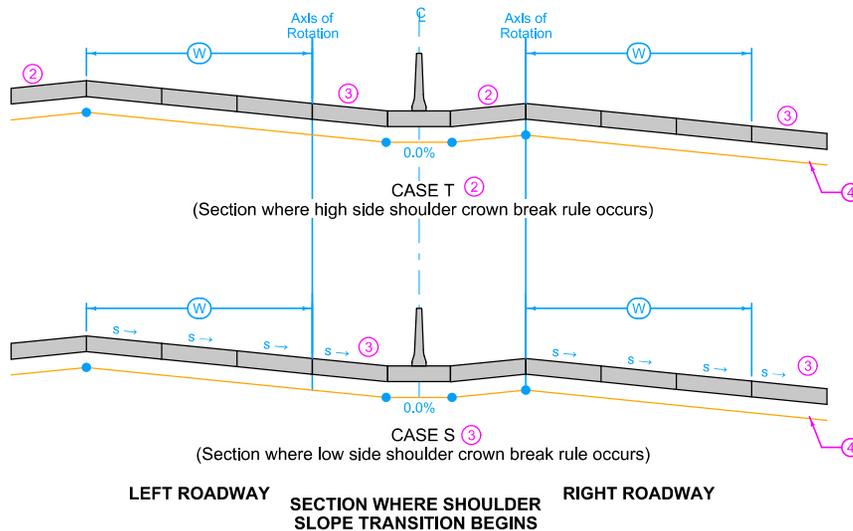
Possible Tabulation:  
101-18

 Iowa Department of Transportation	REVISION	
	2	04-17-12
<b>STANDARD ROAD PLAN</b>	<b>PV-305</b>	
	SHEET 1 of 4	
REVISIONS: Added Possible Tabulation.		
 APPROVED BY DESIGN METHODS ENGINEER		
<b>SUPERELEVATION DETAILS</b> <b>SIX LANE ROADWAY</b> <b>CLOSED MEDIAN</b>		





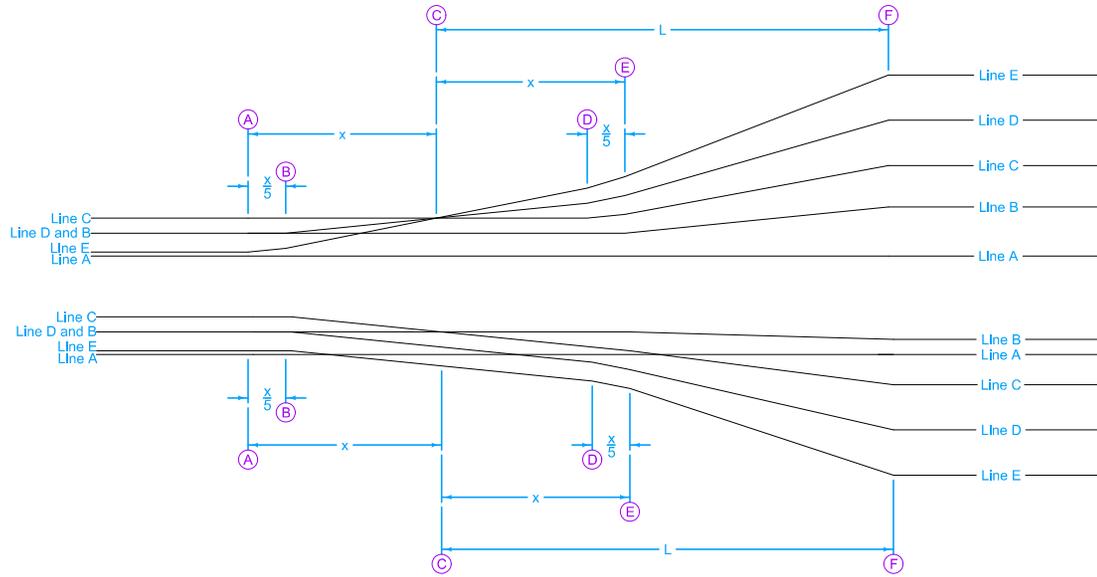
- ② High Side Shoulder: Maintain normal shoulder cross slope (s) until the cross slope break with the adjacent pavement reaches 8.0%, then slope the shoulder at the same rate as the adjacent pavement maintaining an 8% cross slope breakover.
- ③ Low Side Shoulder: Maintain normal shoulder cross slope (s) until the adjacent pavement slope equals s, then slope the shoulder at the same cross slope as the adjacent pavement.
- ④ Subgrade Surface: Subgrade surface cross slope parallel to pavement surface cross slope.



<b>Iowa Department of Transportation</b>	REVISION
	2   04-17-12
STANDARD ROAD PLAN	PV-305
REVISIONS: Added Possible Tabulation.	SHEET 3 of 4
<small>APPROVED BY DESIGN METHODS ENGINEER</small>	
<b>SUPERELEVATION DETAILS</b> <b>SIX LANE ROADWAY</b> <b>CLOSED MEDIAN</b>	

TABLE OF OFFSETS AND DROPS FOR LEFT ROADWAY							
Location of Cross Sections		(A)	(B)	(C)	(D)	(E)	(F)
From Line A To Line B	Offset (Ft.)	*	*	*	*	*	*
	Slope (%)	s	s	s	s	s	(3)
	Drop (Ft.)						
From Line B To Line C	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	2.0	2.0	2.0	2.0	2.5	e
	Drop (Ft.)	0.24	0.24	0.24	0.24	0.30	12(e)
From Line C To Line D	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	-2.0	-2.0	0.0	2.0	2.5	e
	Drop (Ft.)	-0.24	-0.24	0.0	0.24	0.30	12(e)
From Line D To Line E	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	-2.5	-2.0	0.0	2.0	2.5	e
	Drop (Ft.)	-0.30	-0.24	0.0	0.24	0.30	12(e)

\* Refer to plan details for shoulder width

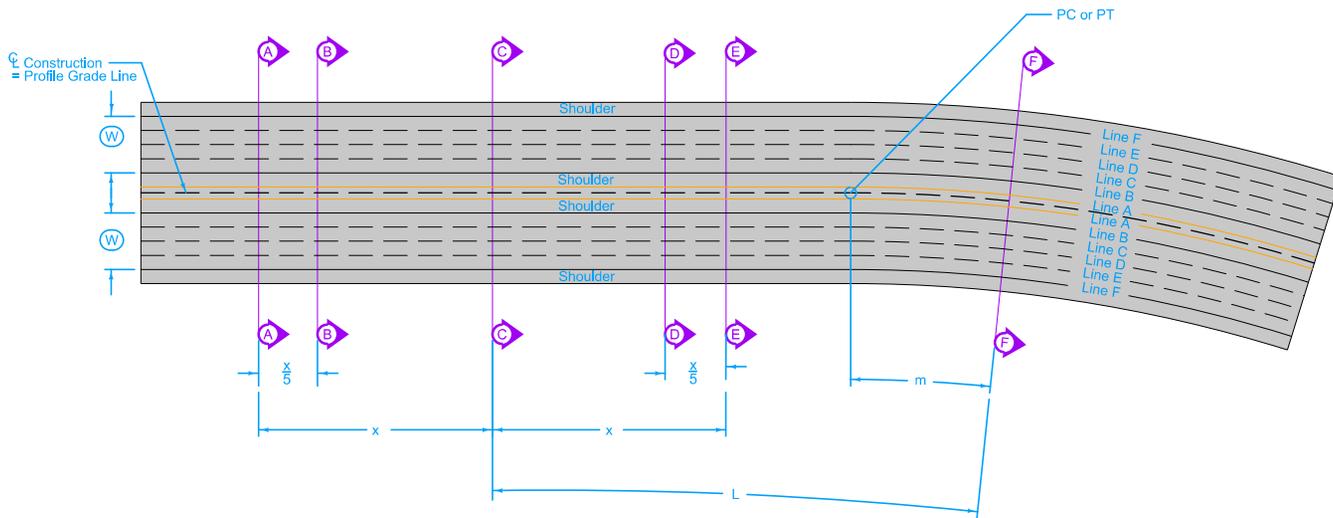


DIAGRAMMATIC PROFILES OF THE PAVEMENT EDGE LINES

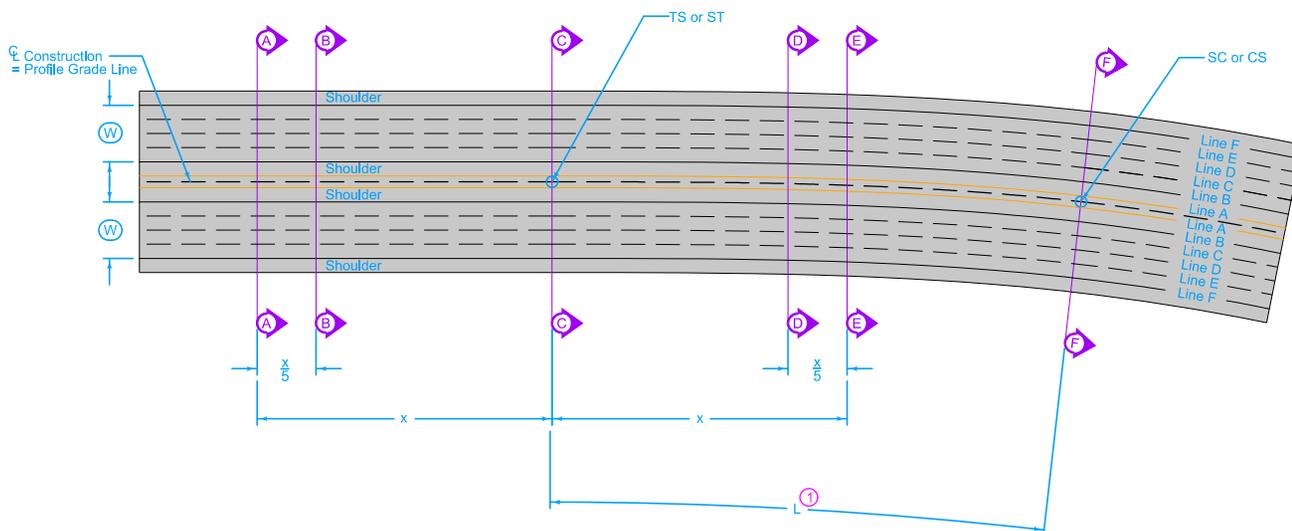
TABLE OF OFFSETS AND DROPS FOR RIGHT ROADWAY							
Location of Cross Sections		(A)	(B)	(C)	(D)	(E)	(F)
From Line A To Line B	Offset (Ft.)	*	*	*	*	*	*
	Slope (%)	s	s	s	s	3.0	(2)
	Drop (Ft.)						
From Line B To Line C	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	2.0	2.0	0.0	-2.0	-2.5	-e
	Drop (Ft.)	0.24	0.24	0.0	-0.24	-0.30	-12(e)
From Line C To Line D	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	-2.0	-2.0	-2.0	-2.0	-2.5	-e
	Drop (Ft.)	-0.24	-0.24	-0.24	-0.24	-0.30	-12(e)
From Line D To Line E	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	-2.5	-2.5	-2.5	-2.5	-2.5	-e
	Drop (Ft.)	-0.30	-0.30	-0.30	-0.30	-0.30	-12(e)

\* Refer to plan details for shoulder width

	REVISION
	2   04-17-12
STANDARD ROAD PLAN	PV-305
REVISIONS: Added Possible Tabulation.	SHEET 4 of 4
APPROVED BY DESIGN METHODS ENGINEER	
<b>SUPERELEVATION DETAILS</b> <b>SIX LANE ROADWAY</b> <b>CLOSED MEDIAN</b>	



TRANSITION DETAILS - TANGENT TO CURVE



TRANSITION DETAILS - SPIRAL CURVE

Refer to specific curve data contained in project plans for tangent runoff length (x), runoff length (L) and full superlevation (e).

When spiral curve transitions are not required:  
Place 70% of full superlevation at the P.C. and P.T.  
Place 30% of the runoff length within the curve.

Unless otherwise specified, all lengths are measured along the centerline of construction.

Superelevations on this standard are shown for curves to the right. Curves to the left are a mirror image of what is shown.

Smooth curves should be established at the time of construction at sections A-F along the profile edges of lines A-F.

See Detail A for profile grade location.

m = 30% of Runoff Length (L)

W = 48'

g = Normal Cross Slope (2.5%)

L = Distance to Change Cross Slope from 0% to e

e = Superelevation Rate

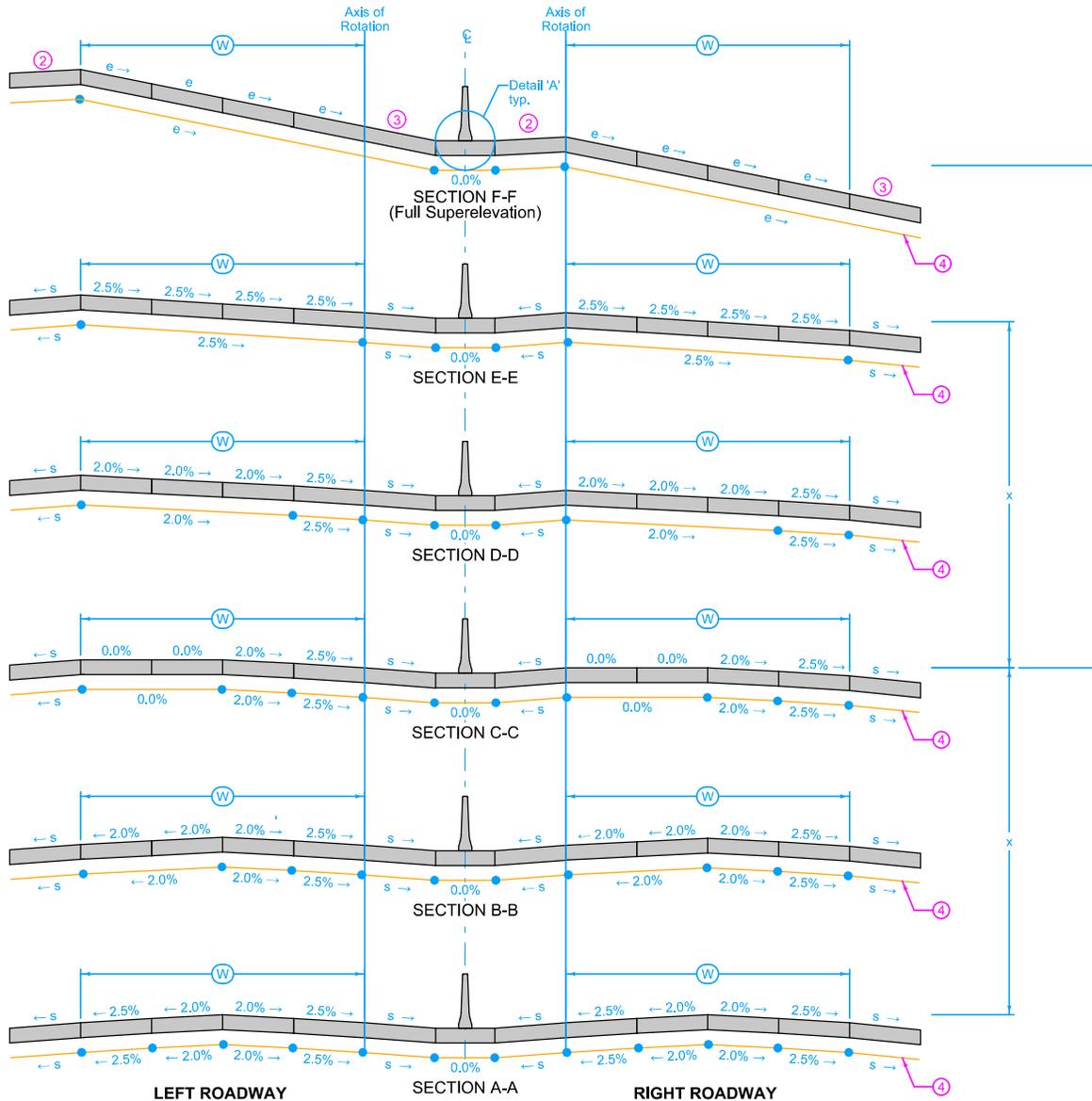
x = Distance to Change Cross Slope from 0% to 2.5%

s = Normal Shoulder Slope

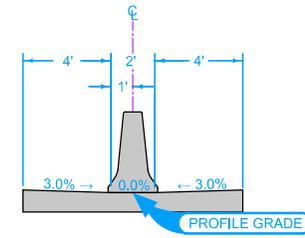
① Spiral curve length coincides with runoff length (L)

Possible Tabulation:  
101-18

 <b>Iowa Department of Transportation</b>	REVISION	
	New	04-19-11
<b>STANDARD ROAD PLAN</b>	<b>PV-306</b>	
REVISIONS: New.	SHEET 1 of 4	
<i>Deanna Maifield</i> APPROVED BY DESIGN METHODS ENGINEER		
<b>SUPERELEVATION DETAILS</b> <b>EIGHT LANE ROADWAY</b> <b>CLOSED MEDIAN</b>		

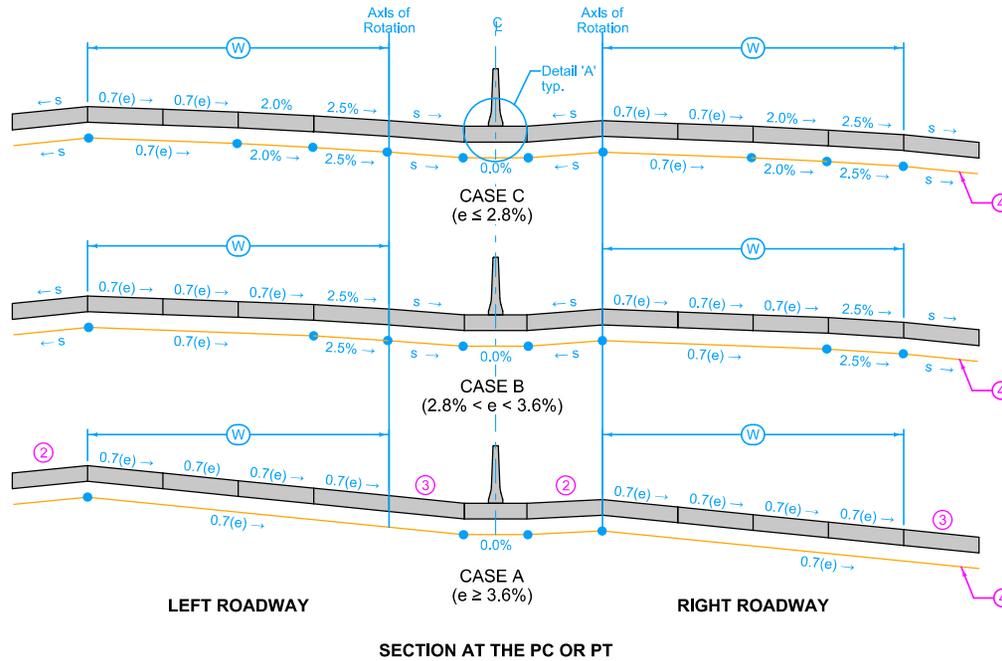


- ② High Side Shoulder: Maintain normal shoulder cross slope (s) until the cross slope break with the adjacent pavement reaches 8.0%, then slope the shoulder at the same rate as the adjacent pavement maintaining an 8% cross slope breakover.
- ③ Low Side Shoulder: Maintain normal shoulder cross slope (s) until the adjacent pavement slope equals s, then slope the shoulder at the same cross slope as the adjacent pavement.
- ④ Subgrade Surface: Subgrade surface cross slope parallel to pavement surface cross slope.

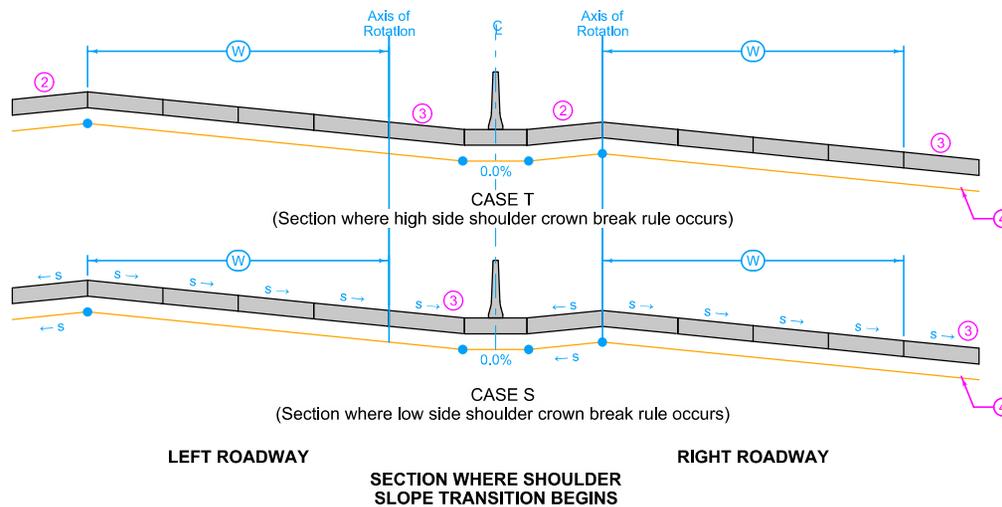


DETAIL A

	Iowa Department of Transportation	REVISION New 04-19-11
	<b>STANDARD ROAD PLAN</b>	<b>PV-306</b> SHEET 2 of 4
REVISIONS: New.		
<i>Deanna Maifield</i> APPROVED BY DESIGN METHODS ENGINEER		
<b>SUPERELEVATION DETAILS EIGHT LANE ROADWAY CLOSED MEDIAN</b>		



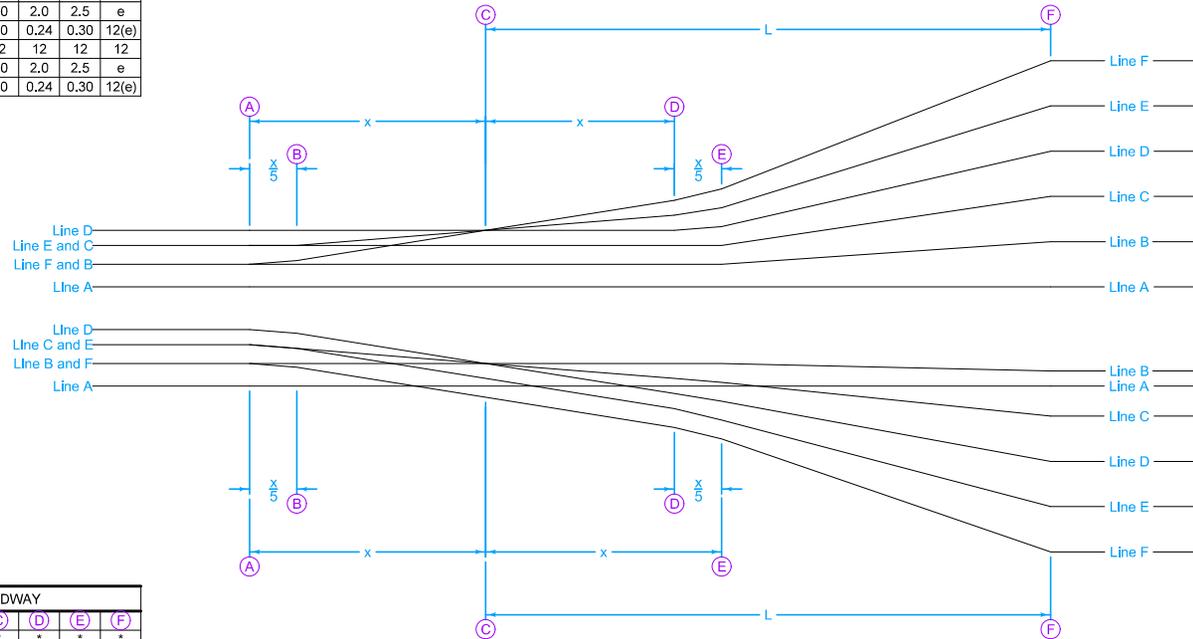
- ② High Side Shoulder: Maintain normal shoulder cross slope (s) until the cross slope break with the adjacent pavement reaches 8.0%, then slope the shoulder at the same rate as the adjacent pavement maintaining an 8% cross slope breakover.
- ③ Low Side Shoulder: Maintain normal shoulder cross slope (s) until the adjacent pavement slope equals s, then slope the shoulder at the same cross slope as the adjacent pavement.
- ④ Subgrade Surface: Subgrade surface cross slope parallel to pavement surface cross slope.



 <b>Iowa Department of Transportation</b>	REVISION New 04-19-11
	<b>PV-306</b>
<b>STANDARD ROAD PLAN</b>	SHEET 3 of 4
REVISIONS: New.	
<small>APPROVED BY DESIGN METHODS ENGINEER</small>	
<b>SUPERELEVATION DETAILS EIGHT LANE ROADWAY CLOSED MEDIAN</b>	

TABLE OF OFFSETS AND DROPS FOR LEFT ROADWAY							
Location of Cross Sections		(A)	(B)	(C)	(D)	(E)	(F)
From Line A To Line B	Offset (Ft.)	*	*	*	*	*	*
	Slope (%)	s	s	s	s	s	(3)
	Drop (Ft.)						
From Line B To Line C	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	2.5	2.5	2.5	2.5	2.5	e
	Drop (Ft.)	0.30	0.30	0.30	0.30	0.30	12(e)
From Line C To Line D	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	2.0	2.0	2.0	2.0	2.5	e
	Drop (Ft.)	0.24	0.24	0.24	0.24	0.30	12(e)
From Line D To Line E	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	-2.0	-2.0	0.0	2.0	2.5	e
	Drop (Ft.)	-0.24	-0.24	0.0	0.24	0.30	12(e)
From Line E To Line F	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	-2.5	-2.0	0.0	2.0	2.5	e
	Drop (Ft.)	-0.30	-0.24	0.0	0.24	0.30	12(e)

\* Refer to plan details for shoulder width

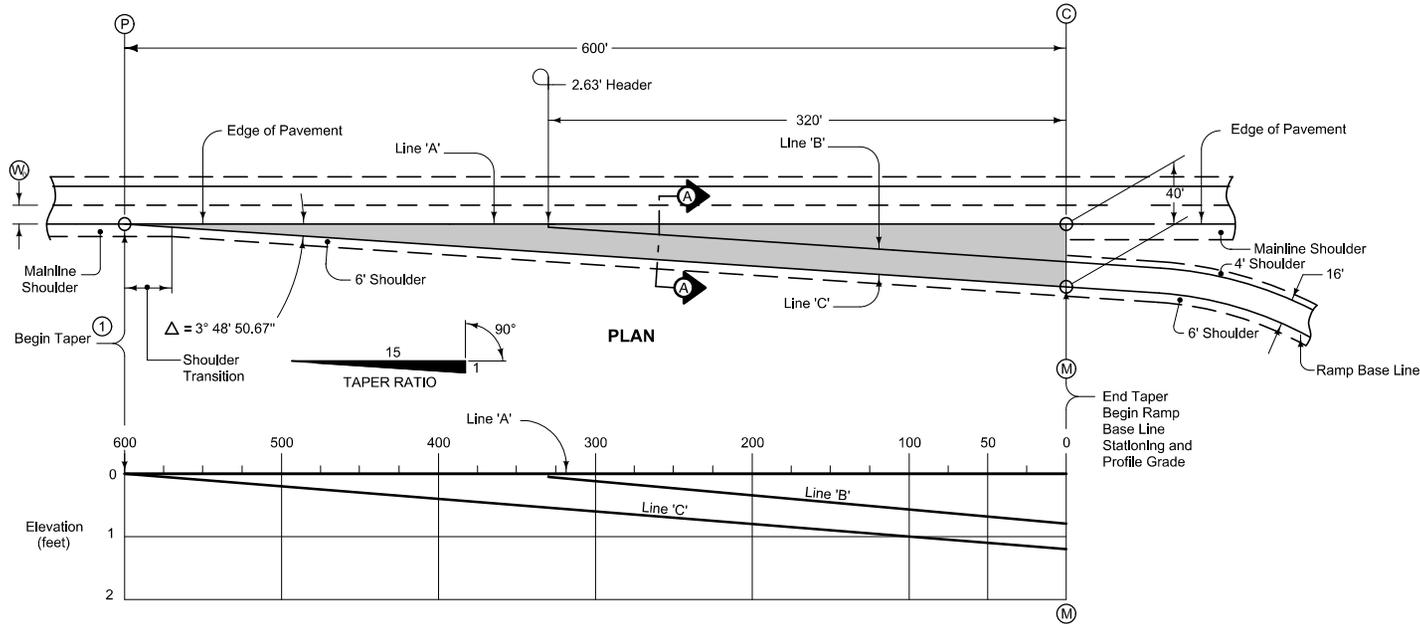


DIAGRAMMATIC PROFILES OF THE PAVEMENT EDGE LINES

TABLE OF OFFSETS AND DROPS FOR RIGHT ROADWAY							
Location of Cross Sections		(A)	(B)	(C)	(D)	(E)	(F)
From Line A To Line B	Offset (Ft.)	*	*	*	*	*	*
	Slope (%)	s	s	s	s	s	(2)
	Drop (Ft.)						
From Line B To Line C	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	2.5	2.0	0.0	-2.0	-2.5	-e
	Drop (Ft.)	0.30	0.24	0.0	-0.24	-0.30	-12(e)
From Line C To Line D	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	2.0	2.0	0.0	-2.0	-2.5	-e
	Drop (Ft.)	0.24	0.24	0.0	-0.24	-0.30	-12(e)
From Line D To Line E	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	-2.0	-2.0	-2.0	-2.0	-2.5	-e
	Drop (Ft.)	-0.24	-0.24	-0.24	-0.24	-0.30	-12(e)
From Line E To Line F	Offset (Ft.)	12	12	12	12	12	12
	Slope (%)	-2.5	-2.5	-2.5	-2.5	-2.5	-e
	Drop (Ft.)	-0.30	-0.30	-0.30	-0.30	-0.30	-12(e)

\* Refer to plan details for shoulder width

	REVISION
	New 04-19-11
<b>STANDARD ROAD PLAN</b>	<b>PV-306</b>
REVISIONS: New.	SHEET 4 of 4
APPROVED BY DESIGN METHODS ENGINEER	
<b>SUPERELEVATION DETAILS</b> <b>EIGHT LANE ROADWAY</b> <b>CLOSED MEDIAN</b>	



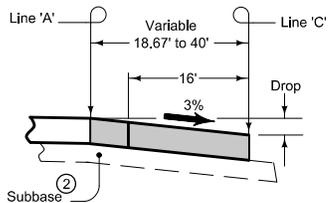
NOTE: The algebraic difference between profile grade for Ramp Base Line at (M) and relative profile grade of Mainline at (C) is 0.2%.

PROFILE

TABLE OF OFFSETS AND DROPS FOR 16' RAMP TAPER

DISTANCE (FL)	600	575	550	525	500	475	450	425	400	375	350	320	300	275	250	225	200	175	150	125	100	75	50	25	0
OFFSET (FL)	0	1.67	3.33	5.00	6.67	8.33	10.00	11.67	13.33	15.00	16.67	18.67	20.00	21.67	23.33	25.00	26.67	28.33	30.00	31.67	33.33	35.00	36.67	38.33	40.00
DROP (Ft.)	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.56	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	1.05	1.10	1.15	1.20

NOTE: The elevations at edge of taper from BEGIN TAPER to POINT 'M' are established by a constant 3% slope across the appropriate taper widths based on the Taper Ratio of 15:1. Drop = (0.03) x (Offset).



SECTION A-A

TABLE OF SHOULDER TRANSITION LENGTHS

W	Shoulder Width beyond Edge of Mainline Pavement		
	8'	10'	12'
12'	NA	60'	90'
14'	30'	60'	NA

NOTE: W is the width of the outside lane to the Edge of Pavement.

Construct ramp exit pavement the same thickness as mainline pavement.

Ramp exit pavement shown by shaded area is 1334 square yards.

For joint details, see PV-101.

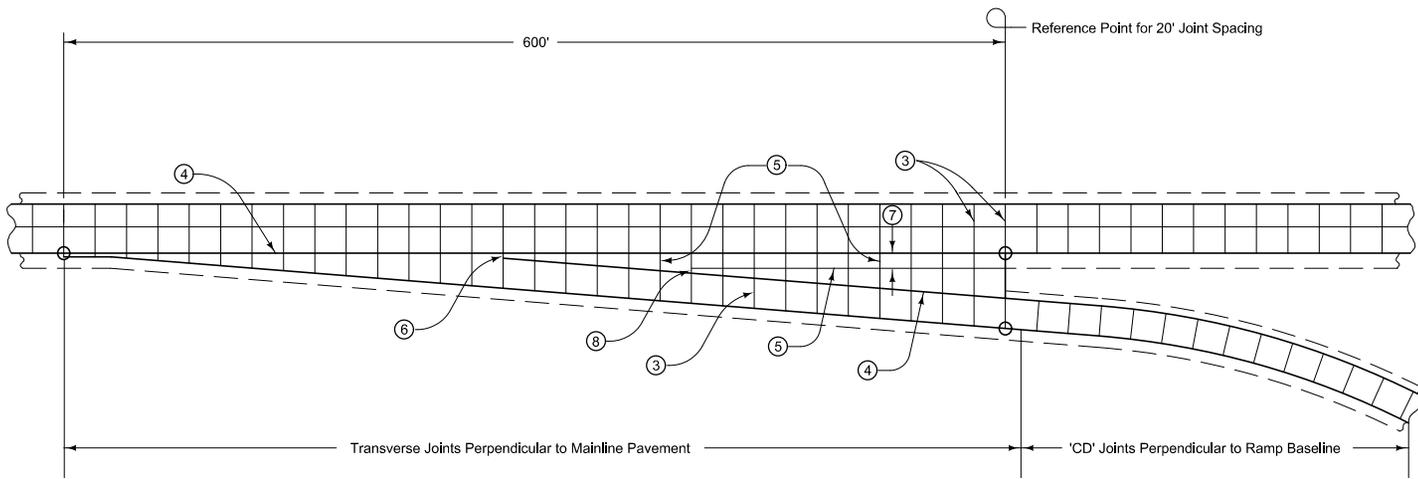
- ① For header construction details at the beginning of taper, see Typical 7101 or Typical 7102.
- ② Construct subbase for ramp exit pavement the same thickness as mainline subbase.

 Iowa Department of Transportation	REVISION
	2   10-18-11
<b>STANDARD ROAD PLAN</b>	<b>PV-410</b>
SHEET 1 of 2	

REVISIONS: Added 'C' Joint and circle notes 7 and 8.

*Deanna Maifield*  
APPROVED BY DESIGN METHODS ENGINEER

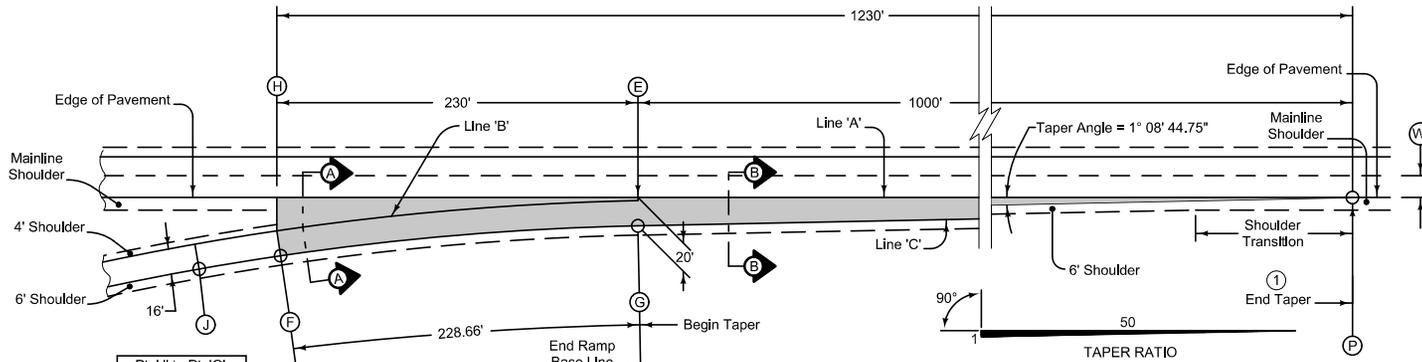
**DECELERATION TAPER  
FOR 16' EXIT RAMP**



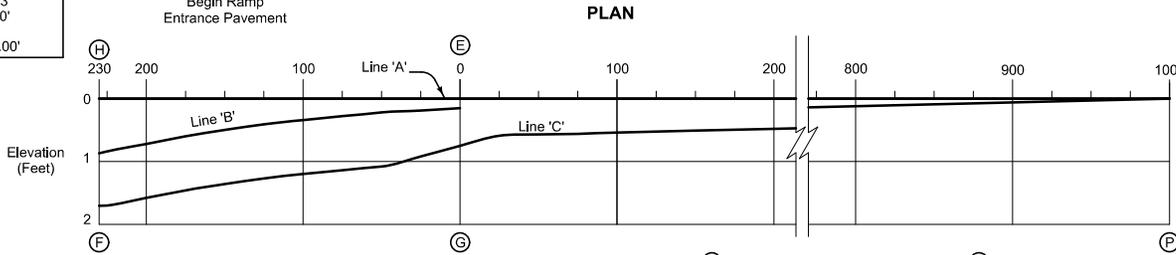
**16' EXIT RAMP**

- ③ 'CD' Joints at 20' spacing.
- ④ 'BT-2' joint for existing pavement or 'KT-2' for new pavement .
- ⑤ 'C' Joint.
- ⑥ 'B' Joint. 2' minimum. 4' maximum.
- ⑦ 10' minimum or equal to mainline shoulder width.
- ⑧ 'B' or 'C' Joint. 2' minimum. 4' maximum.

 Iowa Department of Transportation	REVISION	
	2	10-18-11
<b>STANDARD ROAD PLAN</b>	<b>PV-410</b>	
	SHEET 2 of 2	
<small>REVISIONS: Added 'C' Joint and circle notes 7 and 8.</small>		
 <small>APPROVED BY DESIGN METHODS ENGINEER</small>		
<b>DECELERATION TAPER FOR 16' EXIT RAMP</b>		



Pt. 'J' to Pt. 'G'  
 $\Delta = 8^\circ 01' 17.07''$   
 $T = 140.23'$   
 $L = 280.00'$   
 $E = 4.91'$   
 $R = 2000.00'$



NOTE: The algebraic difference between profile grade for Ramp Base Line at (F) and relative profile grade of Mainline at (H) is 0.54%.

PROFILE

Construct ramp entrance pavement the same thickness as mainline pavement.

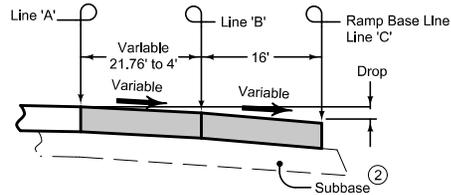
Ramp entrance pavement shown by shaded area is 1793 square yards.

For joint details, see PV-101

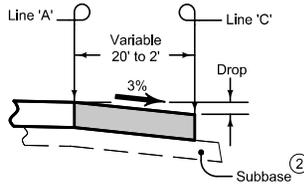
- ① For header construction details at the end of taper, see Typical 7101 or Typical 7102.
- ② Construct subbase for ramp entrance pavement the same thickness as mainline subbase.

TABLE OF OFFSETS AND DROPS FOR 16' RAMP TAPER

Distance From Point (E) Along Line 'A' (Ft.)	230	225	200	175	150	125	100	75	50	25	0	25	50	75	100	200	300	400	500	600	700	800	900	1000
From Line 'A' To Line 'B'	Constant 4.0% Slope											Constant 3.0% Slope												
Offset (Ft.)	21.76	21.10	17.95	15.11	12.59	10.38	8.48	6.90	5.62	4.66	4.0													
Slope (%)	Constant 4.0%											Constant 3.0%												
Drop (Ft.)	0.87	0.84	0.72	0.60	0.50	0.42	0.34	0.28	0.22	0.19	0.15													
From Line 'B' To Line 'C'	Constant 16.0' Offset											Constant 3.0% Slope												
Offset (Ft.)	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	4.58	3.78	19.5	19.0	18.5	18.0	16.0	14.0	12.0	10.0	8.0	6.0	4.0	2.0	0.0
Slope (%)	Constant 16.0'											Constant 3.0%												
Drop (Ft.)	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.73	0.60													
From Line 'A' To Line 'C'	Constant 3.0% Slope											Constant 3.0% Slope												
Offset (Ft.)	1.73	1.70	1.58	1.46	1.36	1.28	1.20	1.14	1.08	0.92	0.75	0.59	0.57	0.56	0.54	0.48	0.42	0.36	0.30	0.24	0.18	0.12	0.06	0.0
Slope (%)	Constant 3.0%											Constant 3.0%												
Drop (Ft.)	228.66	223.66	198.66	173.70	148.77	123.87	99.00	74.15	49.31	24.49	0.00													
Distance From Point (G) Along Line 'C' (Ft.)																								



SECTION A-A



SECTION B-B

TABLE OF SHOULDER TRANSITION LENGTHS

Shoulder Width beyond Edge of Mainline Pavement	Shoulder Width beyond Edge of Mainline Pavement		
	8'	10'	12'
12'	NA	200'	300'
14'	100'	200'	NA

NOTE: W<sub>0</sub> is the width of the outside lane to the Edge of Pavement.

**STANDARD ROAD PLAN**

REVISIONS: Added 'C' Joint and circle notes 8, 9, and 10. Renumbered circle notes.

*Deanna Muffitt*  
APPROVED BY DESIGN METHODS ENGINEER

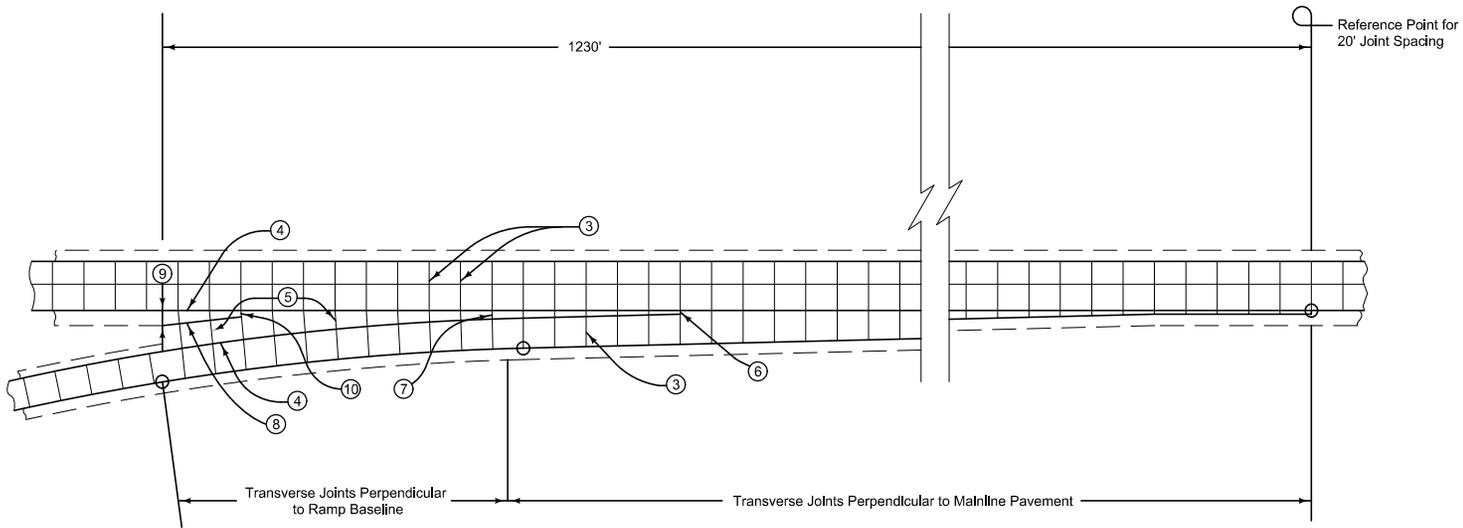
REVISION

2	10-18-11
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**PV-411**

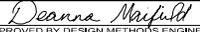
SHEET 1 of 2

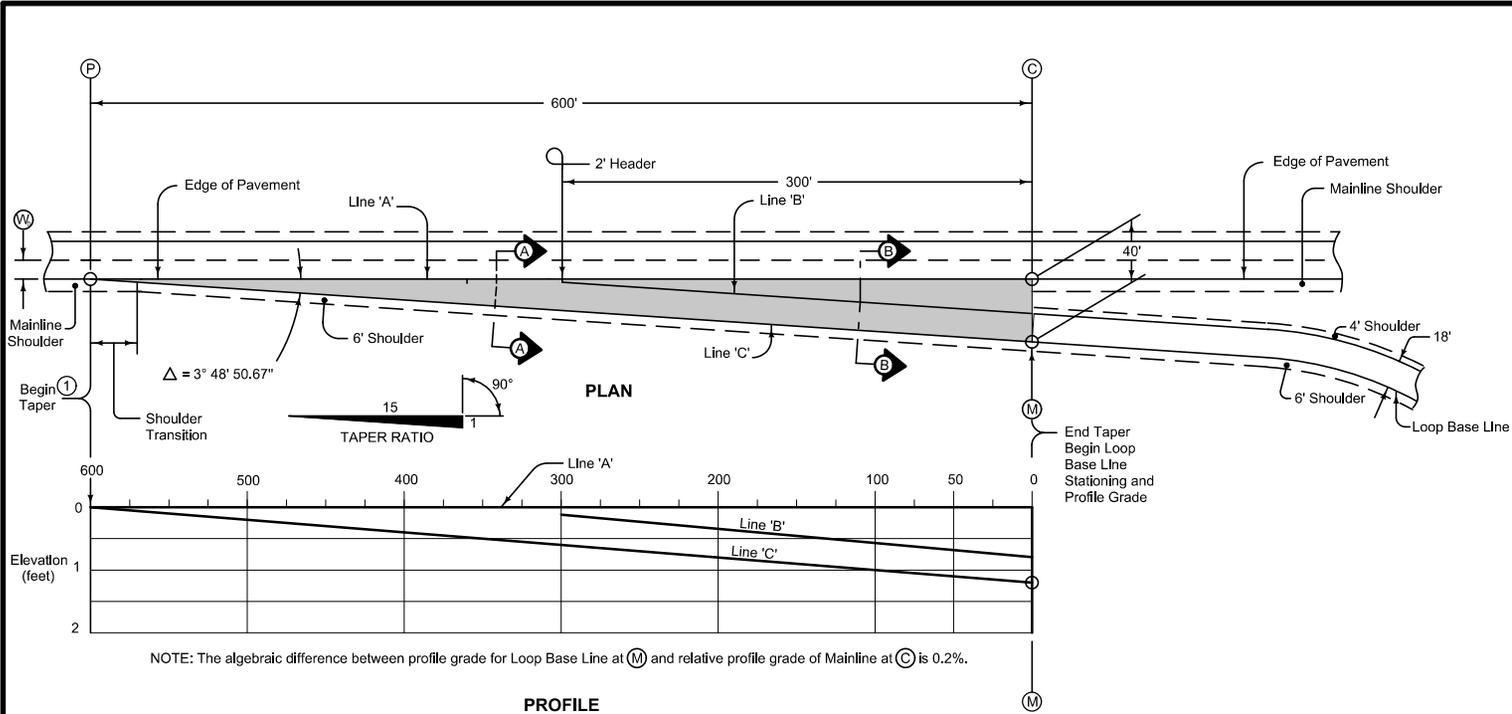
**ACCELERATION TAPER FOR 16' ENTRANCE RAMP**



- ③ 'CD' Joints at 20' spacing.
- ④ 'BT-2' or 'KT-2' Joint.
- ⑤ 'C' Joint.
- ⑥ 'B' Joint. 2' minimum, 4' maximum.
- ⑦ Construct transverse joints on the exit ramp taper perpendicular to the tapered edge where the gore area is greater than 4 feet.
- ⑧ 'C' Joint parallel to ramp baseline.
- ⑨ 10' minimum, or equal to mainline shoulder width.
- ⑩ 'B' or 'C' Joint. 2' minimum, 4' maximum.

**16' ENTRANCE RAMP**

 Iowa Department of Transportation	REVISION	
	2	10-18-11
<b>STANDARD ROAD PLAN</b>	<b>PV-411</b>	
	SHEET 2 of 2	
<small>REVISIONS: Added 'C' Joint and circle notes 8, 9, and 10. Renumbered circle notes.</small>		
 <small>APPROVED BY DESIGN METHODS ENGINEER</small>		
<b>ACCELERATION TAPER FOR 16' ENTRANCE RAMP</b>		



Construct Loop exit pavement the same thickness as mainline pavement.

Loop exit pavement shown by shaded area is 1334 square yards.

For joint details, see PV-101

- ① For header construction details at the beginning of taper, see Typical 7101 or Typical 7102.
- ② Construct subbase for ramp exit pavement the same thickness as mainline subbase.

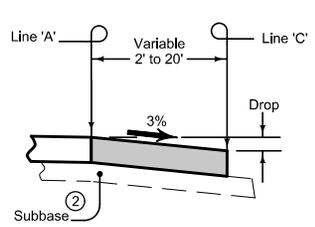
NOTE: The algebraic difference between profile grade for Loop Base Line at (M) and relative profile grade of Mainline at (C) is 0.2%.

PROFILE

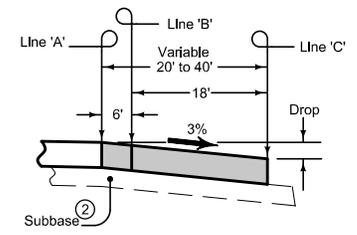
TABLE OF OFFSETS AND DROPS FOR 18' LOOP TAPER

DISTANCE (FL)	600	575	550	525	500	475	450	425	400	375	350	325	300	275	250	225	200	175	150	125	100	75	50	25	0
OFFSET (FL)	0	1.67	3.33	5.00	6.67	8.33	10.00	11.67	13.33	15.00	16.67	18.33	20.00	21.67	23.33	25.00	26.67	28.33	30.00	31.67	33.33	35.00	36.67	38.33	40.00
DROP (FL)	0	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	1.05	1.10	1.15	1.20

NOTE: The elevations at edge of taper from BEGIN TAPER to POINT 'M' are established by a constant 3% slope across the appropriate taper widths based on the Taper Ratio of 15:1, Drop = (0.03) x (Offset).



SECTION A-A



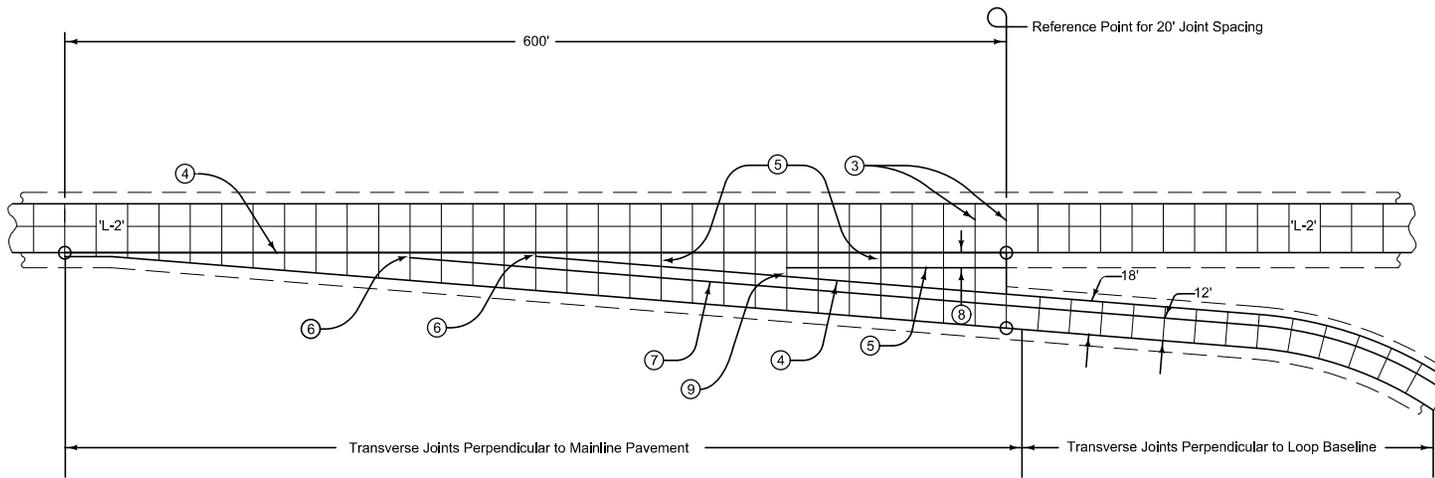
SECTION B-B

TABLE OF SHOULDER TRANSITION LENGTHS

W <sub>s</sub>	Shoulder Width beyond Edge of Mainline Pavement		
	8'	10'	12'
12'	NA	60'	90'
14'	30'	60'	NA

NOTE: W<sub>s</sub> is the width of the outside lane to the Edge of Pavement.

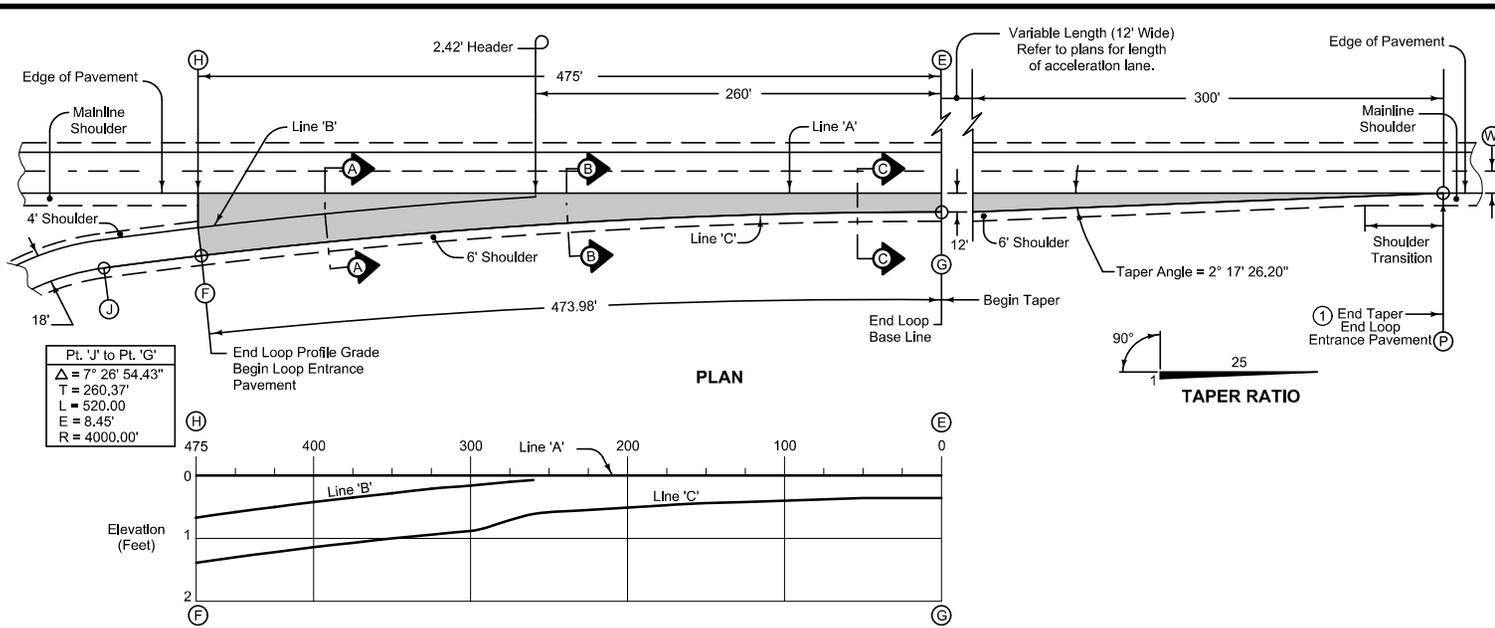
<b>Iowa Department of Transportation</b> <b>STANDARD ROAD PLAN</b>	REVISION
	2   10-18-11
	PV-412
REVISIONS: Added 'C' Joint and circle note 8 and 9.	SHEET 1 of 2
<small>APPROVED BY DESIGN METHODS ENGINEER</small>	
DECELERATION TAPER FOR 18' EXIT LOOP	



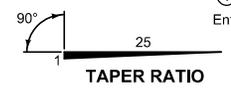
- ③ 'CD' Joints at 20' spacing.
- ④ 'BT-2' or 'KT-2' Joint.
- ⑤ 'C' Joint.
- ⑥ 'B' Joint. 2' minimum, 4' maximum.
- ⑦ 'L-2' Joint.
- ⑧ 10' minimum or equal to mainline shoulder width.
- ⑨ 'B' or 'C' Joint. 2' minimum. 4' maximum.

**18' EXIT LOOP**

 Iowa Department of Transportation	REVISION	
	2	10-18-11
<b>STANDARD ROAD PLAN</b>	<b>PV-412</b>	
	SHEET 2 of 2	
REVISIONS: Added 'C' Joint and circle note 8 and 9.		
<i>Deanna Macfild</i> APPROVED BY DESIGN METHODS ENGINEER		
<b>DECCELERATION TAPER FOR 18' EXIT LOOP</b>		



Pt. 'J' to Pt. 'G'  
 $\Delta = 7^\circ 26' 54.43''$   
 $T = 260.37'$   
 $L = 520.00'$   
 $E = 8.45'$   
 $R = 4000.00'$



- Construct loop entrance pavement the same thickness as mainline pavement.
- Loop entrance pavement shown by shaded area is 1329 square yards.
- For joint details, see PV-101.
- ① For header construction details at the end of taper, see Typical 7101 or Typical 7102.
- ② Construct subbase for loop entrance pavement the same thickness as mainline subbase.

NOTE: The algebraic difference between profile grade for Loop Base Line at (F) and relative profile grade of Mainline at (H) is 0.36%.

**PROFILE**

TABLE OF OFFSETS AND DROPS FOR 18' LOOP TAPER																					
Distance From Point (E) Along Line 'A' (FL)	475	450	425	400	375	350	325	300	275	260	225	200	175	150	125	100	75	50	25	0	
From Line 'A' To Line 'B'	Offset (Ft.)	22.18	19.28	16.54	13.96	11.54	9.27	7.17	5.22	3.42	2.42										
	Slope (%)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00										
	Drop (Ft.)	0.67	0.58	0.50	0.42	0.35	0.28	0.22	0.16	0.10	0.07										
From Line 'B' To Line 'C'	Offset (Ft.)	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0											
	Slope (%)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	3.38	3.00										
	Drop (Ft.)	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.61	0.54										
From Line 'A' To Line 'C'	Offset (Ft.)										18.33	17.00	15.83	14.81	13.95	13.25	12.70	12.31	12.08	12.00	
	Slope (%)										3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	
	Drop (Ft.)	1.39	1.30	1.22	1.14	1.07	1.00	0.94	0.88	0.71	0.61	0.55	0.51	0.47	0.44	0.42	0.40	0.38	0.37	0.36	0.36
Distance From Point (G) Along Line 'C' (Ft.)	473.98	448.93	423.89	398.87	373.86	348.87	323.90	298.93	273.98	260.18	225.12	200.08	175.06	150.03	125.02	100.01	75.00	50.00	25.00	0.00	

NOTE: From (G) to (P) cross-slope between Line 'A' and Line 'C' is a constant 3%.

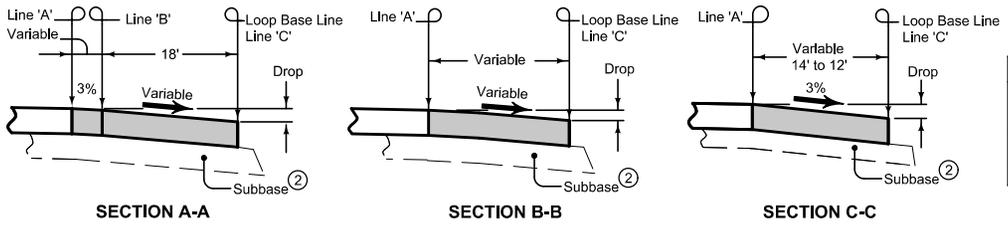


TABLE OF SHOULDER TRANSITION LENGTHS			
W	Shoulder Width beyond Edge of Mainline Pavement		
	8'	10'	12'
12'	NA	100'	150'
14'	50'	100'	NA

NOTE: W<sub>i</sub> is the width of the outside lane to the Edge of Pavement.

**STANDARD ROAD PLAN**

REVISIONS: Added 'C' Joint and circle notes 9, 10, and 11.

*Deanna Macfild*  
APPROVED BY DESIGN METHODS ENGINEER

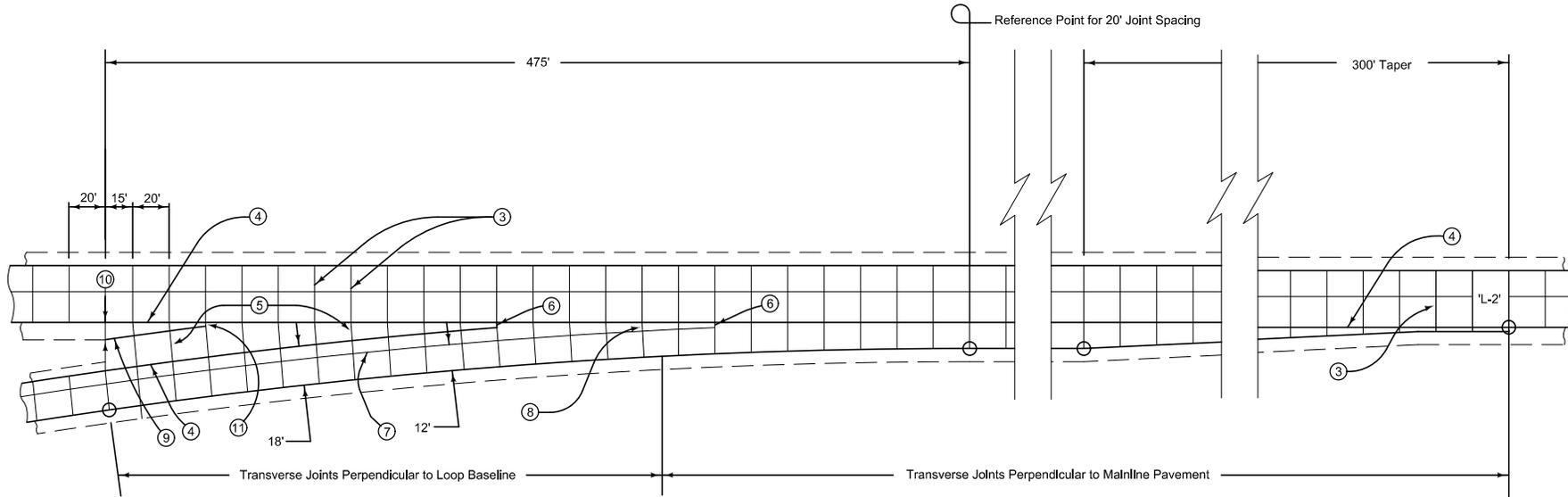
**ACCELERATION TAPER FOR 18' ENTRANCE LOOP**

REVISION

2	10-18-11
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**PV-414**

SHEET 1 of 2



**18' ENTRANCE LOOP**

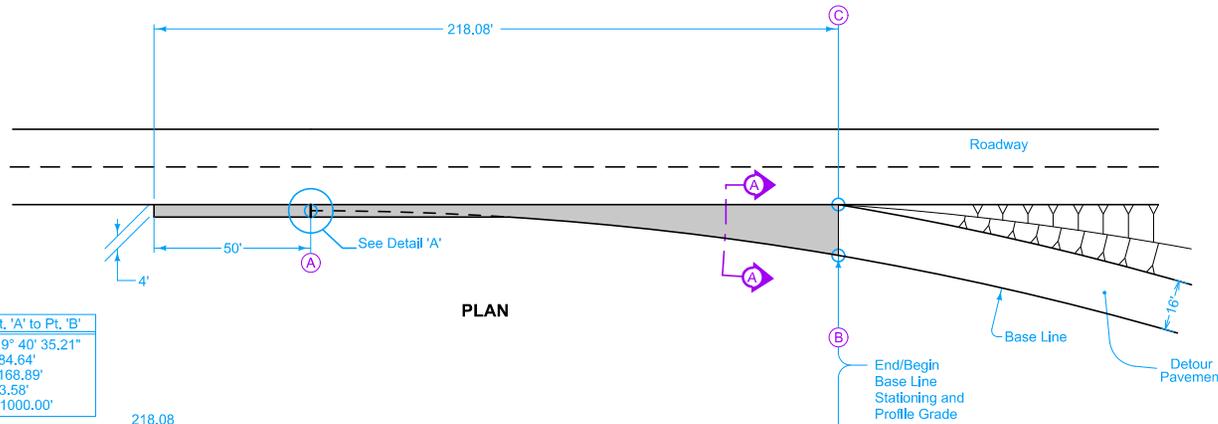
- ③ 'CD' Joints at 20' spacing.
- ④ 'BT-2' or 'KT-2' Joint.
- ⑤ 'C' Joint.
- ⑥ 'B' Joint. 2' minimum, 4' maximum.
- ⑦ 'L-2' Joint.
- ⑧ Construct transverse joints on the exit ramp taper perpendicular to the ramp baseline where the gore area is 4 feet or greater.
- ⑨ 'C' Joint parallel to loop baseline.
- ⑩ 10' minimum or equal to mainline shoulder width.
- ⑪ 'B' or 'C' Joint. 2' minimum. 4' maximum.

 <b>Iowa Department of Transportation</b>	REVISION	
	2	10-18-11
<b>STANDARD ROAD PLAN</b>	<b>PV-414</b>	
REVISIONS: Added 'C' Joint and circle notes 9, 10, and 11.		
 <small>APPROVED BY DESIGN METHODS ENGINEER</small>		
<b>ACCELERATION TAPER FOR 18' ENTRANCE LOOP</b>		

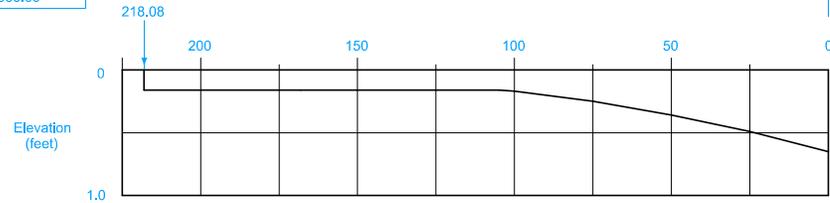
Construct detour connection pavement and subbase the same thickness as detour pavement and subbase.

Detour connection pavement shown by shaded area is 147.89 square yards.

For joint details, see PV-101



Pt. 'A' to Pt. 'B'	
$\Delta = 9^\circ 40' 35.21''$	
$T = 84.64'$	
$L = 168.89'$	
$E = 3.58'$	
$R = 1000.00'$	

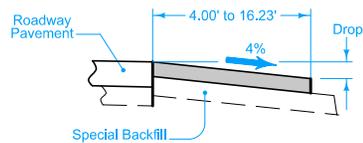


NOTE: The algebraic difference between profile grade for Ramp Base Line at (B) and relative profile grade of Mainline at (C) is 0.63%.

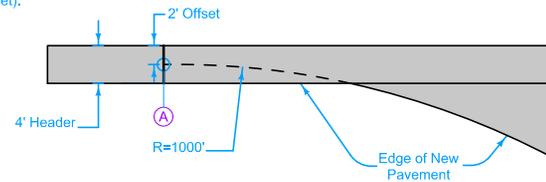
**PROFILE**

TABLE OF OFFSETS AND DROPS FOR DETOUR PAVEMENT											
DISTANCE (Ft.)	218.08	200	175	150	125	104.87	100	75	50	25	0
OFFSET (Ft.)	4.00	4.00	4.00	4.00	4.00	4.00	4.32	6.34	9.00	12.29	16.23
DROP (Ft.)	0.16	0.16	0.16	0.16	0.16	0.16	0.17	0.25	0.36	0.49	0.65

NOTE: The elevations are established by a constant 4% slope across the appropriate detour widths based on a radius of 1000'. Drop = (0.04) x (Offset).



**SECTION A-A**



**DETAIL 'A'**

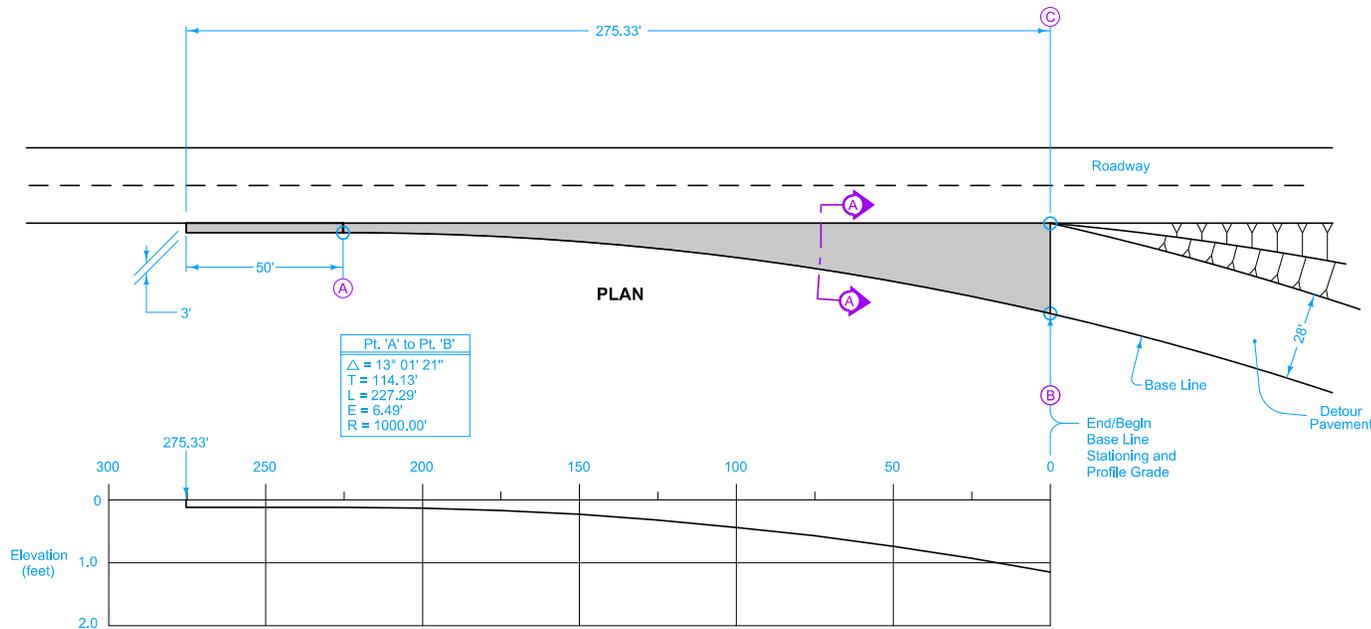
Possible Contract Items:  
Detour Pavement  
Special Backfill

<p style="font-weight: bold; font-size: 1.2em;">STANDARD ROAD PLAN</p>	REVISION		
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">1</td> <td style="width: 50%; text-align: center;">10-21-14</td> </tr> </table>	1	10-21-14
	1	10-21-14	
PV-418			
SHEET 1 of 1			
REVISIONS: Changed "ramp entrance" to "detour connection" and "mainline" to "detour". Removed circle notes. Added 50' header and Detail 'A'.			
APPROVED BY DESIGN METHODS ENGINEER			
ONE-LANE DETOUR CONNECTION			

Construct detour connection pavement and subbase the same thickness as detour pavement and subbase.

Detour connection pavement shown by shaded area is 305.30 square yards.

For joint details, see [PV-101](#)

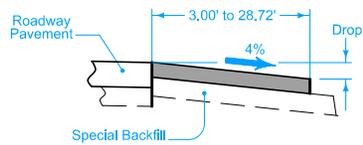


NOTE: The algebraic difference between profile grade for Ramp Base Line at (B) and relative profile grade of Mainline at (C) is 0.88%.

**PROFILE**

TABLE OF OFFSETS AND DROPS FOR DETOUR PAVEMENT													
DISTANCE (FL)	275.33	275	250	225	200	175	150	125	100	75	50	25	0
OFFSET (FL)	3.00	3.00	3.00	3.00	3.32	4.27	5.84	8.05	10.89	14.36	18.49	23.27	28.72
DROP (FL)	0.12	0.12	0.12	0.12	0.13	0.17	0.23	0.32	0.44	0.57	0.74	0.93	1.15

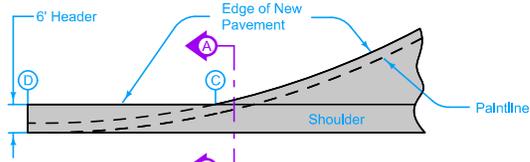
NOTE: The elevations are established by a constant 4% slope across the appropriate detour widths based on a radius of 1000'. Drop = (0.04) x (Offset).



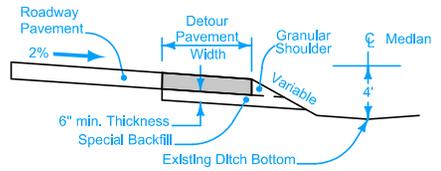
**SECTION A-A**

Possible Contract Items:  
 Detour Pavement  
 Special Backfill

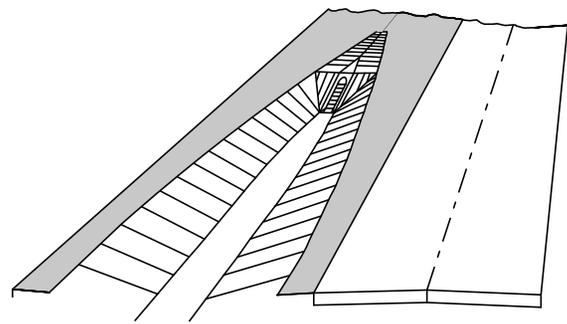
 <b>STANDARD ROAD PLAN</b>	REVISION
	1   10-21-14
	PV-428
	SHEET 1 of 1
REVISIONS: Changed "ramp entrance" to "detour connection" and "mainline" to "detour". Removed circle notes.	
 APPROVED BY DESIGN METHODS ENGINEER	
TWO-LANE DETOUR CONNECTION	



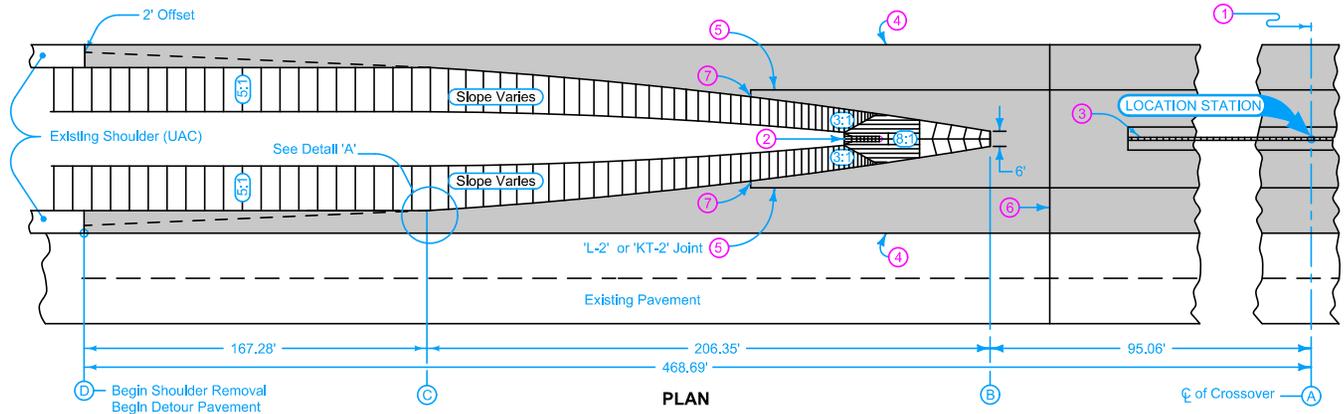
**DETAIL 'A'**



**SECTION A-A**



**PERSPECTIVE VIEW  
DITCH SLOPE AND BEVELED PIPE**



**PLAN**

Detour Pavement options: 9" PCC or 12" HMA  
For joint details, see PV-101.

- ① Median crossover is symmetrical about centerline.
- ② Beveled pipe and guard. See DR-212.
- ③ Slotted drain for median crossover. See DR-502.
- ④ 'KT-2' or 'L-2' joint if mainline pavement is new construction. Bend bars out. 'BT-3' joint if mainline pavement is existing. 'B' joint if Detour Pavement is HMA.
- ⑤ For PCC Detour Pavement, 'KT-2' or 'L-2' spaced at one-quarter median width.
- ⑥ For PCC Detour Pavement, match existing roadway joints. 'CD' joints are required.
- ⑦ For PCC Detour Pavement, 2 foot 'C' Joint.

DESIGN QUANTITY TABLE		
Detour Pavement Sq. Yds.	Special Backfill Tons	Granular Shoulder Tons
2695	1265	275



Possible Contract Items:  
Granular Shoulders, Type A  
Detour Pavement  
Embankment In Place  
Excavation, Class 10, Roadway and Borrow  
Excavation, Class 13, Roadway and Borrow  
Removal of Pavement  
Special Backfill

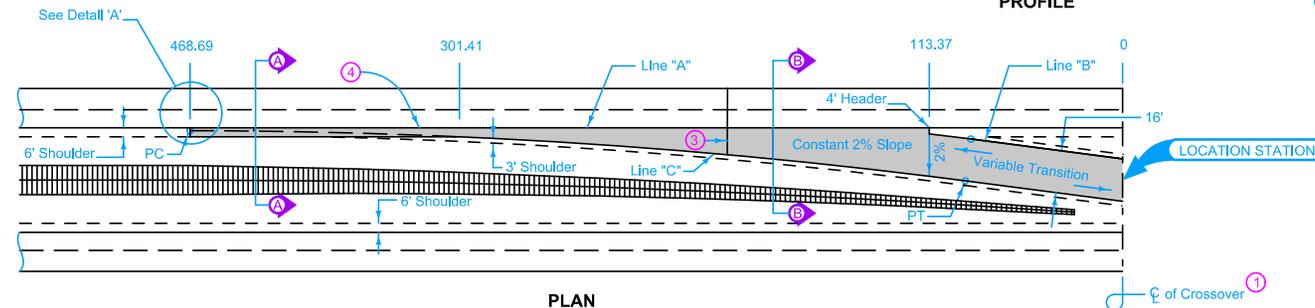
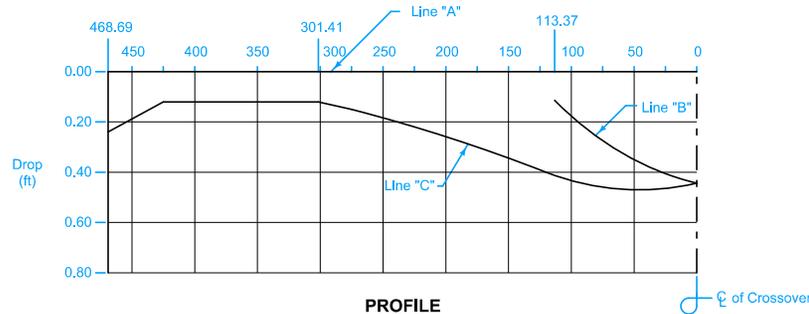
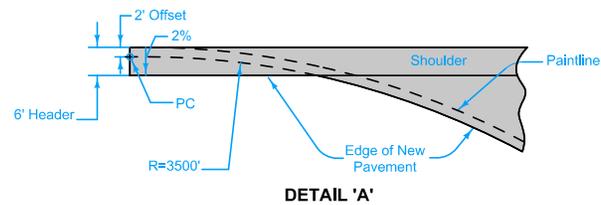
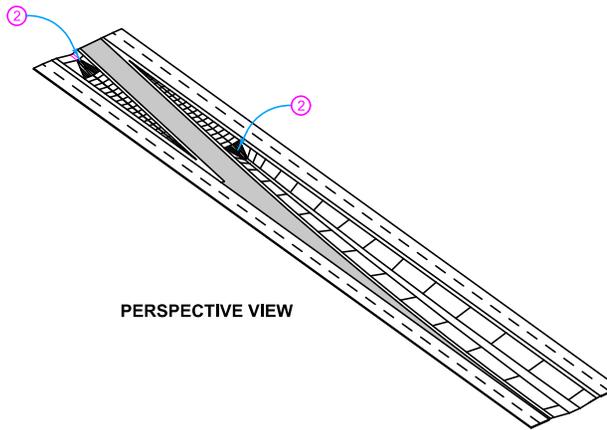
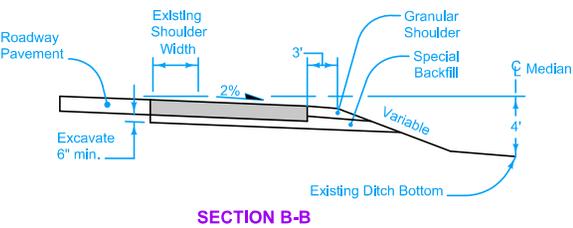
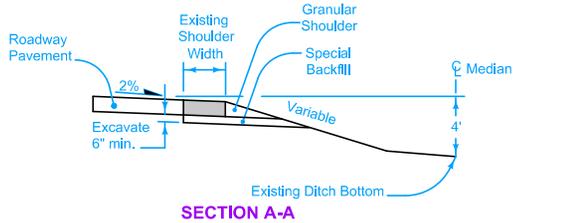
Possible Tabulation:  
112-8

<b>IOWA DOT</b> <b>STANDARD ROAD PLAN</b>	REVISION 5   04-21-15
	<b>PV-500</b>
	SHEET 1 of 1

REVISIONS: Updated references to renamed standards.  
*Brian Smith*  
APPROVED BY DESIGN METHODS ENGINEER

**MEDIAN CROSSOVER  
(50' MEDIAN)**

TABLE OF OFFSETS AND DROPS (PAVED SHOULDERS)																							
Distance from Location Station (Feet)	468.69	450	425	400	375	350	325	301.41	300	275	250	225	200	175	150	125	100	95.06	75.0	50.0	25.00	0	
Offset from inside edge of Pavement (Feet)	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.07	7.36	8.84	10.49	12.33	14.34	16.54	18.92	21.47	22.00	25.00	25.00	25.00	25.00	25.00
Cross-Slope from inside edge of Pavement	4.00%	3.33%	2.44%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Drop from inside edge of Pavement (Feet)	0.24	.20	0.15	0.12	0.12	0.12	0.12	0.12	0.13	.15	0.18	0.21	0.25	0.29	0.33	0.38	0.43	0.44	0.50	0.50	0.50	0.50	0.50
POINT LOCATION	(D)							(C)											(B)			(A)	



Distance (Feet)	468.69	450	400	350	301.41	300	275	250	225	200	175	150	125	113.37	100	75	50	25	0
Offset A to C (Feet)	6.00	6.00	6.00	6.00	6.00	6.07	7.36	8.84	10.49	12.33	14.34	16.54	18.92	20.08	21.47	24.21	27.13	30.08	33.06
Drop A to C (Feet)	0.24	0.20	0.12	0.12	0.12	0.13	0.15	0.18	0.21	0.25	0.29	0.33	0.38	0.40	0.43	0.46	0.47	0.46	0.44
Drop A to B (Feet)														0.08	0.18	0.27	0.35	0.41	0.44

Detour Pavement options: 9" PCC or 12" HMA  
For joint details, see PV-101.

- ① Median crossover is symmetrical about centerline.
- ② Median pipe for crossover. See Detail 500-19.
- ③ For PCC Detour Pavement, match existing roadway joints. 'CD' joints are required.
- ④ 'KT-2' or 'L-2' joint if mainline pavement is new construction. Bend bars out.  
'BT-3' joint if mainline pavement is existing.  
'B' joint if Detour Pavement is HMA.

Detour Pavement Sq. Yds.	Special Backfill Tons	Granular Shoulder Tons
1140	555	*200

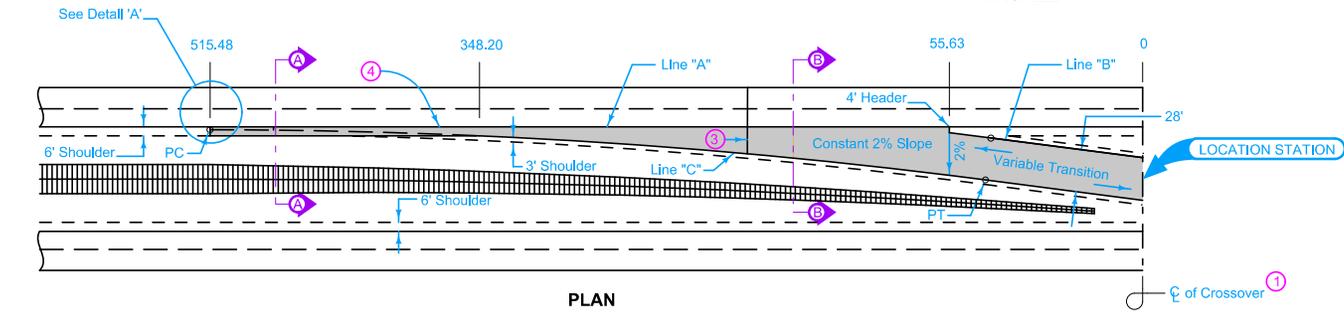
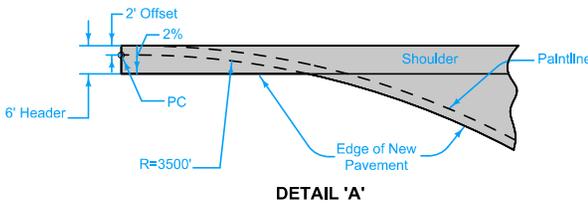
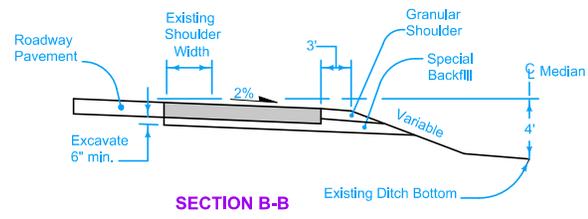
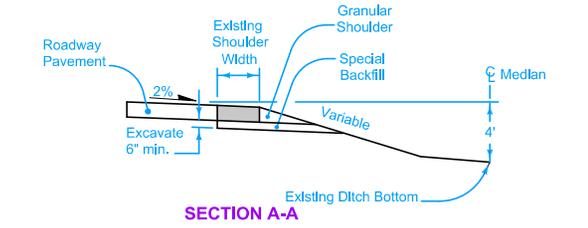
\*Quantity based on 8" shoulder depth.



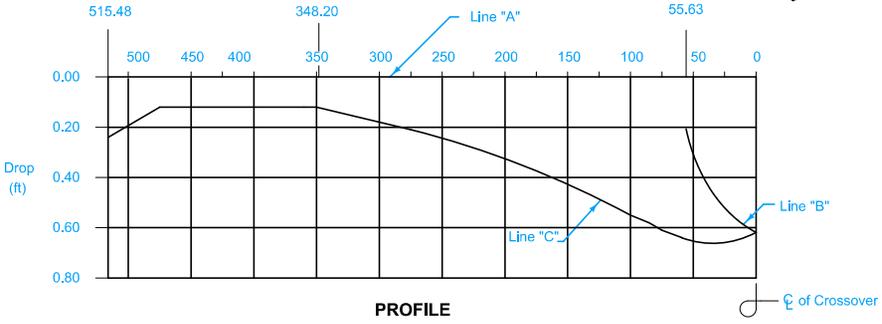
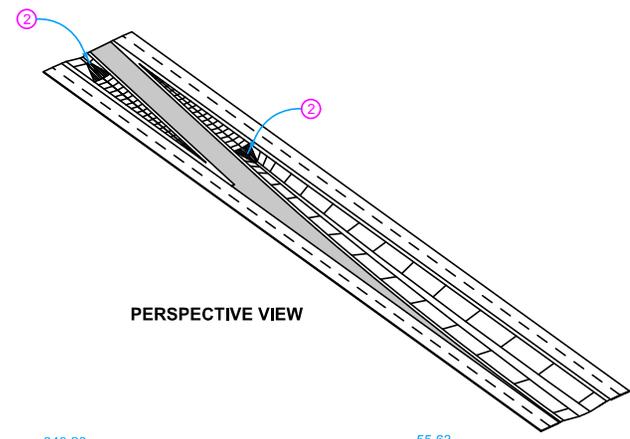
Possible Contract Items:  
Detour Pavement  
Embankment In Place  
Excavation, Class 10, Roadway and Borrow  
Excavation, Class 13, Roadway and Borrow  
Granular Shoulders, Type A  
Removal of Pavement  
Special Backfill

Possible Tabulation:  
112-8

	REVISION
	3 10-15-13
<b>STANDARD ROAD PLAN</b>	<b>PV-501</b>
REVISIONS: Modified note 4.	SHEET 1 of 1
 APPROVED BY DESIGN METHODS ENGINEER	
<b>MEDIAN CROSSOVER</b> <b>(50' MEDIAN)</b> <b>16' WIDE 1 LANE</b>	



Distance (Feet)	515.48	500	450	400	350	348.20	325	300	275	250	225	200	175	150	125	100	75	55.63	50	25	0	
Offset A to C (Feet)	6.00	6.00	6.00	6.00	6.00	6.00	7.19	8.64	10.27	12.08	14.07	16.25	18.80	21.13	23.85	26.75	29.81	32.21	32.91	36.01	39.11	
Drop A to C (Feet)	0.24	0.21	0.12	0.12	0.12	0.12	0.14	0.17	0.21	0.24	0.28	0.33	0.37	0.42	0.48	0.54	0.60	0.64	0.65	0.66	0.62	
Drop A to B (Feet)																			.08	0.31	0.52	0.62



- Detour Pavement options: 9" PCC or 12" HMA  
For joint details, see PV-101.
- Median crossover is symmetrical about centerline.
  - Median pipe for crossover. See Detail 500-19.
  - For PCC Detour Pavement, match existing roadway joints. 'CD' joints are required.
  - 'KT-2' or 'L-2' joint if mainline pavement is new construction. Bend bars out.  
'BT-3' joint if mainline pavement is existing.  
'B' joint if Detour Pavement is HMA.

Detour Pavement Sq. Yds.	Special Backfill Tons	Granular Shoulder Tons
1685	725	*195

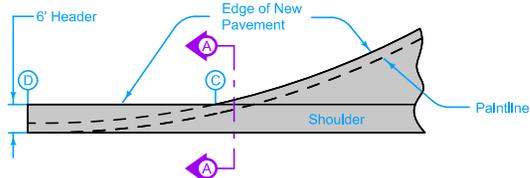
\*Quantity based on 8" shoulder depth.



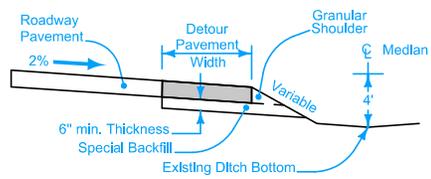
- Possible Contract Items:  
 Detour Pavement  
 Embankment In Place  
 Excavation, Class 10, Roadway and Borrow  
 Excavation, Class 13, Roadway and Borrow  
 Granular Shoulders, Type A  
 Removal of Pavement  
 Special Backfill

Possible Tabulation:  
112-3

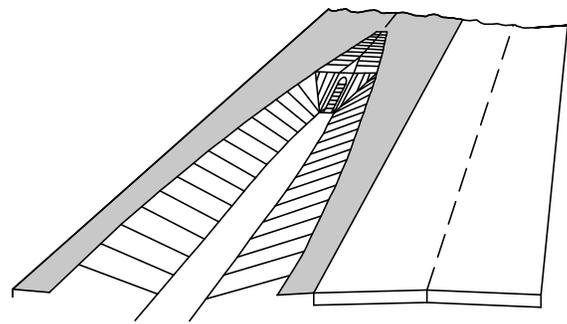
 Iowa Department of Transportation	REVISION
	3 10-15-13
<b>STANDARD ROAD PLAN</b>	<b>PV-502</b>
REVISIONS: Modified note 4.	SHEET 1 of 1
 APPROVED BY DESIGN METHODS ENGINEER	
<b>MEDIAN CROSSOVER</b> <b>(50' MEDIAN)</b> <b>28' WIDE 2 LANE</b>	



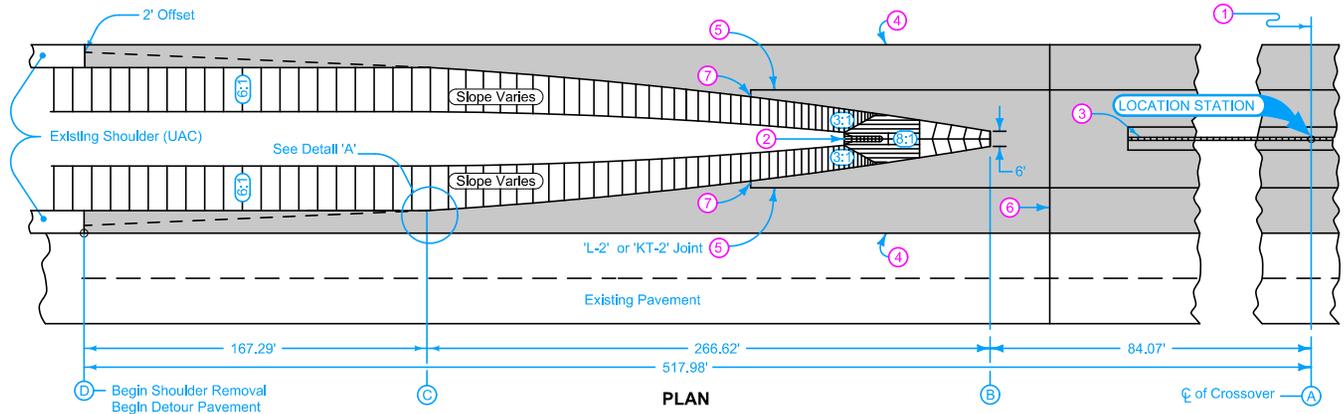
DETAIL 'A'



SECTION A-A



PERSPECTIVE VIEW  
DITCH SLOPE AND BEVELED PIPE



PLAN

Detour Pavement options: 9" PCC or 12" HMA  
For joint details, see PV-101.

- ① Median crossover is symmetrical about centerline.
- ② Beveled pipe and guard. See DR-212.
- ③ Slotted drain for median crossover. See DR-502.
- ④ 'KT-2' or 'L-2' joint if mainline pavement is new construction. Bend bars out. 'BT-3' joint if mainline pavement is existing. 'B' joint if Detour Pavement is HMA.
- ⑤ For PCC Detour Pavement, 'L-2' or 'KT-2' spaced at one-quarter median width.
- ⑥ For PCC Detour Pavement, match existing roadway joints. 'CD' joints are required.
- ⑦ For PCC Detour Pavement, 2 foot 'C' Joint.

DESIGN QUANTITY TABLE		
Detour Pavement Sq. Yds.	Special Backfill Tons	Granular Shoulder Tons
3515	1700	325



Possible Contract Items:  
 Detour Pavement  
 Embankment In Place  
 Excavation, Class 10, Roadway and Borrow  
 Excavation, Class 13, Roadway and Borrow  
 Removal of Pavement  
 Special Backfill  
 Granular Shoulders, Type A

Possible Tabulation:  
 112-8

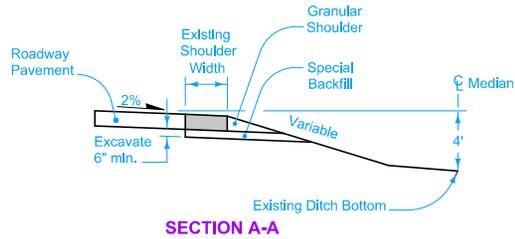
TABLE OF OFFSETS AND DROPS (PAVED SHOULDERS)																				
Distance from Location Station (Feet)	517.98	500	475	450	400	350.69	350	325	300	275	250	225	200	175	150	125	100	84.07	75.0	0
Offset from inside edge of Pavement (Feet)	6.00	6.00	6.00	6.00	6.00	6.03	7.32	8.79	10.44	12.27	14.28	16.47	18.84	21.40	24.13	27.05	29.00	32.00	32.00	
Cross-Slope from inside edge of Pavement	4.00%	3.36%	2.47%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Drop from inside edge of Pavement (Feet)	0.24	0.20	0.15	0.12	0.12	0.12	0.15	0.18	0.21	0.25	0.29	0.33	0.38	0.43	0.48	0.54	0.58	0.64	0.64	
POINT LOCATION	(D)					(C)												(B)		(A)

REVISION	5	04-21-15
PV-503		
SHEET 1 of 1		

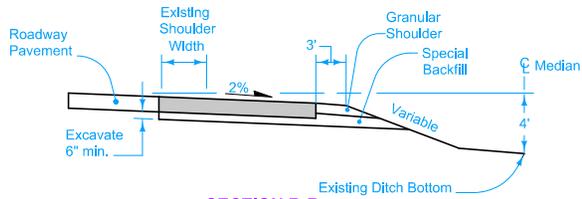
REVISIONS: Updated references to renamed standards.

APPROVED BY DESIGN METHODS ENGINEER

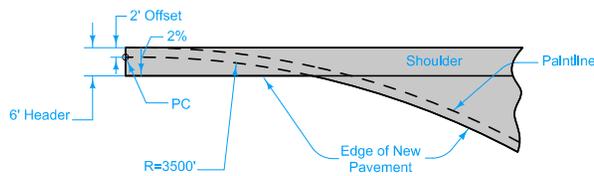
MEDIAN CROSSOVER  
(64' MEDIAN)



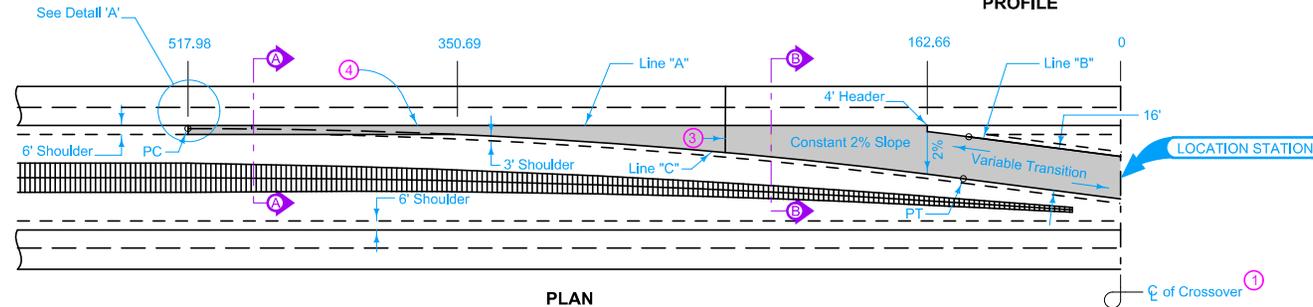
SECTION A-A



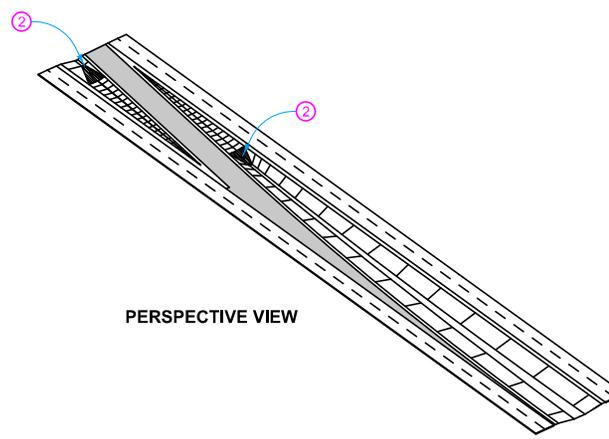
SECTION B-B



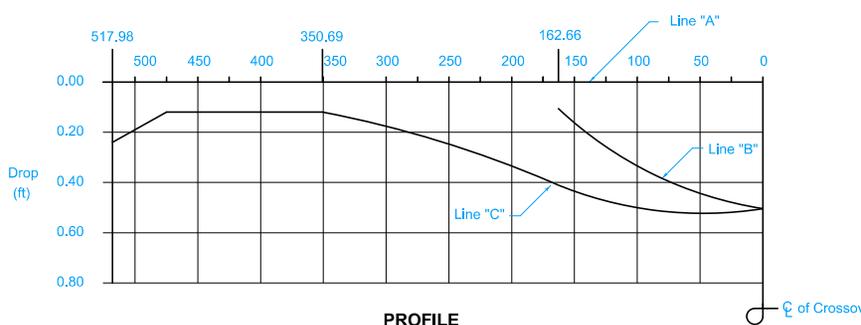
DETAIL 'A'



PLAN



PERSPECTIVE VIEW



PROFILE

Distance (Feet)	517.98	500	450	400	350.69	350	325	300	275	250	225	200	175	162.66	150	125	100	75	50	25	0
Offset A to C (Feet)	6.00	6.00	6.00	6.00	6.00	6.03	7.32	8.79	10.44	12.79	14.28	16.47	18.84	20.08	21.40	24.13	27.05	30.15	33.42	36.75	40.07
Drop A to C (Feet)	0.24	0.20	0.12	0.12	0.12	0.12	0.15	0.18	0.21	0.26	0.29	0.33	0.38	0.40	0.43	0.47	0.50	0.52	0.52	0.52	0.50
Drop A to B (Feet)														0.08	0.17	0.26	0.33	0.40	0.44	0.48	0.50

- Detour Pavement options: 9" PCC or 12" HMA  
 For joint details, see PV-101.
- Median crossover is symmetrical about centerline.
  - Median pipe for crossover. See Detail 500-19.
  - For PCC Detour Pavement, match existing roadway joints. 'CD' joints are required.
  - 'KT-2' or 'L-2' joint if mainline pavement is new construction, Bend bars out. 'BT-3' joint if mainline pavement is existing. 'B' joint if Detour Pavement is HMA.

Detour Pavement Sq. Yds.	Special Backfill Tons	Granular Shoulder Tons
1320	645	*235

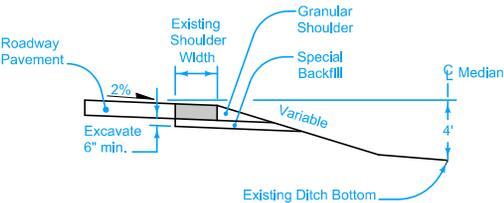
\*Quantity based on 8" shoulder depth.



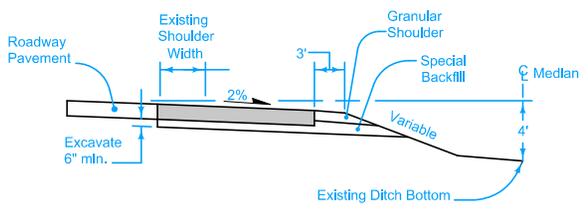
- Possible Contract Items:  
 Detour Pavement  
 Embankment In Place  
 Excavation, Class 10, Roadway and Borrow  
 Excavation, Class 13, Roadway and Borrow  
 Granular Shoulders, Type A  
 Removal of Pavement  
 Special Backfill

Possible Tabulation:  
 112-8

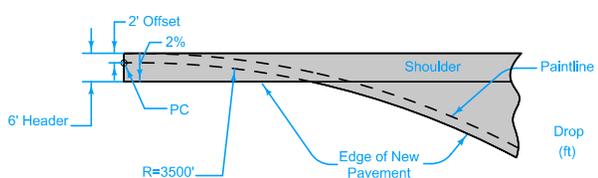
 <b>STANDARD ROAD PLAN</b>	REVISION 3 10-15-13
	<b>PV-504</b> SHEET 1 of 1
REVISIONS: Modified note 4.	
APPROVED BY DESIGN METHODS ENGINEER 	
<b>MEDIAN CROSSOVER</b> <b>(64' MEDIAN)</b> <b>16' WIDE 1 LANE</b>	



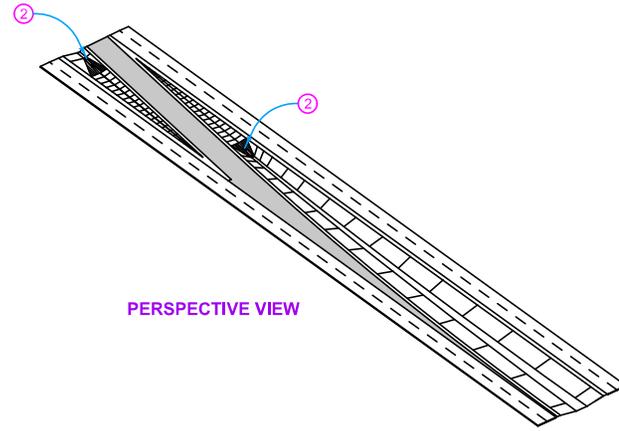
SECTION A-A



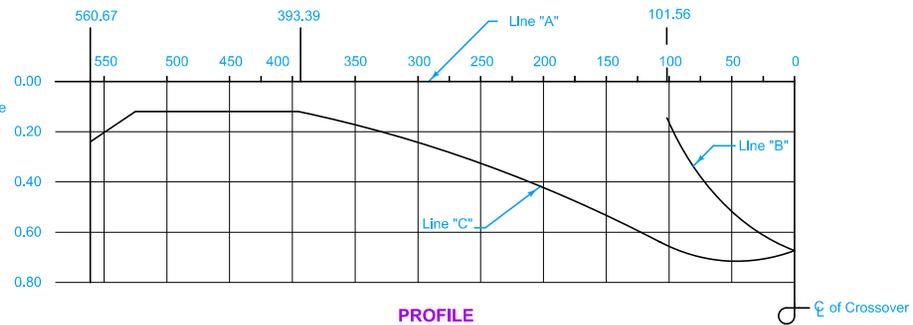
SECTION B-B



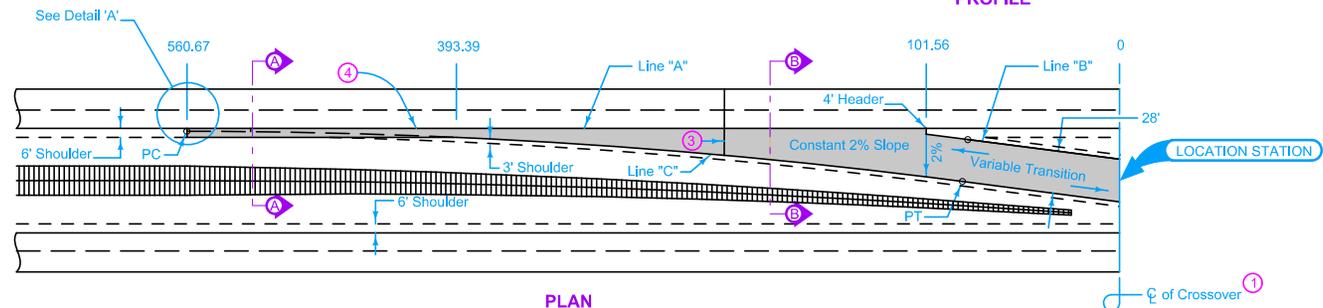
DETAIL 'A'



PERSPECTIVE VIEW



PROFILE



PLAN

- Detour Pavement options: 9" PCC or 12" HMA  
 For joint details, see PV-101.
- ① Median crossover is symmetrical about centerline.
  - ② Median pipe for crossover. See Detail 500-19.
  - ③ For PCC Detour Pavement, match existing roadway joints. 'CD' joints are required.
  - ④ 'KT-2' or 'L-2' joint if mainline pavement is new construction. Bend bars out. 'BT-3' joint if mainline pavement is existing. 'B' joint if Detour Pavement is HMA.

DESIGN QUANTITY TABLE		
Detour Pavement Sq. Yds.	Special Backfill Tons	Granular Shoulder Tons
1970	845	*225

\*Quantity based on 8" shoulder depth.



- Possible Contract Items:  
 Detour Pavement  
 Embankment In Place  
 Excavation, Class 10, Roadway and Borrow  
 Excavation, Class 13, Roadway and Borrow  
 Granular Shoulders, Type A  
 Removal of Pavement  
 Special Backfill

Possible Tabulation:  
 112-8

TABLE OF OFFSETS AND DROPS																							
Distance (Feet)	560.67	550	500	450	400	393.39	375	350	325	300	275	250	225	200	175	150	125	101.56	100	75	50	25	0
Offset A to C (Feet)	6.00	6.00	6.00	6.00	6.00	6.00	6.93	8.35	9.94	11.72	13.68	15.81	18.13	20.63	23.31	26.18	29.22	32.24	32.45	35.84	39.27	42.70	46.13
Drop A to C (Feet)	0.24	0.22	0.12	0.12	0.12	0.12	0.14	0.17	0.20	0.23	0.27	0.32	0.36	0.41	0.47	0.52	0.58	0.64	0.66	0.70	0.71	0.72	0.68
Drop A to B (Feet)																		0.08	0.16	0.38	0.52	0.61	0.68

**Iowa Department of Transportation**

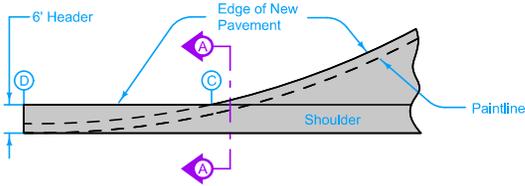
**STANDARD ROAD PLAN**

REVISIONS: Modified note 4.

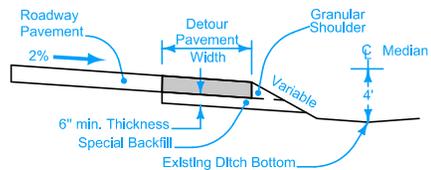
*Brian Smith*  
APPROVED BY DESIGN METHODS ENGINEER

REVISION	3	10-15-13
<b>PV-505</b>		SHEET 1 of 1

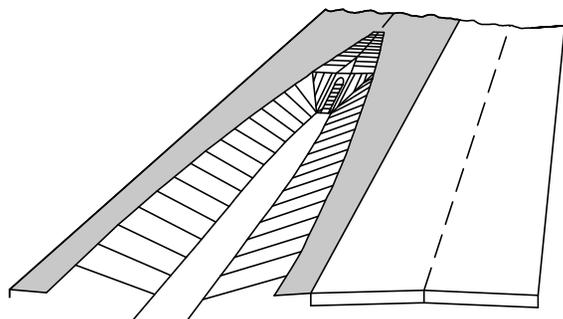
**MEDIAN CROSSOVER**  
**(64' MEDIAN)**  
**28' WIDE 2 LANE**



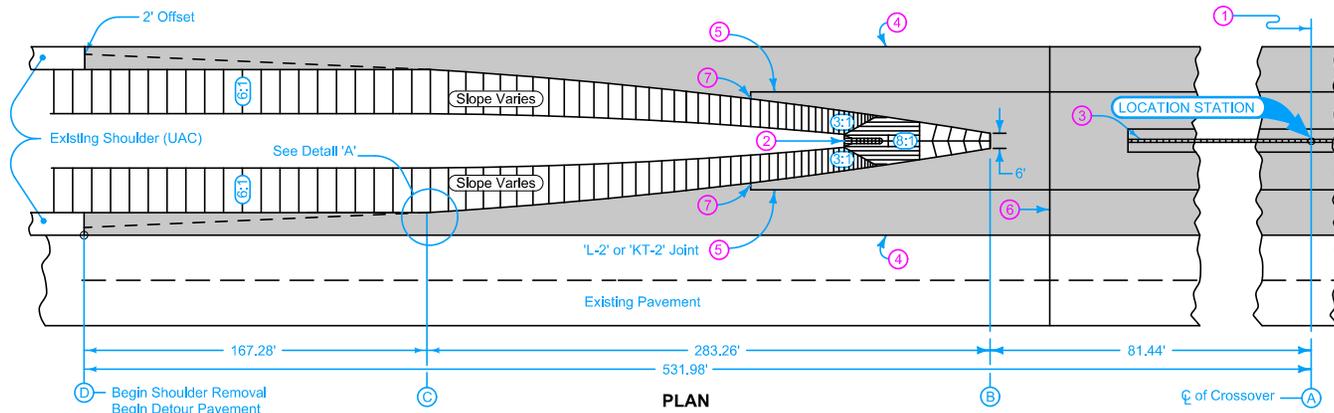
DETAIL 'A'



SECTION A-A



PERSPECTIVE VIEW  
DITCH SLOPE AND BEVELED PIPE



PLAN

Detour Pavement options: 9" PCC or 12" HMA

For joint details, see PV-101.

- ① Median crossover is symmetrical about centerline.
- ② Beveled pipe and guard. See DR-212.
- ③ Slotted drain for median crossover. See DR-502.
- ④ 'KT-2' or 'L-2' joint if mainline pavement is new construction. Bend bars out. 'BT-3' joint if mainline pavement is existing. 'B' joint if Detour Pavement is HMA.
- ⑤ For PCC Detour Pavement, 'L-2' or 'KT-2' spaced at one-quarter median width.
- ⑥ For PCC Detour Pavement, match existing roadway joints 'CD' joints are required.
- ⑦ For PCC Detour Pavement, 2 foot 'C' Joint.

DESIGN QUANTITY TABLE		
Detour Pavement Sq. Yds.	Special Backfill Tons	Granular Shoulder Tons
3775	1700	340



Possible Contract Items:  
 Detour Pavement  
 Embankment In Place  
 Excavation, Class 10, Roadway and Borrow  
 Excavation, Class 13, Roadway and Borrow  
 Removal of Pavement  
 Special Backfill  
 Granular Shoulders, Type A

Possible Tabulation:  
 112-3

 <b>STANDARD ROAD PLAN</b>	REVISION
	5   04-21-15
	<b>PV-506</b>
SHEET 1 of 1	

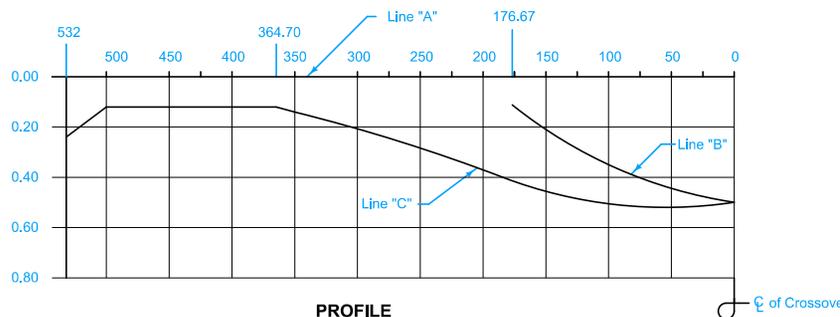
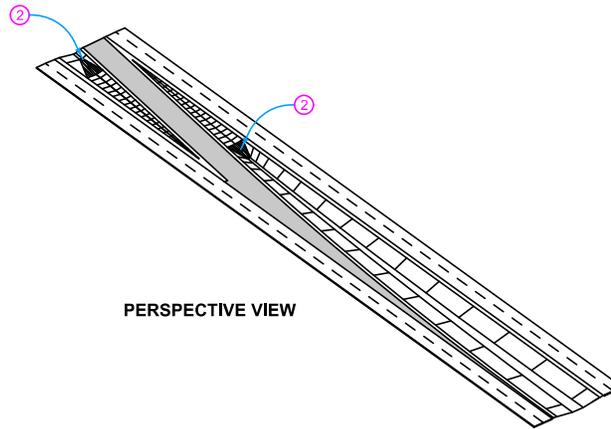
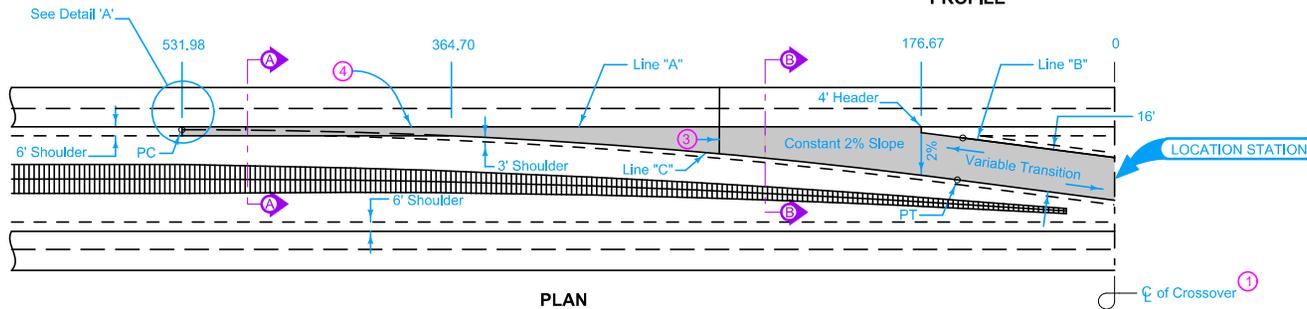
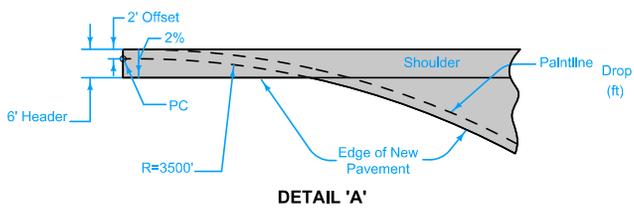
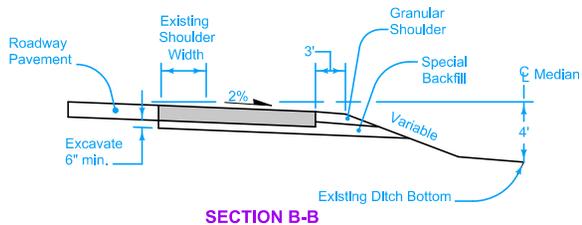
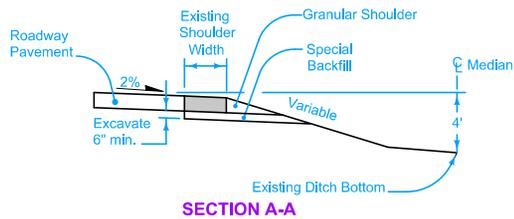
REVISIONS: Updated references to renamed standards.

*Brian Smith*  
 APPROVED BY DESIGN METHODS ENGINEER

**MEDIAN CROSSOVER**  
 (68.24' MEDIAN)

TABLE OF OFFSETS AND DROPS (PAVED SHOULDERS)

Distance from Location Station (Feet)	531.98	500	475	450	400	364.70	350	325	300	275	250	225	200	175	150	125	100	81.44	75.0	0
Offset from inside edge of Pavement (Feet)	6.00	6.00	6.00	6.00	6.00	6.00	7.11	8.55	10.17	11.98	13.96	16.12	18.47	20.99	23.70	26.59	29.66	31.12	34.12	34.12
Cross-Slope from inside edge of Pavement	4.00%	2.86%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Drop from inside edge of Pavement (Feet)	0.24	0.17	0.12	0.12	0.12	0.12	0.13	0.16	0.19	0.23	0.27	0.31	0.36	0.41	0.46	0.51	0.58	0.62	0.68	0.68
POINT LOCATION	(D)					(C)												(B)		(A)



Distance (Feet)	531.98	500	450	400	364.70	350	325	300	275	250	225	200	176.67	175	150	125	100	75	50	25	0
Offset A to C (Feet)	6.00	6.00	6.00	6.00	6.00	6.73	8.13	9.70	11.45	13.38	15.49	17.78	20.08	20.25	22.91	25.74	28.76	31.96	35.34	38.77	42.19
Drop A to C (Feet)	0.24	0.17	0.12	0.12	0.12	0.13	0.16	0.19	0.23	0.27	0.31	0.36	0.40	0.42	0.46	0.48	0.50	0.52	0.52	0.51	0.50
Drop A to B (Feet)													0.08	0.12	0.21	0.29	0.35	0.40	0.44	0.48	0.50

Detour Pavement options: 9" PCC or 12" HMA

For joint details, see PV-101.

- ① Median crossover is symmetrical about centerline.
- ② Median p/pe for crossover. See Detail 500-19.
- ③ For PCC Detour Pavement, match existing roadway joints. 'CD' joints are required.
- ④ 'KT-2' or 'L-2' joint if mainline pavement is new construction. Bend bars out. 'BT-3' joint if mainline pavement is existing. 'B' joint if Detour Pavement is HMA.

Detour Pavement Sq. Yds.	Special Backfill Tons	Granular Shoulder Tons
1370	670	*245

\*Quantity based on 8" shoulder depth.



Possible Contract Items:

- Detour Pavement
- Embankment In Place
- Excavation, Class 10, Roadway and Borrow
- Excavation, Class 13, Roadway and Borrow
- Granular Shoulder, Type A
- Removal of Pavement
- Special Backfill

Possible Tabulation:

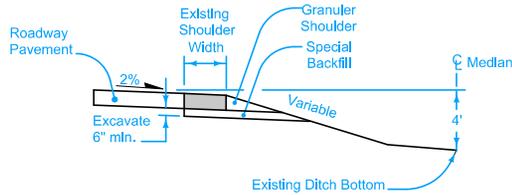
112-8

 Iowa Department of Transportation	REVISION
	3 10-15-13
<b>STANDARD ROAD PLAN</b>	<b>PV-507</b>
REVISIONS: Modified note 4.	SHEET 1 of 1

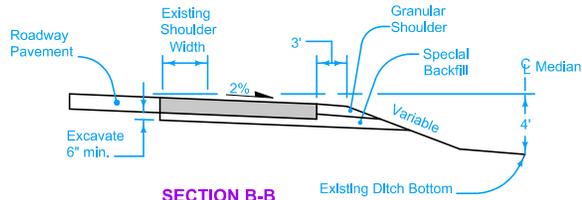
APPROVED BY DESIGN METHODS ENGINEER

*Brian Smith*

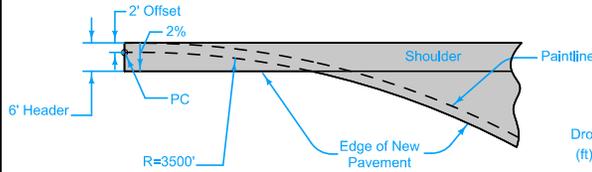
**MEDIAN CROSSOVER**  
**(68.24' MEDIAN)**  
**16' WIDE 1 LANE**



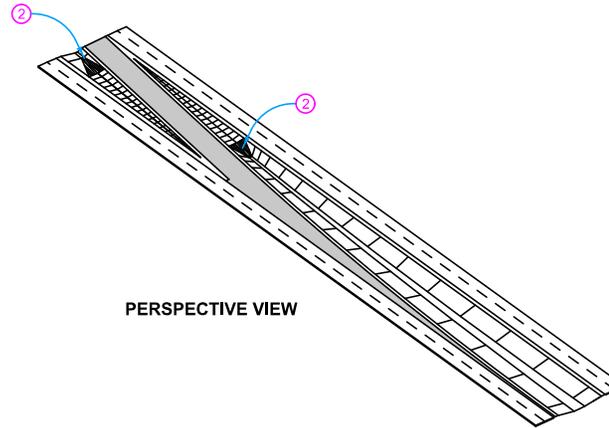
SECTION A-A



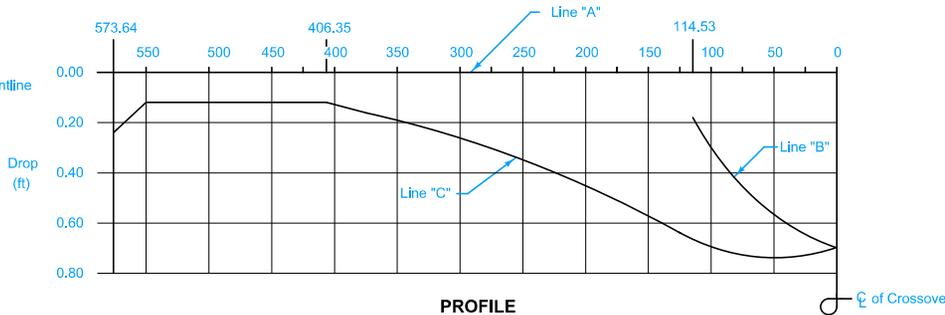
SECTION B-B



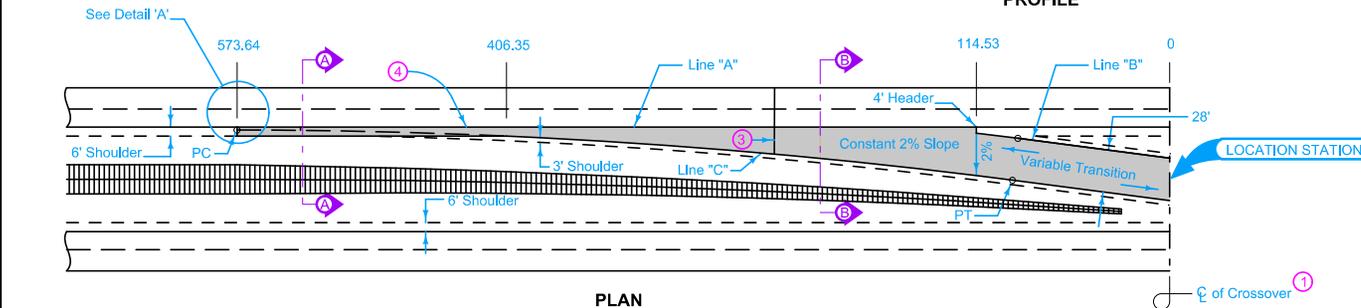
DETAIL 'A'



PERSPECTIVE VIEW



PROFILE



PLAN

TABLE OF OFFSETS AND DROPS

Distance (Feet)	573.64	550	500	450	406.35	400	375	350	325	300	275	250	225	200	175	150	125	114.53	100	75	50	25	0
Offset A to C (Feet)	6.00	6.00	6.00	6.00	6.00	6.31	7.64	9.15	10.84	12.71	14.76	16.99	19.41	22.00	24.78	27.73	30.87	32.24	34.20	37.69	41.21	44.73	48.26
Drop A to C (Feet)	0.24	0.19	0.12	0.12	0.12	0.13	0.15	0.18	0.22	0.25	0.30	0.34	0.40	0.44	0.50	0.55	0.62	0.64	0.70	0.73	0.74	0.73	0.70
Drop A to B (Feet)																		0.08	0.30	0.45	0.56	0.64	0.70

Detour Pavement options: 9" PCC or 12" HMA

For joint details, see PV-101.

- ① Median crossover is symmetrical about centerline.
- ② Median pipe for crossover. See Detail 500-19.
- ③ For PCC Detour Pavement, match existing roadway joints. 'CD' joints are required.
- ④ 'KT-2' or 'L-2' joint if mainline pavement is new construction. Bend bars out.  
'BT-3' joint if mainline pavement is existing.  
'B' joint if Detour Pavement is HMA.

DESIGN QUANTITY TABLE

Detour Pavement Sq. Yds.	Special Backfill Tons	Granular Shoulder Tons
2050	880	*235

\*Quantity based on 8" shoulder depth.



Possible Contract Items:

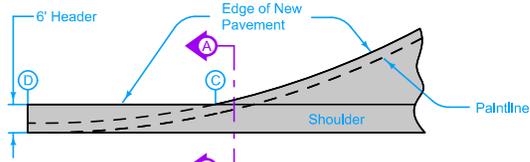
- Detour Pavement
- Embankment In Place
- Excavation, Class 10, Roadway and Borrow
- Excavation, Class 13, Roadway and Borrow
- Granular Shoulder, Type A
- Removal of Pavement
- Special Backfill

Possible Tabulation:

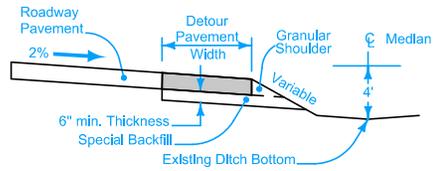
112-3

Iowa Department of Transportation  
**STANDARD ROAD PLAN**  
 REVISIONS: Modified note 4.  
 REVISION 3 10-15-13  
**PV-508**  
 SHEET 1 of 1

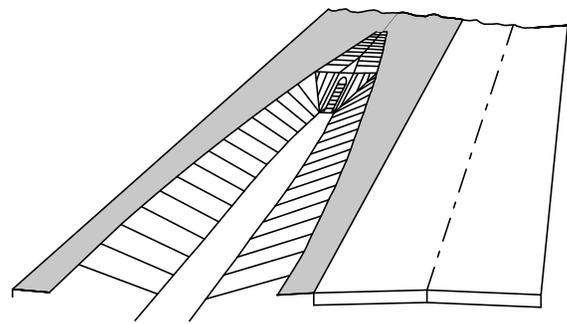
APPROVED BY DESIGN METHODS ENGINEER  
*Brian Smith*  
**MEDIAN CROSSOVER**  
**(68.24' MEDIAN)**  
**28' WIDE 2 LANE**



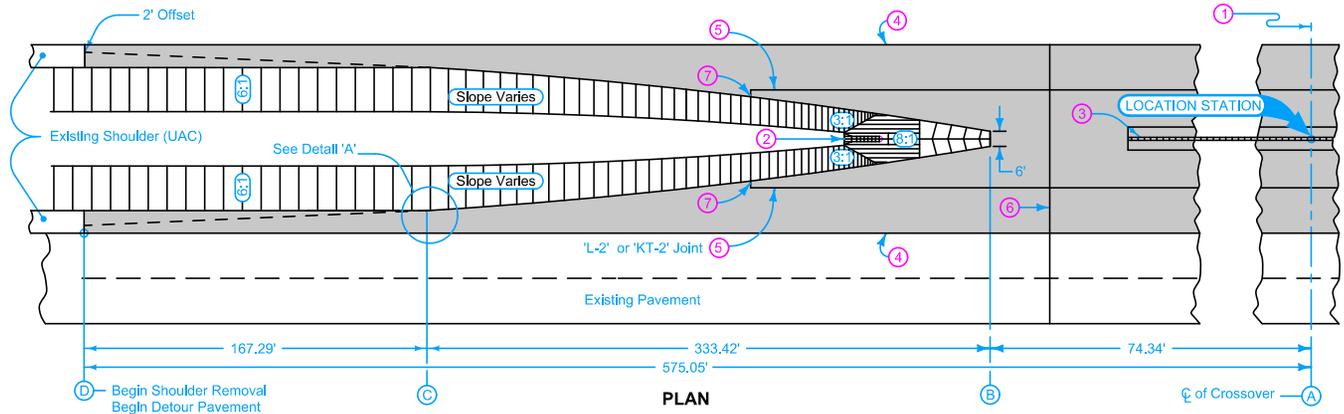
**DETAIL 'A'**



**SECTION A-A**



**PERSPECTIVE VIEW  
DITCH SLOPE AND BEVELED PIPE**



**PLAN**

- Detour Pavement options: 9" PCC or 12" HMA  
For joint details, see PV-101.
- ① Median crossover is symmetrical about centerline.
  - ② Beveled pipe and guard. See DR-212.
  - ③ Slotted drain for median crossover. See DR-502.
  - ④ 'KT-2' or 'L-2' joint if mainline pavement is new construction. Bend bars out. 'BT-3' joint if mainline pavement is existing. 'B' joint if Detour Pavement is HMA.
  - ⑤ For PCC Detour Pavement, 'KT-2' or 'L-2' spaced at one-quarter median width.
  - ⑥ For PCC Detour Pavement, match existing roadway joints. 'CD' joints are required.
  - ⑦ For PCC Detour Pavement, 2 foot 'C' Joint.

DESIGN QUANTITY TABLE		
Detour Pavement Sq. Yds.	Special Backfill Tons	Granular Shoulder Tons
4665	1860	380



- Possible Contract Items:  
 Granular Shoulders, Type A  
 Detour Pavement  
 Embankment In Place  
 Excavation, Class 10, Roadway and Borrow  
 Excavation, Class 13, Roadway and Borrow  
 Removal of Pavement  
 Special Backfill

Possible Tabulation:  
112-8

TABLE OF OFFSETS AND DROPS (PAVED SHOULDERS)																				
Distance from Location Station (Feet)	575.05	550	525	500	475	450	425	407.76	375	350	300	250	200	175	150	125	100	74.34	50	0
Offset from inside edge of Pavement (Feet)	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	7.72	9.24	12.82	17.13	22.15	24.94	27.90	31.05	34.38	38.00	41.00	41.00
Cross-Slope from inside edge of Pavement	4.00%	3.12%	2.23%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Drop from inside edge of Pavement (Feet)	0.24	0.19	0.13	0.12	0.12	0.12	0.12	0.12	0.15	0.19	0.26	0.34	0.44	0.50	0.56	0.62	0.69	0.76	0.82	0.82
POINT LOCATION	(D)							(C)										(B)		(A)

**STANDARD ROAD PLAN**

REVISION  
1 | 04-21-15

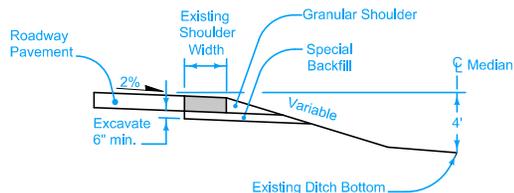
**PV-509**

SHEET 1 of 1

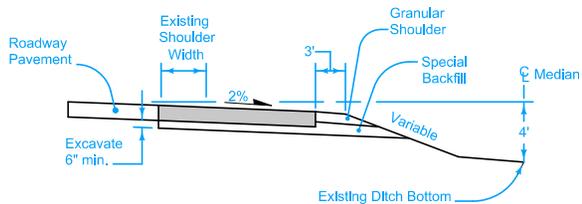
REVISIONS: Updated references to renamed standards.

APPROVED BY DESIGN METHODS ENGINEER

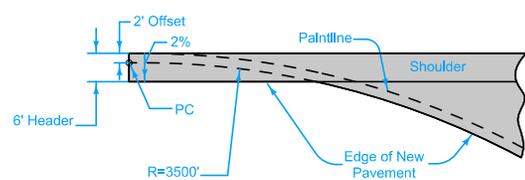
**MEDIAN CROSSOVER**  
(82' MEDIAN)



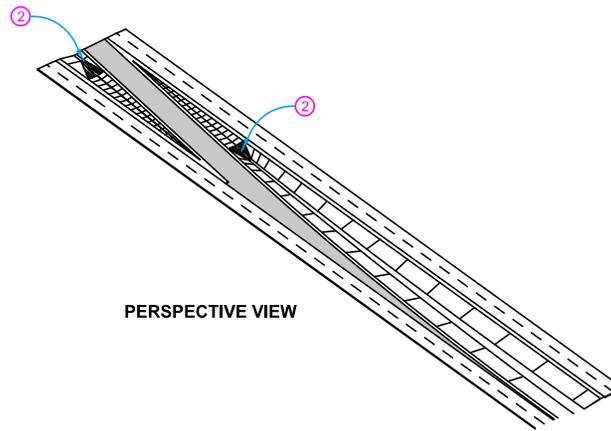
SECTION A-A



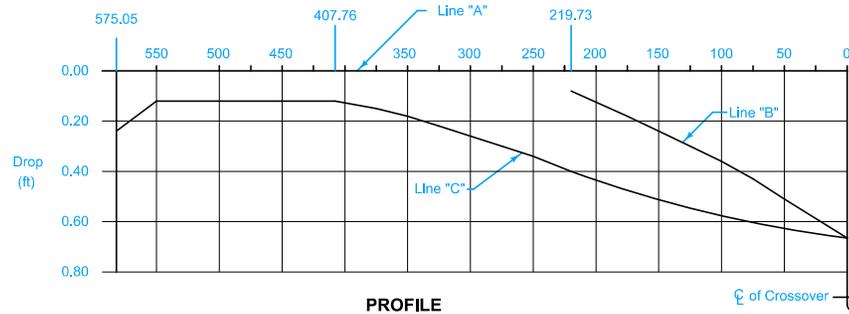
SECTION B-B



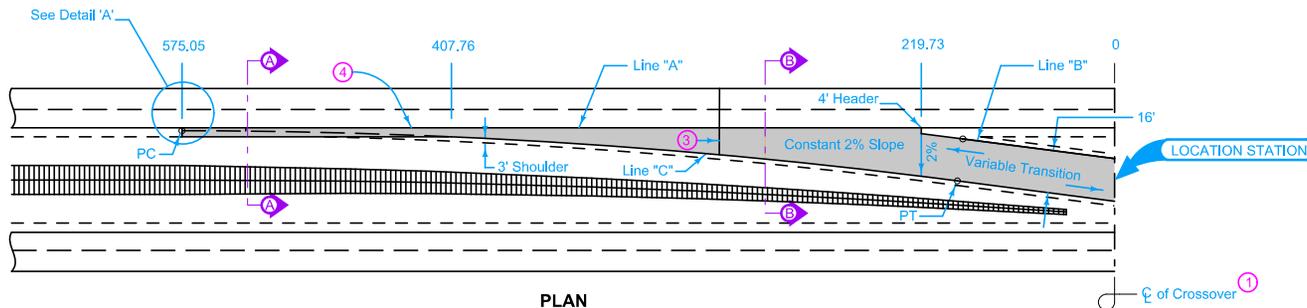
DETAIL 'A'



PERSPECTIVE VIEW



PROFILE



PLAN

TABLE OF OFFSETS AND DROPS

Distance (Feet)	575.05	550	525	500	475	450	407.76	375	350	325	300	275	250	219.73	175	150	125	100	75	50	0
Offset A to C (Feet)	6.00	6.00	6.00	6.00	6.00	6.00	7.72	9.24	10.94	12.82	14.88	17.13	20.08	24.94	27.91	31.06	34.39	37.91	41.60	49.09	
Drop A to C (Feet)	0.24	0.19	0.13	0.12	0.12	0.12	0.15	0.18	0.22	0.26	0.30	0.34	0.40	0.50	0.56	0.62	0.69	0.86	0.83	0.66	
Drop A to B (Feet)														0.08	0.18	0.24	0.30	0.36	0.43	0.51	0.66

Detour Pavement options: 9" PCC or 12" HMA

For joint details, see PV-101.

- ① Median crossover is symmetrical about centerline.
- ② Median p/lpe for crossover. See Detail 500-19.
- ③ For PCC Detour Pavement, match existing roadway joints. 'CD' joints are required.
- ④ 'KT-2' or 'L-2' joint if mainline pavement is new construction. Bend bars out.  
'BT-3' joint if mainline pavement is existing.  
'B' joint if Detour Pavement is HMA.

DESIGN QUANTITY TABLE		
Detour Pavement Sq. Yds.	Special Backfill Tons	Granular Shoulder Tons
1525	750	*280

\*Quantity based on 8" shoulder depth.

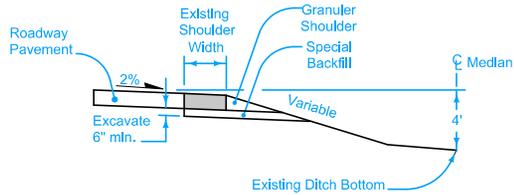


Possible Contract Items:

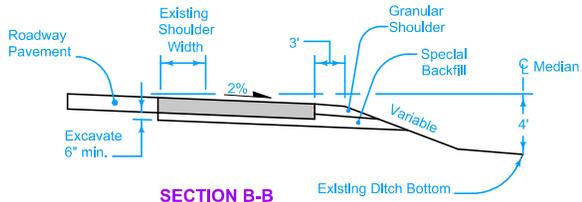
- Detour Pavement
- Embankment In Place
- Excavation, Class 10, Roadway and Borrow
- Excavation, Class 13, Roadway and Borrow
- Granular Shoulder, Type A
- Removal of Pavement
- Special Backfill

Possible Tabulation:  
112-8

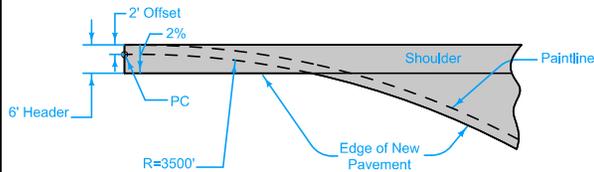
 Iowa Department of Transportation	REVISION
	New 04-15-14
<b>STANDARD ROAD PLAN</b>	<b>PV-510</b>
REVISIONS: New.	SHEET 1 of 1
 APPROVED BY DESIGN METHODS ENGINEER	
<b>MEDIAN CROSSOVER</b> <b>(82' MEDIAN)</b> <b>16' WIDE 1 LANE</b>	



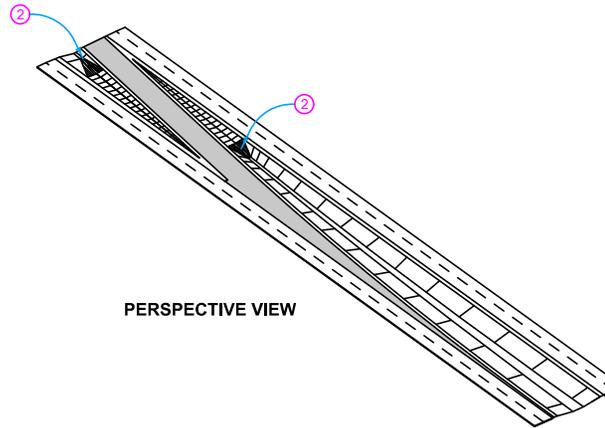
SECTION A-A



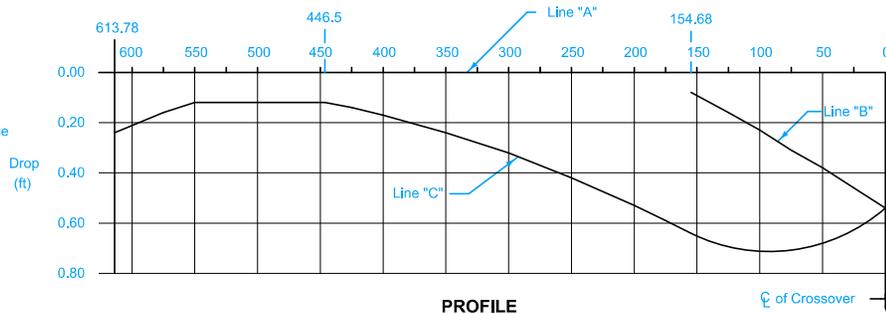
SECTION B-B



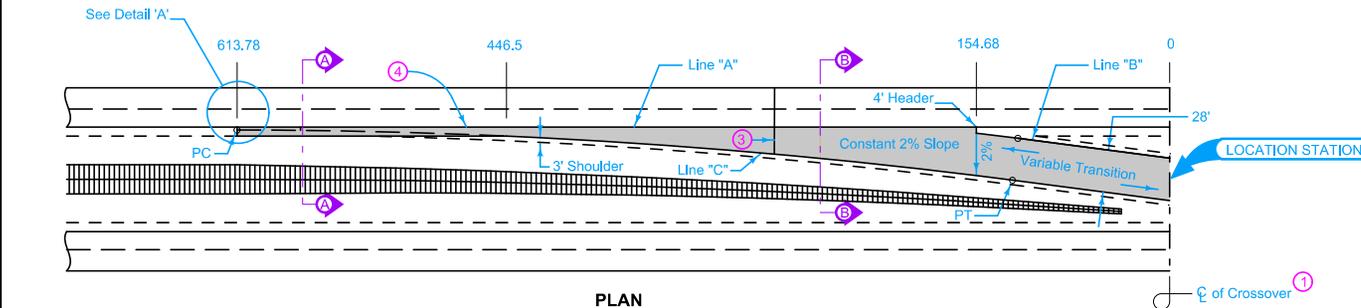
DETAIL 'A'



PERSPECTIVE VIEW



PROFILE



PLAN

TABLE OF OFFSETS AND DROPS																						
Distance (Feet)	613.78	575	550	525	500	475	446.5	425	400	350	300	250	200	175	154.68	125	100	75	50	25	0	
Offset A to C (Feet)	6.00	6.00	6.00	6.00	6.00	6.00	6.00	7.10	8.53	11.95	16.09	20.96	26.55	29.61	32.24	36.30	39.92	43.70	47.52	51.34	55.16	
Drop A to C (Feet)	0.24	0.16	0.12	0.12	0.12	0.12	0.12	0.14	0.17	0.24	0.32	0.42	0.53	0.59	0.64	0.69	0.71	0.71	0.68	0.63	0.54	
Drop A to B (Feet)																						

Detour Pavement options: 9" PCC or 12" HMA

For joint details, see PV-101.

- ① Median crossover is symmetrical about centerline.
- ② Median pipe for crossover. See Detail 500-19.
- ③ For PCC Detour Pavement, match existing roadway joints. 'CD' joints are required.
- ④ 'KT-2' or 'L-2' joint if mainline pavement is new construction. Bend bars out.  
'BT-3' joint if mainline pavement is existing.  
'B' joint if Detour Pavement is HMA.

DESIGN QUANTITY TABLE		
Detour Pavement Sq. Yds.	Special Backfill Tons	Granular Shoulder Tons
2305	985	*270

\*Quantity based on 8" shoulder depth.



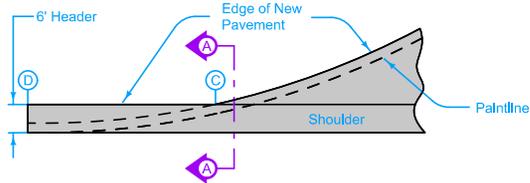
Possible Contract Items:

- Detour Pavement
- Embankment In Place
- Excavation, Class 10, Roadway and Borrow
- Excavation, Class 13, Roadway and Borrow
- Granular Shoulder, Type A
- Removal of Pavement
- Special Backfill

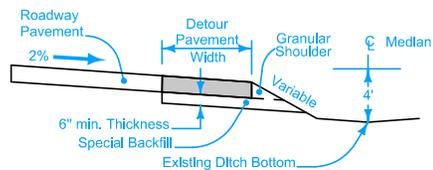
Possible Tabulation:

112-8

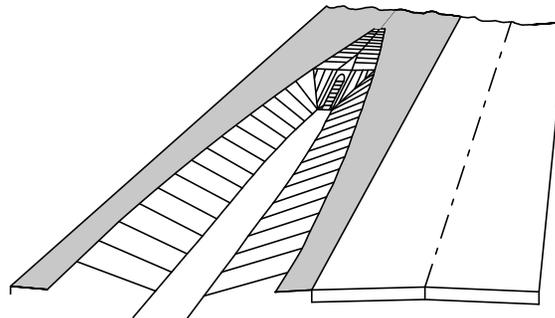
 Iowa Department of Transportation	REVISION
	New 04-15-14
<b>STANDARD ROAD PLAN</b>	<b>PV-511</b>
REVISIONS: New.	SHEET 1 of 1
 APPROVED BY DESIGN METHODS ENGINEER	
<b>MEDIAN CROSSOVER</b> <b>(82' MEDIAN)</b> <b>28' WIDE 2 LANE</b>	



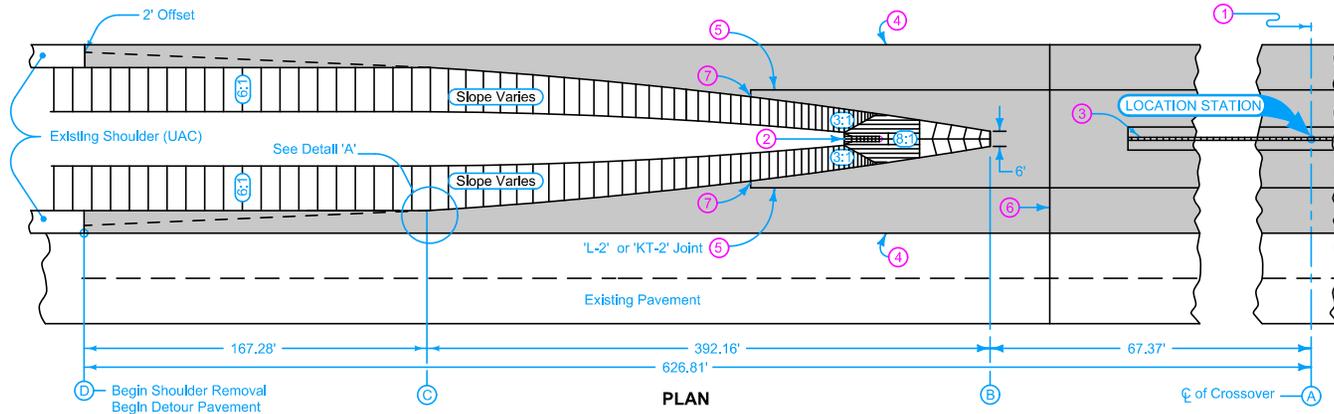
**DETAIL 'A'**



**SECTION A-A**



**PERSPECTIVE VIEW  
DITCH SLOPE AND BEVELED PIPE**



**PLAN**

Detour Pavement options: 9" PCC or 12" HMA

For joint details, see PV-101.

- ① Median crossover is symmetrical about centerline.
- ② Beveled pipe and guard. See DR-212.
- ③ Slotted drain for median crossover. See DR-502.
- ④ 'KT-2' or 'L-2' joint if mainline pavement is new construction. Bend bars out. 'BT-3' joint if mainline pavement is existing. 'B' joint if Detour Pavement is HMA.
- ⑤ For PCC Detour Pavement, 'KT-2' or 'L-2' spaced at one-quarter median width.
- ⑥ For PCC Detour Pavement, match existing roadway joints. 'CD' joints are required.
- ⑦ For PCC Detour Pavement, 2 foot 'C' Joint.

DESIGN QUANTITY TABLE		
Detour Pavement Sq. Yds.	Special Backfill Tons	Granular Shoulder Tons
5915	2300	430



Possible Contract Items:

- Granular Shoulders, Type A
- Detour Pavement
- Embankment In Place
- Excavation, Class 10, Roadway and Borrow
- Excavation, Class 13, Roadway and Borrow
- Removal of Pavement
- Special Backfill

Possible Tabulation:  
112-8

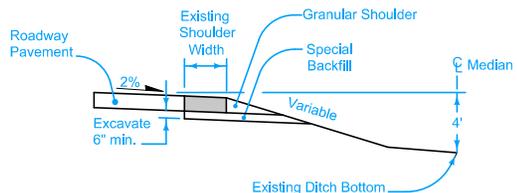
TABLE OF OFFSETS AND DROPS (PAVED SHOULDERS)																					
Distance from Location Station (Feet)	626.81	600	575	550	500	475	459.53	425	400	350	325	300	250	225	200	150	125	100	67.37	50	0
Offset from inside edge of Pavement (Feet)	6.00	6.00	6.00	6.00	6.00	6.00	6.00	7.82	9.36	12.96	15.04	17.29	22.34	25.14	28.12	34.63	38.16	41.87	47	50	50
Cross-Slope from inside edge of Pavement	4.00%	3.05%	2.15%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Drop from inside edge of Pavement (Feet)	0.24	0.18	0.13	0.12	0.12	0.12	0.12	0.16	0.19	0.26	0.30	0.35	0.45	0.50	0.56	0.69	0.76	0.84	0.94	1.0	1.0
POINT LOCATION	(D)						(C)												(B)		(A)

 <b>STANDARD ROAD PLAN</b>	REVISION
	1   04-21-15
	<b>PV-512</b>
SHEET 1 of 1	

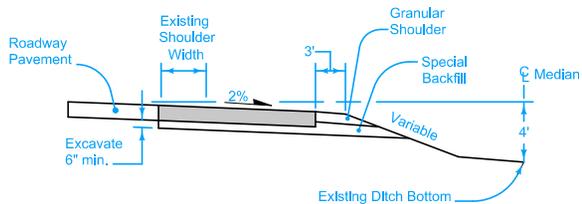
REVISIONS: Updated references to renamed standards.

*Brian Smith*  
APPROVED BY DESIGN METHODS ENGINEER

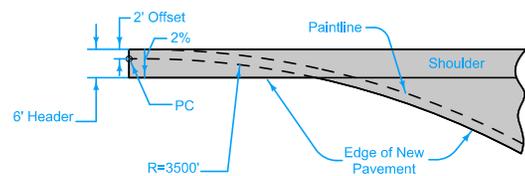
**MEDIAN CROSSOVER  
(100' MEDIAN)**



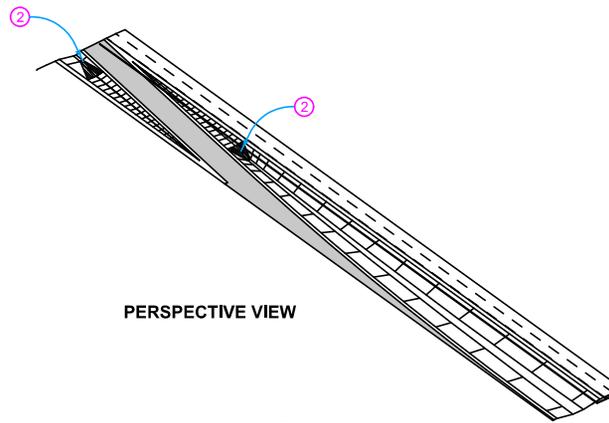
SECTION A-A



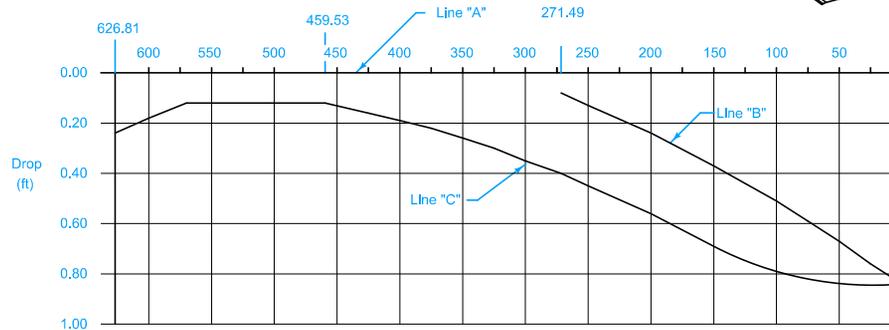
SECTION B-B



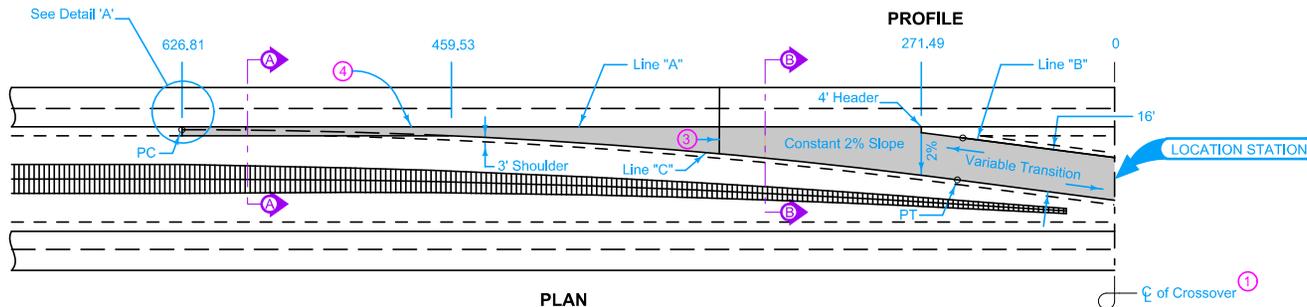
DETAIL 'A'



PERSPECTIVE VIEW



PROFILE



PLAN

TABLE OF OFFSETS AND DROPS

Distance (Feet)	626.81	600	575	550	500	459.53	425	400	375	350	325	300	271.49	250	200	150	100	75	50	25	0	
Offset A to C (Feet)	6.00	6.00	6.00	6.00	6.00	7.82	9.36	11.07	12.96	15.04	17.29	20.08	22.34	28.12	34.63	41.87	45.77	49.85	55.95	58.11		
Drop A to C (Feet)	0.24	0.18	0.13	0.12	0.12	0.12	0.16	0.19	0.22	0.26	0.30	0.35	0.40	0.45	0.56	0.69	0.79	0.82	0.84	0.85	0.84	
Drop A to B (Feet)															0.08	0.13	0.24	0.37	0.51	0.59	0.67	0.84

Detour Pavement options: 9" PCC or 12" HMA

For joint details, see PV-101.

- ① Median crossover is symmetrical about centerline.
- ② Median p/lpe for crossover. See Detail 500-19.
- ③ For PCC Detour Pavement, match existing roadway joints. 'CD' joints are required.
- ④ 'KT-2' or 'L-2' joint if mainline pavement is new construction. Bend bars out.  
'BT-3' joint if mainline pavement is existing.  
'B' joint if Detour Pavement is HMA.

DESIGN QUANTITY TABLE		
Detour Pavement Sq. Yds.	Special Backfill Tons	Granular Shoulder Tons
1710	845	*320

\*Quantity based on 8" shoulder depth.

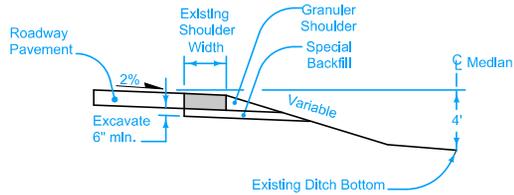


Possible Contract Items:

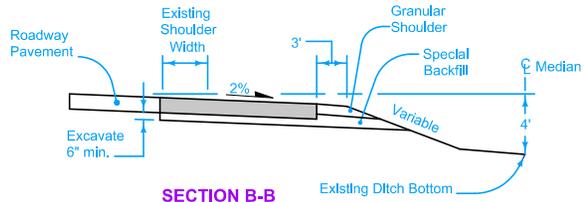
- Detour Pavement
- Embankment In Place
- Excavation, Class 10, Roadway and Borrow
- Excavation, Class 13, Roadway and Borrow
- Granular Shoulder, Type A
- Removal of Pavement
- Special Backfill

Possible Tabulation:  
112-8

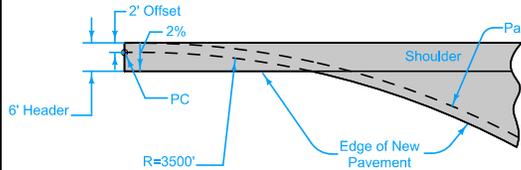
<p>Iowa Department of Transportation</p>	REVISION
	New 04-15-14
<b>STANDARD ROAD PLAN</b>	<b>PV-513</b>
REVISIONS: New.	SHEET 1 of 1
<p>APPROVED BY DESIGN METHODS ENGINEER</p>	
<p><b>MEDIAN CROSSOVER</b> <b>(100' MEDIAN)</b> <b>16' WIDE 1 LANE</b></p>	



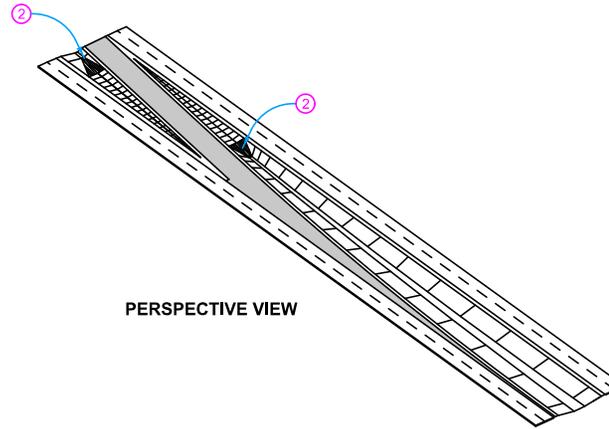
SECTION A-A



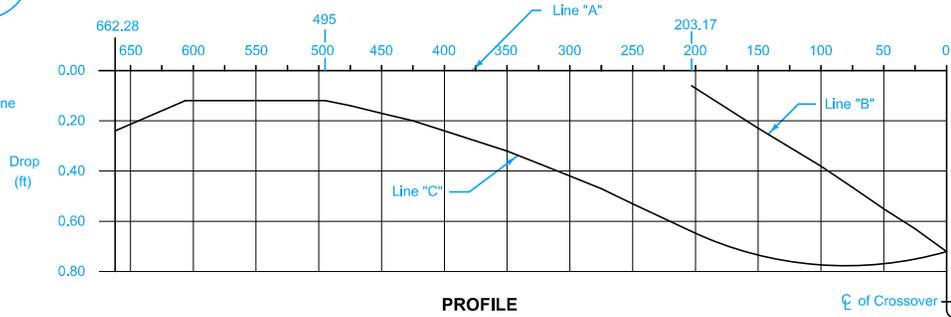
SECTION B-B



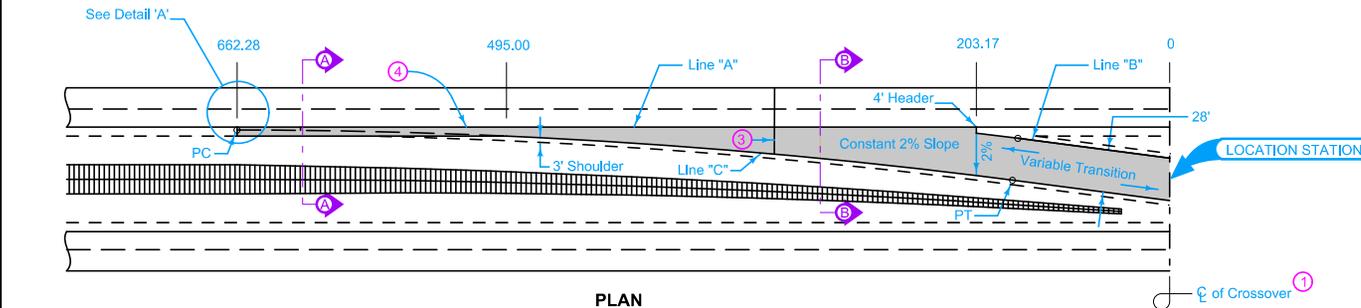
DETAIL 'A'



PERSPECTIVE VIEW



PROFILE



PLAN

TABLE OF OFFSETS AND DROPS																							
Distance (Feet)	662.28	625	600	575	525	495	475	450	425	400	375	350	325	300	275	250	203.17	150	100	75	50	25	0
Offset A to C (Feet)	6.00	6.00	6.00	6.00	6.00	6.00	7.01	8.44	10.05	11.84	13.81	15.96	18.29	20.80	23.49	26.37	32.24	39.69	47.46	51.61	55.81	60.00	64.19
Drop A to C (Feet)	0.24	0.16	0.12	0.12	0.12	0.12	0.14	0.17	0.20	0.24	0.28	0.32	0.37	0.42	0.47	0.53	0.64	0.73	0.77	0.78	0.77	0.75	0.72
Drop A to B (Feet)																	0.08	0.23	0.38	0.46	0.55	0.63	0.72

Detour Pavement options: 9" PCC or 12" HMA

For joint details, see PV-101.

- ① Median crossover is symmetrical about centerline.
- ② Median pipe for crossover. See Detail 500-19.
- ③ For PCC Detour Pavement, match existing roadway joints. 'CD' joints are required.
- ④ 'KT-2' or 'L-2' joint if mainline pavement is new construction. Bend bars out. 'BT-3' joint if mainline pavement is existing. 'B' joint if Detour Pavement is HMA.

DESIGN QUANTITY TABLE		
Detour Pavement Sq. Yds.	Special Backfill Tons	Granular Shoulder Tons
2610	1115	*305

\*Quantity based on 8" shoulder depth.



Possible Contract Items:

- Detour Pavement
- Embankment In Place
- Excavation, Class 10, Roadway and Borrow
- Excavation, Class 13, Roadway and Borrow
- Granular Shoulder, Type A
- Removal of Pavement
- Special Backfill

Possible Tabulation:

112-8

 Iowa Department of Transportation	REVISION
	New 4-15-14
<b>STANDARD ROAD PLAN</b>	<b>PV-514</b>
REVISIONS: New.	SHEET 1 of 1
 APPROVED BY DESIGN METHODS ENGINEER	
<b>MEDIAN CROSSOVER</b> <b>(100' MEDIAN)</b> <b>28' WIDE 2 LANE</b>	