INDEX

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3	Merging or Shifting Taper
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5	Typical Construction Sign Mounting
6	Type III Barricade Application for Road Closure for Thru Traffic
7	Type III Barricade Application for Road Closure to All Traffic
8	U Channel Steel Post Splice Detail
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10	Worksite Speed Limit Sign Assembly for Intermittent Use
11	Worksite Speed Limit Sign Assembly for Continuous Use
12	Worksite Speed Limit Sign Assembly Longitudinal Placement

GENERAL NOTES:

1. Unless otherwise specified, channelizing devices shall be spaced as shown on Standard Drawing E-801-TCDV-12.
2. All channelizing devices shall meet NCHRP 350 or MASH crash evaluation criteria.
3. It is not necessary to delineate a drop-off of 3 in. or less adjacent to active travel lanes. Where channellizing devices are used to delineate drop-offs of 3 in. or less adjacent to active travel lanes, at least 33 in. of the device shall be above the adjoining pavement surface. Where channelizing devices are used to delineate a drop-off greater than 3 in. adjacent to active travel lanes, at least27 in. of the device shall be above the adjoining pavement surface and a Type C warning light shall be attached to the top of the device (on the pavement side). In no case shall more than 9 in. of the device be below the adjoining pavement surface.
4. The proper orientation in respect to approaching vehicular traffic shall be maintained on channelizing devices. Drums are the preferred channelizing device in a tight radius curve and at intersections.

LEGEND

O - Device may be used in tangent set-ups.

X - Device may be used in tangent set-ups.

(X) - Devices may be used in two-way traffic set-ups to divide opposing lanes of traffic.

(●) - Device may be used to divide two or more lanes of traffic in the same direction.

(O) - Device may be used to replace barricades and drums where space is limited.

[O] - Device may be used to delineate edge of pavement drop-off where space is limited.

INDIANA DEPARTMENT OF TRANSPORTATION

INDEX SHEET
TRAFFIC CONTROL DEVICES

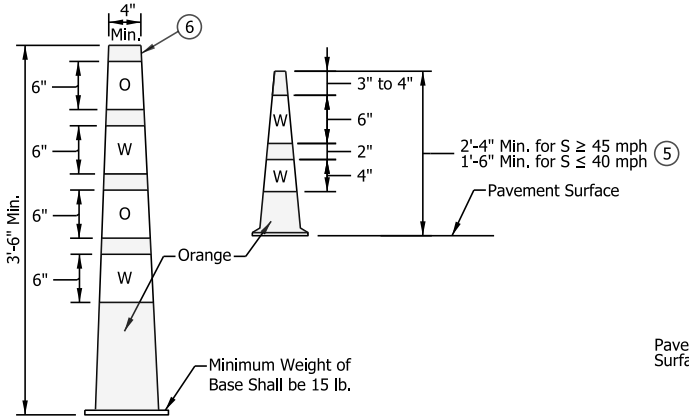
SEPTEMBER 2016

STANDARD DRAWING NO. E 801-TCDV-01

DAVID H. BORUFF REGISTERED No. 60900348 STATE OF INDIANA PROFESSIONAL ENGINEER

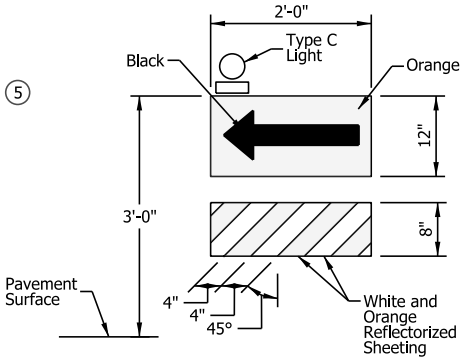
/s/ David H. Boruff 06/25/15
DESIGN STANDARDS ENGINEER DATE

/s/ Mark A. Miller 07/02/15
CHIEF ENGINEER DATE



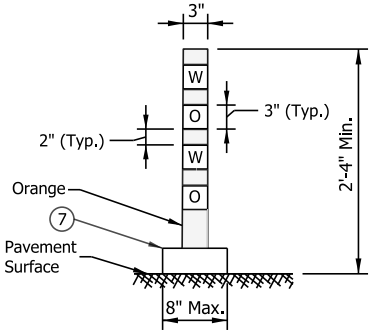
CONE

Use: O Ⓧ ◉ X



DIRECTION INDICATOR BARRICADE

Use: X



FLEXIBLE TUBULAR MARKER

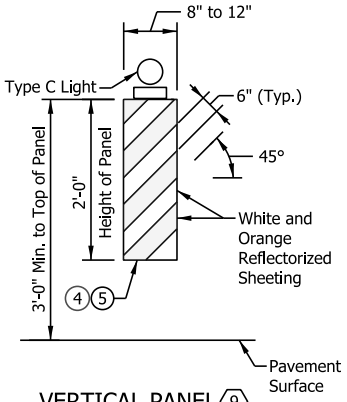
Use: ☐ ◉ Ⓧ

NOTES:

1. For additional notes and legends see Standard Drawing E 801-TCLG-01 or E 801-TCDV-01.
2. A Type C warning light will be required on tapers where there is a reduction in the number of lanes and a flashing arrow sign is used.
3. Reflectorized bands may be omitted from cones for lane closures during daylight hours.
4. For vertical panels equal to or greater than 3 ft in height, the width of the stripes shall be 6 in.
5. Vertical panels used on an expressway or freeway shall have a minimum reflective panel area of 270 sq. in. Other roadways with a posted speed limit of 50 mph or greater shall have a minimum reflective panel area of 270 sq. in., also.
6. The maximum distance between the edges of adjacent reflective sheeting strips shall be 2 in.
7. Minimum flexible tubular marker base area shall be 0.3 sft.

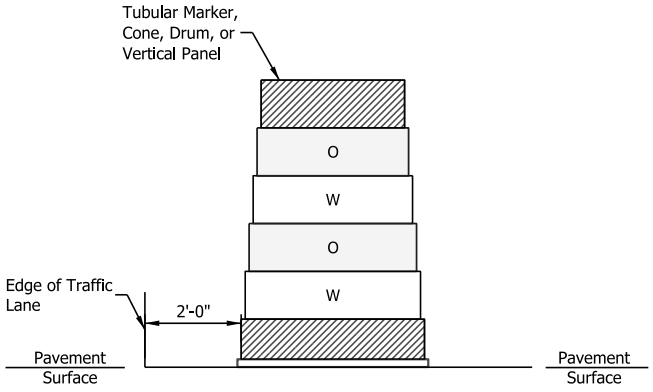
W = White Reflective Sheeting

O = Orange Reflective Sheeting

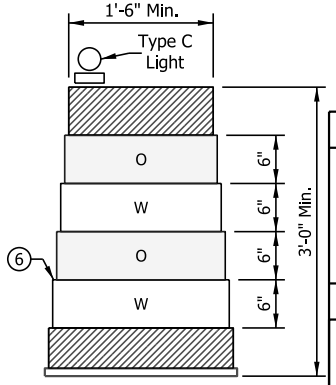


VERTICAL PANEL 9

Use: ☐ ◎ O X



PLACEMENT OF CHANNELIZING DEVICES



DRUM 9

Use: O X

INDIANA DEPARTMENT OF TRANSPORTATION

CHANNELIZING DEVICES

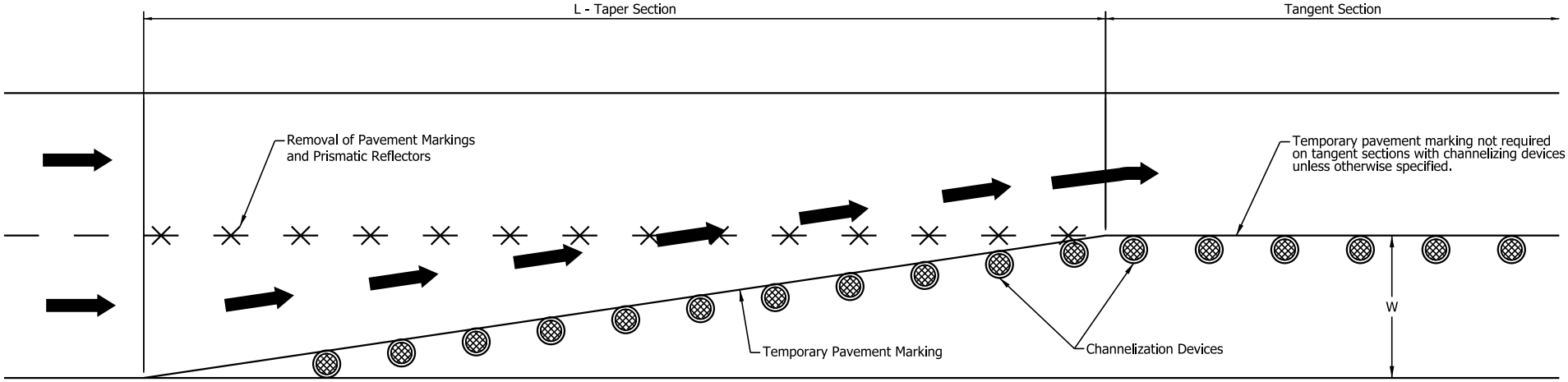
SEPTEMBER 2016

STANDARD DRAWING NO. E 801-TCDV-02

DAVID H. BORUFF REGISTERED No. 60900348 STATE OF INDIANA PROFESSIONAL ENGINEER

/s/ David H. Boruff 06/25/15
DESIGN STANDARDS ENGINEER DATE

/s/ Mark A. Miller 07/02/15
CHIEF ENGINEER DATE



NOTE:

1. The taper lengths used may be wither of the values provided in the table, or the value calculated from the equation.

MERGING TAPER				
S	Min. Taper Length L/1			
MPH	W = 9	W = 10	W = 11	W = 12
20	60	70	75	80
25	95	105	115	125
30	135	150	165	180
35	185	205	225	245
40	240	270	295	320
45	405	450	500	540
50	450	500	550	600
55	495	550	605	660
60	540	600	660	720
65	585	650	715	780
70	630	700	770	840

For W not shown in the table, L = W x S for a speed of 45 mph or greater.
L = W x S^2/60 for a speed of 40 mph or lower.

SHIFTING TAPER				
S	Min. Taper Length L/2			
MPH	W = 9	W = 10	W = 11	W = 12
20	30	35	40	40
25	50	55	60	65
30	70	75	85	90
35	95	105	115	125
40	120	135	150	160
45	205	225	250	270
50	225	250	275	300
55	250	275	305	330
60	270	300	330	360
65	295	325	360	390
70	315	350	385	420

For W not shown in the table, L is one half that required for a merging taper.

A shifting taper preceded by lane closure taper shall be separated by a tangent section equal to or greater than the length of the shifting taper.

LEGEND

L - Minimum length of taper in feet.

S - Posted speed limit prior to the construction zone in mph.

W - Width of lane or shift in feet.

INDIANA DEPARTMENT OF TRANSPORTATION

MERGING OR SHIFTING TAPER

SEPTEMBER 2016

STANDARD DRAWING NO. E 801-TCDV-03

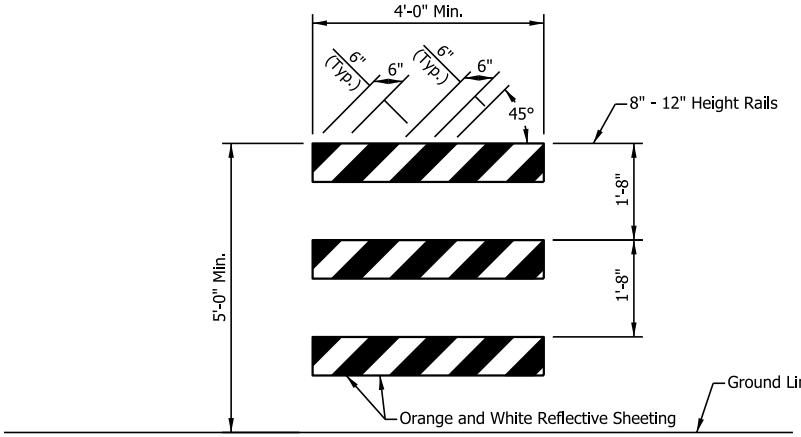
DAVID H. BORUFF REGISTERED No. 60900348 STATE OF INDIANA PROFESSIONAL ENGINEER

/s/ David H. Boruff 06/25/15
DESIGN STANDARDS ENGINEER DATE

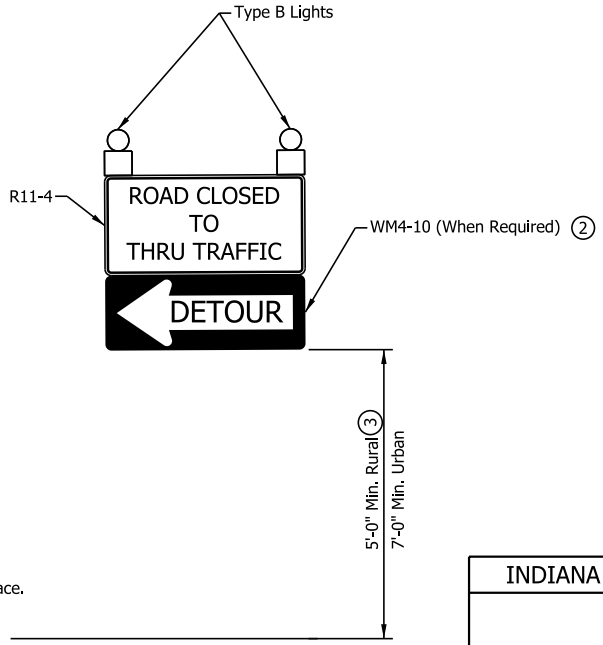
/s/ Mark A. Miller 07/02/15
CHIEF ENGINEER DATE

NOTES:

1. Barricade lights, signs, and supports shall meet NCHRP 350 or MASH crash evaluation criteria.
2. The Detour Arrow sign shall be used only when a detour route has been signed.
3. The sign assembly must be above the Type III barricade.

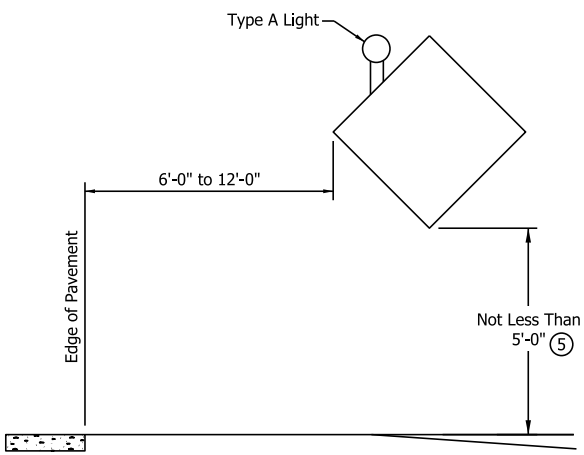


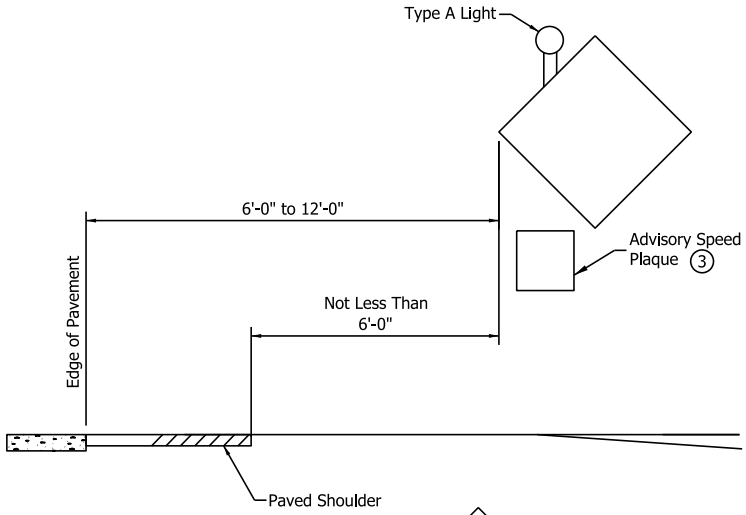
TYPE III BARRICADE



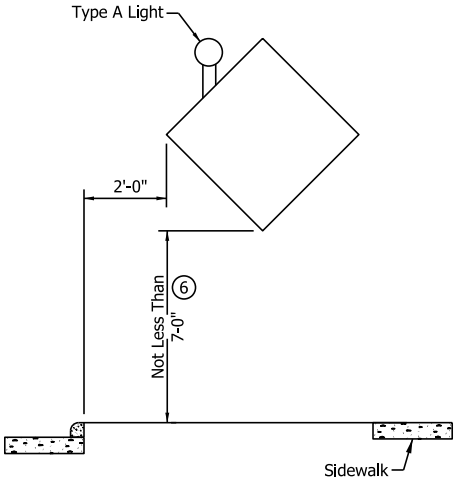
ROAD CLOSURE SIGN ASSEMBLY

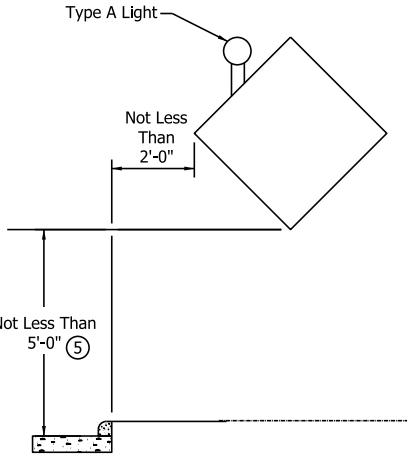
INDIANA DEPARTMENT OF TRANSPORTATION	
TYPE III BARRICADE	
SEPTEMBER 2016	
STANDARD DRAWING NO. E 801-TCDV-04	
DAVID H. BORUFF REGISTERED No. 60900348 STATE OF INDIANA PROFESSIONAL ENGINEER	/s/ David H. Boruff 06/25/15 DESIGN STANDARDS ENGINEER DATE /s/ Mark A. Miller 07/02/15 CHIEF ENGINEER DATE



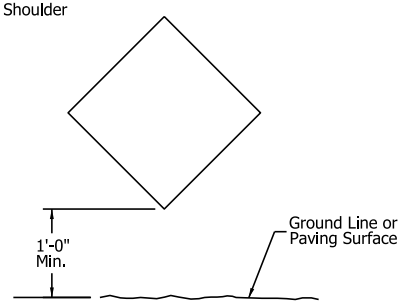


UN-CURBED ROADWAY





CURBED ROADWAY



TEMPORARY MOUNTED
CONSTRUCTION SIGN

NOTES:

1. See Standard Drawing E 801-TCSN-07 for additional notes.
2. Signs, lights, and supports shall satisfy NCHRP 350 or MASH crash evaluation criteria.
3. (3) An advisory speed plaque, required to be placed with another construction sign, may be mounted on the post closest to the roadway at a height not less than 4 ft above the edge of pavement adjacent to the sign. The bottom of the construction warning sign shall not be lower than the top of the advisory speed plaque.
4. Type A warning light required on all construction signs.
5. (5) In urban area or on Interstate route, mounting height shall not be less than 7 ft.
6. (6) When signs are placed on sidewalk, a 4 ft useable width must be maintained. No part of the sign or support that is less than 7 ft in height may protude more than 4 in. into the 4 ft useable sidewalk width.

INDIANA DEPARTMENT OF TRANSPORTATION

TYPICAL CONSTRUCTION
SIGN MOUNTING

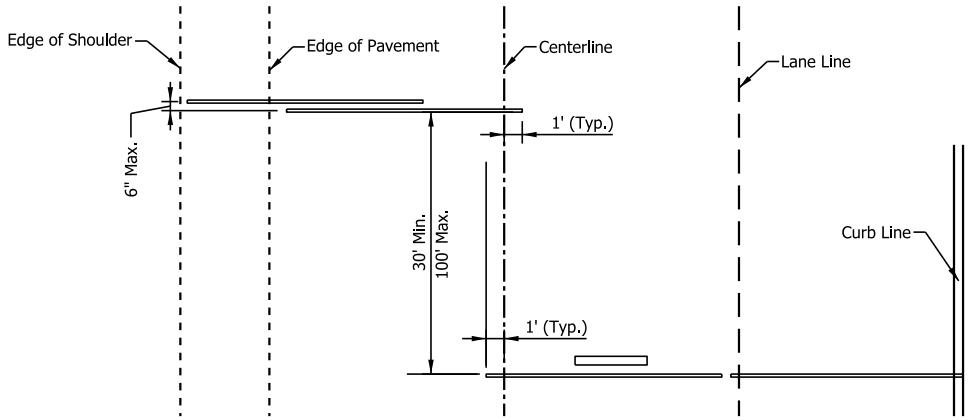
SEPTEMBER 2016

STANDARD DRAWING NO. E 801-TCDV-05

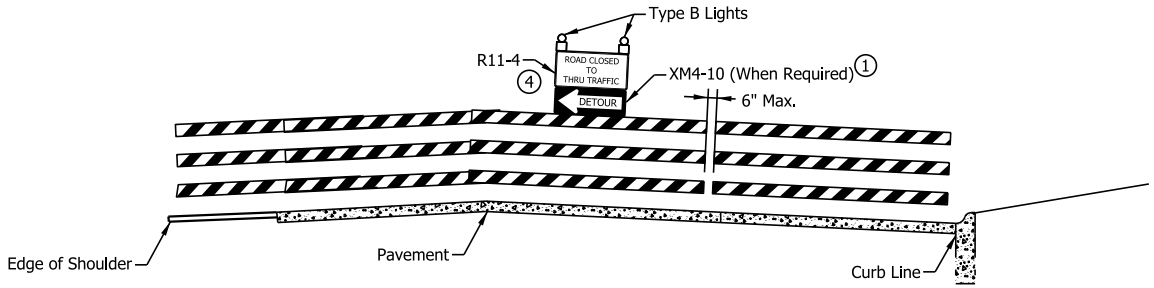
DAVID H. BORUFF REGISTERED No. 60900348 STATE OF INDIANA PROFESSIONAL ENGINEER

/s/ David H. Boruff 06/25/15
DESIGN STANDARDS ENGINEER DATE

/s/ Mark A. Miller 07/02/15
CHIEF ENGINEER DATE



PLAN VIEW



ELEVATION

TYPICAL APPLICATIONS OF TYPE III BARRICADES
"ROAD CLOSED TO THRU TRAFFIC"

NOTES:

1. The Detour Arrow sign shall be used only when a detour route has been signed.
2. See Standard Drawing E 801-TCDV-04 for sign use and mounting information.
3. Barricades and supports shall meet NCHRP 350 or MASH crash evaluation criteria.
4. The R11-3a ("ROAD CLOSED/LOCAL TRAFFIC ONLY") or R11-3b ("BRIDGE CLOSED/LOCAL TRAFFIC ONLY") sign may be substituted for the R11-4 signs as directed on the plans or by the engineer.

INDIANA DEPARTMENT OF TRANSPORTATION

TYPE III BARRICADE APPLICATION FOR ROAD CLOSURE FOR THRU TRAFFIC

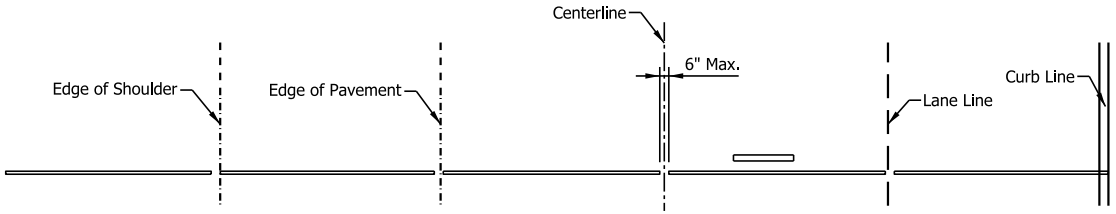
SEPTEMBER 2016

STANDARD DRAWING NO. E 801-TCDV-06

DAVID H. BORUFF REGISTERED No. 60900348 STATE OF INDIANA PROFESSIONAL ENGINEER

/s/ David H. Boruff 06/25/15
DESIGN STANDARDS ENGINEER DATE

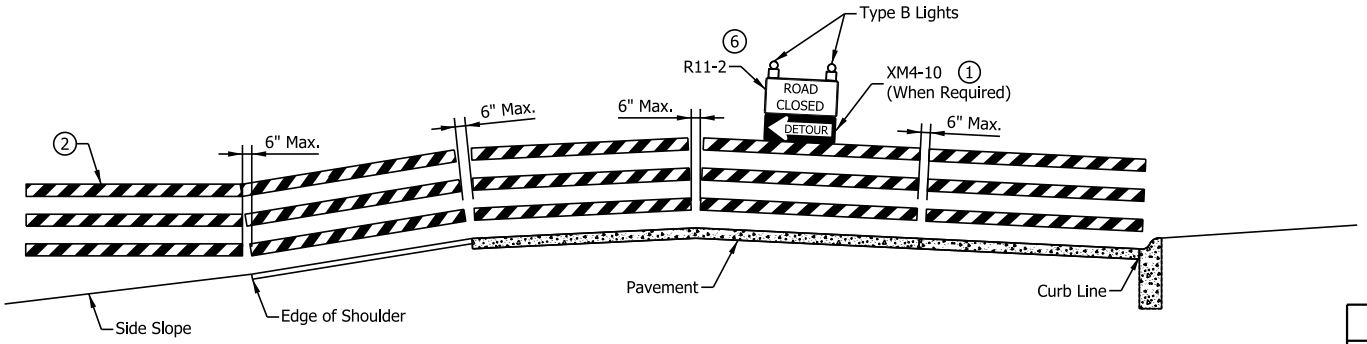
/s/ Mark A. Miller 07/02/15
CHIEF ENGINEER DATE



(HALF PLAN WITH SHOULDER SECTION)

(HALF PLAN WITH CURB SECTION)

PLAN VIEW



(HALF ELEVATION WITH SHOULDER SECTION)

(HALF ELEVATION WITH CURB SECTION)

ELEVATION

TYPICAL APPLICATIONS OF TYPE III BARRICADES
ROAD CLOSED TO ALL TRAFFIC

NOTES:

1. The Detour Arrow sign shall be used only when a detour route has been signed.
2. Barricades shall be supported on driven posts in areas outside of the pavement or sidewalk, where side slopes are 3 to 1 or flatter.
3. See Standard Drawing 801-TCDV-04 for sign use and mounting information.
4. Barricades and supports shall meet NCHRP 350 or MASH crash evaluation criteria.
5. See Note 5 on Standard Drawing 801-TCSN-07 for post depth.
6. The Legend of the R11-2 may be modified to "BRIDGE CLOSED" as indicated on the plans or directed by the engineer.

INDIANA DEPARTMENT OF TRANSPORTATION

TYPE III BARRICADE APPLICATION
FOR ROAD CLOSURE TO ALL TRAFFIC

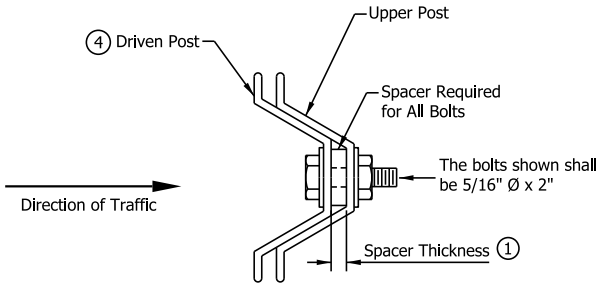
SEPTEMBER 2016

STANDARD DRAWING NO. E 801-TCDV-07

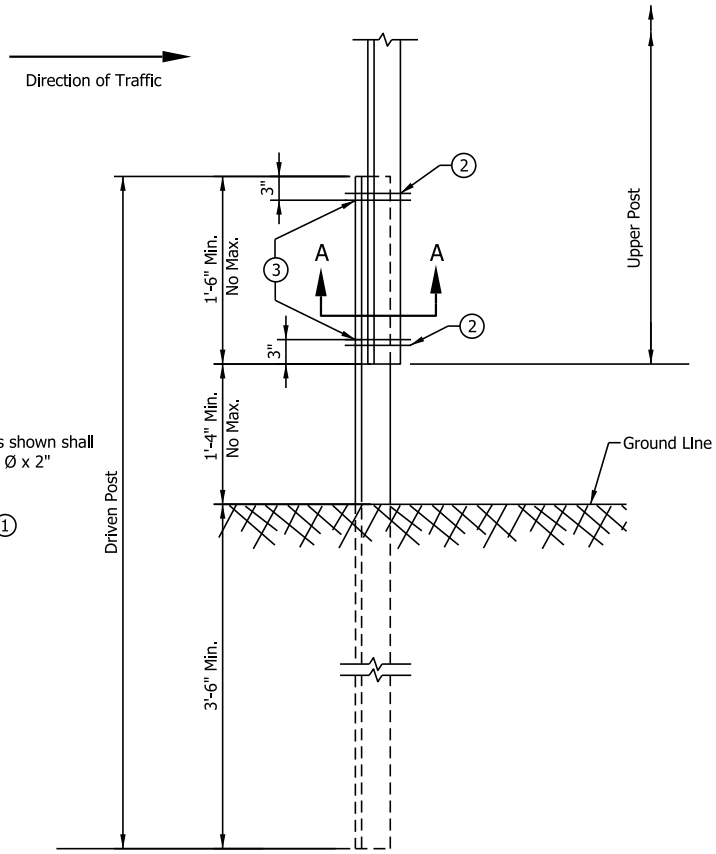
DAVID H. BORUFF REGISTERED No. 60900348 STATE OF INDIANA PROFESSIONAL ENGINEER

/s/ David H. Boruff 06/25/15
DESIGN STANDARDS ENGINEER DATE

/s/ Mark A. Miller 07/02/15
CHIEF ENGINEER DATE



SECTION "A-A"



ELEVATION

U CHANNEL STEEL POST SPLICE

NOTES:

1. The spacer thickness shall be 1/16 in. less than the gap between the posts when positioned in the unbolted configuration.
2. The exterior bolt, spacer, washer, and nut shall be installed in a prepunched hole within the first 2 in. of the end of the lapped post section.
3. The interior bolt, spacer, washer, and nut shall be installed in a prepunched hole within the first 2 in. of the exterior bolts. The maximum spacing between the interior bolts shall be 1'-6". If the length of the post lap is increased such that this 1'-6" maximum Is exceeded, then additional Interior bolts shall be Installed such that the maximum space between adjacent interior bolts does not exceed the 1'-6" limit.
4. The driven post shall be mounted in front of the upper post with respect to adjacent oncoming traffic, regardless of the direction the sign is facing.

INDIANA DEPARTMENT OF TRANSPORTATION

U CHANNEL STEEL
POST SPLICE DETAIL

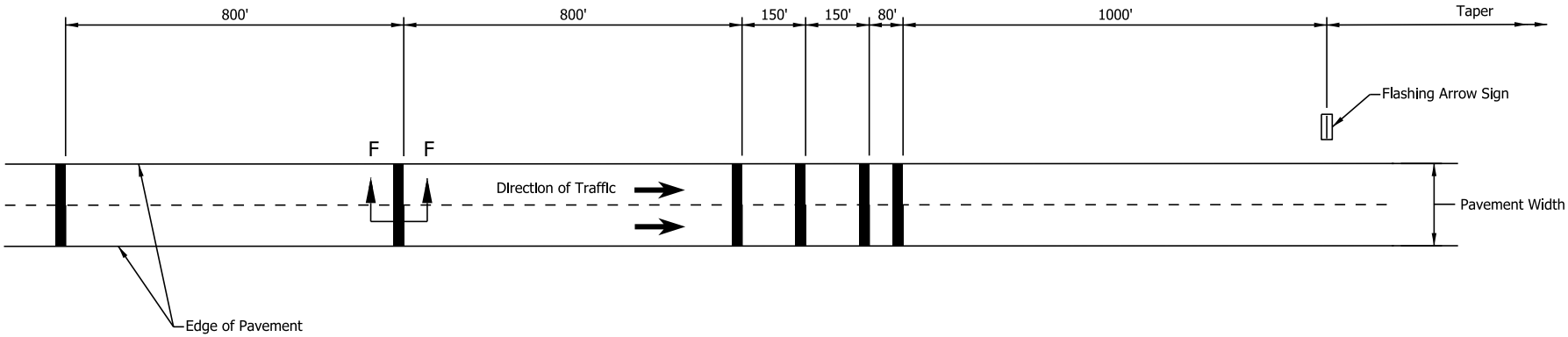
SEPTEMBER 2016

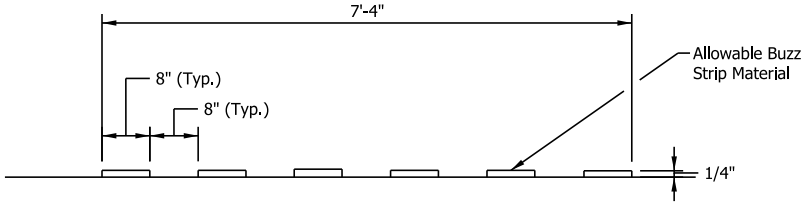
STANDARD DRAWING NO. E 801-TCDV-08

DAVID H. BORUFF REGISTERED No. 60900348 STATE OF INDIANA PROFESSIONAL ENGINEER

/s/ David H. Boruff 06/25/15
DESIGN STANDARDS ENGINEER DATE

/s/ Mark A. Miller 07/02/15
CHIEF ENGINEER DATE





SECTION F-F

INDIANA DEPARTMENT OF TRANSPORTATION

TEMPORARY BUZZ STRIPS

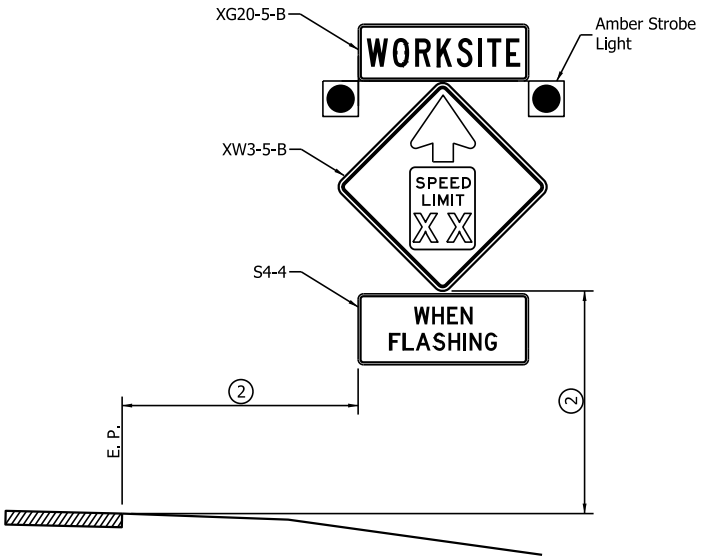
SEPTEMBER 2016

STANDARD DRAWING NO. E 801-TCDV-09

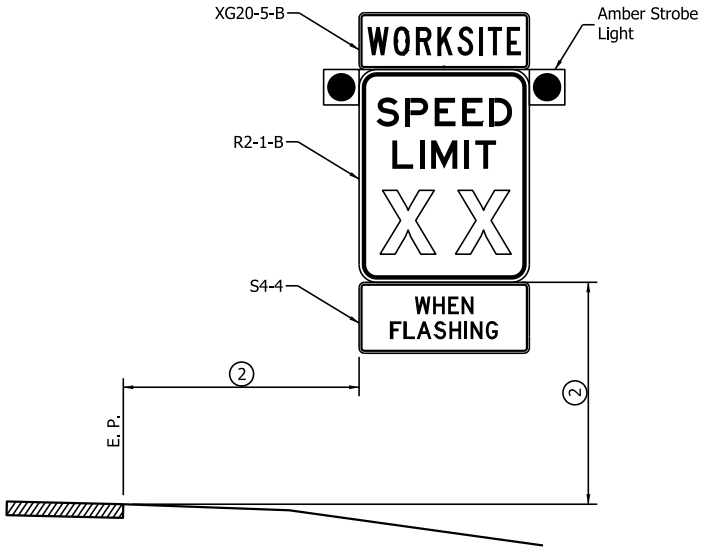
DAVID H. BORUFF REGISTERED No. 60900348 STATE OF INDIANA PROFESSIONAL ENGINEER

/s/ David H. Boruff 06/25/15
DESIGN STANDARDS ENGINEER DATE

/s/ Mark A. Miller 07/02/15
CHIEF ENGINEER DATE



REDUCED SPEED ADVANCE WARNING SIGN ASSEMBLY



WORKSITE SPEED LIMIT SIGN ASSEMBLY

NOTES:

1. If not trailer mounted, signs and supports shall satisfy NCHRP 350 or MASH crash evaluation criteria.
2. See Standard Drawing 801-TCDV-05 for lateral and vertical placement.
3. Advance warning signs speed limit shall match that on worksite speed limit sign.
4. The worksite speed limit shall be at least 10 mph below the posted speed limit for the roadway under construction.
5. Sign series shown is for freeway or expressway application.

INDIANA DEPARTMENT OF TRANSPORTATION

WORKSITE SPEED LIMIT SIGN ASSEMBLY
FOR INTERMITTENT USE
(WORKERS PRESENT)

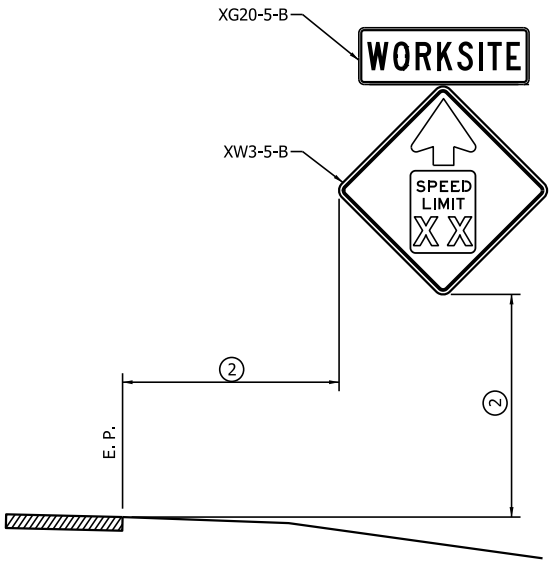
SEPTEMBER 2016

STANDARD DRAWING NO. E 801-TCDV-10

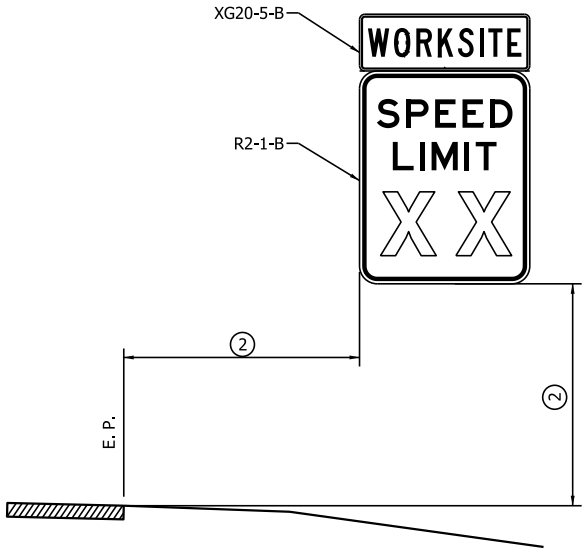
DAVID H. BORUFF REGISTERED No. 60900348 STATE OF INDIANA PROFESSIONAL ENGINEER

/s/ David H. Boruff 06/25/15
DESIGN STANDARDS ENGINEER DATE

/s/ Mark A. Miller 07/02/15
CHIEF ENGINEER DATE



REDUCED SPEED ADVANCE
WARNING SIGN ASSEMBLY



WORKSITE SPEED LIMIT
SIGN ASSEMBLY

NOTES:

1. If not trailer mounted, signs and supports shall satisfy NCHRP 350 or MASH crash evaluation criteria.
2. See Standard Drawing 801-TCDV-05 for lateral and vertical placement.
3. Advance warning signs speed limit shall match that on worksite speed limit sign.
4. The worksite speed limit shall be at least 10 mph below the posted speed limit for the roadway under construction.
5. Sign series shown is for freeway or expressway application.

INDIANA DEPARTMENT OF TRANSPORTATION

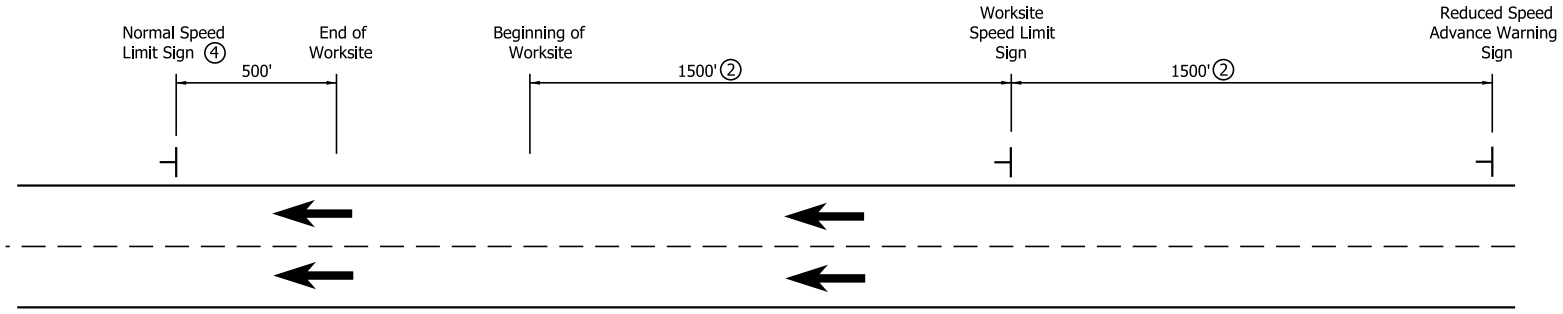
WORKSITE SPEED LIMIT SIGN ASSEMBLY
FOR CONTINUOUS USE
(24/7)
SEPTEMBER 2016

STANDARD DRAWING NO. E 801-TCDV-11

DAVID H. BORUFF
REGISTERED
No.
60900348
STATE OF
INDIANA
PROFESSIONAL ENGINEER

/s/ David H. Boruff 06/25/15
DESIGN STANDARDS ENGINEER DATE

/s/ Mark A. Miller 07/02/15
CHIEF ENGINEER DATE



NOTES:

1. Worksite speed limit sign assemblies shall be placed on both sides of the directional lanes when multiple lanes traveling in the same direction are open to traffic. For undivided roadways, or on roadways where a single lane is open in one direction, assemblies are required on only one side of the roadway.

(2) Assembly spacing may be reduced using Distance B from Table 6C-1 of the IMUTCD for Urban and Rural Roadways.

3. Worksite speed limit sign assemblies shall be placed 500 ft beyond each crossroad or the last entrance ramp for each interchange, at 2-mile intervals throughout the worksite, or adjacent to the existing normal speed limit signs.

(4) For a rural Interstate route application, a truck speed limit sign shall be used and placed immediately to the right of the normal speed limit sign.

5. See Standard Drawing E 801-TCDV-10 and -11 for sign assembly.

INDIANA DEPARTMENT OF TRANSPORTATION

WORKSITE SPEED LIMIT
SIGN ASSEMBLY
LONGITUDINAL PLACEMENT

SEPTEMBER 2016

STANDARD DRAWING NO. E 801-TCDV-12

DAVID H. BORUFF REGISTERED No. 60900348 STATE OF INDIANA PROFESSIONAL ENGINEER

/s/ David H. Boruff 07/29/15
DESIGN STANDARDS ENGINEER DATE

/s/ Mark A. Miller 08/03/15
CHIEF ENGINEER DATE