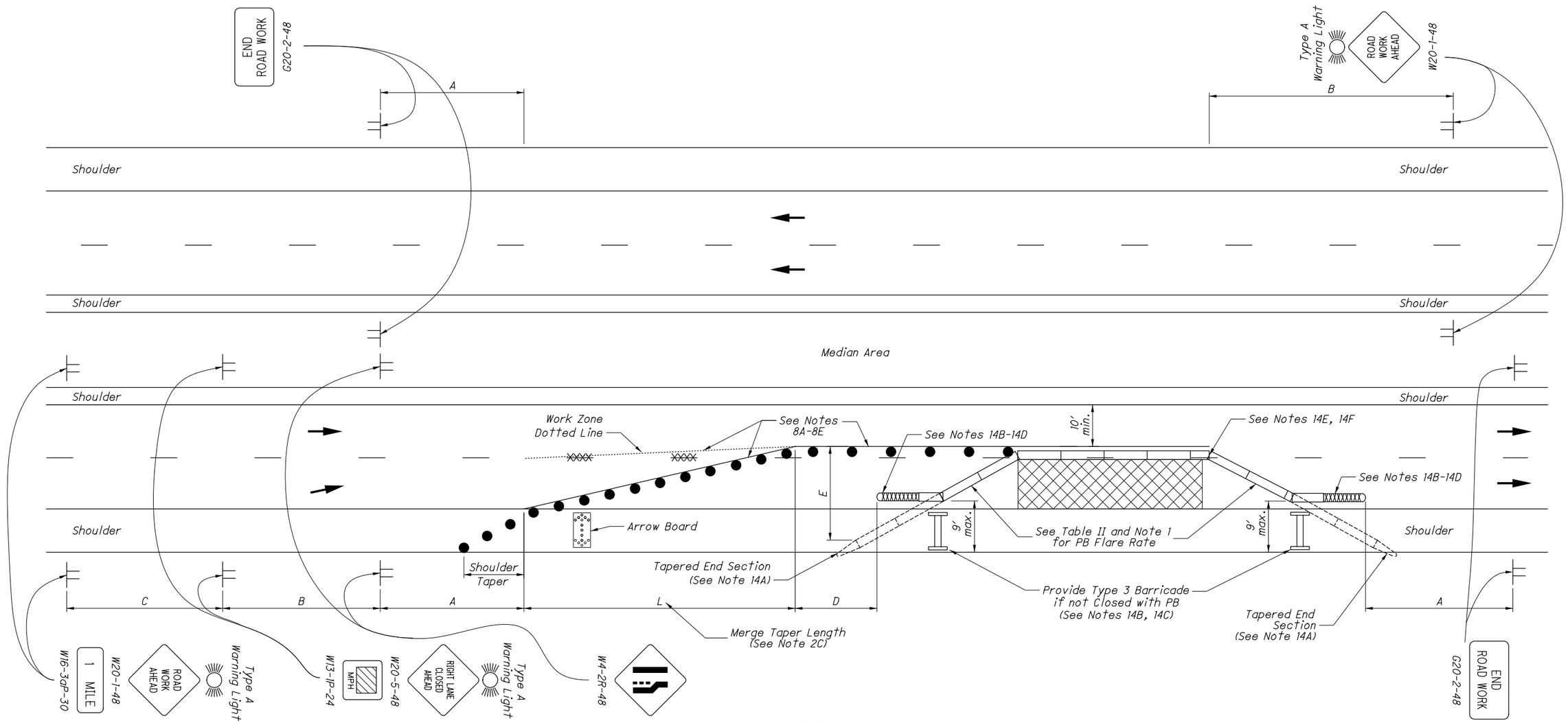


TABLE I (SIGN SPACING)

ROAD TYPE	DISTANCE BETWEEN SIGNS (FT)		
	A	B	C
MAJOR CONVENTIONAL	500	500	500
FREEWAY & EXPRESSWAY	1000	1500	2640

TABLE II

SPEED LIMIT (MPH)	MERGING TAPER RATE MINIMUM	SHOULDER TAPER RATE MINIMUM	PB FLARE RATE MINIMUM	MAXIMUM DRUM SPACING (FT)		BUFFER (D) (FT) MINIMUM	CLEAR ZONE WIDTH (E) (FT)
				TAPER SEC.	TANGENT SEC.		
25	11:1	4:1	8:1	25	40	155	15
30	15:1	5:1	8:1	30	40	200	15
35	21:1	7:1	9:1	35	40	250	15
40	27:1	9:1	10:1	40	80	305	15
45	45:1	15:1	12:1	45	80	360	19
50	50:1	17:1	14:1	50	80	425	19
55	55:1	19:1	16:1	55	80	495	23
60	60:1	20:1	18:1	60	120	570	30
65	65:1	22:1	19:1	65	120	645	30
70	70:1	24:1	20:1	70	120	730	30

LEGEND

- WORK AREA
- DRUMS
- PORTABLE BARRIER (PB)
- REMOVE EXISTING MARKINGS
- ATTENUATOR
- OPTIONAL TREATMENT
- DIRECTION OF TRAVEL

THIS DRAWING REPLACES MT-95.40 DATED 01-20-2017.

STANDARD ROADWAY CONSTRUCTION DRAWING

CLOSING RIGHT OR LEFT LANES OF A MULTI-LANE DIVIDED HIGHWAY WITH PORTABLE BARRIER

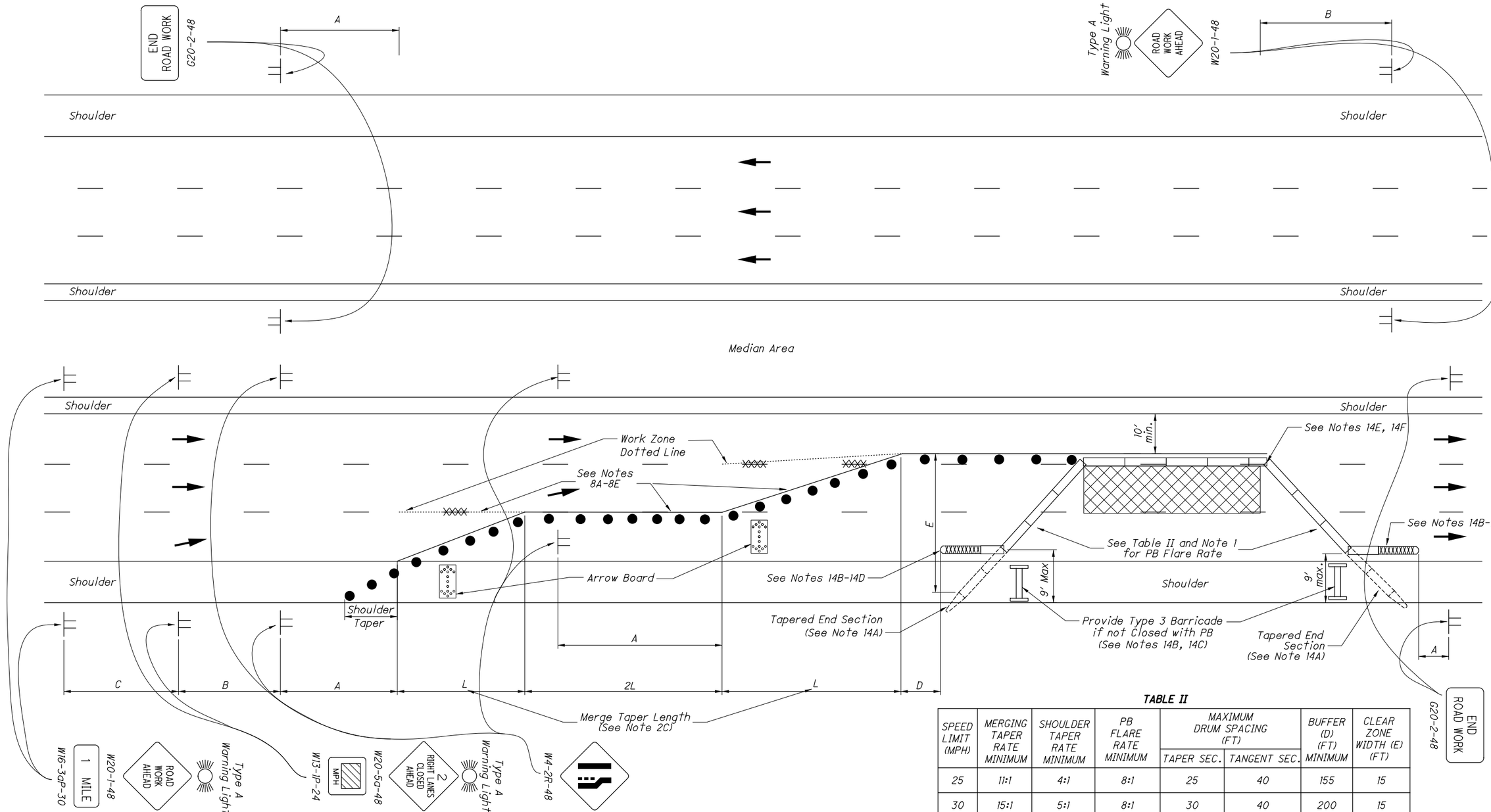
SCD NUMBER **MT-95.40**

OFFICE OF ROADWAY ENGINEERING

STDS. ENGINEER Soisson

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR David L. Holstein

REVISION DATE 01-17-2020



LEGEND

- WORK AREA
- DRUMS
- PORTABLE BARRIER (PB)
- REMOVE EXISTING MARKINGS
- ATTENUATOR
- OPTIONAL TREATMENT
- DIRECTION OF TRAVEL

TABLE I (SIGN SPACING)

ROAD TYPE	DISTANCE BETWEEN SIGNS (FT)		
	A	B	C
MAJOR CONVENTIONAL	500	500	500
FREEWAY & EXPRESSWAY	1000	1500	2640

TABLE II

SPEED LIMIT (MPH)	MERGING TAPER RATE MINIMUM	SHOULDER TAPER RATE MINIMUM	PB FLARE RATE MINIMUM	MAXIMUM DRUM SPACING (FT)		BUFFER (D) (FT) MINIMUM	CLEAR ZONE WIDTH (E) (FT)
				TAPER SEC.	TANGENT SEC.		
25	11:1	4:1	8:1	25	40	155	15
30	15:1	5:1	8:1	30	40	200	15
35	21:1	7:1	9:1	35	40	250	15
40	27:1	9:1	10:1	40	80	305	15
45	45:1	15:1	12:1	45	80	360	19
50	50:1	17:1	14:1	50	80	425	19
55	55:1	19:1	16:1	55	80	495	23
60	60:1	20:1	18:1	60	120	570	30
65	65:1	22:1	19:1	65	120	645	30
70	70:1	24:1	20:1	70	120	730	30

THIS DRAWING REPLACES MT-95.40 DATED 01-17-2020.

STANDARD ROADWAY CONSTRUCTION DRAWING

CLOSING RIGHT OR LEFT LANES OF A MULTI-LANE DIVIDED HIGHWAY WITH PORTABLE BARRIER

SCD NUMBER **MT-95.40**

OFFICE OF ROADWAY ENGINEERING

STDS. ENGINEER Soisson

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR David L. Holstein

REVISION DATE 01-17-2020

NOTES:

DESIGN SPEED

1. The design speed used for taper rates should typically be the permanent legal speed. However, on construction projects for which the speed limit is reduced, the reduced speed may be used in determining the taper rate when the taper is not the first active construction area within the project.

TAPERS

2A. The minimum acceptable length for the merge taper shall be determined by multiplying the width of offset by the merge taper rate. The merge taper rate is provided in Table II.

2B. The minimum acceptable length for the shoulder taper shall be determined by multiplying the width of the shoulder by the shoulder taper rate. The shoulder taper rate is provided in Table II.

2C. The tangent section between the two merge tapers should be two times the longer of the two merge tapers.

SIGN SPACING

3A. The work zone sign spacings shown in Table I are minimums. Maximum spacing should not be greater than 1.5 times the distances shown in Table I.

3B. Sign spacing should be adjusted to avoid conflict with existing signs. Minimum spacing to existing signs shall be 200′ for speeds of 45 mph or less and a minimum of 400′ for speeds 50 mph or greater.

ADJUSTMENTS FOR SIGHT DISTANCE

4. The location of the merging taper and the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment.

BASIC SIGNING

5A. ROAD WORK AHEAD (W20-1) signs shall be provided on entrance ramps or roadways entering the work limits.

5B. END ROAD WORK (G20-2) signs are only required for lane closures of more than 1 day. It is intended that these signs be placed on the mainline, on all exit ramps, and on roadways exiting the work limits.

5C. Overlapping of signing for adjacent projects should be avoided where the messages could be confusing. Any W20-1 or G20-2 signs which falls within the limits of another traffic control zone shall be omitted or covered during the period when both projects are active.

SIGNING DETAILS

6A. The Advisory Speed (W13-1P) plaque shall be used when specified in the plan.

6B. When the approach speed limit is 40 mph or less, 36″ warning signs may be used.

6C. The distance plaque W16-3aP (or W16-2aP if the distance shown is in feet) shall indicate the distance to the beginning of the merging taper. Distances less than 1 mile may be expressed in feet. The plaque may be omitted if Extra Advance Sign Groups are not used.

6D. Provide signing on the inactive side of the highway, as shown, when specified in the plans.

6E. Provide the appropriate word or symbol legend necessary on Lane Reduction (W4-2, W20-5) signs to correctly identify which lane is to be closed.

EXTRA ADVANCE WARNING SIGNING

7. Extra Advance Warning Sign Groups consisting of ROAD WORK AHEAD (W20-1), LANE CLOSED AHEAD (W20-5), LANES CLOSED AHEAD (W20-5a), and WATCH FOR STOPPED TRAFFIC (W3-H4b) signs plus Distance plaques may be specified in the plans or may be required to be erected, as determined by the Engineer (see Standard Construction Drawing (SCD) MT-95.50).

PAVEMENT MARKINGS / RPMs

8A. If the construction operation requires a lane closure for more than 1 day, the existing conflicting reflectors shall be removed from the raised pavement markers (RPMs).

8B. Additionally, if a lane closure of greater than 3 days is required, the following shall be performed:

a) The appropriate color work zone edge lines shall be applied along the taper.
b) The existing conflicting pavement markings shall be removed or covered per CMS 614.11G.
c) Work zone dotted lines, 3′ in length separated by 9′ gaps, shall be provided to identify the merge.

8C. Work zone edge lines shall be provided along the tangent section when specified in the plans.

8D. Work zone pavement markings which would conflict with final traffic lanes shall be removable tape (CMS 740.06, Type I) unless the area will be resurfaced prior to project completion.

8E. After completion of the work, pavement markings other than CMS 740.06, Type I shall be removed in accordance with CMS 614.11 I. The original markings and raised pavement marker reflectors shall be restored at no additional cost unless separately itemized in the plans.

(RESERVED FOR FUTURE USE)

9A. (intentionally blank)

ARROW BOARD

10. The arrow board shall be chosen from the ODOT approved list and follow the guidelines in Supplemental Specification 821.

FLASHING WARNING LIGHTS

11. Type A flashing warning lights shown on the ROAD WORK AHEAD (W20-1) signs and on the LANE CLOSED AHEAD (W20-5) signs are required whenever a night lane closure is necessary.

INTERSECTION / DRIVEWAY ACCESS

12. Within the length of the closure, provision shall be made to control traffic entering from intersecting streets and major drives as necessary to prevent wrong-way movements and to keep vehicles off of new pavement not ready for traffic. The Contractor shall:

a) Place across the closed lane, either 3 drums (cones) or barricades, and/or
b) Provide an additional flagger at every public street intersection and major driveway.

Drums (cones) placed across the closed lane shall be located 25′ beyond the projected pavement edges of the driveway or cross highway, as shown in SCD MT-97.11. For barricades, see SCD MT-101.60.

Existing STOP signs shall be relocated as necessary to assure proper location for the traffic conditions. The method of control shall be subject to the approval of the Engineer.

DRUMS

13A. The maximum drum spacing along tapers and along tangent sections shall be as shown in Table II. A minimum of 5 drums shall be used to close the upstream shoulder.

13B. All drums and cones should have a minimum offset from the edge of the traveled lanes of 1.5 feet.

PORTABLE BARRIER (PB)

14A. A tapered end section may be used in place of the impact attenuator at locations where the last full section of NCHRP 350 PB can be extended outside of the clear zone for approaching traffic. See Table II for clear zone widths.

14B. If it is necessary to provide the Contractor with access to the work area behind the PB flare, the PB end treatment shall include an impact attenuator. The maximum width of the opening shall be 9′ between the impact attenuator and the outside edge of the paved shoulder.

14C. If Contractor access is provided per Note 14B, the length of PB shall be adequate to shield the work area from the motorist. This length of need of PB shall be determined from the calculations provided in SCD MT-101.75 and the L&D Manual, Volume 1, Figure 602-1E, and shall require the approval of the Engineer.

14D. When used, impact attenuators shall be installed parallel to traffic. Also, the last full section of PB, adjacent to the impact attenuator, shall be located parallel to traffic.

14E. Where narrow medians are provided, see Table II to determine whether or not the downstream end of the PB is located within the clear zone of opposing traffic. If the PB is located within the clear zone of opposing traffic, the downstream end shall be flared away from opposing traffic to shield the work area from potential errant vehicles crossing the median.

14F. If the NCHRP 350 PB is located beyond the clear zone of opposing traffic, the downstream end of the NCHRP 350 PB may be provided with a tapered end, located 10′ beyond the work area.

14G. Where PB is located beyond the edge of the paved shoulder, the cross slope within the clear zone, including the surface on which the PB is placed, shall be graded at 10:1, or flatter. If the cross slope is steeper than 10:1, the PB shall be terminated on the paved shoulder. The PB shall be extended along the paved shoulder as necessary to satisfy the length of need, and then terminated using an impact attenuator.

14H. The work area shall be adequately protected from traffic approaching from intersections and driveway approaches using PB and impact attenuators as called for by the Engineer.

14I. For installation procedures, refer to the manufacturer's installation instructions.

14J. For details on delineation of PB, see Standard Construction Drawing MT-101.70.

BUFFER SPACE

15A. Where space constraints do not allow for the buffer space, a shorter length may be used.

THIS DRAWING REPLACES MT-95.40 DATED 01-20-2017.

REVISION DATE 01-17-2020

STATE OF OHIO DEPARTMENT OF TRANSPORTATION ADMINISTRATOR David L. Holstein

STDS. ENGINEER Soisson

OFFICE OF ROADWAY ENGINEERING

STANDARD ROADWAY CONSTRUCTION DRAWING

CLOSING RIGHT OR LEFT LANES OF A MULTI-LANE DIVIDED HIGHWAY WITH PORTABLE BARRIER

SCD NUMBER MT-95.40