

MODIFIED BY EI 90-012 EFFECTIVE 6/28/90		ENGINEERING INSTRUCTION	
SUPERSEDED BY <u>EB 06-004</u> EFFECTIVE <u>9/7/06</u>		NEW YORK STATE DEPARTMENT OF TRANSPORTATION SUBJECT: MAINTENANCE AND PROTECTION OF TRAFFIC: DELINEATION, CHANNELIZATION AND DROP-OFF PROTECTION Subject Code: 7.27-3-619.01	
Distribution:		Code: <u>EI 90-3</u>	
30 Main Office 32 Regions 34 Special		Date: <u>1-19-90</u>	
APPROVED: <i>J R Lambert</i> J.R. Lambert, Deputy Chief Engr., Facilities Design Div., 405-5		Supersedes:	

Attached is a Main Office Shelf Note that will be inserted in all projects containing item 619.01, BASIC MAINTENANCE AND PROTECTION OF TRAFFIC. This shelf note revises Subsection 619-3.01G Delineation and Guiding Devices for Construction, found in Addenda No. 2, page 42. These revisions:

1. Define and differentiate between delineation and channelization, with examples of each.
2. Present a cost-effective treatment for work zone drop-offs that is acceptable to both the FHWA and our department. These treatments take duration, speed, depth of drop-off and traffic volume into consideration. Some of these treatments require ramping, or even positive barrier, in addition to drums, flashing warning lights, and signs. Therefore, the drop-off note previously included in F.A. projects will no longer be required.

This policy is appropriate for the majority of New York State DOT construction contracts. However, extremely high or low traffic volumes, extremely good or poor geometrics and/or sight distance, may require either more or less protection than prescribed in this policy. Therefore, the designer is reminded to include appropriate details, pay items, and notes if he/she intends to modify the prescribed treatments. Documentation for modifying the prescribed drop-off protection treatment should be included when submitting the Maintenance and Protection of Traffic plans for approval.

Since the prescribed treatments are determined by vehicle operating speeds and volumes, the designer should include this data in the Maintenance and Protection of Traffic Plan to direct the Engineer and Contractor to the appropriate level of drop-off protection required.

Since the cost of these new requirements is to be included in the lump sum price of item 619.01, the designer is reminded to take this into consideration when doing the price analysis.

This policy will be effective with the letting of June 28, 1990.

Drop-offs

Make the following changes to the Standard Specifications of January 2, 1985.

Addenda No. 2

Page 42

Replace "G. Delineation and Guiding Devices for Construction" with the following.

G. Channelization, Delineation and Pavement Edge Drop-off Protection.

The Contractor shall furnish, erect, move, maintain and remove delineators channelizing devices, and traffic barrier as required by the the contract documents and as directed by the Engineer. In areas where grading is being done, a safe and easily traveled roadway shall be properly marked at all times either by the use of delineation and channelizing devices or flaggers. Where private driveways, pedestrian or handicapped facilities exist, the entire access area shall be kept safe and smooth for convenient ingress and egress. Any area determined by the Engineer to be particularly hazardous shall be marked by the use of flashing warning lights conforming to the requirements of the MUTCD in addition to the channelizing or delineation devices.

Usage, placement and design of channelizing devices shall be consistent with the MUTCD. Channelizing devices consisting of cones, plastic drums, tubular markers, Type III barricades, or vertical panels shall be used to mark the limits of the travel way available for use by traffic. These devices shall physically separate traffic from the roadway section not to be used, and shall be spaced as recommended in the MUTCD and as shown on the plans and proposal and in Table 619-1 of this section.

All channelizing devices shall be maintained upright, in proper alignment, and kept clean at all times. If ballast is used to maintain alignment and position of the devices, it shall consist of dry sand placed at ground level. The sand shall be contained in waterproof closed bags or in a waterproof compartment of the device specifically designed for the purpose. Under no circumstances shall ballast be placed on top of a drum or at any point above ground level on any of these devices. If plastic drums are used, they shall be two-piece devices with detachable bases or one-piece devices with elongated bases provided to hold the ballast. In the case of one-piece devices, the sand-bag ballast shall be placed on the side from which traffic approaches. In no case will the use of steel drums or open-top plastic drums be permitted. Where warning lights are attached to the top of drums, a bolt, nut and washer shall be used for the attachment as recommended by the drum manufacturer.

If post-mounted delineators are used, they shall be securely mounted and placed in accordance with the requirements of the MUTCD. They shall be placed only behind curbing or to mark the outside limits of usable shoulders. Post-mounted delineators are not required to be installed behind channelizing devices, but such an installation is not prohibited. Other delineators for mounting on traffic barriers or other purposes may be circular or rectangular in shape and shall be constructed of reflective sheeting having a minimum area of 20 square inches or of reflective buttons having a minimum diameter of 3 inches.

Drop-offs

For drop-offs within ten (10) feet of travel lanes, the Contractor shall provide traffic protection in accordance with the provisions of Table 619-1, "Required Protection for Pavement-edge Drop-offs" and the accompanying notes, unless otherwise shown in the Contract documents. In all cases, construction operations shall be conducted so as to minimize to the extent practicable the time, depth, and length of drop-offs to which motorists are exposed. At the close of work each day, the contractor shall provide the treatment shown in Table 619-1. At the time a drop-off condition first occurs, the protection treatment shall be installed based on the anticipated number of days the traffic will be exposed to the drop-off. The anticipated exposure time shall be determined by the contractor, subject to verification by the Engineer. If at any time subsequent to installation of the protection treatment, the Engineer determines that the anticipated exposure time is likely to increase such that additional protection is required, that increased protection shall be installed as soon as practicable, and it shall be based on the revised anticipated exposure time measured from the first day the drop-off condition existed. In addition, "LOW SHOULDER" or "NO SHOULDER" signs, as appropriate, shall be used for all drop-offs within the final shoulder width. For long drop-offs, these signs shall be placed beyond intersections and at spacing not exceeding 1000 feet. For drop-offs less than two (2) inches deep, the "LOW SHOULDER" sign will not be necessary after edge lines are installed.

If a ramp is required by Table 619-1, it shall be constructed from the pavement surface to the surface of the excavated area using the maximum slope shown in the table. Ramp material shall be erosion resistant, fully compacted, and compatible with the material in the excavated area. At the contractor's option, a preformed ramp may be used provided it is adequately anchored to the underlying course. Unless indicated otherwise in the plans or permitted in writing by the Engineer, channelizing devices or temporary traffic barrier used to protect drop-offs shall not intrude into the travel way to the extent that they reduce available lane width to less than 10 feet on roadways with actual operating speeds of 45 mph or less or 11 feet on all other roadways. Channelizing devices may be placed in the drop-off area only for depths of up to 6 inches. For drop-offs deeper than 6 inches, the channelizing devices must be placed entirely on the pavement.

The Contractor may choose at his option, with written approval of the Engineer, to provide a positive traffic barrier in lieu of the treatment shown in Table 619-1.

If the Contractor chooses to substitute barrier, no separate payment will be made for the barrier. If the contractor's operations are delayed to the extent that positive barrier is required by Table 619-1, it shall be installed by the Contractor at no additional cost to the State.

Whenever positive barrier is used or required by Table 619-1, the Contractor shall provide temporary concrete barrier. However, if adequate deflection space is available, and all applicable design criteria are met, the Contractor may elect to substitute a different positive barrier if approved in writing by the Engineer.

Drop-offs

Table 619-1
REQUIRED TREATMENT FOR PAVEMENT EDGE DROP-OFFS

DEVICE SPACING, FT.	RAMP SLOPE, VERT: HORIZ.
------------------------	-----------------------------

Depth of Drop-off (In.)	Anticipated Exposure Time (Calendar Days)	AADT $\leq$ 7500		AADT $\geq$ 7500 and all Freeways & Expwys.	
		Operating Speed $\leq$ 45 MPH	Operating Speed $>$ 45 MPH	Operating Speed $\leq$ 45 MPH	Operating Speed $>$ 45 MPH
2 to 6	$\leq$ 7	100	150	50	50
2 to 6	8 to 60	100 1:1	200 1:1	50 1:1	100 1:1
2 to 6	60+	100 1:1	200 1:1	50 1:3	200 1:3
6 to 24	$\leq$ 7	50	50	50	50
6 to 24	8 to 60	50	200 1:3	100 1:3	200 1:3
6 to 24	60+	50	200 1:3	100 1:3	200 1:3
24+	$\leq$ 7	50	50	50	50
24+	8 to 60	100 1:3	200 1:3	100 1:3	200 1:3
24+	60+	100 1:3	200 1:3	100 1:3	Positive Barrier

Notes

1. The table shows spacing for drums or Type III barricades. The spacing shall be halved if other channelizing devices are used. Type III barricades may be used instead of drums, if space permits, but no separate payment will be made unless otherwise shown on the plans.
2. For drop-off lengths shorter than the maximum device spacing shown in Table 619-1, or for drop-offs at intersections, the device spacing shall be shortened to provide adequate channelization as directed by the Engineer.
3. Two flashing warning lights shall be used at the beginning of each work zone drop-off.
4. The ramp from the pavement surface to the excavated area shall not exceed the slope shown in the Table. For cases where no slope is shown, no sloped ramp is required.

Drop-offs

5. Whenever it is not practicable in the opinion of the Engineer to achieve the desired ramp slope shown in the Table, the flattest practicable ramp shall be constructed and the device spacing shall match the 7 day spacing, except positive barrier shall be required for drop-offs exceeding 24 inches on roadways with traffic volumes exceeding 7500 vehicles per day.
6. At the Contractor's option, required 1:3 ramps may be flattened to 1:4 and device spacing increased to 200 feet.
7. For drop-offs located more than 10 ft. from the edge of the travel lane, ramping shall not be required and the minimum required spacing for drums and Type III barricades shall be 100 ft. (50 ft. for alternate devices). Drums or Type III Barricades spaced at 100 ft. or other approved devices spaced at 50 ft. may be substituted for positive barrier. Signs and flashing warning lights shall be provided as required in this Section for drop-offs greater than 6 in.
8. For winter shutdown periods, the contractor shall restore the roadway to the normal operating condition whenever possible. If this cannot be achieved, a compacted 1:4 ramp shall be provided at all pavement edge drop-offs. If a 1:4 ramp cannot be provided, a positive barrier shall be required, unless otherwise directed by the Regional Construction Engineer, at no additional cost to the State.
9. For drop-offs exceeding 24 inches in depth for exposure times of 7 days or less, and when an offset of at least two feet cannot be provided from the edge of travel lane to the drop-off, alternate traffic control plans may be required by the Engineer.

Pages 48 & 50

Add the following sentence after last sentence of §619-4.03 and §619-5.03.

"Temporary concrete barrier installed at the option of the Contractor, or required solely by a delay in the Contractor's operations, shall not be included in the measurement or payment for temporary concrete barrier."

Pages 48 & 50

Add the following sentence after the last sentence of §619-4.04 and §619-5.04.

"Type III Construction Barricades used at the option of the Contractor in lieu of drums or other channelizing devices shall not be included in the measurement or payment for Type III Construction Barricades."