

including the bridge attachments. Project limits should end outside the limits of a guide rail run where practical.

- C. Gaps of 200 ft. or less between individual guide rail installations should be avoided where possible.
- D. Guide rail should not be installed beyond the right-of-way unless easements or necessary right-of-way is acquired.
- E. For the guide rail treatment at adjacent bridges, see Standard Roadway Construction Details CD-609-7.4. Guide rail between parapets is not required if there is a concrete connecting wall 2.25 feet high (minimum) between parapets.
- F. Proposed guide rail set flush with the curb line along intersection radius returns should be checked with a truck turning template. Existing guide rail along radius returns that experience truck overhang or oversteering crashes shall either be reset farther from the curb line or redesign the radius returns for a larger design vehicle.
- G. The preferred method for locating all end treatments on construction plans is to dimension from physical objects (i.e.; lateral offset from edge of road, longitudinal dimensions from utility pole). Another method is by station and offset.
- H. The grading work necessary for the construction of the guide rail end treatments shall be shown on the construction plans. The grading shall conform to the Standard Roadway Construction Details.
- I. Conduits
The plans shall indicate the location of existing conduits or shall include a notation where there is a possibility of conflict in driving the guide rail posts.
- J. Non-vegetative Surface Under Guide Rail
In order to reduce soil erosion and highway maintenance costs associated with spraying vegetation killer or trimming vegetation underneath guide rail, non-vegetative surfaces should be applied underneath guide rail as follows:

Table 8-4 Guide Rail Types	
Conditions Warranting Use of Non-vegetative Surfaces*	
Existing Guiderail	Where upgrading Where regrading berms Where resetting guide rail
New Guide Rail	All cases

*The following are examples of exceptions to Table 8-4

- Areas adjacent to properties where adjacent property owners maintain NJDOT R.O.W.
- Where Environmental permits would be required (i.e.: stormwater management (Flood Hazard Control Act), riparian, freshwater or tidal wetlands, pinelands), individual sections of guide rail 1000 feet or less in length may be exempt from non vegetative surfaces. Caution should be taken on eliminating Non-Vegetative Surfaces from underneath guide rail next to slopes 2 to 1 or steeper. Extreme caution should be taken where runoff from slope can enter a C-1 waterway.

All non-vegetative surfaces require maintenance to spray emergent non-selective herbicide treatment for total control of vegetation on the non-vegetative surface area.

Non-vegetative Surface, Hot Mix Asphalt (HMA), can be used wherever guide rail is placed. The net increase of impervious cover should be kept below 1/4 acre per project and disturbance less than 1 acre. If the above requirements are exceeded and other permits (i.e.: wetlands, tidal, C.A.F.R.A., etc.) are required by the Division of Land Use Regulation of the NJDEP for the project, then NJDEP will review the Storm Water Management Plan as part of the permit review. If the above requirements are exceeded and no other environmental permit is required by NJDEP for the project, then the Hydrology and Hydraulic Unit of the

Bureau of Landscape Architecture and Environmental Solutions at NJDOT will review the Storm Water Management Plan.

Several types of porous non-vegetative surfaces are available in order to keep the net impervious surface to a minimum:

- Non-vegetative Surface, Porous Hot Mix Asphalt: NJDEP considers Porous HMA as impervious cover for stormwater management (Flood Hazard Control Act). The Delaware and Raritan Canal Commission considers Porous HMA as porous cover for stormwater management.
- Non-vegetative Surface, Polyester Matting: NJDEP considers Polyester Matting as impervious cover for stormwater management (Flood Hazard Control Act).
- Non-vegetative Surface, Broken Stone: The NJDEP considers Broken Stone porous for wetland transition areas and for stormwater management (flood hazard control act). The NJ Pinelands Commission considers Broken Stone as porous for stormwater management.

Currently, all types of non-vegetative surfaces are considered as vegetative disturbance in a Riparian zone and need a permit from NJDEP.

Porous types are limited on where they can be placed, see Table 8-5:

Non-vegetative Surfaces	Curb Section	Berm Section			Umbrella Section		
	Guide Rail Offset	Guide Rail Offset			Guide Rail Offset		
	All	0'	4'	7' or more	0'	4'	7' or more
Porous HMA 4" Thick	Yes	Yes	No	Yes	Yes	No	Yes
Porous HMA 6" Thick	No	No	Yes	No	No	Yes	No
Polyester Matting	Yes	No	No	Yes	No	No	Yes
Broken Stone 4" Thick*	Yes	No	No	Yes	Yes	Yes	Yes

*Note: New Broken Stone installations must have a minimum shoulder width of 8 feet adjacent to it. Broken Stone is limited only in areas where broken stone exists. For example: additional guide rail is being provided in a project and the existing guide rail within the project limits has broken stone underneath. Concurrence is needed from the Regional Maintenance Engineer. Broken Stone is the least expensive non-vegetative surface, followed by Porous HMA, HMA, and then Polyester Matting.

The non-vegetative surface shall be constructed as shown in the Standard Roadway Construction Details.

8.4 Median Barrier

A median barrier is a longitudinal system used to prevent an errant vehicle from crossing that portion of a divided highway separating traveled ways for traffic in opposite directions.

8.4.1 Warrants for Median Barriers

A. Interstate and Freeways

Figure 8-T presents the warrants for median barriers on high speed, access-controlled highways with traversable slopes 10H:1V or flatter.

When the need for a median barrier is determined to be optional from Figure 8-T, an evaluation of the cross median crash history should be made to determine