

## ATTACHMENT 6

PROJECT NO. 500505 PROJECT NAME: WHITE GROUND ROAD BRIDGE NO. M-138

### E. PROJECT DESCRIPTION AND JUSTIFICATION

#### DESCRIPTION

This project is to provide for a replacement of the White Ground Road bridge over Buck Lodge Branch and approximately 1000 feet of approach roadway work (500 feet each to the north and south). The new replacement bridge will be approximately 50 feet in length and provide two 11-foot travel lanes with a 2-foot wide shoulder on each side, for a total bridge clear roadway width of 26 feet. The approach roadway work is necessary to transition the new bridge into the existing roadway alignment. The bridge and road will be closed to vehicular and pedestrian traffic during construction. Stream bank stabilization and realignment of the stream channel will be required to prevent further stream degradation and erosion of the existing stream banks.

#### Service Area

Germtantown, Boyds and Vicinity Area.

#### Capacity

Upon completion, the Average Daily Traffic [ADT] on White Ground Road bridge will remain at 650 vehicles per day, and the posted load restriction will be eliminated.

#### JUSTIFICATION

##### Specific Data

The existing structure, built around 1950, is a 28-foot long single span steel beam bridge with an asphalt filled corrugated metal deck. The clear roadway width of 15 feet 7 inches supports alternating two-way traffic. The 2001 bridge inspection report revealed that the concrete

substructure is in very poor condition. The abutments and wingwalls exhibit deterioration in the form of cracking and spalling concrete. Each abutment has been undermined by the stream current. Concrete aprons and rip-rap have been placed as temporary preventative scour measures. The steel beams are heavily corroded with section loss in part due to moisture migrating through the joints in the corrugated metal decking. The bridge is structurally deficient and functionally obsolete. It is currently posted for both a Single Unit Vehicle Weight and Combination Unit Vehicle Weight of 34,000 lbs.

#### **Plans and Studies**

White Ground Road is designated as a "rustic road" in the functional Master Plan for Rustic Roads. This bridge was identified for replacement through the County's biennial bridge inspection program. A review of impacts to pedestrians, bicycles and ADA (Americans with Disabilities Act of 1991) has been performed and addressed by this project. Traffic signals, streetlights, crosswalks, bus stops, ADA ramps, bikeways, and other pertinent issues have been considered in the design of the project to ensure pedestrian safety.

#### **Cost Change**

N/a

#### **STATUS**

Preliminary Design Stage

**NEW PROJECT / PROJECT CHANGE SUMMARY****FY 2005 - 2010 C.I.P.**

**Project Title:** White Ground Road over  
Bucklodge Branch  
Bridge No. M-138

**Project No.** 500505      **Date** August 5, 2003

*In the format below, please provide a summary rationale for key aspects of a new project as well as any major changes for an existing project as currently approved.*

**NEED:** Based on the findings of the biennial Bridge Inspection Program and extent of recent maintenance repairs, the White Ground Road bridge needs to be replaced. The existing structure, built around 1950, is a 28-foot long single span steel beam bridge with an asphalt filled corrugated metal deck. The clear roadway width of 15 feet 7 inches supports alternating two-way traffic. The 2001 bridge inspection report revealed that the concrete substructure is in very poor condition. The abutments and wingwalls exhibit deterioration in the form of cracking and spalling concrete. Each abutment has been undermined by the stream current. Concrete aprons and rip-rap have been placed as temporary preventive scour measures. The steel beams are heavily corroded with section loss in part due to moisture migrating through the joints in the corrugated metal decking. The bridge is structurally deficient due to the extent of steel beam and concrete deterioration and functionally obsolete based on the unsafe one lane traffic pattern. Large vehicles such as buses and delivery trucks must yield on the narrow approach roadway prior to crossing the one lane bridge. It is currently posted for both a Single Unit Vehicle Weight and Combination Unit Vehicle Weight of 34,000 lbs.

**SCOPE:** This project provides for the replacement of the existing one lane bridge in addition to approximately 1000 feet of approach roadway work. The new replacement bridge will be approximately 50 feet in length and provide two 11-foot travel lanes with a 2-foot wide shoulder on each side, for a total bridge width of 26 feet. The approach roadway work is necessary to tie the new structure into the existing roadway. The road and bridge will be completely closed to vehicular and pedestrian traffic during the reconstruction. Additionally, stream stabilization and restoration measures will be included in the project to correct stream bank erosion and prevent further stream degradation.

**TIMING:** The construction is scheduled to start in FY2005 and be completed in FY2006.

**FUNDING SOURCE(S):** Federal Aid funding will be requested for this project, therefore, the costs of bridge construction, construction management and inspection will be funded using 80% TEA-21 funding and 20% Montgomery County General Obligation Bonds.

**OTHER:** The project scope and schedule are new for FY2005. The design costs for this project are part of the Facility Planning: Bridges (C.I.P. No. 509132). The new bridge construction qualifies for Federal Aid funding since the existing span length exceeds 20 feet.

White Ground Road is designated as a "rustic road" in the Rustic Roads Functional Master Plan in Montgomery County, Maryland. According to Montgomery County Executive Regulation 21-96AM dated November 26, 1996, "the Department of Public Works and Transportation must make bridge repairs in a manner that preserves the rural characteristics of the roadway and the bridge structure", in addition this regulation provides guidelines for "Modification of Road Pavement and Related Structures" in terms of the following:

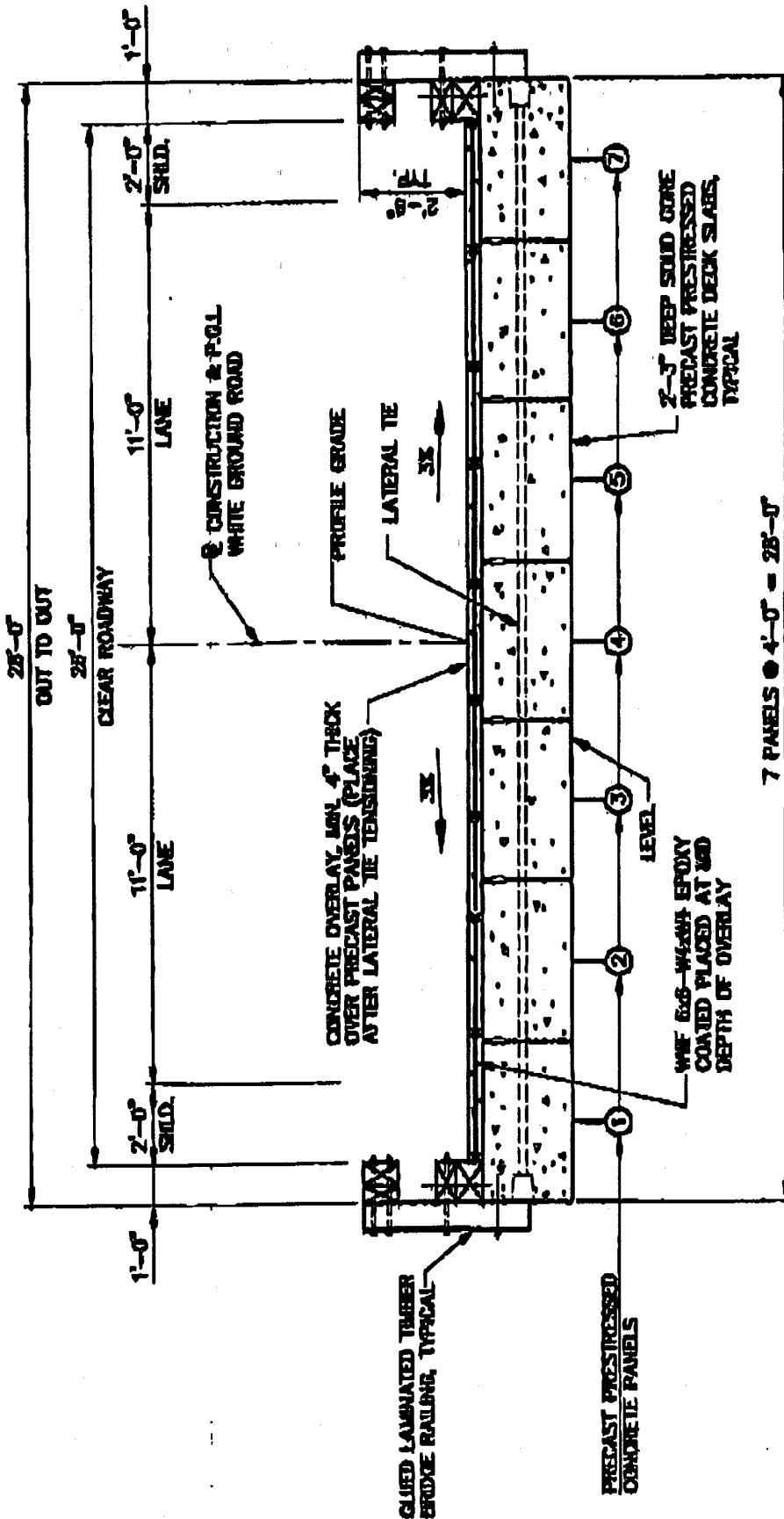
- Width, Alignment and Road Surface
- Shoulders
- Minimum Sight Distance for New Driveways, Intersections and Spot Safety Improvements.
- Minimum Sight Distance – Alignment Adjustments
- Bridge Replacement
- New Guardrails

For Bridge Replacements:

"Bridge replacement and rehabilitation must be of a design and material which preserves or enhances the rustic appearance of the road. Bridge must be replaced at a scale and with materials similar to those of the previously existing structure. If a different design is required for environmental, economic, or safety reasons, new bridges must be of a design and material that complements or enhances the rustic appearance of the roadway. Correction of substandard approach road geometrics must be made in character with existing unmodified portions of the roadway. All new or rehabilitated structures must be designed with adequate weight bearing capacity and horizontal clearance to accommodate emergency vehicles and agricultural equipment. Actual roadway surfaces on bridge deck must be compatible in width to the width of the unaltered roadway.

Due to the rustic road designation of this roadway, the existing roadway geometry was modeled as closely to existing conditions as possible. There is ample sight distance from each approach as to not compromise safety. It is the objective of this project to replace the deteriorated bridge while maintaining the rustic characteristics of the approach roadway. Therefore, the sharp curvature on the south approach with a design speed of 15 mph and the roadway curvature will remain since adequate sight distance is available to safely maneuver across the bridge. It was also the objective in the design and construction phases to minimize impacts to the adjacent parklands and stream valley. These two characteristics are also valuable attributes to the rustic road. Altering the alignment would cause the unnecessary removal of many more large trees and detract from the policy for managing rustic roads within the County. Pavement markings are not used on this road designation therefore the Rustic Roads Advisory Committee has requested that these be omitted on the new bridge. In their opinion, safety will not be compromised.

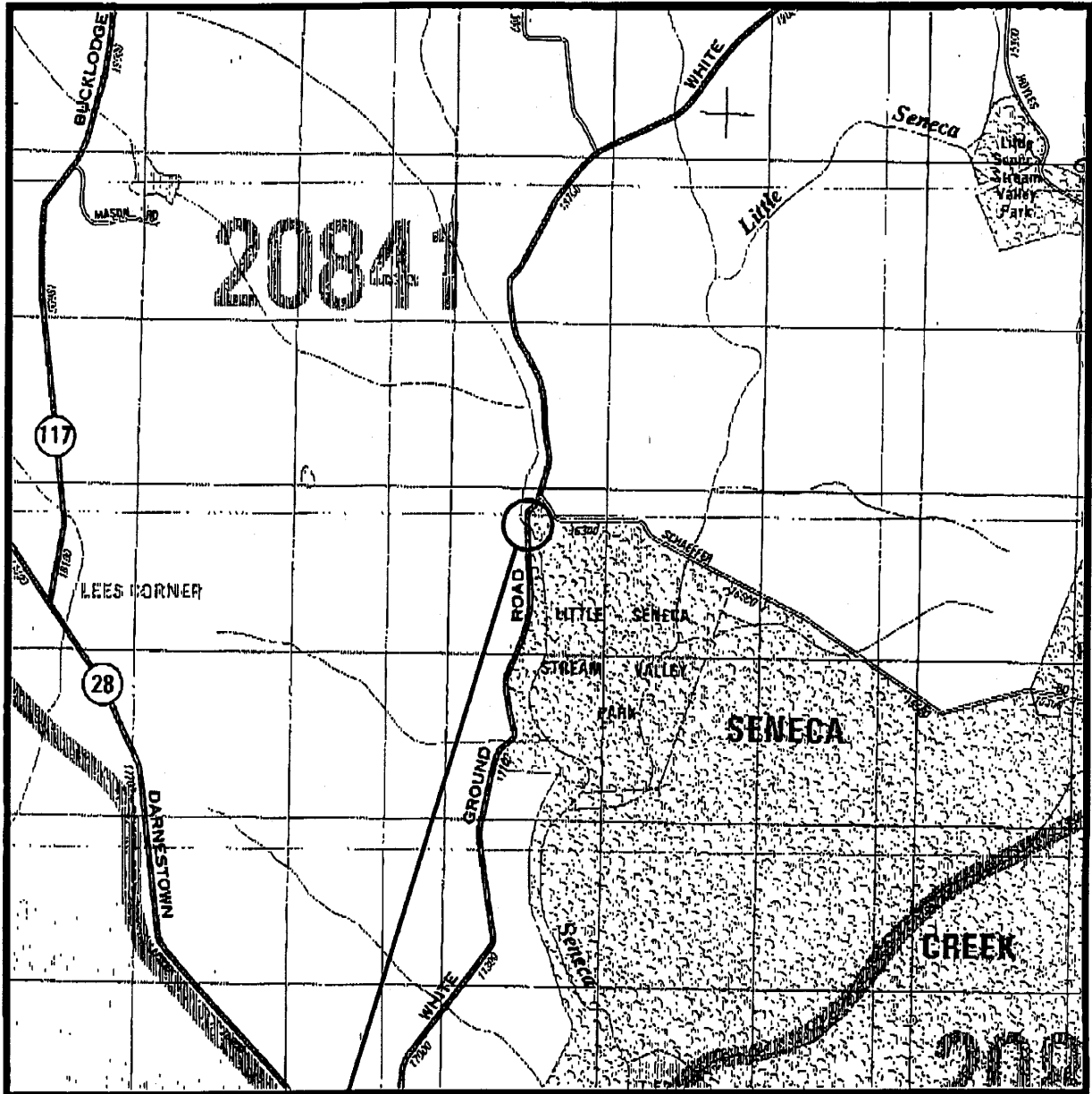
The County has no record of any serious accidents at this location.



**TYPICAL DECK SECTION**

SCALE 1/4"=1'-0"

**26' ROADWAY OPTION  
WHITE GROUND ROAD  
OVER BUCK LODGE BRANCH**



White Ground Road  
 Bridge No. M-0138

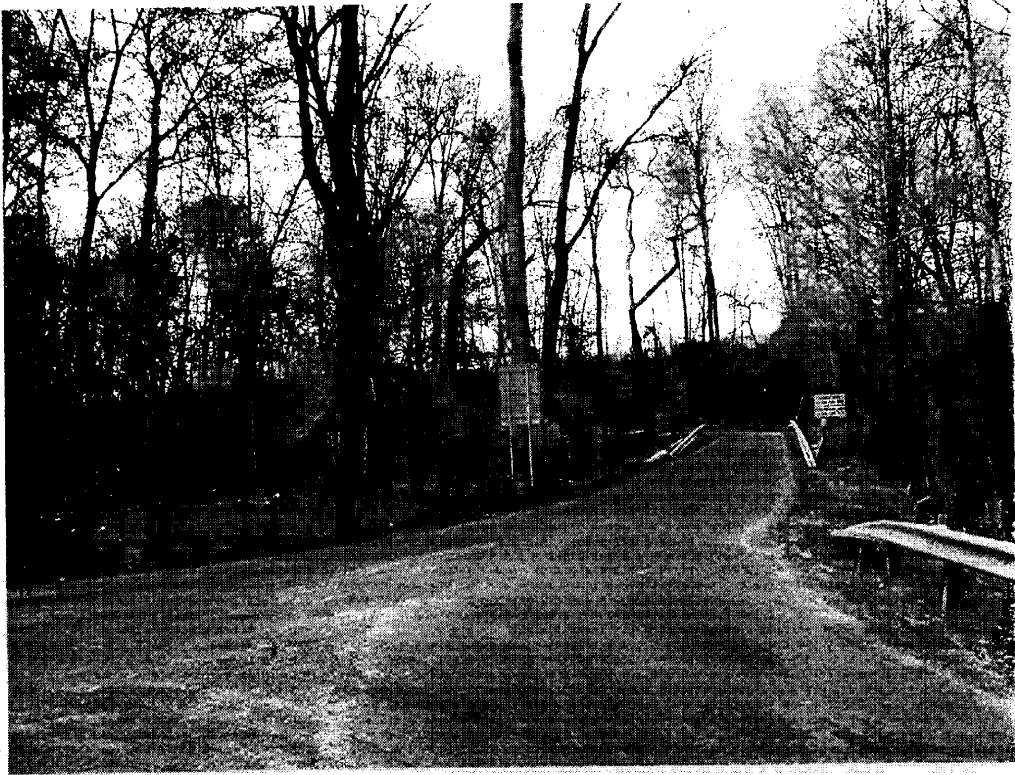
ADC Street Grid Location: 17-D-7

29<sup>th</sup> Edition

**LOCATION MAP**

SCALE: 1" = 2,000'

**White Ground Road**



**Northern Approach**

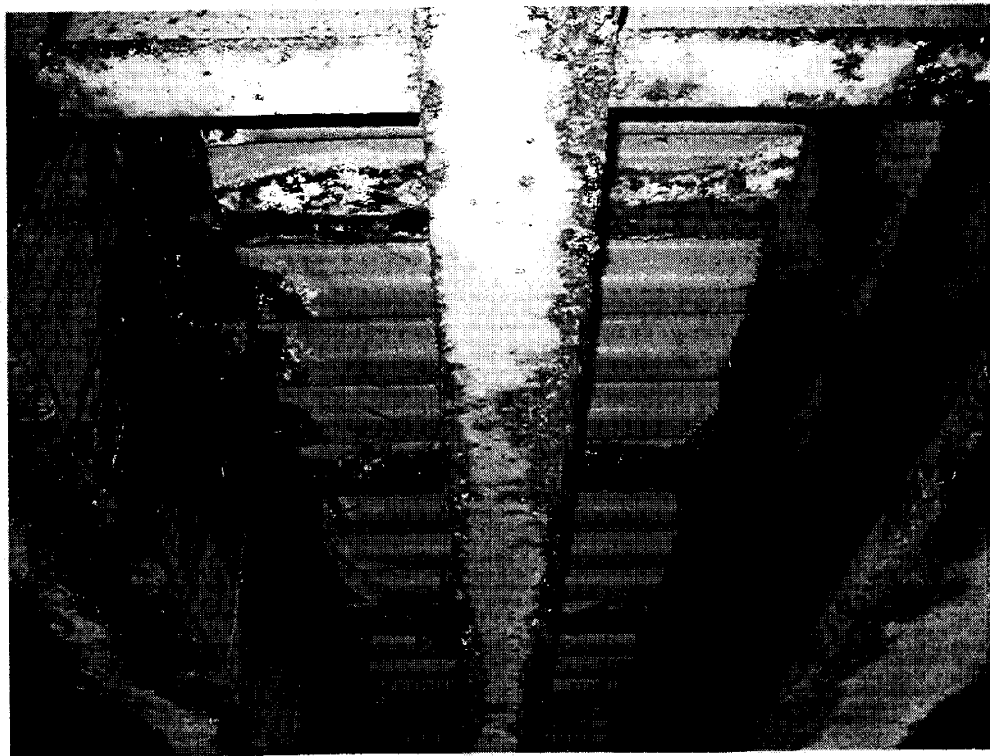


**Southern Approach**





Eastern Bridge Elevation



View under the bridge



View of stream scouring the bridge



# MONTGOMERY COUNTY EXECUTIVE REGULATION

Offices of the County Executive • 101 Monroe Street • Rockville, Maryland 20850

<b>Subject</b> <p style="text-align: center;">RUSTIC ROADS</p>	<b>Number</b> <p style="text-align: center;">21-96M</p>
<b>Originating Department</b> <p style="text-align: center;">DEPARTMENT OF PUBLIC WORKS &amp; TRANSPORTATION</p>	<b>Effective Date</b> <p style="text-align: center;">November 26, 1996</p>

## C. Modification of Road Pavement and Related Structures

### 1. Width, Alignment and Road Surface

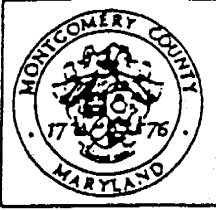
The width, alignment and road surface of exceptional rustic roads must not be altered, except to provide adequate safety, to reduce maintenance problems, or to provide roadway pull off area for farm equipment or for a scenic opportunity.

### 2. Minimum Sight Distances - Alignment Adjustments

Vertical or horizontal roadway alignment adjustments to achieve adequate sight distances on exceptional rustic roads shall not be done unless the Department determines that no other alternative to achieving adequate sight distance is feasible. If such adjustments are required they shall be done in such a manner as to replicate the characteristics of the adjacent unmodified roadway sections. The Department may waive or modify geometric criteria not directly relating to safety. Realigned exceptional rustic roads must have the same configuration, width and roadway surface as adjacent unaltered sections.

### 3. Bridge Replacement

Bridge replacement or rehabilitation must be of a design and material which preserves or enhances the rustic appearance of the road. Bridges must be replaced at a scale and with materials similar to those of the previously existing structure. If a different design is required for environmental or safety reasons, new bridges must be of a design and material that complements or enhances the rustic appearance of the road. On exceptional rustic roads, a new or rehabilitated deck should be no wider than the existing deck unless improvements are specifically needed for the transportation of agriculture related equipment, in which case the new or rehabilitated deck should be no wider than the existing approaches.



# MONTGOMERY COUNTY EXECUTIVE REGULATION

Offices of the County Executive • 101 Monroe Street • Rockville, Maryland 20850

<b>Subject</b>	<b>Number</b>
RUSTIC ROADS	21-96AM
<b>Originating Department</b>	<b>Effective Date</b>
DEPARTMENT OF PUBLIC WORKS & TRANSPORTATION	November 26, 1996

4. Minimum Sight Distances - Alignment Adjustments

Vertical or horizontal roadway alignment adjustments to achieve adequate sight distances on rustic roads may be performed as needed to maintain existing safety levels. If such adjustments are required they must be designed compatible with adjacent unmodified roadway sections. The Department may waive or modify geometric criteria not directly relating to safety. In general, relocated rustic roads must have the same configuration, width and roadway surface as adjacent unaltered sections.

5. Bridge Replacement

Bridge replacement or rehabilitation must be of a design and material which preserves or enhances the rustic appearance of the road. Bridges must be replaced at a scale and with materials similar to those of the previously existing structure. If a different design is required for environmental, economic, or safety reasons, new bridges must be of a design and material that complements or enhances the rustic appearance of the roadway. Correction of substandard approach road geometries must be made in character with existing unmodified portions of the roadway. All new or rehabilitated structures must be designed with adequate weight bearing capacity and horizontal clearances to accommodate emergency vehicles and agricultural equipment. Actual roadway surfaces on bridge decks must be compatible in width to the width of the unaltered roadway.

6. New Guardrails

New guardrails must be of a material that maintains or enhances the rustic appearance of the roadway. Placement of new guardrails must not restrict access and movement of agricultural equipment.