



Kay Ivey
GOVERNOR

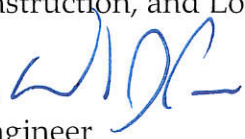
ALABAMA
DEPARTMENT OF TRANSPORTATION
CONSTRUCTION BUREAU
1409 COLISEUM BOULEVARD
MONTGOMERY, ALABAMA 36110
PHONE (334) 242-6208



John R. Cooper
TRANSPORTATION DIRECTOR

July 17, 2019

Construction Information Memorandum No. 4 - 2019

TO: Region Engineers
ATTN: Area Operations, Construction, and Local Transportation Engineers
FROM: Winston J. Powe, P.E. 
State Construction Engineer
RE: Guardrail Height Adjustment

The attached June 15, 2018 memorandum from the Design Bureau addresses the resetting of existing guardrail in order to meet MASH height requirements. The memo, along with Special Project Detail Index No. 325, describes only the punching of new holes in rail sections and in posts to facilitate height adjustment.

Please be aware that Subarticle 631.02(a) of SP 18-0404 also allows drilling of these holes. Regardless of the method used by the contractor to produce new holes, it should be noted that a galvanizing repair paint may be necessary if any damage occurs to any of the guardrail members during this operation.

The Design Bureau will be adding a note to the Special Project Detail to address the drilling of holes.

Please ensure that your Area contract administration personnel and Project Managers are familiar with this CIM.

WJP/JLB/jlb
Attachments

- | | | |
|---------------------------|----------------------|-----------------------|
| pc: Mr. George Conner, PE | Mr. Don Arkle, PE | Mr. William Adams, PE |
| Mr. Steve Walker, PE | Mr. Stacey Glass, PE | Mr. Ed Phillips, PE |
| Mr. Clay McBrien, PE | FHWA | ARBA |
| AAPA | ALBCA | ACIA |
| ACEA | CIM File | |

ALABAMA DEPARTMENT OF TRANSPORTATION

DATE: August 21, 2018

Special Provision No. 18-0404

EFFECTIVE DATE: February 1, 2019

SUBJECT: Guardrail Reset.

Alabama Standard Specifications, 2018 Edition, SECTION 631 shall be revised as follows:

SECTION 631 GUARDRAIL OR BARRIER RAIL RELOCATED

631.01 Description.

This Section shall cover the work of relocating guardrail or barrier rail and end anchor systems to the established lines and grades at the locations shown by the plans or directed, in conformity with the plans and these Specifications. The relocation shall include the removal, reconditioning, and reinstallation of the rail, posts, hardware, and anchor systems.

This Section shall also cover the adjustment (reset) of existing guardrail.

631.02 Materials.

(a) Salvaged Material.

All portions of the rail elements, posts, and other hardware designated to be reset or relocated shall be cleaned and inspected. Damaged portions shall be discarded or repaired as directed.

Damage to galvanization on metal (steel) portions shall be repaired with approved galvanizing repair paint.

Posts and rail elements shall be cut or drilled to conform to the requirements of the current plan requirements for the type rail being used.

Timber posts shall be coated with one liberal coat of the type preservative used in the original treatment, unless the use of another type preservative is authorized by the Engineer. Galvanized steel posts which cannot be repaired satisfactorily with galvanized repair paint shall be painted with an approved aluminum paint.

(b) New Materials.

New materials shall meet the requirements specified in Section 864, Guardrail and Barrier Rail Material. Paint shall meet the requirements of Section 855, Coatings, Paints, Enamels, and Varnishes for Metal or Wood Structures.

631.03 Construction Requirements.

(a) General.

The Contractor shall promptly replace, without extra compensation, any materials lost, damaged, or injured on account of carelessness, negligence, or failure to conduct the work properly. Any such replacements shall be with materials conforming to the original material requirements.

Should any of the rail, posts, or end anchors included in the relocation or reset items be deemed, by the Engineer, unsuitable for reuse through no fault or negligence of the Contractor, the Engineer may either furnish materials acceptable for use or may require the Contractor to furnish new materials. Payment for such new rail, posts, or end anchors, but not hardware, will be made as for unused materials outlined in Subarticle 109.06(b).

Attention is directed to the fact that this type work will be performed under traffic requiring special care to expedite the work and prevent undue hazardous conditions to occur during the operation. Attention is directed to the requirements of Subarticle 630.03(d).

(b) Post Replacement.

Post replacements shall be made with salvaged posts from other sources until exhausted. All new replacement posts shall, if practicable, be placed together in selected sections of guardrail constructed in accordance with current standard plans, and shall, to the extent practicable, be of the same type and size as the salvaged posts.

(c) Installation.

Installation shall be in accordance with the provisions of Article 630.03.

(d) Guardrail Reset and Guardrail End Anchor Reset.

These items shall be completed in accordance with the requirements shown on the plans or as directed by the Engineer.

631.04 Method of Measurement.

Guardrail or Barrier Rail Relocated will be measured in linear feet {meters} along the face of the rail to the nearest 0.1 foot {0.1 m} from end to end of each continuous portion of rail relocated,

Guardrail End Anchors Relocated will be measured in individual unit assemblies, complete in place, of the type designated, relocated to the satisfaction of the Engineer.

Guardrail Reset will be measured in linear feet {meters} along the face of the rail to the nearest 0.1 foot {0.1 m} from end to end of the section of guardrail to be reset.

Guardrail End Anchor Reset will be measured per each.

631.05 Basis of Payment.**(a) Unit Price Coverage.****1. Guardrail and Barrier Rail Relocated.**

Accepted guardrail or barrier rail relocated, measured as provided above, will be paid for at the contract unit price bid per linear foot {meter} for the type rail to be relocated which shall be payment in full for removing the in place rail and posts, preparing the rail, posts, and hardware for relocation, and for the installation of the posts, rail, and accessories.

The above unit prices shall include furnishing any additional necessary hardware, equipment, tools, labor, and incidentals necessary to complete these items of work. Any new rail or posts required to replace damaged rail or posts, through no fault of the Contractor, shall be furnished by the Contractor with payment to be made the same as for unused materials outlined in Subarticle 109.06(b).

2. Guardrail End Anchor Relocated

Accepted guardrail and anchors relocated, measured as provided above, will be paid for at the contract unit price bid per each, which shall be payment in full for removing the in-place anchor system, preparing the anchor system and accessories for relocation, and for the installation of the complete assembly. The unit price bid shall include any additional hardware, equipment, tools, labor, and incidentals necessary to complete this item of work. Any new end anchor required to replace an unserviceable end anchor will be paid for as for unused materials outlined in Subarticle 109.06(b).

3. Guardrail Reset

Accepted guardrail reset, measured as noted above, will be paid for at the contract unit price bid per linear foot {meter} for the type rail to be reset which shall be payment in full for all equipment, tools, labor, blockouts, and additional hardware required to complete the work. Any new rail or posts required to replace damaged rail or posts, through no fault of the Contractor, shall be furnished by the Contractor with payment to be made the same as for unused materials outlined in Subarticle 109.06(b).

4. Guardrail End Anchor Reset

Accepted guardrail end anchor reset, measured as noted above, will be paid for at the contract unit price bid per each and shall be payment in full for all equipment, tools, labor, hardware, and incidentals needed to complete the work. Any new end anchor required to replace an unserviceable end anchor will be paid for as for unused materials outlined in Subarticle 109.06(b).

(b) Payment will be made under Item No.:

631-C Guardrail Reset - per linear foot {meter}

631-E Guardrail End Anchor ** Reset - per each

631-F * Relocated - per linear foot {meter}

631-G Guardrail End Anchor ** Relocated - per each

* Steel Beam Guardrail Class _____, Type _____ ; Aluminum Beam
Guardrail Class _____ Steel Rectangular Tube, Barrier Rail; Extruded Aluminum
Tube, Barrier Rail

** Type 1, 2, 3, etc.

Handwritten mark



ALABAMA DEPARTMENT OF TRANSPORTATION

1409 Coliseum Boulevard
Montgomery, Alabama 36110

Telephone: 334.242.6311



Kay Ivey
Governor

John R. Cooper
Transportation Director

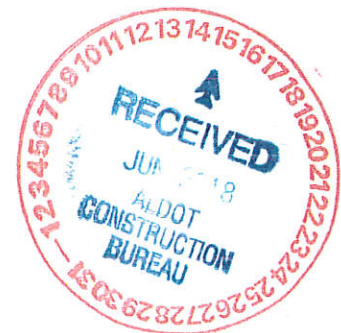
MEMORANDUM

DATE: June 15, 2018

TO: Region Engineers

FROM: Steven E. Walker, PE *S. E. Walker*
State Design Engineer

RE: Guardrail Height Adjustment



Our May 15, 2017, memorandum presented the implementation of MASH guardrail requirements. It focused mostly on new guardrail installations. This memorandum is focused on existing guardrail and cost-effective adjustments that may be done to make it crashworthy. Guardrail end anchors are also addressed. This guidance is intended to complement the Department's Pavement Preservation Policy. Potential guardrail adjustments to be included in the scope of resurfacing projects are detailed in that policy.

Attached is a Special Project Detail that shows adjustments to existing guardrail. The adjustments include raising the height, moving the splice to midspan and providing crashworthy blockouts.

Guardrail at a height above 26-1/2" may be retained without adjustment as per guidance from the 2011 Roadside Design Guide. Guardrail height measurement is from a projection of the pavement surface if the edge of pavement is 2' or less from the face of the rail. If the face of the rail is more than 2' from the paved shoulder, the height is measured from the ground at the face of the rail.

Steel blockouts will be replaced with an approved wood or composite blockout even if the height is acceptable. If blockouts are replaced, then also shift the rail splice to midspan. Check to see if the posts that had the steel blockouts are punched for the height adjustment. Many older posts may predate when the Department began using the posts with the adjustment holes.

Evaluate if the posts have embedment behind the posts. If the rail needs to be raised but the slope break is in front of the posts or in the width of the posts, the rail should be considered for replacement with 8' posts.

If there is a section of rail that needs height adjustment, but the remainder of the run is adequate, it will be permissible to raise the low rail to a minimum of 28" and retain the splice at the post consistent with the rest of the run of rail that is retained.

Because of the potential variability of adjustments that could be required within the limits of a resurfacing project, it will be important that the guardrail summary box spell out the required work for each site. This will include but not be limited to punching holes in the older posts for the adjustable height, replacing steel blockouts, etc... Guardrail adjustments will be paid as Item 631C-001, Steel Beam Guardrail, Class A, Type 2 Reset.

The Pavement Preservation Policy also provides direction on the replacement of guardrail approach end anchors based on the route and the proposed maintenance correction. Review that policy for specifics for whether the existing, properly installed approach anchor may be retained. Properly functioning refers to proper installation height and flare (see the drawing to verify), and a 10:1 slope in front of the anchor after the resurfacing is completed.

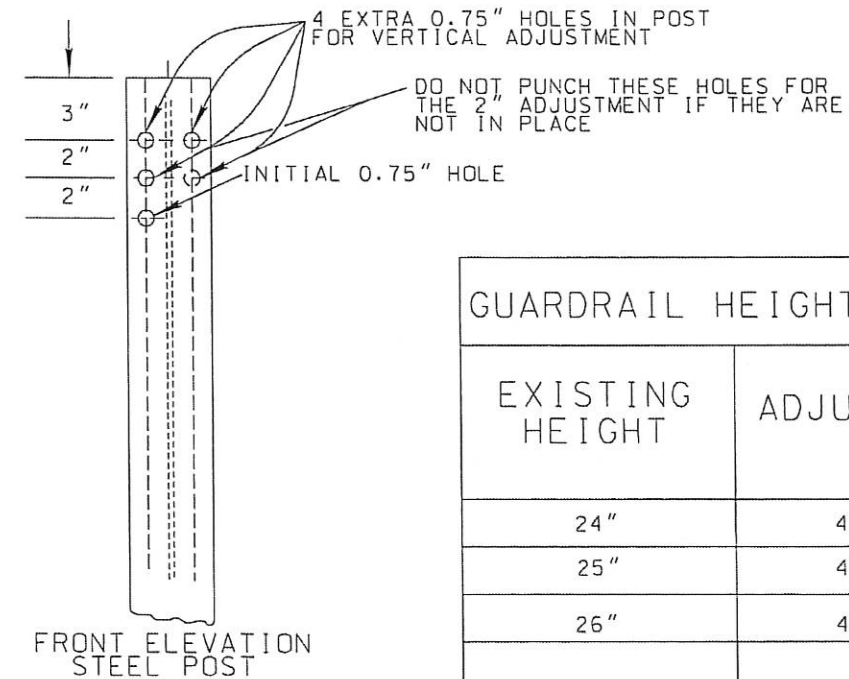
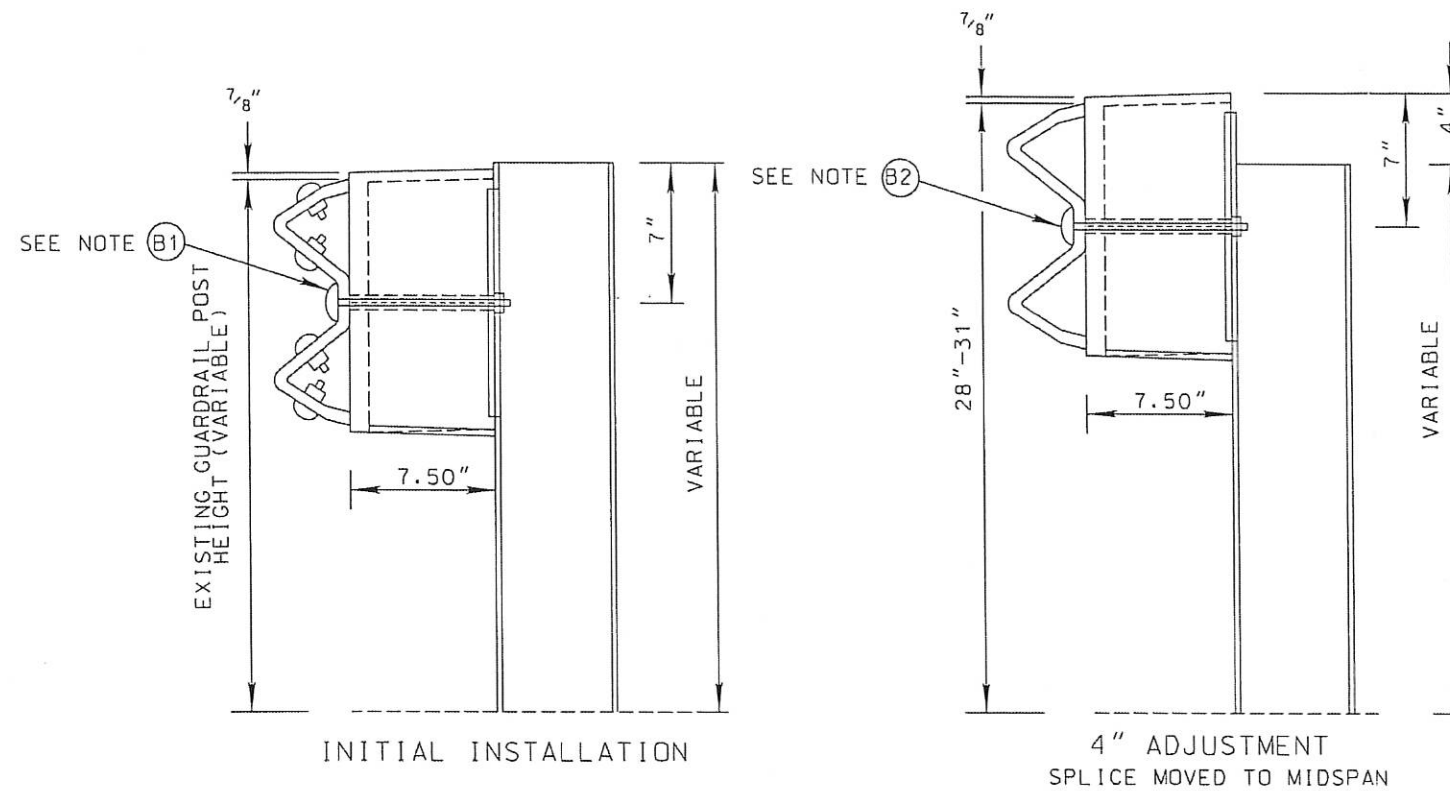
Attachments (1 Drawings)

C:\ Mr. Don Arkle, PE
Mr. William F. Adams, PE
Mr. Edward Austin, PE
Mr. George Connor, PE
Mr. Terry McDuffie, PE
Mr. Stacey Glass, PE
Mr. Skip Powe, PE
Mr. Ed Phillips, PE
Mr. Terry Robinson
Mr. Mark Bartlett, PE -- FHWA
Design Bureau Divisions/Sections

GUARDRAIL HEIGHT ADJUSTMENT (USING ADJUSTMENT HOLES)

THIS DRAWING IS TO BE USED FOR RESURFACING, MAINTENANCE, AND BRIDGE REPAIR PROJECTS ONLY. THIS DRAWING IS NOT INTENDED TO BE USED FOR NEW CONSTRUCTION PROJECTS.

REFERENCE PROJECT NO	FISCAL YEAR	SHEET NO



GUARDRAIL HEIGHT ADJUSTMENT TABLE

EXISTING HEIGHT	ADJUSTMENT	FINAL
24"	4"	28"
25"	4"	29"
26"	4"	30"

ADJUSTABLE STEEL POSTS AND BLOCK-OUTS

GENERAL NOTES

- SEE STANDARD DRAWING GR-630-S, SHEETS 1, 2 & 3 FOR ADDITIONAL POST DETAILS AND SPECIFICATIONS.
- THE STEEL POST SHOWN ON THIS SHEET MAY BE USED WITH WOOD OR COMPOSITE BLOCKOUTS.
- ONLY COMPOSITE OR WOOD GUARDRAIL BLOCK-OUTS LISTED ON THE ALABAMA DEPARTMENT OF TRANSPORTATION'S QUALIFIED PRODUCT LIST SHALL BE USED. SHOULD IT BECOME NECESSARY TO CHANGE THE BLOCK-OUT TYPE ON A GIVEN PROJECT, THE BLOCK-OUTS SHOULD NOT BE MIXED ON A GIVEN RUN OF GUARDRAIL.
- UP TO 4" BLOCKOUT ADJUSTMENTS HAVE BEEN EVALUATED UNDER MASH TL-3.
- IF EXISTING POSTS DO NOT HAVE PUNCHED HOLES, INDICATE IN THE REMARKS COLUMN ON THE GUARDRAIL SUMMARY BOX. THE CONTRACTOR SHALL FIELD PUNCH THE POSTS FOR A 4" ADJUSTMENT.
- NO STEEL BLOCKOUTS MAY BE RETAINED ON ADJUSTED GUARDRAIL. WOOD AND COMPOSITE BLOCKOUTS MAY BE USED. COMPOSITE BLOCKOUTS MUST BE TESTED FOR HEIGHT ADJUSTMENT.
- ALL PUNCHED HOLES ON RAILS OR POSTS WILL BE FIELD GALVANIZED.
- GUARDRAIL RESET ITEM 631C-XXX, LF, SHALL INCLUDE RAISING THE RAIL 4", MOVING THE SPLICE TO MIDSPAN, PUNCHING NEW HOLE IN THE RAIL, PUNCHING NEW HOLES IN THE POST (IF REQ'D), AND THE TRANSITION AS SHOWN ON STD DWG GR-630-S (SHEET 2 OF 3).
- BLOCKOUTS REQUIRED FOR REPLACEMENT OF STEEL BLOCKOUTS WILL BE PAID UNDER ITEM 631C, GUARDRAIL RESET.

INSTALLATION NOTES FOR BLOCK-OUTS WITH HORIZONTAL ADJUSTMENT HOLES

- THE INITIAL INSTALLATION WILL REQUIRE ONE 5/8" DIAMETER ~~X DIAMETER~~ X 10" LONG BUTTON HEAD BOLT WITH ROUND STEEL WASHER.
- THE 4" ADJUSTMENT WILL REQUIRE TWO 5/8" DIAMETER X 10" LONG BUTTON HEAD BOLTS. EACH BOLT WILL REQUIRE ONE ROUND STEEL WASHER.

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

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REVISIONS



ALABAMA DEPARTMENT OF TRANSPORTATION
1405 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

DESIGN BUREAU SPECIAL DRAWING

GUARDRAIL HEIGHT ADJUSTMENT

Bureau Std Engr: D.J.W.
DRAWN BY: J.F.I. DATE DRAWN: 05-01-18

SPECIAL DRAWING NO
SPECIAL PROJECT DETAIL

INDEX NO
325

NOT TO SCALE