

SECTION 505

GUARDRAIL AND STEEL MEDIAN BARRIERS

I. GENERAL

1.1 DESCRIPTION OF WORK

This Work shall consist of furnishing and constructing new guardrail and steel median barriers, and installing re-useable galvanized guardrail in accordance with the Contract Documents to the lines, grades, and tolerances designated by the Owner.

1.2 MATERIALS

- A. Materials for guardrail components shall conform to the requirements of *VDOT Road and Bridge Specifications* Section 221.
- B. Materials for median barriers and posts shall conform to the requirements of the Contract Documents. Posts may be furnished with as many as six holes per flange so that posts for installation of standard guardrail and steel median barrier may be used interchangeably.
- C. Concrete shall be Class A3 conforming to the requirements of Section 200 except that mixing by hand for guardrail terminal posts will be permitted.
- D. Materials for reinforcing steel shall conform to the requirements of *VDOT Road and Bridge Specifications* Section 223.
- E. Materials for delineators shall conform to the requirements of *VDOT Road and Bridge Specifications* Section 235.

1.3 SUBMITTALS

Submittals shall be made by the Contractor in accordance with the procedures set forth in Section 105 and as described below:

- A. The Contractor shall furnish copies of the manufacturer's specifications and details for installations indicated in the Contract Documents, and the *VDOT Road and Bridge Standards*, latest edition, listing specific materials proposed.
- B. The Contractor shall furnish the Owner with an affidavit stating that products to be installed on this project comply with specification requirements.

II. EXECUTION

The Contractor shall execute the Work in accordance with the latest edition of the *VDOT Road and Bridge Specifications*, Section 505.03, Procedures. Any references to "Engineer" or VDOT personnel shall mean the "Owner".

III. MEASUREMENT FOR PAYMENT

Prices shall include excavating; backfilling holes; installing delineators; repairing damaged surfaces; furnishing, galvanizing, and erecting units; furnishing concrete anchor assemblies; and preboring. The price for guardrail terminal site preparation shall also include clearing and grubbing; supplying, hauling, and placing fill material; benching existing slopes; and restoration of site including fertilizing and seeding.

- A. Guardrail will be measured in linear feet and will be paid for at the contract unit price per linear foot including hardware. Guardrail that is mounted flush to a structure will be measured along the length of the guardrail from the center of the bolt group. Shop-curved or field-curved guardrail installed on a radius of 150 feet or less will be measured in linear feet of radial steel beam guardrail or radial steel median barrier and shall be paid for at the contract unit price per linear foot of radial steel beam guardrail.
- B. Reusable guardrail shall be undamaged and shall be measured per linear foot of rail and shall be paid for at the contract unit price per linear foot of rail. The price for reuseable guardrail shall include transporting and storing; repairing and installing salvaged guardrail beam; and furnishing and placing guardrail posts, blockouts, and hardware.
- C. Steel median barriers will be measured in linear feet from center to center of end posts and will be paid for at the contract unit price per linear foot.
- D. W-beam median barriers will be measured in linear feet from center to center of end posts and will be paid for at the contract unit price per linear foot.
- E. Intermediate anchorage assemblies will be measured in units of each and will be paid for at the contract unit price per each.
- F. Terminal treatment for beam guardrail that terminates in back of the ditch line will be measured in linear feet along the regular guardrail section from center of end post (center of bolt group when guardrail is mounted flush to a structure) to the ditch line. The terminal section in back of the ditch line will be measured from the ditch line to center of end post.
- G. Terminal treatment (or beam guardrail, and steel median barriers terminating on the roadway side of the ditch line) will be measured in units of each and will be paid for at the contract unit price per each.
- H. Guardrail terminal (Standard and type) will be paid for at the unit price bid per linear foot or each.
- I. Reuseable guardrail terminal shall be undamaged and will be measured in units of each or linear foot for the standard and type specified and will be paid for at the contract unit price per each or linear foot for the standard and type specified. This price shall include transporting and storing; repairing and installing salvaged beam; and furnishing and placing guardrail post, blockouts, concrete, and hardware.
- J. Fixed object attachments for guardrail will be measured in units of each and will be paid for at the contract unit price per each. This price shall include furnishing and installing guardrail connectors, rubrail, and additional posts with blockouts and providing holes to facilitate attachment.

- K. Special design guardrail bridge attachments will not be measured for payment but will be paid for at the contract lump sum price per structure. This price shall include, but not be limited to, furnishing and installing guardrail attachment type, posts, offset blocks, rub rail if required, delineators, and all hardware.
- L. When specified as a separate bid item, rub rail will be measured in linear feet for the type specified and will be paid for at the contract unit price per linear foot. This price shall include furnishing and installing the type of the rub rail specified, rub rail offset blocks, and all hardware.
- M. Guardrail beam will be measured in linear feet and will be paid for at the contract unit price per linear foot. This price shall include furnishing and installing new guardrail beam, delineators and all hardware. This price includes disassembling and reassembling guardrail designated for stiffening. Guardrail beam installed on a radius of 150 feet or less shall be shop-curved, will be measured in linear feet, and will be paid for at the contract unit price per linear foot of radial guardrail beam.
- N. Guardrail (Standard) (length) post will be measured in linear feet for the length of post for the guardrail standard specified and will be paid for at the contract unit price per linear foot. This price shall include furnishing and installing guardrail beam, posts, offset blocks and all hardware.
- O. Guardrail offset block, wood or composite will be measured in units of each and will be paid for at the contract unit price per each. This price shall include disconnecting existing offset block, furnishing and installing new offset block and all hardware to connect guardrail beam to posts.
- P. Remove existing guardrail will be measured in linear feet and will be paid for at the contract unit price per linear foot. This price shall include removing and disposing of existing beam or cable, posts, offset blocks, hardware, connectors, end terminals, and fixed object attachments; furnishing backfill material; backfilling postholes; and repairing damage to shoulders, curbing, curb backup material or concrete.
- Q. Remove existing guardrail terminal will be measured in units of each and will be paid for at the contract price per each. This price shall include removing and disposing of existing guardrail terminals, including, but not limited to posts, offset blocks, hardware and the concrete anchor portion of terminals. This Work shall also include furnishing backfill material, backfilling holes and repairing damage to shoulders, curbing, curb backup material or concrete and site restoration.
- R. When specified as a separate bid item, guardrail terminal site preparation (Standard) will be paid for at the unit price bid per each. The price for guardrail terminal site preparation shall include clearing and grubbing; for providing, hauling, and placing fill material; benching existing slopes and restoration of site including seeding.
- S. Bull nose barrier will be measured and paid for in units of each, complete in place, which price shall include furnishing and placing, foundation soil tubes, concrete, polystyrene sheeting, welded wire fabric, posts, radial guardrail, blockouts, hardware and delineators. This price shall be full compensation for all labor, materials, tools and equipment necessary to complete the Work.

End of Section