THE STATE OF DELAWARE

DEPARTMENT OF TRANSPORTATION
MAINTENANCE AND OPERATIONS
CONSTRUCTION PLANS AND SPECIFICATIONS FOR

Guardrail Repair, Canal District, Open End, FY 20-FY22

CONTRACT NUMBER - T202087701.01
FEDERAL AID NUMBER - N/A
PRIMAVERA ID – 20-87701
COUNTY: NEW CASTLE

PLANS PREPARED BY: 
DESIGNER

DELDOT-CE IV/PROJECT MANAGER
MAINTENANCE AND OPERATIONS - (CAD)

DATE

APPROVED FOR ADVERTISEMENT

DIRECTOR OF MAINTENANCE AND OPERATIONS

DATE
Contract Description

This is an open-end contract to repair and replace damaged impact attenuators, attenuator components, damaged guardrail, guardrail components and end treatments as required for all state-maintained roads in the Canal District (maps of the District are shown on pages 11 and 12). This contract may also include removal of existing turned down ends and the related upgrade install, paving and grading as well as new guardrail installations. The work shall include, but not be limited to Maintenance of Traffic, removal of damaged impact attenuators and components, removal of damaged guardrail, components and end treatments, repair/replacement of damaged guardrail, topsoil, seeding and mulching and borrow placement as required or directed by the Engineer or Representative.

The work sites and specific work are not listed herein but will be assigned by work order as received by Canal District Maintenance.

This is a working day contract that will end three years (1,095 calendar days) from issuance of Notice To Proceed.
PROJECT NOTES

1. All work shall be performed in accordance with the Delaware Department of Transportation Standard Specifications dated August 2016 (as amended by the Supplemental Specifications to the date of advertisement), the DelDOT Special Provisions, the Standard Construction Details, the current Delaware MUTCD (including revisions up to the day of contract advertising), and these project notes.

2. Delete Section 104.06 of the DelDOT Standard Specifications, and replace with the following:

   The Department reserves the right to, at any time prior to completion of the contract, issue plan revisions, make adjustments in Contract item quantities, or make such alterations considered necessary to satisfactorily complete the Contract.

   The Department reserves the right to increase or decrease the quantities of Pay Items specified in the Contract. Such additions or deletions shall not be cause for an increase or decrease in Contract unit bid prices. The "Change" threshold of plus or minus 25%, as described in Subsection 104.06 of the DelDOT Standard Specifications dated August 2016 shall not apply to this Contract. Quantity increases or decreases of plus or minus 25% or greater shall not be justification for adjustments to unit prices.

   The plan revisions and quantity adjustments described above do not invalidate the Contract or release the Contract surety. Payment for these changes shall exclude any amount for loss of anticipated profits alleged to result from the change.

   When payment for the Contract work cannot be agreed upon by the Contractor and the Department prior to starting such work ordered, the Department may direct the Contractor to perform the work under Force Account provisions of Subsection 109.04. The Contractor will proceed immediately with the work so ordered and such direction shall neither invalidate the Contract, nor release the surety.

3. The Contractor and all subcontractors shall perform all work in a manner that will ensure the least practical obstruction to the traveling public, and shall conform to the requirements of the latest version of the manual entitled "Delaware Traffic Controls for Street and Highway Construction, Maintenance, Utility and Emergency Operations", herein referred to as the “Manual on Uniform Traffic Control Devices (MUTCD)”, in effect at the time of advertisement for bids.

4. No utility relocation involvement is anticipated. Should any conflicts be encountered during construction requiring adjustment and/or relocation of the agencies’ existing facilities, the necessary relocation work shall be accomplished by the respective agencies’ forces, as directed by the District Engineer. Any adjustments and/or
relocations on municipally owned facilities shall be done by the State’s contractor in
accordance with the respective agencies’ standard specifications as directed by the
District Engineer.

5. No environmental permits are required for this work provided no jurisdictional wetlands
or waters are impacted. If there is a question as to whether or not a water or wetland is
jurisdictional, contact the DelDOT Environmental Section at 302-760-2264.

6. It is anticipated that all work will occur within DelDOT’s existing right of way or
 easement areas. Should the need occur to trespass onto private property; it will be the
responsibility of the project manager to secure such trespass needs. Should the need
occur to trespass onto railroad property, including the highway-rail crossing; it will be the
responsibility of the project manager to contact the railroad chief engineer and obtain
written authorization before entering.

7. The Contractor shall not trespass on private property unless the department has
acquired a “Temporary Trespass Agreement” from the property owner. If the work is
within a permanent easement, the work shall not begin until the adjacent property
owners have been notified. Prior to starting work on private property, the Contractor
shall notify affected property owners of proposed work dates.

8. The Project Manager shall be responsible for coordinating with the Traffic Section
relating to any impacts to Traffic Section facilities (including but not limited to traffic
loops, junction wells, etc.) at least four weeks in advance of the start of the construction
activity. Prior to initiating any work on this contract (or sites), the Project Manager shall
be responsible for preparing and submitting for approval of the Safety Section, a
Maintenance of Traffic Plan. Sufficient time shall be provided for the review and
approval of the plan. The Maintenance of Traffic Plan shall include proposed time
restrictions on the closure of travel lanes subject to the approval of the Safety Section.
Typically, the work shall be done using Typical Application 10 of the Manual on Uniform
Traffic Control Devices (MUTCD). Restricted working hours will be included on the
work orders and will be in effect on state numbered roads as dictated by traffic volumes.
For locations requiring a flagging operation, the flagger will be paid the fixed hourly rate
per Item 743050.

All flaggers utilized by the contractor for this project shall meet the certification
requirements outlined in the Delaware Department of Transportation Standard
Specifications dated August 2016, as amended by the Supplemental Specifications
Section 811. Flaggers shall wear high visibility safety apparel that meets the
requirements outlined in the Manual on Uniform Traffic Control Devices (MUTCD)
Section 6E.02.

If a road closure is required, the Contractor shall be required to submit the proposed
detour route to the Traffic Engineer for approval. The Contractor shall coordinate the
closure with the Engineer. The detour route must be approved by the Engineer prior to
closure. Typically, the detour set-up shall follow Typical Application 20 of the Manual on Uniform Traffic Control Devices (MUTCD). All Traffic Control Devices shall be compliant as per NCHRP Report 350 and/or MASH. The Contractor shall be responsible for furnishing and maintaining the Maintenance of Traffic apparatus at the closure (i.e. Type III Barricade, Road Closed signs, etc) and all advance warning signs. The Contractor shall be responsible for placement of detour trailblazers. If necessary, the Engineer will assign the detour route.

Retro-reflective drums will be required in work areas where completion time will extend beyond one daylight operation as outlined in Section 6F.67 and Section 6G.02 of the Manual on Uniform Traffic Control Devices (MUTCD).

All open excavations shall be secured with plastic drums with fluorescent sheeting and orange, plastic snow fence. If the construction activity results in a vertical difference or drop-off along, adjacent to or across a travel way, the Contractor shall eliminate or remedy this hazard by the methods detailed in Section 6G.20 of the Manual on Uniform Traffic Control Devices (MUTCD) as directed by the Engineer. The snow fence, tie wire, etc shall be incidental to the work it protects.

9. The Contractor, with the Engineer or Engineer’s representative, shall inventory all traffic signs on all roadways subject to improvements. Necessary signs shall be maintained in operation during construction, and any other signs shall be properly stored with the Contractor, who shall be responsible for loss or damage. Immediately prior to final inspection, the Contractor and Engineer shall again inventory the traffic signs and account for any lost or damaged signs.

10. The Project Manager is responsible for ensuring any required documents and analysis as part of the adopted Work Zone Safety and Mobility Procedures and Guidelines has been completed prior to any work starting on this contract.

11. Work located in Municipalities requires Town Agreements. Work in these locations cannot commence before obtaining them. To obtain a Town Agreement, the contractor must work with DelDOT’s TEAM Support at (302) 760-2251.

12. No work near or within railroad Right-of-Way is anticipated. If any railroad property or facilities are near or within the proposed limits of work or if the proposed work encroaches upon the railroad’s Right-of-Way, the contractor shall be responsible for obtaining the required clearances and insurances for each involved railroad in accordance with the appropriate DelDOT Maintenance of Railroad Traffic item. DelDOT’s Railroad Section Manager must be contacted at (302) 760-2183 to coordinate the execution of the appropriate agreements and authorizations required from any railroad company involved, including coordination for railroad flagging, if necessary.

13. For the purpose of this contract, the replacement guardrail type and location shall be identical to the damaged guardrail, except in the instances when an upgrade to the current standard of guardrail is deemed necessary, or when otherwise directed by the department. The department shall determine what, if any, guardrail elements shall be
reused on each project. Any guardrail elements not to be reused become the property of the Contractor. Removal and legal disposal of the unused elements, including, but not limited to, rails, posts, end attachments, and anchors are the Contractor's responsibility. Removal of damaged rail, post, blocks shall be incidental to the repair bid item.

14. The replacement impact attenuator type and location shall be identical to the damaged impact attenuator, except in the instances when an upgrade to the current standard of impact attenuators is deemed necessary, or when otherwise directed by the Engineer. The Engineer shall determine with the Contractor what, if any, impact attenuator elements shall be reused on each project. Any impact attenuator elements not to be reused become the property of the Contractor. Removal and legal disposal of the unused elements, including, but not limited to rails, plastic noses, type I and II cartridges, fender assemblies, diaphragm assemblies, backups, posts, end attachments, and anchors are the Contractor's responsibility.

15. Backfill of holes created by post removal, in compacted lifts, providing and installing rail backup plates, bolts, nuts, washers, and guardrail reflectors providing and setting up traffic cones and/or patterns are incidental to the Bid Items. Cost for the placement of twelve (12) cubic feet of Portland Cement Concrete around the base of unstable posts, is incidental to the unit price bid for Item 720006, Galvanized Steel Post. Cost for excavating and disposing of material and/or grading (up to a 6-inch depth) to meet the manufacturer’s slope requirements is incidental to the unit price bid for Items 721001, 721003, or 721004.

16. Item 720021, Galvanized Steel Beam Guardrail, Type 1-31 shall be utilized in cases where new installs will be placed in Canal District as directed by the Engineer as deemed necessary by Traffic Safety.

17. Underground utilities may be present at all locations. Therefore, all standard practices and procedures regarding utilities shall be followed. Contractor is required to make Miss Utility calls to have utilities marked-out prior to starting each work order.

18. All construction and Contractor vehicles and self-propelled equipment shall be equipped with an operating roof mounted amber flashing light.

19. All additional work shall be performed by contract unit prices. In the case where contract prices are not available, prices are to be negotiated or performed by force account.

20. Items paid under Item 720020, ReflectORIZED Washers, shall be fabricated from steel sheet plates conforming to the requirements of ASTM A-6, galvanized to ASTM A153. ReflectORIZED sheeting shall be AR-1000 (Type V) Abrasive resistant and shall be applied in accordance with Subsection 720.03 of the Supplemental Specifications.
21. In case of an emergency, the department or representative will notify the Contractor, by telephone of the extent of work, in which case the repair work shall begin within twenty-four (24) hours of the telephone contact.

22. Performance and progress of work:

Work to be performed under this contract will be disseminated to Contractor via work orders issued by Canal District Maintenance. Up to six (6) work orders will be issued at a time.

Execution of issued work is to begin within four (4) days of issuance, unless required materials are not available, and work shall be completed within four (4) working days. For example, work associated with a work order group issued on a Monday shall begin on Friday and be completed by the following Wednesday. Non-availability of material shall be verified by at least three (3) different sources, with the verification formally presented in writing by the Contractor to the Department within four (4) working days. Contractor shall present shipping tickets, which upon verification, by the District, will establish the date of material availability for Items 721001, 721003, and 721004, and for any other previously unavailable items. For the purpose of this contract, Saturdays and Sundays are not considered working days.

The department will assign work orders to keep the distance between job order locations to a minimum and in logical sequence.

Failure to complete a work group in the specified time shall constitute "failure to pursue the work" and subjects the Contractor to Liquidated Damages as outlined in Subsection 108.08 of the Standard Specifications. Each work order group is to be completed within four (4) working days. Additional Items and/or working days may be added to any work order as needed, at the discretion of the Engineer. If work on a specific work order group is not completed within the allotted time, Liquidated Damages will be assessed in accordance with Subsection 108.09 based on the total value of that work order group.

23. Each work order shall be considered a separate unit of work. The Engineer will make payment monthly for the completed invoices as outlined in Section 109.07.

Upon the substantial completion of the work at an individual location, the Engineer will stop time at that location and perform a semi-final inspection for the work order location in accordance with Subsection 10516. If the work is satisfactorily completed, the Engineer will release the Contractor from maintenance responsibility for that location. The Engineer reserves the right to require the Contractor to add work or make repairs to completed locations at the department's expense until such a location has been accepted by the department. The Contractor must repair all defects in the work caused by poor workmanship or materials at their own expense until the department accepts the contract after the final inspection.

A final inspection will be completed on an annual basis for work orders completed in a calendar year. Upon satisfactory completion of the final punchlist, the department will
accept the location and release the Contractor from responsibility for the work at that location. If a work order is sufficiently large and complex as determined by the Engineer, a final inspection may be held upon the completion of that work order.

24. The Contractor and their agents guarantee the specific locations listed in this contract against the failure of the guardrail for three (3) years from the date of acceptance. This is a good faith guarantee, which will not be cause for the department to retain the completion security, but failure to comply will affect future bidding.

25. GUARDRAIL/END TREATMENT, TYPE I

   All bolts, washers and nuts shall be incidental to repairs.

   a) LEVEL I REPAIR

      When the Attenuator is damaged up to, but not past the third post, the following items shall be reused or replaced at the discretion of the Engineer or representative:

      A Level I Repair shall consist of the following:
      Guardrail Extruder (Reuse)
      Bearing Plate (Reuse)
      Assembly Cable (Reuse)
      Strut (Reuse)
      Cable Anchor (Reuse)
      Deep Beam Guardrail (Replace)
      Wood Post (Replace)
      Impact Head (Reuse)
      Ground Strut (Reuse)
      W-Beam Guardrail End (Replace)

   b) LEVEL II REPAIR

      When the Attenuator is damaged up to but not past the fifth post, the following items shall be replaced unless otherwise directed by the Engineer or representative:

      All Items specified in Level I Repair plus the following:

      Wood Block (Replace)

   c) LEVEL III REPAIR

      Complete replacement of unit.

26. GUARDRAIL/END TREATMENT, TYPE II
All bolts, washers and nuts shall be incidental to repairs.

a) LEVEL I REPAIR

When the Attenuator is damaged to but not past the second post, the following Item shall be replaced, unless otherwise directed by the Engineer:

Barrier (Terminal)
Strut Assembly
Cable
Cable Anchor Bracket
Back up Plate
Post
Bearing Plate
Pipe
Guardrail

b) LEVEL II REPAIR

When the Attenuator is damaged to but not past the third post, the following Item shall be replaced, unless otherwise directed by the Engineer:

Posts
Block
Back up Plate
Guardrail

c) LEVEL III REPAIR

Complete replacement of the damaged unit.

NOTE: If damage to 5' tube sleeve occurs this will be considered a LEVEL II Repair, Soil Plate may also need to be replaced.

27. GUARDRAIL/END TREATMENT, TYPE III

All bolts, washers and nuts shall be incidental to repairs.

a) LEVEL I REPAIR

When the Attenuator is damaged to but not past the second post, the following Item shall be replaced, unless otherwise directed by the Engineer:

Nose Plate/Rolled
Channel Strut
Side Plate
Bearing Plate
Pipe Sleeve
Cable Assembly
Bent Plate Sleeve
Wood Post
Wood Block

b) LEVEL II REPAIR

When the Attenuator is damaged to but not past the third post, the following Item shall be replaced, unless otherwise directed by the Engineer:

All Items in Level I plus the following:

Spacer Channel
Guardrail
Wood Block
Pipe
* Wood Post
Tube Sleeve
Soil Plate

*Note: Tube sleeve and soil plate may need to be replaced in this level if damaged.

c) LEVEL III REPAIR - will be the complete replacement of the unit.

28. The following standard construction detail sheets are part of the contract documents:

    B-L, B-2, B-3, B-4, B-5, B7-1, B8-1, B8-2, B9, B10, B11-1, B11-2, B12 and B13-1

29. IMPACT ATTENUATOR, TYPE I

    All bolts, washers, brackets, screws, and nuts shall be incidental to repairs.

a) LEVEL I REPAIR

When the Attenuator is damaged up to, but not past the first bay, the following Items shall be reused or replaced at the discretion of the Engineer or representative:

A Level I Repair shall consist of the following:

Nose (Replace)
Cartridge (Replace)
Diaphragm (Replace)
Fender Panel (Replace)
Monorail (Reuse)
Backup (Reuse)
Bearing Plate (Reuse)
Assembly Cable (Reuse)
Strut (Reuse)
Cable Anchor (Reuse)
Ground Strut (Reuse)

b) LEVEL II REPAIR

When the Attenuator is damaged up to but not past the fourth bay, the following Items shall be replaced unless otherwise directed by the Engineer or representative:

A Level II Repair shall consist of the following:
Nose (Replace)
Cartridge (Replace)
Diaphragm (Replace)
Fender Panel (Replace)
Monorail (Reuse)
Backup (Reuse)
Bearing Plate (Reuse)
Assembly Cable (Reuse)
Strut (Reuse)
Cable Anchor (Reuse)
Ground Strut (Reuse)

c) LEVEL III REPAIR

When the Attenuator is damaged past the fourth bay, the following Items shall be replaced unless otherwise directed by the Engineer or representative:

A Level II Repair shall consist of the following:
Nose (Replace)
Cartridge (Replace)
Diaphragm (Replace)
Fender Panel (Replace)
Monorail (Replace)
Backup (Replace)
Bearing Plate (Replace)
Assembly Cable (Replace)
Strut (Replace)
Cable Anchor (Replace)
Ground Strut (Replace)
## QUANTITY SUMMARY SHEET

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AREA 9

(ODENSA)

MIDDLETON

TOWNSEND

SMYRNA

CLAYTON

MARYLAND

COUNTRY

UNOFFICIAL WEBSITE COPY

UNOFFICIAL WEBSITE COPY
Delaware Department of Transportation Approved Products List (MASH 2016)
Permanent Impact Attenuators

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Updated: 2/10/2020

*NOTE* Subject To Change
### Delaware Department of Transportation Approved Products List

**W-Beam Guardrail End Terminals**

<table>
<thead>
<tr>
<th>Standard Item</th>
<th>2001 Standard Specifications</th>
<th>2016 Standard Specifications</th>
<th>Manufacturer</th>
<th>Product Name</th>
<th>MASH Test Level</th>
<th>Tangent</th>
<th>Flared</th>
<th>FHWA Eligibility Letter</th>
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<td>Barrier Systems by Lindsay</td>
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End terminals not listed above shall not be used on any DelDOT construction contracts without prior written approval from the DelDOT Safety Programs Manager, who is responsible for the above Approved Products List (APL).

All manufacturers and distributors seeking approval for new products must submit a completed copy of the DelDOT APL, new product evaluation form, product materials technical data sheet, installation instructions, material safety data sheet, and copies of all related FHWA approval letters.

The ET-Plus® System end terminals manufactured by Trinity Highway Products are not permitted for use on any DelDOT construction contracts.

*NOTE* Subject To Change