STATE OF DELAWARE

DEPARTMENT OF TRANSPORTATION

MAINTENANCE AND OPERATIONS
NORTH DISTRICT

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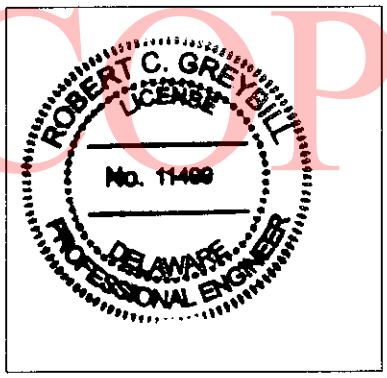
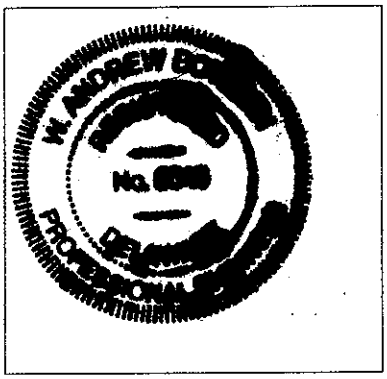
PLANS AND SPECIFICATIONS FOR

Contract Number: T201287701
Federal Aid Project Number: None

GUARDRAIL REPAIR, NORTH DISTRICT, OPEN END, FY12-FY13





RECOMMENDED:

R C Greybill July 20, 2011
Project Engineer

APPROVED:

7/22/11
North District Engineer

CONTRACT DESCRIPTION

The purpose of this contract is to repair damaged guardrail, guardrail components and end treatments as required for all State maintained roads within DelDOT North District. This includes interstate roads I-95, I-295 and I-495, and all other State maintained roads within North District. Maps delineating the approximate boundaries of North District Maintenance Areas are included with these Project Notes. The work shall include but not be limited to Maintenance of Traffic, removal of damaged guardrail, components and end treatments, repair/replacement of damaged guardrail, components and end treatments, topsoil, seeding and mulching as required or directed by the Engineer on the individual work orders.

The specific work sites are not listed herein, but will be assigned as available by North District Maintenance.

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PROJECT NOTES

1. Construction of this Contract shall conform to Delaware Department of Transportation Standard Specifications dated August 2001, the Supplemental Specifications, the Special Provisions, and these Project Notes.

2. The Performance Bond shall be submitted at the beginning of the fiscal year. Failure on the part of the Contractor to submit the Performance Bond shall result in the Contract being cancelled.

3. Whenever the word "Contractor" is used in this Contract, it shall refer to the person or persons, company, or corporation furnishing the services required.

4. Whenever the word "Department" or "Engineer" is used, it shall refer to the person or persons representing the Delaware Department of Transportation (DelDOT)

5. This contract shall be for a period of two (2) years from the date of Initial Notice to Proceed, with the option to extend the contract for one (1) additional one-year period. The one-year extension must be approved by both parties in writing, at least 30 days prior to the expiration of the existing contract. The Performance Bond shall be submitted with the contract extension and shall be subject to any such agreed upon renewal for the extension period. Failure on the part of the Contractor to submit the Performance Bond for the extension period prior to the last working day before end of the previous period may result in the contract being cancelled. It shall be the contractor's responsibility to obtain the forms necessary to renew the Performance Bond each year the contract is in force.

6. Section 101.91(4) is amended. There will not be a winter shutdown from December 16th to March 15th. The Department reserves the right to issue work and charge time between these dates.

7. Tasking of work for Fiscal Years 2012 (beginning July 1, 2011) and Fiscal Year 2013 is contingent upon authorization of State funding.

8. 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 of 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.

9. Environmental permits are not required for this work provided that waters or wetlands, under the jurisdiction of the U.S. Army Corps of Engineers and/or DNREC, are not impacted. If there is a question as to whether or not a water or wetland is jurisdictional, contact the DelDOT Environmental Studies Section at (302) 760-2264. In the event that a jurisdictional water or

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wetland is impacted, the Environmental Studies Section will be responsible for securing the appropriate permit authorizations.

10. 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 DelDOT Project Manager to secure such trespass needs.

11. It is anticipated that all work will occur within DelDOT's right of way. 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.

12. 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.

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 Engineer. The Engineer shall determine for the Contractor what, if any, guardrail elements shall be reused on each project. Any guardrail elements not to be reused, as determined by the Engineer, 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 responsibility of the Contractor. Certain types of rope guardrail hardware, however, will become the Department's property, as specified by the Engineer.

14. Backfill of holes created by post removal, in compacted lifts, providing and installing rail backup plates, bolts, nuts, and washers, providing and setting up traffic cones and/or patterns are incidental to the Bid Items. Cost for the placement of one-third (1/3) of a cubic yard of Portland Cement Concrete around the base of unstable posts, as directed by the Engineer, is incidental to the unit price bid for *Item 720007*, Galvanized Steel Post or *Item 720549*, Galvanized Steel Post, extra-length. Cost for excavating and disposing of up to one (1) cubic yard of material and/or grading (up to a 6" depth) to meet the manufacturer's slope requirements is incidental to the unit price bid for *Items 720585, 720586, or 720588.*

15. Underground utilities may be present at all locations. Therefore, all standard practices and procedures regarding utilities shall be followed. The Contractor shall contact Miss Utility of Delaware prior to starting each work order. The Contractor is responsible for the support and protection of all utilities when excavating. The Contractor is responsible for ensuring proper clearances, including safety clearances, from overhead utilities for construction equipment. The Contractor is advised to check the site for access purposes for his equipment, and make arrangements directly with utility companies for field adjustments for adequate clearances if necessary.

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16. Contractor shall comply with DelDOT Standard Construction Details for all work performed in this Contract.

17. The Contractor shall not trespass on private property unless the District 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.

18. Work located within Municipalities requires a Town Agreement. Contact DelDOT TEAM Support section at (302) 760-2251 prior to commencing work within Municipalities to process a town agreement.

19. Excavated material not needed on the project shall be removed at Contractor's expense.

20. Clearing and grubbing of weeds, trees and shrubs less than 6 inches in diameter shall be incidental to the applicable repair or replacement item. Grubbing activities performed in wetland areas requires environmental permit approvals.

21. The Contractor shall provide residents 24-hour prior written notice for all phases of contract work. This notice shall be given to all residents whose property is adjacent to the street on which work is to be performed. Failure to give notice will result in a suspension of work.

22. The Contractor shall acquire all necessary materials and equipment prior to starting work at a specific location. The equipment and material shall remain accessible and on-site until completion of work at that particular location unless prior approval from the Engineer is given.

23. Grass and soil areas within State right-of-way that have been damaged by equipment during this Contract shall be restored with topsoil, seed and mulch at Contractor's expense.

24. Delete Section 104.05 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 104.05 of the DelDOT Standard Specifications dated August 2001 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 suret

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25. All additional work shall be performed using Contract unit bid prices. When contract unit bid prices are not available, then prices will be negotiated or performed by Force Account procedures in accordance with Section 109.04 of the DelDOT Standard Specifications.

26. Performance and progress of work:

Work to be performed under this Contract shall be generated through work orders issued to the Contractor by the DelDOT North District. Up to six (6) work-orders will be issued at one time, as a group, to allow for the most efficient allocation of the Contractors work force.

Execution of each work order group is to begin within five (5) days of its being issued to the Contractor, unless required materials are not available. Work shall be completed within five (5) working days. For example, work associated with a work-order group issued on a Monday shall begin the following Monday and be completed by the end of that Friday. 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 five (5) working days. Contractor shall present shipping tickets, which upon verification by the District, will establish the date of material availability for *Items 720588, 720585,* and *720586*, and for any other previously unavailable Items. For the purpose of this Contract, Saturdays and Sundays are not considered working days.

If work does not commence, or non-availability of materials is not presented, in writing, within the specified five (5) working days, time charges equal to Liquidated Damages for the work-order group shall commence. If there is a verified non-availability of materials, time charges shall commence on the fifth (5th) working day following the delivery date.

The Department will attempt to assign work-orders in a manner that will 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 five (5) 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.

A semi-final inspection will be performed on each work-order group after the Department receives copies of the completed work-orders from the Contractor. All work must meet the Department's Specifications, the requirements as outlined in this contract, and the manufacturer's specifications pertaining to guardrail end treatments (when applicable) before they can be considered complete. If all the work-orders are satisfactorily completed, the work will be accepted by the Department, at which time that work-order group will be considered

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closed. Upon closure, the Department will process the Contractor's invoices for the specific work-orders in that group.

27. Payments shall be issued on a monthly basis for the amount of work completed, invoiced and accepted by the Department.

28. The Contractor is reminded that Section 105.07 of the Standard Specifications requires the Contractor to maintain a competent Superintendent or Foreman on the job site at all times.

29. The Contractor shall adhere to the requirements of the DelDOT Standard Construction Details for this Contract. The guardrail details are listed on Details B-1 through B-21

30. GUARDRAIL/END TREATMENT/ATTENUATOR, TYPE I (ET-2000)

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

a) LEVEL I REPAIR

A Level I Repair for the ET-2000 Impact Attenuator shall be used when the Attenuator is damaged up to, but not including, the third post.

The following Items shall be reused or replaced at the discretion of the Engineer:

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

A Level II Repair for the ET-2000 Impact Attenuator shall be used when the Attenuator is damaged up to but not including the fifth post. The following Items shall be replaced unless otherwise directed by the Engineer.

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All Items specified in Level I Repair plus the following:

Wood Block (Replace)

c) LEVEL III REPAIR

A Level III Repair shall be a complete replacement of the attenuator unit.

31. GUARDRAIL/END TREATMENT ATTENUATOR TYPE II – (SRT-350, both 6 and 8 post)

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

a) LEVEL I REPAIR

A Level I Repair for Impact Attenuator Type II – SRT-350 (both 6 and 8 post) shall be used when the Attenuator is damaged to but not past the second post. The following Items 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

A Level II Repair for Impact Attenuator Type II – SRT-350 (both 6 and 8 post) shall be used when the Attenuator is damaged to but not past the third post. The following Items shall be replaced, unless otherwise directed by the Engineer.

Posts
Block
Back up Plate
Guardrail

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c) LEVEL III REPAIR

Shall be the complete replacement of the damaged unit, which shall include parts and labor to bring unit up to standard.

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

32. GUARDRAIL/END TREATMENT ATTENUATOR TYPE III – (CAT SYSTEM CAT-350)

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

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a) LEVEL I REPAIR

A Level I Repair for Impact Attenuator Type III shall be used when the Attenuator is damaged to but not including the second post. The following Items 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

A Level II Repair for Impact Attenuator Type III shall be used when the Attenuator is damaged to but not including the third post, the following Items 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.

33. All guardrail repair locations will be specified and designated by the Engineer via work orders. The specific repair locations will be inspected and evaluated by DelDOT personnel prior to tasking of work.

The Engineer may also provide the Contractor with a list of potential guardrail repair locations for optional inspection by the Contractor. GPS coordinates for multiple locations may be provided to the Contractor. The Contractor will have the option of inspecting each location, and providing recommendations and photographs to the Engineer for consideration and approval of additional work tasking. All costs for inspection, photographs and related work shall be the responsibility of the Contractor. There shall be no additional compensation to the Contractor for this optional inspection work.

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MAINTENANCE OF TRAFFIC

34. 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 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.

35. All shoulder or travel lane closures on I-95, I-495, I-295 and interstate ramps shall be performed during day-time between 9:00 AM to 3:00 PM, Monday through Friday. Any deviation from this time restriction must be approved by the North District Engineer and DelDOT Safety Officer prior to commencement of work.

36. The Contractor shall furnish and place traffic control devices in accordance with the Delaware Manual on Uniform Traffic Control Devices (MUTCD). For locations requiring a flagging operation, the flagger will be paid the fixed hourly rate under the applicable flagger Pay Item.

37. All work shall be performed in a manner that will reasonably provide the least practicable obstruction to all road users, including vehicular, pedestrian, and bicycle traffic, and shall conform to the requirements of the Delaware Manual on Uniform Traffic Control Devices, Part 6, including revisions up to the date of advertisement for bids.

38. If a road closure is required, the Contractor shall be required to submit the proposed detour route to the DelDOT Safety Officer for approval. The Contractor shall coordinate the road closure with the Engineer. The Engineer will coordinate with the DelDOT Safety Section, and

be responsible for the necessary emergency notifications. The detour route requires approval by the Engineer prior to closure. The Engineer will coordinate with the DelDOT Team Support Section for notification requirements prior to road closure. A two week detour review lead time shall be required for any requested detour. The Contractor shall be responsible for furnishing and maintaining the Maintenance of Traffic apparatus at the closure (such as Type III barricades, road closure signs, etc.) and all advance warning signs. The Contractor shall be responsible for placement of detour trailblazers. Payment for detour trailblazers shall be under Item 743525 (Temporary Warning Signs).

39. All open excavations shall be secured with plastic drums with retroreflective fluorescent orange and white prismatic sheeting and orange plastic snow fence. If the construction activity results in a vertical difference or drop-off along, adjacent to, or across a travelway, the Contractor shall eliminate or remedy this hazard by the methods detailed in Table 6G-1 of the Delaware Manual on Uniform Traffic Control Devices (DEMUTCD) as directed by the Engineer. The snow fence, tie wire, and associated items shall be incidental to the work it protects."

40. All **flaggers** utilized by the Contractor for this project shall be **ATSSA certified** by a Department approved certification program. All flaggers shall have certification cards and photo identification with them while working. Absence of a certification card will be justification for flagger dismissal from the site and corresponding suspension of work. All garments worn by flaggers shall comply with applicable regulations for visibility and reflectivity. All construction and Contractor vehicles and self-propelled equipment shall be equipped with an operating roof mounted amber flashing light.

41. Time restrictions for working hours will be determined by the Safety Officer and the Engineer for each specific work location, and stated on the work order. The Contractor shall comply with these time restrictions. Daytime restricted work hours may be required on some work orders, at the discretion of the Safety Officer and Engineer.

42. The Contractor shall submit a site-specific **Traffic Control Plan** for approval ten (10) working days prior to the start of work at each location. The Traffic Control Plan must clearly indicate orientation of traffic control devices to be used for each site. The Plan must be approved by the DelDOT Safety Officer and DelDOT Engineer prior to commencement of work at each site.

43. Costs for adjustment in position of traffic control devices due to variances from the standard Maintenance of Traffic (MOT) case numbers, or for any other reason, shall be included in unit bid price for each respective MOT Pay Item.

44. All **traffic warning signs** shall be diamond grade retro reflective, and fabricated with NCHRP 350 compliant rigid material. Wood sheeting is not permitted.

45. No separate payment shall be made for use of **traffic cones**. Traffic cones and/or work associated with their use, such as set up, removal, cleaning, etc, shall be incidental to the work for which they protect.

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46. The Contractor, with the Engineer's representative, shall **inventory all signs** on all roads 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.

47. A Truck mounted attenuator, Type II (Item 743010) shall be required on roads for shoulder work, travel lane work and other operations as outlined in the DelDOT MUTCD, or as directed by the Engineer.

48. No lane closures will be permitted unless applicable work activity is taking place.

49. All repair/maintenance equipment shall be removed from the job sites on a daily basis, except when approved by the Engineer. Contractor shall follow guidelines set forth in the Delaware MUTCD for storage of materials.

50. All construction personnel shall wear retroreflective safety vests at all times. All retroreflective safety vests must be minimum ANSI Class 2.

51. All traffic control devices shall be in new or refurbished condition, and shall be in compliance with the Delaware Manual of Uniform Traffic Control Devices and NCHRP 350 as defined in Part 6 of the Manual. The devices shall be approved by the DelDOT Safety Officer prior to use, and shall be maintained in good condition for the duration of the Contract.

52. Pedestrian facilities shall be maintained at all times at each work location.

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QUANTITY SUMMARY SHEET

ITEM NO.	DESCRIPTION	UOM	QUANTITY
720005	Steel Rail Element, Straight	LF	12,000.0
720006	Steel Rail Element, Curved	LF	800.0
720007	Galvanized Steel Posts	EACH	500.0
720008	Galvanized Steel Brackets	EACH	75.0
720009	Short Wood Breakaway Post, Treated	EACH	25.0
720010	Treated Wood Block	EACH	500.0
720013	End Section (Rounded)	EACH	15.0
720014	Terminal Connector, Bridge & Barrier	EACH	10.0
720022	Galvanized Rail Element, Thrie Beam	EACH	10.0
720023	Galvanized Transition Section, Thrie Beam	EACH	10.0
720024	Galvanized Steel Post, Thrie Beam	EACH	10.0
720025	Galvanized Steel Bracket, Thrie Beam	EACH	10.0
720041	Reflectorized Washers	EACH	300.0
720050	Galvanized Steel Beam Guardrail, Type 1	LF	100.0
720056	Treated Wood Guardrail Post	EACH	50.0
720549	Galvanized Steel Post, Extra Length	LF	100.0
720566	Setting Guardrail Post in Rock	LF	10.0
720585	Guardrail End Treatment Attenuator, Type 1	EACH	10.0
720586	Guardrail End Treatment Attenuator, Type 2	EACH	10.0
720588	Guardrail End Treatment Attenuator, Type 3	EACH	10.0
720591	End Anchorage Repair	LS	1.0
720595	Guardrail End Treatment Attenuator, Type 1, Level I Repair	EACH	30.0
720596	Guardrail End Treatment Attenuator, Type 1, Level II Repair	EACH	30.0
720597	Guardrail End Treatment Attenuator, Type 2, Level I Repair	EACH	10.0
720598	Guardrail End Treatment Attenuator, Type 2, Level II Repair	EACH	10.0
720599	Guardrail End Treatment Attenuator, Type 3, Level I Repair	EACH	10.0
720600	Guardrail End Treatment Attenuator, Type 3, Level II Repair	EACH	10.0
720603	Remove & Reset Galvanized Steel Post & Offset Block	EACH	50.0
720663	Guardrail End Treatment Attenuator, Minor Repair	EACH	50.0
725001	Guardrail to Barrier Connection (Exit Type)	EACH	10.0

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725002	Guardrail to Barrier Connection, Approach Type I	EACH	7.0
725003	Guardrail to Barrier Connection, Approach Type 2	EACH	5.0
725503	Guardrail to Barrier Connection (Approach) Repair	LS	1.0
726001	End Anchorage	EACH	25.0
726002	Buried End Section	EACH	5.0
732002	Topsoil, 6" Depth	SY	50.0
734013	Permanent Grass Seeding, Dry Ground	SY	50.0
743003	Arrow Panel, Type C	EADY	250.0
743004	Furnish and Maintain Portable Changeable Message Sign	EADY	225.0
743006	Plastic Drums	EADY	2,000.0
743010	Furnish and Maintain Truck-Mounted Attenuator, Type II	EADY	200.0
743050	Flagger, New Castle County, State	HOUR	150.0
743062	Flagger, New Castle County, State, Overtime	HOUR	25.0
743525	Temporary Warning Signs	EADY	500.0
763507	Emergency Mobilization	EACH	5.0
763563	Performance and Payment Bond	LS	1.0

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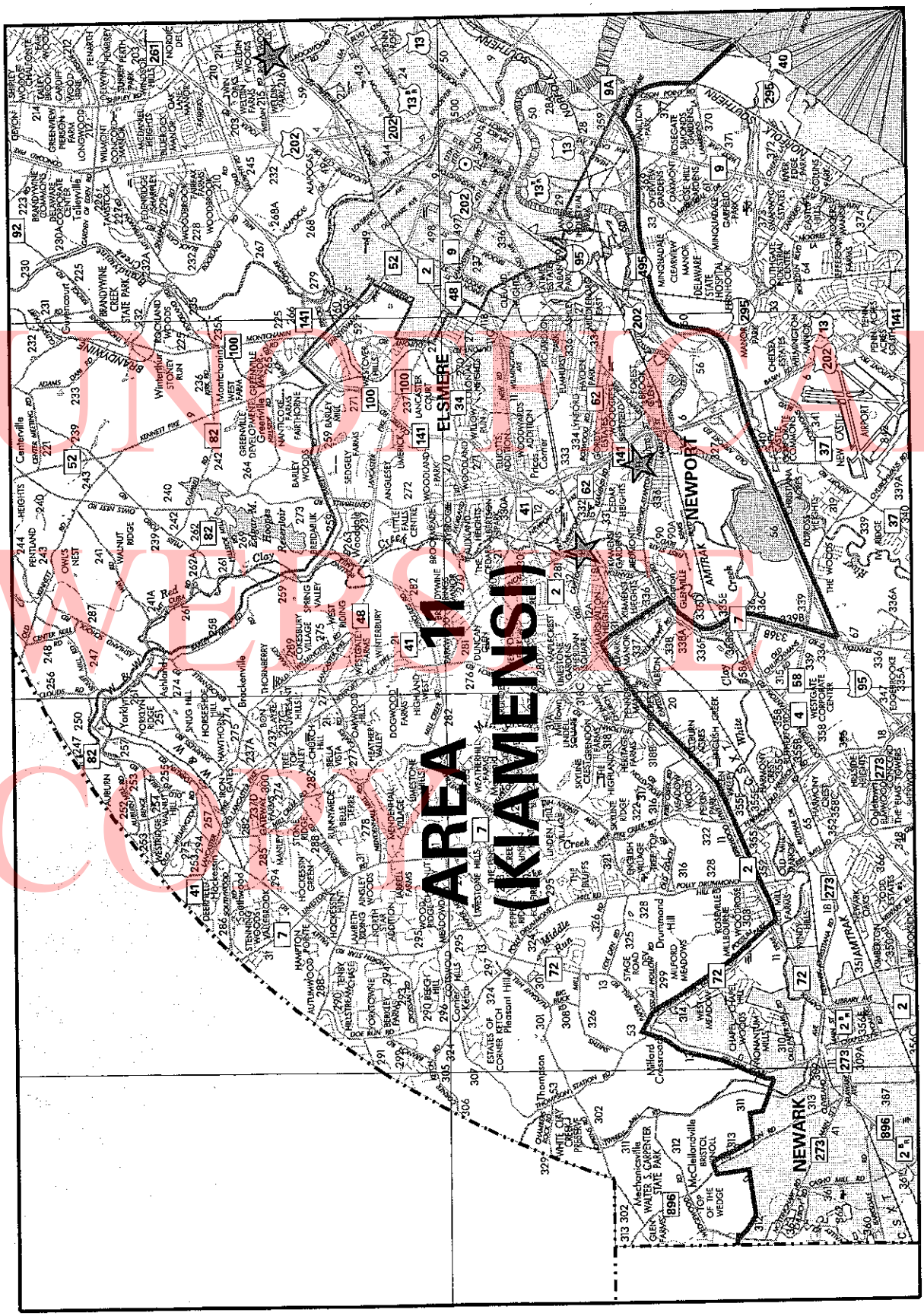

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