

SECTION 208 – TEMPORARY SOIL EROSION AND DUST CONTROL

The following is added:

208.02 MATERIALS

Course Aggregate.....	902.05
Geotextiles.....	923.37

The following is added:

208.03 METHODS OF CONSTRUCTION

(I) Silt Fence

The following is added:

Install heavy duty silt fence with geotextile securely buried in the existing soil. Join sections of the geotextile so that they work effectively as a continuous fence. Install fence posts at a slight angle toward the anticipated runoff source. Install orange or black color heavy duty silt fence in locations as shown in the Plans. Do not substitute the colors orange for black or black for orange.

The following subparagraphs are added:

(N) Floating Turbidity Barriers

Floating turbidity barriers, consisting of ten (10) mil thick polyethylene plastic sheets suspended from floats, shall be installed in streams or other watercourses to intercept silt outletting from drainage pipes or caused by construction operations within the waterways.

Barriers shall be located 50 feet from the point of discharge of drainage pipes or from construction operations affecting the waterways. The barriers shall extend across the entire waterway or radially from the shore line.

[Include the following in contracts that include inlet filters, inlet sediment traps and construction driveways:]

(P) Inlet Filters.

Provide Type 1 and Type 2 Inlet Filters as follows:

1. **Type 1.** *For new inlet structures, mold welded steel wire fabric around the inlet frames and grates, or inlet structures, and extend a minimum of 6 inches down each side of the new structures. Secure geotextile to the welded wire fabric. Place Coarse Aggregate, Size No. 2 against the inlet structures to hold the inlet filter in place.*

For existing inlet structures, place geotextile under the grates, over the curb pieces, and extend a minimum of 6 inches beyond. Place Coarse Aggregate, Size No. 2 behind each curb piece and on the geotextile to secure the fabric in place.

For existing or new inlets with curb pieces, wrap the geotextile around a piece of lumber. Place the lumber against the vertical opening to allow for flood overflow.

Remove inlet filters within 12 hours of a paving operation.

2. **Type 2.** *Remove the inlet grate and place the inlet filter in the opening, holding out approximately 6 inches of the filter outside the frame. Replace the inlet grate to hold the filter in place. Empty the filter according to the manufacturer's recommendations. When removing the filter, ensure that sediment does not enter into the drainage system. Clean out the filter, dispose of the sediment, rinse and return the filter to its original shape, and replace the filter inside the inlet.*

(Q) Inlet Sediment Traps

Inlet Sediment Traps, consisting of silt fence and temporary stone inlets, shall be constructed to control sedimentation at existing and new inlet drainage structures.

The silt fence shall consist of geotextile fabric whose width shall be at least 3 feet to provide for a 2-feet high fence after 1 foot of fabric is buried in the existing soil. Sections of fabric shall be overlapped a minimum of 1 foot - 6 inches then joined in such a manner that, when in operation, the sections work effectively as a continuous fence. The silt fence shall be installed around the drainage structure and meet into the stone inlets. Fence posts shall be installed at a slight angle toward the anticipated flow.

The temporary stone inlets, consisting of temporary stone, Grade 'B', shall be placed in each flow line upgrade of the inlet structure. The coarse aggregate shall be placed on geotextile fabric that shall be buried in the soil. When sections of geotextile fabric need to be joined, the sections shall be overlapped a minimum of 1 foot - 6 inches in the direction of flow.

(R) Construction Driveway

To minimize tracking of dirt and other materials onto existing roadways, provide a construction driveway at each location where vehicles exit the work site as approved by the Engineer. Construct driveways using temporary stone, Grade 'B' placed on geotextile. Ensure that the driveway is at least 15 feet wide. The Contractor may make driveways wider if approved by the Engineer. Maintain the driveway by top dressing or by excavating and top dressing, as directed by the Engineer, with additional temporary stone, Grade 'B'. When the driveway is no longer required, remove the driveway, backfill to the adjacent ground elevation, and restore the disturbed area to the original condition.

208.04 MEASUREMENT

The following is added:

Floating Turbidity Barriers will be measured by the linear foot.

Temporary Stone Outlet Sediment Traps of the various sizes will be measured by the number of each.

Heavy duty silt fence of the color specified will be measured by the linear foot.

Inlet Filters, Type 1 will be measured by the square foot.

Inlet Filters, Type 2 will be measured by the number of each.

Inlet Sediment Traps will be measured by the number of each.

Construction Driveway will be measured by the weight of the stone furnished and placed.

208.05 PAYMENT

The following is added:

PAY ITEM	PAY UNIT
	Linear Foot
Temporary Stone Outlet Sediment Traps, ___' x ___'	Each
Heavy Duty Silt Fence, (Orange or Black)	Linear Foot
<i>Inlet Filter, Type 1</i>	<i>Square Foot</i>
<i>Inlet Filter, Type 2</i>	<i>Each</i>
<i>Inlet Sediment Traps</i>	<i>Each</i>
<i>Construction Driveway</i>	<i>Ton</i>

[Include the following in contracts that include the construction of new beam guide rail, beam guide rail posts, beam guide rail end treatments, connections and rub rail, the resetting of existing beam guide rail, the raising of existing beam guide rail or the removal of existing beam guide rail as necessary:

Note that beam guide rail on the New Jersey Turnpike shall be galvanized, and on the Garden State Parkway beam guide rail shall be weathering steel. However, separate pay items for the different materials are not to be provided. Based upon the location of the proposed work, the Contractor is responsible for installing the correct material.]

~~NOTE FOR THE DESIGNER: The routed brackets are deeper than the existing steel brackets. Therefore, include the following for upgrading Guard Rail in areas where the shy line or Guard Rail offset distance standards do not require the posts to be reset. Also, since the contractor must drill the bolt holes from the traffic side of the Guard Rail, ensure adequate room is provided.~~

~~For areas that require the posts to be reset use the salvage and realign Guard Rail items.~~

SECTION 510 – GUARD RAIL

Delete this Section in its entirety and replace with the following:

SECTION 510 – BEAM GUIDE RAIL

510.01 DESCRIPTION.

Guide Rail shall consist of steel rail elements mounted on steel posts and recycled/synthetic blockouts, with terminal anchorages, end treatments and connections in accordance with the Plans. Work shall include removal, furnishing and installing, realigning, raising, salvaging existing single-face and double-face beam guide rail, and resetting guide rail with salvaged material.

When applicable, this work shall also include the installation of end terminals in accordance with manufacturer's recommendations. The Contractor and Subcontractor (if applicable) will be required to have their foremen and superintendents (at a minimum) attend a mandatory training session presented by the manufacturer, prior to the start of construction.

510.02 MATERIALS.

Materials shall conform to the following Subsections:

<i>Rail Element</i>	<i>915.01</i>
<i>Posts</i>	<i>915.02</i>
<i>Blockouts</i>	<i>915.02</i>
<i>Rub Rail</i>	<i>915.05</i>
<i>Miscellaneous Hardware</i>	<i>915.03</i>
<i>Circular Reflectors</i>	<i>915.06</i>
<i>Expansion Anchors</i>	<i>909.02 (E)</i>
<i>Adhesive Anchors</i>	<i>909.02 (F)</i>

Portland cement concrete for anchorages and post foundations shall conform to Section 905, Class B.

All metal components along the Turnpike shall be galvanized in accordance with Subsection 909.11. All metal components along the Garden State Parkway shall be weathering steel in accordance with Section 915.

Use the latest non-gating, guide rail end treatments that are NCHRP 350 tested, test level 3 (TL-3), approved. Ensure that the components of the end treatment comply with the NCHRP 350 approved end treatment details.

510.03 METHODS OF CONSTRUCTION

The following is added:

(J) Block-Out Guard Rail

~~Block-Out Guard Rail in areas designed on the plans shall consist of installing routed timber or recycled/synthetic brackets in place of the existing galvanized steel brackets on existing Guard Rail between the steel posts and rail elements. New hardware shall be supplied as required. The galvanized post bolt hole for the routed timber or recycled/ synthetic brackets shall be treated in accordance with Subsection 403.16. Posts damaged during the drilling of bolt holes shall be replaced at the contractor's expense.~~

~~In areas designated on the plans, Guard Rail Posts shall be reset to provide a smooth transition to existing structures.~~

Prior to installing posts, the location of underground electrical conduits and other utilities, which may conflict with the posts, shall be determined. The Contractor must call (800) 272-1000 for a utility markout in accordance with Subsection 106.18. Post spacing may be adjusted by 6 inches or double brackets may be used, as approved, to eliminate such conflicts. The Contractor's attention is directed to Subsection 106.18, pertaining to utilities. Test pits, as directed, shall be made as specified in Section 522.

The rail elements shall be constructed with the top edge in a straight line or smooth curve parallel to or concentric with the roadway. Where a vertical transition is required, the top edge of rail elements shall form the chords of a smooth vertical curve. Attach the beam guide rail element to the blockout at every post.

No punching, drilling, reaming, or cutting of the rail elements will be permitted in the field unless specifically approved by the Engineer. Neither torchcutting nor welding of rail elements will be permitted. All new material shall be furnished, except where resetting, realigning, raising, or salvaging is called for. Damaged galvanized surfaces shall be repaired in accordance with Subsection 403.16.

The installation shall be made in such a manner that no unprotected end is exposed to approaching traffic.

(A) Beam Guide Rail.

Within the same working day, replace all existing beam guide rail that is removed. Where possible, install new beam guide rail exposed to approaching traffic before the removal of

the existing system.

If it is suspected that conduit is present, the Engineer may require tests. Locate and repair damage to the electrical conduit due to construction operations.

Drive beam guide rail posts to the required position. Ensure that posts are driven plumb, properly spaced, and to the line and grade shown.

Install the required bridge attachment type as shown on the Plans. Mount bridge beam guide posts as shown on the Plans.

Repair damage to the galvanized coating, if applicable, according to ASTM A 780.

For beam guide installations on the Garden State Parkway, install side mounted circular reflectors in accordance with the manufacturer's recommendations. The guide rail reflector spacing criteria to be used on the Parkway is as follows:

1. Mainline:
Spacing = 100 feet on-center
2. Plazas and Ramps:
Spacing = 25 feet on-center
3. Initial Spacing:
Regardless of whether on mainline or ramp/plaza, the first reflector shall be at the first post at the start of the guide rail run. The 2nd reflector shall follow at 12.5 feet. The 3rd reflector shall follow at 25 feet from the 2nd reflector (i.e. for total of 37.5 feet). After this, the reflector spacing will either continue at 25 feet on-center for ramp/plaza or go to 100 feet on-center if on the mainline. If conditions in the field differ from above, the Engineer is to develop a reflector spacing configuration.
4. Ramps:
For the purpose of placing reflectors, a ramp will begin at the start of the transition to the deceleration ramp. A ramp will end at the end of the transition at the end of an acceleration ramp.
5. Plaza:
For the purpose of placing reflectors, a plaza will begin at the start of the pavement widening transition from the mainline to the plaza. A plaza will end at the end of the pavement widening transition from a widened plaza to the mainline roadway.
6. Reflector Color:
The color of the reflector is to match the color of the adjacent roadway pavement line stripe color.

(B) Safety Walk and Parapet Connections.

Safety Walk and Parapet connections of the types required shall consist of terminal connector, back-up plate(s), rail element(s), posts, and blockouts. Bolt holes through the parapets shall be core drilled through existing parapets or formed through new parapets using non-corrosive sleeves for each bolt.

(C) Post Weldments.

Post Weldments shall consist of a base plate, welded to a modified guide rail post with bracket, and bolted to a concrete anchorage. The Post Weldment shall be set plumb, properly spaced, and to the prescribed line and grade.

The holes for anchor bolts shall be drilled with a masonry drill. Drill bit sizes for anchor bolt holes shall conform to ANSI Standards. Holes shall be properly spaced and located. Anchor bolts shall be as called for in Subsection 909.02(E) or (F).

Precautions shall be taken, so that concrete is not damaged during drilling for anchor bolts. Any damage to the existing concrete shall be repaired without additional compensation. Any alternate concrete anchorages shown on the plans may be substituted with the Engineers approval, provided sufficient depth is available.

Welding shall conform to the ANSI/AASHTO/AWS D1.5 Bridge Welding Code, with the exception that the welding of the tubular structures shall be done in accordance with the ANSI/AWS D1.1 Structural Welding Code.

With Post Weldment installations on the Garden State Parkway, the base plate and post shall be painted brown to match the color of the weathering steel beam guide rail element in accordance with Subsection 913.03, Coating System C.

(D) Rub Rail.

When rub rail is required, bolt rub rail consisting of a steel channel or a bent plate to the beam guide rail posts.

(E) Terminals and Anchorages.

At least 10 days before beginning the work, submit the manufacturer's recommendations to the Engineer. Install terminals and anchorages according to the manufacturer's recommendations.

Excavate for post holes and concrete anchorages as specified in Subsection 206.03. Backfill and compact using the directed method as specified in Subsection 206.03.

(F) Reset Beam Guide Rail.

[In contracts that include the resetting of existing beam guide rail, also include pay items for beam guide rail element and beam guide rail posts on an "if and where directed" basis to address the replacement of existing material that is unsuitable for resetting.]

Reset Beam Guide Rail consists of using salvaged material to construct the specified item. The salvaged material shall be carefully loaded at the location specified and transported to the area where it is to be installed. Available salvaged material shall consist of beam guide rail elements, posts, blockouts, nuts, bolts, washers and plates, unless otherwise specified. Any salvaged material damaged due to carelessness, shall be replaced without additional compensation.

In areas designated on the plans, salvaged beam guide rail shall be reset using recycled/synthetic blockouts in place of the existing steel or wooden blockouts. New hardware shall be supplied, as required. For galvanized steel beam guide rail elements and galvanized posts, the bolt holes for the recycled/synthetic blockouts shall be treated in accordance with Subsection 403.16. Posts damaged during the drilling of bolt holes shall be replaced at the contractor's expense.

(G) Removal of Beam Guide Rail.

Removal of Beam Guide Rail shall consist of dismantling, removing and disposal of guide rail elements, posts, blockouts and hardware. Work shall include cutting existing anchor bolts flush with concrete surfaces and refilling and patching post holes with material similar to that of the adjoining area.

After removing beam guide rail, backfill the post holes and compact the area to the elevation of the adjacent surface. Materials and debris shall be disposed of in accordance with all applicable Federal, State and Local laws.

(H) Raise Beam Guide Rail.

Raise Guide Rail consists of raising existing guide rail and, where post spacing is currently 12'-6", supplying and installing intermediate posts and blockouts. Where additional posts are required for 6'-3" spacing, they shall be carefully set to the required height. The existing posts and rails shall be raised as specified. New hardware shall be supplied where required. Where existing spacing is 6'-3" or closer, every post shall be completely withdrawn and re-driven into virgin ground. All holes left after the post removal shall be backfilled, patched, and the surface repaired.

(I) Beam Guide Rail Element.

Beam Guide Rail Element shall consist of the installation of new rail element on to existing beam guide rail blockouts in accordance with Subsection 510.03(A).

(J) Beam Guide Rail Blockout.

Beam Guide Rail Blockout shall consist of the installation on new block outs between existing beam guide rail element and beam guide rail posts in accordance with Subsection 510.03(A).

Where beam guide rail is attached to a structure, attach the blockout to the structure. Reset the beam guide rail, as specified in Subsection 510.03(F) to provide a smooth transition to the existing structure.

510.04 MEASUREMENT

~~The following is added after the first paragraph:~~

~~Block Out Guard Rail will be measured by the linear foot along the top of rail.~~

Beam Guide Rail will be measured by the length in place along the top of rail between centers of end posts, excluding the pay limits for parapet connections, safety walk connections, anchorages and end terminals. Dual-faced rail items will be measured by the linear foot along the face of one rail excluding end terminals.

Beam Guide Rail Element and Rub Rail will be measured by the linear foot along the face of the rail.

Beam Guide Rail Anchorages, Safety Walk Connections, Parapet Connections, Beam Guide Rail Buried End Terminals, Flared Guide Rail Terminals, Tangent Guide Rail Terminals, Telescoping Guide Rail End Terminals, Beam Guide Rail Posts, Beam Guide Rail Post Weldments and Beam Guide Rail Blockouts will be measured by the number of each installed.

Raise Beam Guide Rail and Reset Beam Guide Rail will be measured as specified above for Beam Guide Rail.
Removal of Beam Guide Rail will be measured by length of existing beam guide rail removed, as shown on the plans, and as directed by the Engineer.

510.05 PAYMENT

~~The following is added:~~
Payment will be made under:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Realign Guard Rail, Type _____, with routed timber or recycled/synthetic brackets	Linear Foot
Reset Guard Rail, Type _____, with routed timber or recycled/synthetic brackets	Linear Foot
Block Out Guard Rail—	Linear Foot
Beam Guide Rail	Linear Foot
Beam Guide Rail, Dual-Faced.....	Linear Foot
Beam Guide Rail, Bridge.....	Linear Foot
Beam Guide Rail, Dual Faced, Bridge	Linear Foot
Beam Guide Rail Element	Linear Foot
Raise Beam Guide Rail	Linear Foot
Raise Beam Guide Rail Element, Dual Faced	Linear Foot
Reset Beam Guide Rail.....	Linear Foot
Reset Beam Guide Rail, Dual Faced	Linear Foot
Beam Guide Rail Blockout	Each
Beam Guide Rail Anchorage.....	Each
Safety Walk Connection, Type A.....	Each
Safety Walk Connection, Type B	Each
Parapet Connection, Type A.....	Each
Parapet Connection, Type B	Each
Beam Guide Rail Buried End Terminal	Each
Flared Guide Rail Terminal.....	Each
Tangent Guide Rail Terminal.....	Each
Beam Guide Rail Post	Each
Beam Guide Rail Post, _____' Long.....	Each
Beam Guide Rail Post Weldment.....	Each
Removal of Beam Guide Rail	Linear Foot
Rub Rail	Linear Foot
Telescoping Guide Rail End Terminal.....	Each

~~Separate payment will not be made for disposal of replaced materials. Separate payment will not be made for new hardware within the limits of Realign, Reset, Raise or Block Out Guard Rail.~~

No separate payment shall be made for reflectors attached to the face of the beam guide rail element.

[Include the following in contracts that include the construction of new delineators:]

SECTION 515 – DELINEATORS

515.02 MATERIALS.

Delete the second and third paragraphs of paragraph 515.02(C), and replace them with the following:

The nominal marker width shall be 3.75 inches in order to accommodate a four-inch wide reflector and provide adequate daytime delineation.

The marker shall be of such length to provide the required height above the road surface with a minimum embedment of 24 inches.

[Include the following in contracts that include the construction of Z-Turn attenuators or bullnose thrie beam attenuators as necessary:]

SECTION 524 – IMPACT ATTENUATOR

524.01 DESCRIPTION.

The following is added:

This work shall consist of the furnishing and installation of impact attenuators for Z-Turns, as per the Authority's Standard Drawing, and in accordance with the manufacturer's specifications. Impact attenuators for Z-Turns shall be composed of the attenuation system and a tail end section designed for attachment to dual-face beam guide rail.

This work shall also consist of the furnishing and installation of bullnose thrie beam attenuators at wide Z-Turns and other locations shown on the Plans, as per Authority's Standard Drawing.

524.02 MATERIALS.

The following is added:

Impact Attenuator, Type Z-Turn.....923.37

Materials for bullnose thrie beam attenuators shall conform to Section 915.

524.03 METHODS OF CONSTRUCTION.

The following is added:

- a) *Impact attenuators for Z-Turns shall be assembled in accordance with the manufacturer's specifications and instructions.*

Impact attenuators for Z-Turns must be installed by a manufacturer's certified installer. The certified installer shall be the person on site who installs the system. The manufacturer's certified installers will be the Contractor's employees who have attended and passed a manufacturer's certification program which has been approved by the Authority.

Detailed shop drawings shall be provided by the manufacturer showing all components of the attenuator including the anchor, rail, yoke, transition, supports, buckling restraints and connections necessary to construct the attenuator system.

- b) *Bullnose thrie beam attenuators shall be assembled in accordance with the Authority's Specification for beam guide rail, Subsection 510.03, and the Standard Drawing for the installation of bullnose thrie beam attenuators.*

524.04 MEASUREMENT.

The following is added:

Bullnose Thrie Beam Attenuators will be measured by the number of each installed.

524.05

PAYMENT.

Payment will be made under:

Pay Item

Pay

Unit

Impact Attenuator, Type _____ *Each*

Bullnose Thrie Beam Attenuator *Each*

[Include the following in contract that include the construction of new chain link fence:]

SECTION 914 - FENCE

914.01 CHAIN LINK FENCE.

(B) Line and End/Corner Fence Post Sections.

Delete this paragraph in its entirety, and replace it with the following:

Line and End/Corner Fence Post Sections shall be roll-formed galvanized (2.0 oz./ft² zinc coating per ASTM A123) steel shapes conforming to the requirements of ASTM F 1043. Line posts shall be Group II with a minimum yield strength of 45,000 psi, 1 7/8 inch standard "C"-shaped posts, 2.4 lbs./ft or Group III with a minimum yield strength of 45,000 psi, 2 1/4 inch standard "H" shaped posts, 3.26 lb/ft, End corner posts shall be Group 1A with a minimum yield strength of 50,000 psi, 2 7/8 inch diameter standard "Round Steel Pipe" posts, 5.79 lbs./ft or Group IC with a minimum yield strength of 50,000 psi, 2 7/8 inch diameter standard "Round Steel Pipe" posts, 3.25 lbs./ft.

(C) Brace Rail Sections.

Delete this paragraph in its entirety, and replace it with the following:

Brace Rail Sections shall be galvanized (1.8 oz./ft² – zinc coating, per ASTM F1083) steel pipe conforming to the requirements of ASTM F1043, Group 1A. Brace rail posts shall be 1 5/8 inch outside diameter round pipe, 2.27 lbs/ft.

(I) Drive Anchors.

Delete this paragraph in its entirety, and replace it with the following:

Drive Anchors for H-beam line posts shall be fabricated from steel bars and pressed steel, of the type and size shown on the Plans, and shall be hot dip galvanized in accordance with the requirements of ASTM A123.

[Include the following in contracts that include the construction of new or the resetting of existing beam guide rail:]

SECTION 915 – GUARD RAIL

Delete this Section in its entirety and replace it with the following:

SECTION 915 – BEAM GUIDE RAIL

915.01 RAIL ELEMENT

Rail elements shall be 12 gauge steel.

For galvanized beam guide rail, fabricate the rail element, including rounded end sections and buffer end sections, according to AASHTO M 180, Class A, Type I in Table 2.

Ensure that the weight of the zinc coating conforms to AASHTO M 180, Type I in Table 1.

For weathering steel beam guide rail, fabricate the rail element, including rounded end sections and buffer end sections, shall be high strength, low-alloy weathering steel conforming to the requirements of ASTM A 709, Grade 50W and AASHTO M 180, Type IV, Class A.

915.02 POSTS AND RECYCLED/SYNTHETIC BLOCKOUTS.

For galvanized steel posts, use structural steel conforming to ASTM A 709, Grade 36, that is galvanized according to ASTM A 123.

For weathering steel posts shall be fabricated of high strength, low-alloy structural, weathering steel conforming to the requirements of current ASTM A 709, Grade 50W.

The bottom 4'-2" of the six (6) foot guide rail posts and bottom 6'-2" of the eight (8) foot guide rail posts shall be galvanized in accordance with AASHTO M 111.

Timber posts for end terminals shall conform to Subsection 910.05.

Use recycled/synthetic routed blockouts that are NCHRP 350 tested, test level 3 (TL-3), approved. Ensure that the name of the manufacturer and model number are stamped on each blockout and that the blockouts are of the same material and dimensions as the spacers that were NCHRP tested.

915.03 MISCELLANEOUS HARDWARE.

For galvanized beam guide rail, ensure that connections or splices, nuts, bolts, washers, and plates conform to AASHTO M 180, except as follows:

- 1. If high-strength bolts are shown on the Plans for bridge guide rail, use high-strength bolts, nuts, and washers conforming to ASTM A 325, Type I, and galvanized according to ASTM A 153.*
- 2. For base plate assemblies on bridge guide rail, use an adhesive anchor system with galvanized bolts as specified in 909.02(F) or galvanized anchor bolts, nuts, and washers as specified in 909.02(E).*
- 3. Use plates for beam guide rail on bridges conforming to ASTM A 36 and galvanized according to ASTM A 123.*

For weathering steel beam guide rail, ensure that connections or splices, nuts, bolts, washers, and plates conform to AASHTO M 180, except as follows:

1. Nuts for beam guide rail end treatment shall conform to ASTM A 563, Grade A.
2. Plates and rods for guide rail end treatment shall be structural steel conforming to ASTM A 36 and galvanized according to AASHTO M 111.
3. Bolts, nuts, and washers for bridge guide rail, excluding base plate anchor bolts, shall conform to or exceed the requirements of ASTM A 307 unless otherwise designated as high-strength on the Plans. High-strength bolts, nuts, and washers shall conform to AASHTO M 164, Type I (ASTM A/325/325M, Type I) or ASTM A 449/A 449M. Anchor bolts, nuts, and washers for base plate assemblies on bridge guide rail shall conform to or exceed the requirements of AASHTO M 164, Type I (ASTM A/325/325M, Type I). Structural steel plates for guide rail on bridges shall conform to AASHTO M 183/M 183M (ASTM A/36/A36M).
4. Bolts and nuts may be mechanically galvanized according to AASHTO M 298, Class 50, Type 1.

915.04 SAMPLING AND TESTING.

Samples and rate of sampling taken by the Engineer will be in accordance with AASHTO M180.

915.05 RUB RAIL.

*For galvanized beam guide rail, rub rail shall be steel channels or bent plate of structural steel conforming to ASTM A 36 and galvanized according to ASTM A 123.
For weathering steel beam guide rail, rub rail shall be steel channels or bent plate fabricated of high strength, low-alloy weathering structural steel conforming to the requirements of current ASTM A 709, Grade 50W.*

915.06 CIRCULAR REFLECTORS.

Circular Reflectors shall be Model AGR as manufactured by Astro Optics Corporation, 1200 Abbott Drive, Elgin, IL 60123, telephone (847) 488-9151, or approved equal.

SECTION 923 - MISCELLANEOUS

923.18 REFLECTORS

Delete the second paragraph and replace with the following:

~~The fastening system shall consist of a blind rivet and the tubular component by which the reflector and mounting post will be sandwiched between the two parts, as per Subsection 912.01(D). Reflective delineators for the side of concrete construction barriers shall be Type JD 1 as manufactured by Astro Optics Corp., 156 Williams St., Carpentersville, IL 60110, Ph (847) 428 3181; Flexx 2020 manufactured by Duraflex Corporation, 297 Margaret King Avenue, Ringwood, NJ 07456, telephone number (973) 962 7779; Type PCBM; 3" by 3" as manufactured by Davidson Traffic Control Products, 3110 70th Ave. East, Tacoma, WA 98424, Telephone Number 800 755 7528; or an approved equal. Reflective delineations for the top of concrete construction barrier shall be Type PCBM, 6" wide by 12" high as manufactured by Davidson Traffic Control Products, 3110 70th Ave. East, Tacoma, WA 98424, Telephone Number 800 755 7528; or an approved equal. Colors shall be as specified.~~

Delete this Subsection in its entirety and replace it with the following:

Flexible reflectors units shall be made of a fiberglass reinforced, thermosetting, high-density polymer resin or an extruded polycarbonate resin, which are resistant to ultraviolet and infrared radiation, and which meet the following minimum physical requirements:

1. Reflector Dimensions.
Reflector units shall be 4 inch wide by 8 inch high, with a minimum thickness of 1/8 inch.
2. Reflector Color.
Reflector colors shall be as shown on the plans.
3. Drivable Flexible Delineator.
Approved drivable flexible delineator products shall be as supplied by Carsonite International/Greenline Products, P.O. Box 98, Early Branch, SC 29916, Ph (800) 648-7974 or an approved equal. The "ROADMARKER" (CRM-375) post shall used for single sided milepost markers or other markers and the CIB-380 I-BEAM marker post shall be used for dual sided milepost markers, or approved equal.
4. Retroreflective Sheeting.
Use 3M "Diamond Grade" reflective sheeting. Affix yellow, white or red reflective sheeting to the traffic-facing side of the reflector according to the manufacturer's recommendations.

Manufacturing sources for reflector products shall use recycled materials as recommended by the EPA, unless waived by the Engineer. Submit a certification of compliance, as specified in Subsection 105.04 for the reflectors.

[Include the following in contracts that include the construction of new Z-Turn attenuators:]

NOTE TO DESIGNERS:

The following sub-section is “non-standard”. It shall be numbered consecutively in the supplementary specifications starting with number 923.37 regardless of the number shown. For example, if you want to use section 923.38 - Geotextile, but no other non-standard section, it shall be renumbered 923.37. If another non-standard section is required, it shall be numbered 923.38 etc.

The following is added:

923.41 Z-TURN ATTENUATOR.

The attenuators for Z-Turns shall be the latest model Crash Cushion/Attenuating Terminal (CAT) System as manufactured by the Syro Steel Company, Girard, Ohio, or an approved equal.

[Include the following in contracts that include the construction of inlet filters and inlet sediment traps:]

NOTE TO DESIGNERS:

The following sub-section is “non-standard”. It shall be numbered consecutively in the supplementary specifications starting with number 923.37 regardless of the number shown. For example, if you want to use section 923.38 - Geotextile, but no other non-standard section, it shall be renumbered 923.37. If another non-standard section is required, it shall be numbered 923.38 etc.

The following is added:

923.42 GEOTEXTILE.

Provide geotextile rolls with protective wrapping and, before placement, store rolls in a manner that protects against moisture and minimizes exposure to ultraviolet radiation. For applications that are above ground or exposed to ultraviolet radiation, provide geotextiles that are inert to commonly encountered chemicals and are stabilized against ultraviolet light degradation. Label each roll to provide product identification.

Use geotextiles conforming to the requirements in AASHTO M 288, Class 1 or 2. For Inlet Filters, use Class 2 for woven monofilament geotextiles or Class 1 for all other types of geotextiles. For Inlet Filter, Type 2, in addition to the AASHTO M 288 requirements, ensure that the geotextile's burst strength is at least 650 pounds per square inch when tested according to ASTM D 3786.

For geotextiles that are being permanently incorporated into the Contract, submit a certification of compliance as specified in 105.04.