Supplemental Technical Specification for

GUARDRAIL

SCDOT Designation: SC-M-805-1 (01/23)

APPROVED:
Division Administrator
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FEDERAL HIGHWAY ADMINISTRATION

805.1 Description

This section contains specifications for the materials, equipment, construction, measurement, and payment for the installation of guardrail in conformity with the Plans and the Specifications or as directed by the RCE.

805.1.1 Guardrail Types

Guardrail types in this section include the following:

- Midwest Guardrail System (W-Beam) (MASH)
- Strong Post Guardrail System (W-Beam) (PREMASH)
- Concrete Barrier
- Cable Barrier

805.1.2 Scope of work

Installation of guardrail includes the construction of anchor blocks and anchorage of the guardrail type and dimensions at the approach and off ends of bridges, terminal and end anchor sections and offset blocks; and includes the assembly and erection of all component parts and materials at the locations shown on the Plans, Standard Drawings, and Specifications or as directed by the RCE.

805.2 Materials

805.2.1 Steel Beam Elements

Provide W-Beam or Thrie beam rail elements, as specified in Standard Drawings Section 805 and the fabrication details. Unless otherwise noted, rail elements are to be fabricated from sheet steel conforming to the requirements of AASHTO M 180 for Class A, Type 2.

If guardrail is erected on radii of 100 feet or less, make field measurements before fabrication to determine the proper curvature of the rail elements. Shop fabricate the rail elements to conform to the curvature of the radii. Whenever field fabrication that is approved by the RCE requires cutting or drilling, coat the cut or drilled members by applying two coats of 90% minimum zinc-rich cold galvanizing compound.

805.2.2 Posts

805.2.2.1 Steel Posts

Refer to SCDOT Standard Drawings Section 805 and Fabrication Details for post specifications. Steel posts shall conform to the requirements of AASHTO M 270, Grade 36 Steel. Fabricate the posts from structural steel conforming to the requirements of **Section 709**. Galvanize the posts in accordance with ASTM A 123 after fabrication.

805.2.2.2 Wood Posts

Wood posts may only be used when specified by standard drawings, manufacturer's instruction manual, or as otherwise instructed by the RCE. Where wood posts are allowed, use Southern Yellow Pine conforming to the requirements for guardrail posts specified in **Section 706** unless otherwise indicated on the Plans, Standard Drawings Section 805, the accompanying fabrication sheets, or in the Specifications.

805.2.3 Offset Blocks

805.2.3.1 Composite Offset Block

Refer to SCDOT Standard Drawings Section 805 and Fabrication Details for offset block specifications.

805.2.3.2 Steel Backup Plates

Steel Backup Plates may only be used where called out on Plans or SCDOT Standard Drawings Section 805. Use steel backup plates that conform to the requirements in **Subsection 805.2.1.**

805.2.4 Guardrail Hardware and Accessories for Steel Beam Guardrail

Use bolts, nuts, and washers conforming to the sizes and specifications in Section 805 of the Standard Drawings and Fabrication Details. Use bolts conforming to ASTM A 307. Use nuts conforming to the requirements of ASTM A 563. Use washers that conform to the requirements of AASHTO M 180. Coat the bolts, nuts, and washers after fabrication in accordance with AASHTO M 232. Unless otherwise noted in the Plans or SCDOT Standard Drawings Section 805 and the corresponding Fabrication Details, use post bolts at least long enough to extend through posts, offset blocks, one washer, and the nut plus an extension of one bolt diameter beyond the nut. Do not allow the extension to be longer than 2 inches after an additional washer is placed under the nut.

Other guardrail components and appurtenances shall conform to the requirements shown on the Plans, Section 805 of the standard drawings, and Fabrication Details.

805.2.5 Concrete and Reinforcing Steel

Ensure that all concrete and reinforcing steel conform to the requirements shown on the Plans Section 805 of the standard drawings. Ensure that concrete conforms to the requirements of applicable subsections of **Section 701.** Ensure that reinforcing steel conforms to the requirements of applicable subsections of **Section 703.**

805.2.6 Cable Barrier

805.2.6.1 Cable

Refer to SCDOT Standard Drawings Section 805 and Fabrication Details for cable specifications.

805.2.6.2 Steel Posts, Blocks and Base Plates

Refer to SCDOT Standard Drawings Section 805 and Fabrication Details for specifications for steel posts, blocks, and base plates used in cable barrier systems.

805.2.6.3 Compensating Devices

Use compensating devices that have a spring rate of 450 lbs. (± 50 lbs.) per inch and a total available throw of 6 inches. Ensure that the spring develops a minimum compressed strength of 27,000 lbs., and is made from 9 /16- inch steel wire with a minimum breaking strength of 25,000 lbs.

805.2.6.4 Hardware

Refer to SCDOT Standard Drawings Section 805 and Fabrication Details for cable specifications.

805.2.6.5 Concrete for Cable Barriers

Use Class 3000 concrete conforming to the applicable requirements of **Section 701**.

805.2.6.6 Certification, Sampling, and Testing Requirements

Before inclusion in the work, provide the certifications listed below to the RCE. Ensure all certifications are original signed copies. If requested, the RCE will make a file copy of the original and return the original to the Contractor. Certifications include the following:

- Cable Rope - manufacturer's certification of test data per 2000 feet or spool,
- Hook Bolts - manufacturer's certification of compliance per lot or heat,
- Posts – manufacturer's certification of compliance per lot or heat,
- Delineators - certification per lot indicating brand and grade of reflective sheeting, and
- Concrete Blocks for End Anchors - certification per end anchor indicating supplier, date of pour, and results of concrete compressive strength testing.

Bolts, nuts, compensating devices, turnbuckle assemblies, and splices will be sampled by the RCE. In addition, the RCE may, at its sole discretion, sample any materials used in the work at any time ranging from the point of manufacture to the construction site for whatever testing or inspection the RCE deems necessary.

805.2.6.7 Cable Barrier Delineator

Furnish non-metallic, flexible delineators made of recycled plastics manufactured from recovered and postconsumer high-density polyethylene. Ensure that the materials are flexible polymers and elastomers, which are resistant to impact, ultraviolet light, ozone, and hydrocarbons. Provide delineators of good workmanship and free of burrs, discoloration, contamination, and other objectionable marks or defects that affect their appearance or serviceability.

Furnish the delineators in the standard color of white and yellow unless otherwise specified by the Department. Ensure that the dimensions of the delineator conform to the details and dimensions shown on the SCDOT Standard Drawings for Cable Barrier Delineators.

Ensure that the sheeting is Type IV and conforms to the requirements specified in section 651.2 of the SCDOT Standard Specifications and is listed on the most recent edition of SCDOT Qualified Product List 20.

Attach delineators on cable barrier posts with either VHB 4941 or VHB 4943 double-coated acrylic foam tape manufactured by 3M or ¼-inch galvanized or stainless steel bolts, one inch in length with nuts, and fender washers.

805.3 Equipment

Ensure that the equipment necessary for the proper construction of the work is on site, in acceptable working condition, and approved by the RCE as to both type and condition before the start of work under this section. Provide sufficient equipment to enable prosecution of the work in accordance with the project schedule and completion of the work in the specified time.

804.4 Construction

805.4.1 Installation of Posts

805.4.1.1 General

Set post plumb either driven in-place or set in a hand or mechanically dug hole backfilled as specified herein. Separate contact surfaces with an approved protective coating for dissimilar metal-to-metal post and rail installations. When posts are placed within paved areas, restore any pavement disrupted to a depth of 4 inches in like kind. Refer to SCDOT Standard Drawings Section 805 and Fabrication Details for further specifications regarding the installation of posts.

805.4.1.2 Installation of Wood Posts

Drive wood posts or set in excavated holes. If post is driven, drive with approved methods and equipment that leaves the post in its final position free from any distortion, battering, burring, or any other damage. If post is set in excavated holes, ensure that the postholes have a firm bottom. Backfill with suitable material and thoroughly compact. Do not set in concrete. Install top of treated posts to final elevation. Do not saw treated posts.

805.4.1.3 Installation of Steel Posts

Ensure that the installation of steel posts is in conformance with the details shown on the SCDOT Standard Drawings and Fabrication Details. Drive steel posts or set in excavated holes. Conform to installation requirements in Subsection 805.4.1.2.

805.4.2 Erection of Rail Element

Erect all rail elements in conformance with the details shown on the SCDOT Standard Drawings Section 805 and Fabrication Details. Proper rail element heights may vary based on the classification of the rail used.

Where hot-dipped zinc-coated surfaces are abraded, the base metal is exposed, and bolts have field cut ends, apply two coats of 90% minimum zinc-rich cold-galvanizing compound.

When new guardrail is being erected on a project that is open to traffic, proceed with work in the direction of traffic flow, so the end of the installed sections does not face oncoming traffic. Do not begin work on any section of guardrail until preparations are made to complete the installation of the section, including posts, rail, anchors, and hardware in a continuous operation. Once the work is initiated on a section, continue the work to its completion unless inclement weather or other conditions beyond the Contractor's control interfere with the work. If interrupted sections are allowed by the Plans or the RCE, place the proper traffic control devices to protect the traveling public.

805.4.3 Removal and Disposal of Guardrail

Remove and dispose of guardrail as directed by the plans or the RCE. Removal and disposal of guardrail shall include, but not be limited to, the removal of the rail elements, offset blocks, anchor bolts, posts, various hardware, loose debris, and any other connections included in the removal section. Contractor shall be expected to properly dispose of the material off of SCDOT right of way. Use a metal detector to locate and remove all metallic debris found on the ground surface (including but not limited to bolts, nuts, and washers) within the affected area. Remove any organic debris (shrubs, branches, etc.) that is present.

After removing the guardrail device, remove the foundation using a method that does not damage any retained pavement or structure. Completely remove any embedded concrete foundation. Provide proper fill or protection for any holes or excavation created during the removal process.

After removing anchored devices, cut, bore, or grind bolts flush to within 1/8” of surface without damaging concrete/asphalt. Clean and remove all debris within the work area. Fill any bored or cored holes with epoxy resin (concrete foundations) or compacted asphalt (asphalt foundations). When device is connected to bridge deck, parapet, or rigid barrier, use only removal methods that do not penetrate the surface of the structure.

805.4.4 Resetting Guardrail

Carefully remove existing guardrail. When necessary, store it in a careful manner and erect it where shown on the Plans or as directed by the RCE.

If not galvanized, thoroughly clean all steel parts and apply two coats of 90% minimum zinc-rich cold-galvanizing compound.

When resetting or replacing existing guardrail, remove only the length of guardrail that can be replaced or reset in the same day. Do not reuse any existing posts or blocks. If a portion of existing guardrail is reset, use the same type of materials used in the existing guardrail. Reset guardrail to appropriate MASH/PREMASH guardrail standards with any additional materials necessary for this work.

805.4.5 Adjusting Guardrail Offset Blocks and Post

Carefully remove the existing rail element, adjust the offset block assembly to raise the height of the guardrail as shown on the Plans, and reinstall the rail where shown on the Plans or as directed by the RCE. Thrie beam guardrail is not adjustable when attached to rigid barrier. In order to provide the required ground elevation under the guardrail when the guardrail is raised, fill the area under and adjacent to the guardrail by adding material specified as Unclassified Excavation, Borrow, or HMA Under Guardrail. Place earthwork in

accordance with **Section 203**. If replacement of guardrail elements is required, use elements that conform to the applicable requirements of this subsection.

805.4.6 End Treatments

805.4.6.1 End Terminals

Refer to the standard drawings section 805 for installation and maintenance of all end terminals utilized on SCDOT right-of-way.

805.4.6.2 Crash Cushions

Refer to the standard drawings section 805-780 for installation and maintenance of all crash cushions utilized on SCDOT right of way.

805.4.6.3 Impact Attenuators

Refer to the standard drawings section 805 for installation and maintenance of all impact attenuators utilized on SCDOT right-of-way.

805.4.7 Construction of Permanent Concrete Barrier

Construct permanent concrete barrier in accordance with the details shown on the Plans, Section 805 of the Standard Drawings, and the applicable requirements of **Section 702**. Place concrete barrier on pavement or directly on an earth or another foundation. Drilled holes may be required in the existing concrete pavement to accommodate dowel bars. Grout dowel bars as shown on the Plans with approved grout.

When a trench is required, excavate the trench for the base of the barrier to the lines and grades shown on the Plans or established by the RCE. Properly compact the bottom of the trench and have it approved by the RCE before placing concrete.

An approved slip-form machine may be used to construct concrete barrier provided satisfactory results are obtained. When in the opinion of the RCE satisfactory results are not being obtained, discontinue the work and use form type construction with no adjustment in compensation. Remove unsatisfactory work and replace it without additional compensation.

Where pavement is removed or damaged in placing the barrier, furnish an approved pavement mix and repair the pavement without additional compensation.

Refer to the Standard Drawings Section 805 for glare shields.

805.4.8 Installation of Median Cable Barrier

805.4.8.1 Anchor Placement

Set the concrete end anchors into an excavation as detailed on the SCDOT Standard Drawings. The end anchor may be precast or cast-in-place concrete. Ensure that the bottom of the anchor has a full and even bearing on the surface under it. After the concrete end anchor is in place, backfill the excavation in accordance with **Subsection 205.4.2**. When the anchor is set into a slope, construct the top of the anchor so that a 6:1 slope is created from side to side, and the anchor resembles the natural slope of the ground. Prior to pre-casting the anchors, provide the total of left-sloping or right-sloping anchors as determined by the RCE.

805.4.8.2 Cable Connections

Ensure that cables are continuous between the spring cable assemblies or spring cable assemblies and turnbuckles. Cable connections shall conform to Section 805 of the SCDOT Standard Drawings and Fabrication Details.

805.4.8.3 Cable Barrier Tensioning

Refer to Section 805 of the SCDOT 805 of the SCDOT Standard Drawings and Fabrication Details.

805.4.8.4 Cable Splices

Refer to Section 805 of the SCDOT 805 of the SCDOT Standard Drawings and Fabrication Details.

805.4.8.5 Mounting Cable Barrier Delineators

If tape is used to mount the delineators to the steel posts, use the following procedure:

1. Use a minimum of 5 square inches of tape to mount each delineator.

2. Use VHB 4941 or VHB 4943 tape to apply delineators when the temperature at installation is 60ºF or above. If the temperature is between 32ºF and 60ºF, use VHB 4943 tape. Do no install the guardrail delineators with tape when the temperature is less than 32ºF.

3. Before applying the tape, clean the surface of the delineator and the post with a solvent that is a 50:50 mixture of isopropyl alcohol and water. Wipe the surfaces with a clean dry cloth to remove any solvent.

4. After cleaning, prime the surface of the post with 3M primer 94 or 3M Aerosol Spray 80.

5. The tape may be applied first to either the post or the delineator. Ensure that the tape is applied only to dry surfaces. Apply firm pressure when locating the delineator on the post. Ensure that both surfaces are fully in contact with the tape.

6. Follow additional installation recommendations by the tape manufacturer.

If bolts are used to mount the delineators, provide two 0.31-inch diameter holes in the delineator and steel post. Use two ¼-inch, galvanized or stainless steel, bolts with nut and fender washer. Place fender washer under the nut on the outside of the delineator. Tighten bolts securely.

805.4.8.6 Site Clean-up

Remove all construction debris from the site at the end of each day.

805.4.8.7 Maintenance During Construction Phase

Maintain the erected cable barrier until it is accepted. No additional measurement or payment is made for this work.

Begin repairs within 48 hours of receiving notification from the Department of the damage to the cable barrier. Perform all repairs necessary to bring the damaged section back to full service within 96 hours of receiving notification of damage.

805.4.9 Flexible Warning Marker Posts

Refer to the standard drawings section 805 for installation of all flexible ground mounted delineators utilized on SCDOT right of way.

805.5 Measurement

The quantity for the pay item of the guardrail system or concrete barrier is the length of guardrail or barrier as constructed as specified in-place, measured by the linear foot (LF) along the centerline of the guardrail or barrier from end to end, complete, and accepted, excluding end treatments or devices.

The quantity for the pay items related to end treatments or devices is measured by each (EA) unit constructed as specified in-place, complete, and accepted.

The quantity for the pay item Cable Barrier is the length of cable barrier constructed as specified and is measured by the linear foot (LF) along the line of cable barrier between barrier end anchors, complete, and accepted.

The quantity for the pay item the Cable Barrier End Anchor is measured by each (EA) end anchor constructed as specified, complete, and accepted.

No separate measurement or payment is made for the cable barrier delineators. Furnishing and installing the delineators are considered incidental to cable barrier work and are not measured separately.

Minor excavation, disposal of surplus materials, painting, and making necessary repairs to pavement are considered incidental items necessary to complete the work as specified and included in the unit price of guardrail, concrete barrier, cable barrier, or related guardrail item; and therefore, this work is not measured separately.

805.6 Payment

Payment for the accepted quantity for each pay item, measured in accordance with **Subsection 805.5**, is determined using the contract unit bid price for the applicable pay item, and the payment includes all direct and indirect costs and expenses necessary to complete the work.

Payment for Guardrail or Concrete Barrier (of the type or class required), is full compensation for constructing guardrail or barrier as specified or directed and includes furnishing and installing the required guardrail or barrier, anchorages to bridge ends when a bridge end connector is not installed, hardware, posts, and offset block and all other materials, equipment, labor, tools, supplies, transportation, and incidentals necessary to fulfill the requirements of the pay item in accordance with the Plans, the Specifications, and other terms of the Contract.

Payment for the accepted quantity for Reset Guardrail is full compensation for resetting guardrail as specified or directed and includes removing guardrail; storing and resetting undamaged guardrail; replacing damaged guardrail or missing parts; and all other materials, labor, equipment, tools, supplies, transportation, and incidentals necessary to fulfill the requirements of the pay item in accordance with the plans, the specifications, and other terms of the contract.

Payment for the accepted quantity for end treatments and devices is full compensation for constructing and installing that item as specified or directed and includes providing and installing the necessary hardware and all other materials, labor, equipment, tools, supplies, transportation, and incidentals necessary to fulfill the requirements of the pay item in accordance with the Plans, the Specifications, and other terms of the Contract.

Payment for the accepted quantity for Cable Barrier is full compensation for constructing cable barrier as specified or directed and includes furnishing, installing, splicing, and tensioning the cable barrier; supplying and installing delineators; maintaining and repairing cable barrier during construction; and all other materials, labor, equipment, tools, supplies, transportation, and incidentals necessary to fulfill the requirements of the pay item in accordance with the Plans, the Specifications, and other terms of the Contract, except for the end anchors, which are paid for separately.

Payment for the accepted quantity for Cable Barrier End Anchor is full compensation the constructing cable barrier end anchors as specified or directed and includes furnishing and installing the cable barrier end anchors, concrete foundation, compensating devices, and hardware and all other materials, labor, equipment, tools, supplies transportation, and incidentals necessary to fulfill the requirements of the pay item in accordance with the Plans, the Specifications, and other terms of the Contract.

Pay items in this section include the following:

MASH SYSTEM COMPONENTS		
8051151	MT3 LEADING END TREATMENT TL3	EA
8051152	RESETM MT3 LEADING END TREATMENT TL3	EA
8051155	MT2 LEADING END TREATMENT TL2	EA
8051156	RESETM MT2 LEADING END TREATMENT TL2	EA
8051710	MB TRAILING END TREATMENT	EA
8051711	RESETM MB TRAILING END	EA
8052100	MGS3 GR STANDARD SHOULDER	LF
8052101	RESETM MGS3 GR STANDARD SHOULDER	LF
8052120	MGS3LS22 GUARDRAIL LONG SPAN 22' CLEAR	LF
8052125	MGS3LS16 GUARDRAIL LONG SPAN 16' CLEAR	LF
8052150	MGS3CS GR COMPRESSED SHOULDER	LF
8052151	RESETM MGS3CS GR COMPRESSED SHOULDER	LF

8052200	MGS2C GR BEHIND CURB	LF
8052201	RESETM MGS2C GR BEHIND CURB	LF
8053253	MTBBC3 MASH THRIE-BEAM BARRIER CONN TL3	EA
8053254	RESETM MTBBC3	EA
8053255	MTBBC2 MASH THRIE-BEAM BARRIER CONN TL2	EA
8053256	RESETM MTBBC2	EA

Related Products		
8055205	GR PWR DRILLING FOR POSTS	EA
8055250	NON-MOW STRIP UNDER GUARDRAIL	SY
8055251	RESET PROPRIETARY NON-MOW STRIP MATERIAL	SY
8055252	REPAIR&REPLACE SECTION OF NON-MOW STRIP	SY
8053257	FLUME INLET AT GUARDRAIL (HANDWORK)	EA
8050010	REMOVE & DISPOSE SEMI-RIGID GR DEVICE	LF
8055300	SACRIFICIAL FWMP 48 Y/Y	EA
8055309	REM SACRIFICIAL FWMP	EA
8055350	LOW MAINT WARNING MARKER POST 36YYW-FWMP	EA
8055351	LOW MAINT WARNING MARKER POST 48YYW-FWMP	EA
8055352	LOW MAINT FLEX WARN MARK POST 48BWR-FWMP	EA
8055359	REM LOW MAINT FLEX WARNING MARKER POST (FWMP)	EA

Premash

8057055	PREMASH BIB W-BEAM TL3 LEADING 37.5'	EA
8057100	PREMASH TYPE T TL3 LEADING 50'	EA
8052420	PREMASH RESET TYPE T TL3 LEADING 50'	EA
8057050	PREMASH TYPE T TL2 LEADING 25FT	EA
8057051	PREMASH RESET TYPE T TL2 LEADING 25'	EA
8056501	PREMASH IMPACT ATTENUATOR IA CLASS D3	EA
8056514	PREMASH RESET IMPACT ATTENUATOR IA D3	EA
8052210	PREMASH TRAILING W-BEAM TYPE B 12.5'	EA
8052400	PREMASH RESET TRAIL W-BEAM TYPE B 12.5'	EA
8052220	PREMASH TRAILING THRIE TYPE B 18.75'	EA
8052221	PREMASH RESET TRAIL THRIE TYPE B 18.75'	EA
8051050	PREMASH W-BEAM STRONG POST SYSTEM WSP3	LF
8051900	PREMASH RESET W-BEAM STRONG POST SYSTEM	LF
8053001	PREMASH W-BEAM COMPRESSED SHLDR 9' POST	LF
8053050	PREMASH THRIE STRONG POST GUARDRAIL	LF
8053051	PREMASH RESET THRIE STRONG POST SYSTEM	LF
8053250	PREMASH THRIEBEAM BRIDGE CONN TBBC3	EA
8052605	PREMASH RESET THRIEBEAM BRDG CONN TBBC3	EA
8056900	PREMASH SHORT TRIEBEAM BRIDGE CON TBBC2	EA
8056750	PREMASH GUARDRAIL BRACKET TO BRIDGE	EA
8051210	PREMASH W-BEAM BRIDGE CONN TL2 WBBC2	EA
8051211	PREMASH RESET W-BEAM BRIDGE CONN WBBC2	EA

8056980	PREMASH W-TO-THRIE BRIDGE CONN WTBBC	EA
8055800	PREMASH W-BEAM TIGHT CURVED SYSTEM	LF
8055801	PREMASH W-BEAM MEDIUM SHOP BENT SYSTEM	LF

Crash Cushions		
8057305	2' CRASH CUSHION 2A	EA
8057310	2' CRASH CUSHION 2B	EA
8057315	2' CRASH CUSHION 2C RETROFIT SITE	EA
8057325	WIDE CRASH CUSHION 2A	EA
8057330	WIDE CRASH CUSHION 2B	EA
8057335	WIDE CRASH CUSHION 2C RETROFIT SITE	EA
8057350	2' CRASH CUSHION 3A	EA
8057351	RESET&REPAIR CLASS A CRASH CUSHION	EA
8057355	2' CRASH CUSHION 3B	EA
8057356	RESET&REPAIR CLASS B CRASH CUSHION	EA
8057360	2' CRASH CUSHION 3C RETROFIT SITE	EA
8057361	RESET&REPAIR CLASS C CRASH CUSHION	EA
8057370	WIDE CRASH CUSHION 3A	EA
8057375	WIDE CRASH CUSHION 3B	EA
8057380	WIDE CRASH CUSHION 3C RETROFIT SITE	EA
8057400	2X2 ALUM PANEL TYPE XI FLUOR YELLOW	EA
8057410	REPLACEMENT CC NOSE MATERIAL	EA

8057420	CRASH CUSHION REPLACEMENT CYLINDER SET	EA

Rigid Barrier		
8058053	36SS REINFORCED BARRIER WALL	LF
8058054	46SS REINFORCED BARRIER WALL	LF
8058055	56SS REINFORCED BARRIER WALL	LF
8058600	56ZOI VF BARRIER MEDIAN SYSTEM	LF
8058605	56ZOI VF BARRIER ROADSIDE SYSTEM	LF
8058073	36VF REINFORCED BARRIER WALL	LF
8058074	46VF REINFORCED BARRIER WALL	LF
8058075	56VF REINFORCED BARRIER WALL	LF
8058610	56SS Barrier Tapered Approach	LF
8058860	CONC BARR TRANSITION BETWEEN TWO SHAPES	LF
8058751	CONC BARRIER TOE DRAIN	EA
8058616	CONC BARR TY6 GLARE SHIELD SYSTEM	LF
8058105	CONCRETE MEDIAN BARRIER (TYPE-2)	LF
8058990	MAINT REPAIR OF JERSEY TY 2 W GLARE	LF

Cable Barrier		
8051655	MEDIAN CABLE BARRIER	LF
8051656	RESET MEDIAN CABLE BARRIER	LF
8052500	CABLE BARRIER END ANCHOR	EA
8052580	RESET CABLE BARRIER END ANCHOR	EA

8052510	CABLE BAR. END ANCHOR(MAINT)	EA
8052590	REPAIR OF CABLE BAR.END ANCHOR	EA
8051690	CABLE BARRIER TENSIONING	EA
8051696	CABLE BAR.RND.BEND HOOK BOLT	EA