PDN - CHAPTER 8

ITEM NUMBERS

CHAPTER 8 ITEM NUMBERS

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INTRODUCTION

ROADWAY DESIGN GUIDELINES AND STANDARD DRAWINGS

Roadway Design Guidelines (RDG) and Standard Drawings have been created to ensure that there is consistency in TDOT projects across the state. The Roadway Design Guidelines and Standard Drawings indicate the current recognized design standards for new construction or reconstruction of existing highways and shall be utilized while giving due regard to topography, natural conditions, availability of road material, and prevailing traffic conditions.

Throughout these guidelines you will see the following terms used. To clarify the meanings intended in this guide, the following definitions apply:

- **Design Lead / Technical Lead** – Preconstruction Discipline Designer, or Consultant Discipline Designer
- **Project Manager** – assigned from Project Management division to lead Project team in delivery of project within defined scope, schedule, and budget.
- **Project Team** – Preconstruction Team consisting of a Discipline Manager, members of Roadway, Structure, Survey, Environmental, ROW, and Utilities (either TDOT staff or consulting staff), overseen by a Project Manager.
- **Concept Report** – Report developed by the Strategic Transportation Investments Division during Stage 0 of a project.

All forms mentioned throughout this chapter can be found on the Roadway Design -TDOT Documents webpage.

3 Phases of Project Development

1. Preliminary
2. Right-of-Way
3. Construction

Stages of Project Delivery Network

0. Planning
1. Context/Scoping
2. Footprint Established
3. Plan-in-Hand
4. PS&E

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SECTION 1 – GENERAL

8-100.00 ITEM NUMBERS

This Chapter contains commonly used item numbers. It is not all inclusive, other item numbers are available, but the intent of this Chapter is to give Designers more understanding on an item, when it is used, and what special provision triggers their use. All item numbers are grouped to correspond with the specification or special provision provided for that item. If more information is needed, refer to the Standard Specification for Road and Bridge Construction to review the method of measurement and basis of payment.

There are special instances when different items are utilized. For instance, Local Program projects may have additional item numbers that are a 920 series. Alternative Delivery projects will use item numbers with lump sum quantities and traditional projects will require a calculated quantity be shown for the item number. Asset Management projects will list a specific type of item number to repair or replace. These items aren't intended to be used on a traditional project.

If a Roadway Design item number is needed, the Design Manager should contact the Engineering Production Support Division at TDOT.EngineeringProductionSupport@tn.gov. If a Traffic Operations item number is needed, the Design Manager should contact the Traffic Operations Division at TDOT.SignalsLighting@tn.gov. These divisions will determine if an item number will be assigned or included in another item. If a new item number is needed, they will contact the HQ Construction Office to get the new number.

Several sections of the Standard Specifications for Road and Bridge Construction refer to item numbers for other Divisions or are rarely used by Roadway Design. You will notice skips in the heading numbers that correspond to those sections. These sections are not included in Chapter 8: 605, 606, 608, 609, 612, 613, 615, 616, 619, 620, 622, 623.

When lump sum items are used, the quantity is typically 1. The lump sum payment will most often include all incidental items of work required to install or complete the work listed. See the Standard Specifications for Road and Bridge Construction or the Special Provisions to determine the specific requirements for the work listed. The Designer should footnote some lump sum items, such as haul roads, with an estimate on the amount of material that may be needed.

Item Numbers from the TDOT Item Lists have been incorporated in the OpenRoads Designer (ORD) software. However, designers should review all populated item numbers to ensure they are accurate.

8-105.00 CONTROL OF WORK

Item Number	Description	Unit of Measurement	Comment
105-01	Construction Stakes, Lines, and Grades	L.S.	

See Standard Specifications for Road & Bridge Construction Section 105 for additional information. Item No. 105-01 includes the furnishing, setting, maintaining, and resetting, when necessary, the stakes, and for providing all labor, equipment, materials, and incidentals to complete the work as specified. Designers should inquire at the Plan-in-Hand Field Review if this item number is to be used on a project.

SECTION 2 – EARTHWORK

8-201.00 CLEARING AND GRUBBING

Item Number	Description	Unit of Measurement	Comment
201-01	Clearing and Grubbing	L.S.	
201-01.03	Clearing and Grubbing	Acre	
201-05.30	Vegetation Removal	SY	
201-05.31	Vegetation Removal	L.S.	
201-07.01	Removal and Disposal of Brush & Trees	L.S.	Most commonly used with Bridge Repair Projects.

See Standard Specification for Road and Bridge Construction Section 201 for additional information. Clearing and Grubbing, Item Number 201-01, should be included on most projects. Exceptions would be 3R projects (Resurfacing, Restoration, and Rehabilitation projects) which typically involve pavement improvement work and targeted safety improvements.

8-202.00 REMOVAL OF STRUCTURES AND OBSTRUCTIONS

Item Number	Description	Unit of Measurement	Comment
202-01	Removal of Structures and Obstructions	L.S.	
202-01.02	Removal of Asbestos	L.S.	SP202ACM
202-01.03	Removal of Trash and Debris	L.S.	
202-01.04	Removal and Disposal of Trash and Debris	CY	
202-01.05 to 202-01.09	Removal of Asbestos (Description)	L.S.	SP202ACM
202-01.11	Removal and Disposal of Trash and Debris	TON	
202-01.13 to 202-01.15	Removal of Pipe (Size, Sta.)	L.F.	List the pipe and Sta. individually

202-01.50	Removal of Structures and Obstructions	Each	
202-02.01 to 202-02.20	Removal of Pipe (Size, Sta.)	L.F.	List the pipe and Sta. individually
202-02.21 to 202-02.32	Removal of Pipe (Description)	L.F.	List the pipe and Sta. individually
202-02.51	Remove Concrete Endwall & Pipe from Existing Driveway	L.S.	
202-03	Removal of Rigid Pavements, Sidewalk etc.	S.Y.	Used for all Rigid Pavements present (concrete surfaces)
202-03.01	Removal of Asphalt Pavement	S.Y.	This is used when asphalt will be removed from the site and not replaced. Most often will not be needed because the current surface will be broken up and left in place. May be used for a complete removal of an existing parking lot or driveway that could not be milled.
202-03.02	Removal of Rigid Pavement	C.Y.	The item provides the contractor with the depth of the existing surface to be removed. It would only be used on large

			projects with an abundance of rigid surfaces.
202-03.03	Removal of Asphalt Pavement	C.Y.	Will not be used often.
202-04.01 to 202-04.22	Removal of Structures (Description, Sta.)	L.S.	
202-04.50 to 202-04.65	Removal of Structures (Description, Sta.)	L.S.	Box Bridge Sequence
202-06.01 to 202-06.41	Removal of Buildings (Tract No.____)	L.S.	
202-08.10	Removal of Curb (Description)	L.F.	
202-08.15	Removal of Curb and Gutter (Description)	L.F.	
202-08.25	Removal of Median Barrier (Description)	L.S.	To be used when the exact quantity cannot be determined
202-08.28	Removal of Median Barrier (Description)	L.F.	When quantity can be determined, use this item number
202-09.11 to 202-09.20	Removal of Underground Tanks (Tract No.___)	L.S.	
202-13	Water Well Abandonment	Each	
202-13.01 to 202-13.06	Well Abandonment (Description)	L.S.	

See Standard Specifications for Road and Bridge Construction Part 202.

When Item No. 202-01, Removal of Structures and Obstructions, per Lump Sum, or Item No. 202-01.50, Removal of Structures and Obstructions, per Each, is used on a project, the Designer shall add a footnote to the estimated quantities block detailing exactly what major items are included in the item (this includes, but is not limited to catch basins, manholes, junction boxes, etc.). This is done so the Department's estimators and contractors bidding on a project will be able to more accurately estimate the cost of this item.

Generally, all removals that belong with Item Nos. 202-06.01 through 202-06.41 shall be listed as such and shall not be included in Item No. 202-01 or 202-01.50. See RDG Chapter 9-205.00 for additional information.

8-202.01 REMOVAL OF STRUCTURE

When the proposed structure is a box bridge, the removal item for the existing structure(s) shall be placed on the Estimated Roadway Quantities sheet (in the Box Bridge block). When the proposed structure is a box culvert, the removal item for the existing structure(s) shall be placed on the Estimated Roadway Quantities sheet (in the Roadway block). The removal items shall be numbered in sequence beginning with Item No. 202-04.50 and continuing through Item No. 202-04.65, as required.

The removal items shall be footnoted under the appropriate estimated quantities block as to whether the salvage shall become the property of the contractor, city, county or state.

8-202.02 REMOVAL OF BUILDINGS AND OBSTRUCTIONS

All existing buildings and/or obstructions to be removed within the project limits are to be paid for under the bid price for Item No. 202-06.01, Removal of Buildings (Tract No. __) through Item No. 202-06.41, Removal of Buildings (Tract No. _) per lump sum. All buildings and obstructions to be removed under these item numbers shall be so designated by the Regional Right-of-Way Office. The pay items in the estimated roadway quantities block shall be footnoted as follows:

"Bid price includes all salvage value of material. See tabulated quantities sheet No. 2___ for removal of buildings and obstructions description block."

An example of a Removal of Buildings and Obstructions Description Block is shown in *Figure 8-1*. Special notes may be required to be added to the plans. See RDG Chapter 9-205.00 for additional information.

REMOVAL OF BUILDINGS AND OBSTRUCTIONS DESCRIPTION BLOCK		
PAY ITEM	TRACT NO.	DESCRIPTION

NO ADDITIONAL COMPENSATION WILL BE MADE FOR THESE REMOVALS.

Figure 8-1
Removal of Buildings and Obstructions Description Block

8-202.03 ABANDONMENT OF WATER WELLS

Item No. 202-13, Water Well Abandonment per Each, shall be used any time a water well is abandoned. This will cover all items necessary for the sealing of the well, except for grout. Item No. 604-15.01, Portland Cement Grout per cubic yard, shall be used to seal wells, and for estimating purposes, shall be computed as shown below:

1. Wells with a diameter of 1 foot or less

- The grout fill material shall extend from the bottom of the well to within 5 feet of the final surface, where the well is in a roadway cut, or to within 5 feet of the existing ground surface, where the well is located under roadway embankment or where the well is located outside of the construction limits.

2. Wells with a diameter greater than 1 foot
   - The bottom 5 feet of the well, or a depth equal to the depth of the water, whichever is greater, shall be filled with cement grout.
   - Information necessary to make these computations shall be requested when coordinating with the TDEC – Division of Water Resources.

8-202.04 REMOVAL OF ASBESTOS

The Environmental Division will notify the Designer if Removal of Asbestos should be added to Roadway Estimated Quantities. If needed, utilize item numbers 202-01.05 to 202-01.09, Removal of Asbestos (Description).

8-203.00 EXCAVATION AND UNDERCUTTING

Item Number	Description	Unit of Measurement	Comment
203-01	Road and Drainage Excavation (Unclassified)	C.Y.	
203-01.05	Excavation	L.S.	
203-01.06	Road and Drainage Excavation (Unclassified)	L.S.	Used on Safety Projects to construct pedestrian facilities. Not commonly used.
203-01.07	RD & DRNG EXC (Acid Producing – Off Site Disposal)	CY	SP107L
203-01.08	RD & DRNG EXC (Acid Producing – On Site Disposal)	CY	SP107L
203-01.11	Presplitting of Rock Excavation	S.Y.	
203-02	Borrow Excavation (Solid Rock)	C.Y.	SP109A
203-02.01	Borrow Excavation (Graded Solid Rock)	Ton	SP109A
203-02.02	Borrow Excavation (Graded Solid Rock)	C.Y.	SP109A
203-03	Borrow Excavation (Unclassified)	C.Y.	SP109A
203-03.01	Borrow Excavation (Select Material)	C.Y.	SP109A

203-03.10	Select Granular Material	TON	
203-03.51	Borrow Excavation (Unclassified)	C.Y.	SP109A
203-03.56	Rock Buttress	Ton	
203-04	Placing and Spreading Topsoil	C.Y.	RDG 2-1007.00, RDG 9-105.00
203-05	Undercutting	C.Y.	SP109A
203-06	Water	MG	Not to be paid for Dust Control
203-07	Furnishing and Spreading Topsoil	C.Y.	RDG 2-1007.00, RDG 9-105.00
203-08	Channel Excavation (Unclassified)	C.Y.	
203-10	Embankment (Compacted in Place)	C.Y.	SP109A, SP205A
203-10.05	Settlement Plate / Monitoring Device	Each	SP203S
203-10.15	Waste Material	C.Y.	
203-10.16	Graded Solid Rock (In-Place)	C.Y.	
203-11	Scaling and Trimming	S.Y.	SP203E
203-15.03	Compacted Clay	C.Y.	D-NSD-31
203-20.01	Channel Substrate	C.Y.	D-NSD-30
203-30-01	Roadway Approaches	L.S.	
203-40.01 to 203-40.04	Rock Anchors (Description)	L.F.	
203-40.06 to 203-40.09	Anchor Blocks (Description)	Each	
203-40.10 to 203-40.20	Tie Back Anchors (See description from Roadway Item List)	L.F.	To be used by Geotech for Retaining walls
203-50	Construction of Haul Road	L.S.	RDG 2-1201.02
203-50.01	Construction of Haul Road	L.S.	Should not be used by designer unless an adjoining project contains 203-50

See Standard Specifications for Road and Bridge Construction Part 203. Also, see Chapter 8-203.02, Excavation and Undercutting.

8-203.01 EARTHWORK GRADING CALCULATIONS

See Chapter 2-1000.00 for a listing of the earthwork terms and definitions used in calculating earthwork. Generally, all earthwork for a roadway project will be paid for under Item 203-01, Road and Drainage Excavation (Unclassified), C.Y., except in situations where special or unique conditions exist that would warrant bidding earthwork as either separate bid items or embankment in place bid items. For projects which earthwork items other than Road and Drainage Excavation (Unclassified) may be appropriate, the Design Manager will consult with both the Soils and Geology Section of the Materials and Tests Division and the Headquarters Construction Division to determine if other pay items are appropriate and what material type breakdown will be shown on the grading tabulation and earthwork balances in the plans.

See *Chapter 9-200.00, Grading*, for notes which shall be added to the plans as Special Notes on **ALL** projects for which a Geotechnical Report is prepared unless otherwise directed by the Design Manager after consultation with the Soils and Geology Section of the Materials and Tests Division and the Headquarters Construction Division. All grading quantities on the Estimated Roadway Quantities Sheet should also be footnoted “See Grading Special Notes on sheet 2_.”

8-203.02 EXCAVATION AND UNDERCUTTING

Undercutting is the process of removing and disposing of unsatisfactory material below grade. See TDOT Specification Book Section 203.05 for additional guidance on the use of Item No. 203-05, Undercutting, per Cubic Yard, as a pay item.

All information regarding undercutting shall be clearly shown on the plans for the Plan-in-Hand Field Review if specified in the soils report. The Construction Engineer may increase, decrease, or shift such designated areas as conditions require during construction. The decision to use the undercutting item shall be made at the Plan-in-Hand Field Review.

8-203.03 CHANNEL EXCAVATION

Excavations to widen, deepen, straighten, or construct new channels which have a width at the bottom of 14 feet or greater shall be paid under item 203-08 Channel Excavation (Unclassified) per C.Y. If the channel bottom is less than 14 feet wide the excavation shall be paid for as item 203-01 Road and Drainage Excavation (Unclassified) per C.Y.

8-203.04 GRADED SOLID ROCK BORROW

On all projects requiring graded (sized) solid rock borrow for rock buttresses, revetment, etc., the unit of payment shall be per ton instead of per cubic yard, Item No. 203-02.01.

If graded solid rock borrow is needed in cubic yard, use a factor of 1.7636 tons per cubic yard for estimating quantities.

Item No. 203-02.02 – Borrow Excavation (Graded Solid Rock) per C.Y.

8-203.05 COMPUTATIONS FOR ITEM NO. 203-06 WATER

Water will be measured by the thousand gallons (M.G.).

Item Number 203-06 – WATER, should **NOT** be used for dust control purposes. The Standard Specifications for Road and Bridge Construction subsection **104.08** states dust control will be paid with grading items as an incidental item for dust control. Do not add extra quantities to 203-06 for dust control.

Embankment:

$$\frac{\text{Earth embankment (C.Y.)} \times 2.525 \text{ Gal/C.Y.}}{1000 \text{ Gal/M.G.}} = \text{M.G.}$$

Base material and granular backfill:

$$\frac{\text{Compacted volume (C.Y.)} \times 15.150 \text{ Gal/C.Y.}}{1000 \text{ Gal/M.G.}} = \text{M.G.}$$

Foundation preparation (Item No. 204-10.01 through 204-10.25):

$$\frac{\text{Width of subgrade (Ft) x 0.5 Ft} \times \text{Length of project (ft)} \times 4 \text{ Gal/C.Y.}}{27 \text{ C.F./C.Y.} \times 1000 \text{ Gal/M.G.}} = \text{M.G.}$$

Subgrade treatment (hydrated lime) (Item No. 302-01.01):

$$\frac{\text{Subgrade treatment volume (C.Y.)} \times 40.400 \text{ Gal/C.Y.}}{1000 \text{ Gal/M.G.}} = \text{M.G.}$$

Soil-cement base (Item No. 304-01.02):

$$\frac{\text{Volume of base (C.Y.)} \times 15.150 \text{ Gal/C.Y.}}{1000 \text{ Gal/M.G.}} = \text{M.G.}$$

Aggregate-cement base (Item Nos. 309-01.01 and 309-01.02):

$$\frac{\text{Volume of base (C.Y.)} \times 15.150 \text{ Gal/C.Y.}}{1000 \text{ Gal/M.G.}} = \text{M.G.}$$

Lime fly-ash base (Item Nos. 312-01, 312-02, and 312-03):

$$\frac{\text{Volume of base (C.Y.)} \times 30.77 \text{ Gal/C.Y.}}{1000 \text{ Gal/M.G.}} = \text{M.G.}$$

8-203.06 ROADWAY APPROACHES

On bridge replacement projects with a minimal amount of roadway work on the approaches, the Designer shall consider using Item No. 203-30.01, Roadway Approaches. This is a lump sum pay item to construct bridge approaches that have quantities that are too small to be accurately measured in the field. This item has been developed to replace those items, because of the small quantities, are uneconomical to measure and document for payment under present procedures.

Item No. 203-30.01 may include: road and drainage excavation, borrow excavation, channel and culvert excavation on box bridges, clearing and grubbing, topsoil, seeding, sodding and water. The required quantities need to be calculated and shown in a tabulated block for purposes of cost estimating and bidding. Other items may be included in this item, if appropriate, but shall be discussed and approved during the Plan-in-Hand Field Review before inclusion.

As a guideline, it is recommended that Item No. 203-30.01 be considered anytime that the total excavation is approximately 1500 C.Y. or less. However, other items and factors may influence the decision to use this item. Designers shall use their best judgment on a project-by-project basis to determine the need for Item No. 203-30.01.

Figure 8-2, shown below, shall be used to itemize the quantities included in Roadway Approaches. The note, "No change in compensation will be made for normal variations in estimated quantities." is required.

ALL COSTS OF THESE ESTIMATED QUANTITIES TO BE INCLUDED IN PRICE BID FOR ROADWAY APPROACHES ITEM NO. 203-30.01							
ROAD & DRAIN. EXC.(UNCL.) C.Y.	BORROW EXCAVATION (UNCL.) C.Y.	WATER M.G.	PLACING & SPREADING TOPSOIL C.Y.	CHANNEL EXCAVATION C.Y.	SEEDING W / MULCH UNIT	WATER SEEDING & SODDING M.G.	SODDING (NEW SOD) S.Y.

NO CHANGE IN COMPENSATION WILL BE MADE FOR NORMAL VARIATIONS IN ESTIMATED QUANTITIES.

Figure 8-2
Example of Estimated Quantities for Roadway Approaches Block

8-204.00 STRUCTURE EXCAVATION FOUNDATION PREPARATION AND BACKFILL

Item Number	Description	Unit of Measurement	Comment
204-01	Culvert Excavation (Unclassified)	C.Y.	
204-08.01	Backfill Material (Flowable Fill)	C.Y.	

See *Standard Specifications for Road and Bridge Construction Section 204.*

8-204.01 PIPE CULVERT EXCAVATION AND BEDDING

The cost of excavation for the installation of pipe culverts, sewers, conduits, all other culverts, all minor structures of any type and description are not to be measured and paid for directly but will be included in the price bid per linear foot of pipe.

Designers shall include both standard drawings D-PB-1 and D-PB-2 in plans on projects allowing HDPE as a pipe alternate. Designers are to refer to the Drainage Manual, Chapter 6, Section 6.04.2.2 and *Table 6A-1*, for pipe selection criteria and allowed alternates for roadway classes and fill heights.

Designers should include a footnote under the estimated roadway quantities block that the bedding material shall be included in the cost of the proposed pipe culvert.

"See Standard Drawing No. D-PB-1 and D-PB-2 for additional details."

8-204.02 EXCAVATION FOR CONCRETE BOX AND SLAB TYPE CULVERTS AND BRIDGES

All excavation required to place a box culvert or slab bridge will be considered culvert excavation. If culvert excavation is not computed for these structures, include the following Special Note in the plans:

"Culvert excavation for concrete box or slab type culverts or bridges will not be measured and paid for directly, but the cost will be included in the cost of other items."

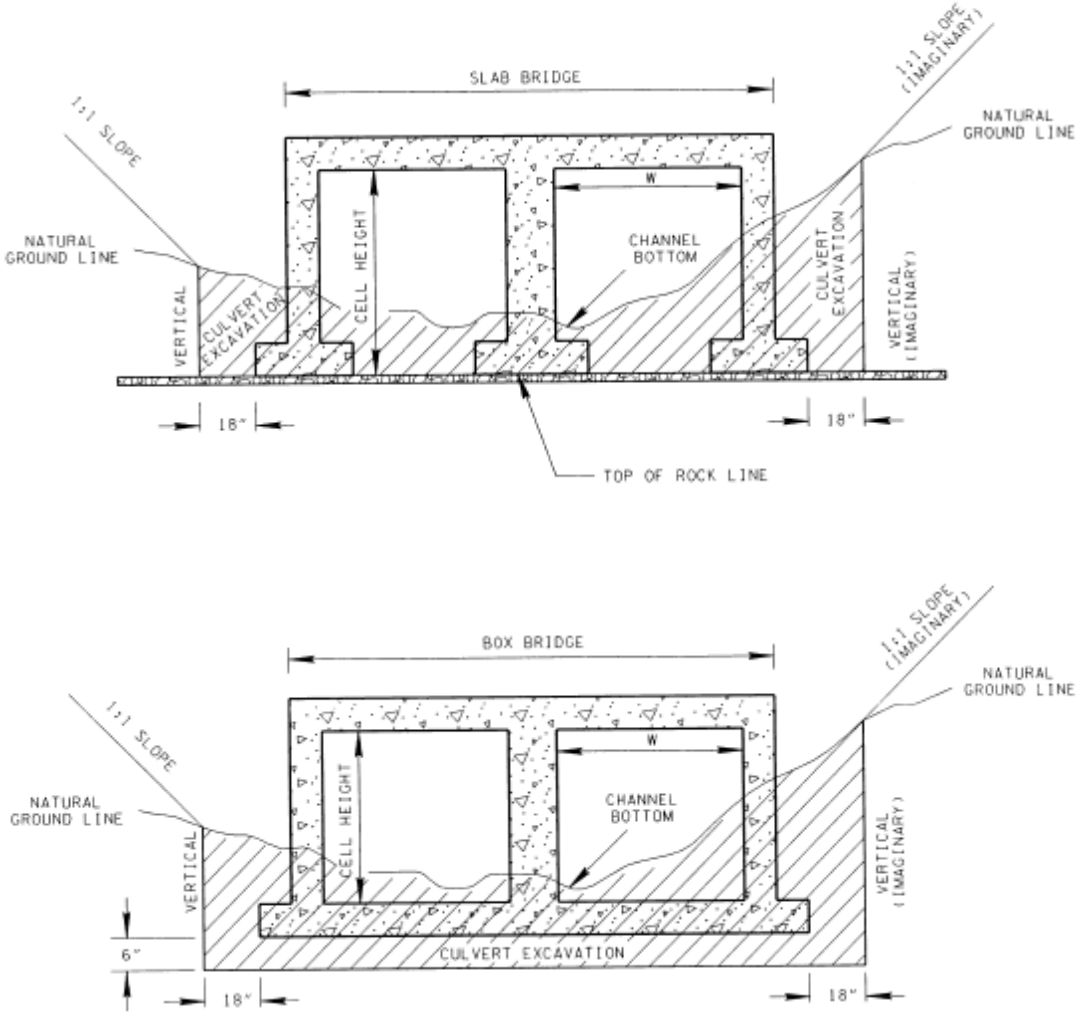

Figure 8-3
Quantities of Culvert Excavation for Slab Type and Box Culverts and Bridges

8-204.03 BACKFILL MATERIAL (FLOWABLE FILL)

Item Number, 204-08.01, Backfill Material (Flowable Fill), per C.Y. should be added to the Estimated Quantities when exiting pipes are to be left in place and plugged. See Chapter 9-115.00 for additional information.

8-208.00 SHOULDERS AND DITCHES

Item Number	Description	Unit of Measurement	Comment
208-01	Shoulders and Ditches	L.M.	
208-01.05	Brooming and Degrassing Shoulders	L.M.	NOTES 5, 6 RDG 9-135.02

See *TDOT Standard Specifications for Road and Bridge Construction* Part 208.

Item Number, 208-01 Shoulders and Ditches, per L.M. is used on 3R projects and should be added to the Estimated Quantities when shoulder and ditches are constructed to obtain proper drainage. See Section 9-135.02 for additional information.

Item Number 208-01.05, Brooming and Degrassing Shoulders, per L.M. is used on 3R projects and should be added to the Estimated Quantities when shoulders should be cleaned, and the work will not be done by Regional Maintenance Operations.

8-209.00 EROSION PREVENTION AND SEDIMENT CONTROL

See *TDOT Standard Specifications for Road and Bridge Construction* Part 209. See Chapter 10 of the *TDOT Drainage Manual* for further computation information.

The Designer shall **footnote** all applicable erosion prevention and sediment control (EPSC) pay items with the following notes:

"See Subsection 209.07 of the Standard Specifications for Maintenance Replacement. All quantities are to be used as directed by the Engineer."

Item Number	Description	Unit of Measurement	Comment
209-01.30	TEMPORARY COMPOST FILTER BERM	C.Y.	EC-STR-35; Drainage Manual Chapter 10
209-01.31	TEMPORARY MULCH FILTER BERM	C.Y.	EC-STR-35; Drainage Manual Chapter 10
209-02.02	6" TEMPORARY SLOPE DRAIN	L.F.	EC-STR-27
209-02.03	8" TEMPORARY SLOPE DRAIN	L.F.	EC-STR-27; Drainage Manual Chapter 10

209-02.04	10" TEMPORARY SLOPE DRAIN	L.F.	EC-STR-27; Drainage Manual Chapter 10
209-02.05	12" TEMPORARY SLOPE DRAIN	L.F.	EC-STR-27; Drainage Manual Chapter 10
209-02.07	18" TEMPORARY SLOPE DRAIN	L.F.	EC-STR-27; Drainage Manual Chapter 10
209-03.20	FILTER SOCK (8 INCH)	L.F.	EC-STR-8; Drainage Manual Chapter 10
209-03.21	FILTER SOCK (12 INCH)	L.F.	EC-STR-8; Drainage Manual Chapter 10
209-03.22	FILTER SOCK (18 INCH)	L.F.	EC-STR-8; Drainage Manual Chapter 10
209-03.23	FILTER SOCK (24 INCH)	L.F.	EC-STR-8; Drainage Manual Chapter 10
209-03.30	STREAM MITIGATION (RIVER ROCK)	TON	
209-03.31	STREAM MITIGATION-COCONUT FIBER ROLLS	L.F.	Drainage Manual Chapter 11; D-NSD-33
209-03.32	STREAM MITIGATION-BOULDER CLUSTERS	EACH	Drainage Manual Chapter 11; D-NSD-21
209-03.33	STREAM MITIGATION-LOG STRUCTURES AND DEFLECTORS	L.F.	Drainage Manual Chapter 11; D-NSD-26
209-03.34	STREAM MITIGATION-LOG VANES	L.F.	Drainage Manual Chapter 11
209-03.35	STREAM MITIGATION-LOG DROP STRUCTURE	L.F.	Drainage Manual Chapter 11

209-03.36	STREAM MITIGATION-STEP POOL	EACH	Drainage Manual Chapter 11; D-NSD-27
209-03.37	STREAM MITIGATION CROSS VANE STRUCTURE	EACH	Drainage Manual Chapter 11; D-NSD-22
209-03.38	STREAM MITIGATION -J -HOOK	EACH	Drainage Manual Chapter 11; D-NSD-25
209-03.39	STREAM MITIGATION - W - WEIR	EACH	Drainage Manual Chapter 11; D-NSD-24
209-03.40	STREAM MITIGATION - LOG RIFFLE	L.F.	Drainage Manual Chapter 11; D-NSD-28A
209-03.41	STREAM MITIGATION - BOULDER RIFFLE	L.F.	Drainage Manual Chapter 11; D-NSD-28
209-03.42	STREAM MITIGATION - LIVE BRUSH LAYERING	L.F.	D-NSD-32,32A
209-03.43	STREAM MITIGATION - VEGETATED RIP-RAP (DESCRIP)	C.Y.	Drainage Manual Chapter 11
209-03.44	STREAM MITIGATION - WILLOW POLES (SPECIES)	EACH	Drainage Manual Chapter 11
209-03.45	STREAM MITIGATION - LIVE FASCINES (SPECIES)	L.F.	Drainage Manual Chapter 11;D-NSD-35
209-03.46	STREAM MITIGATION - LIVE SILTATION (SPECIES)	C.Y.	Drainage Manual Chapter 11;D-NSD-34
209-03.47	STREAM MITIGATION - LONGITUDINAL STONE TOE (DESCRIP)	C.Y.	Drainage Manual Chapter 11;D-NSD-13
209-03.48	STREAM MITIGATION - VEGETATED GABIONS (DESCRIP)	C.Y.	Drainage Manual Chapter 11

209-03.49	STREAM MITIGATION - VEGETATED MSE WALLS (DESCRIP)	S.F.	Drainage Manual Chapter 11
209-03.52	STREAM MITIGATION - J-HOOK W/ STEP	EACH	Drainage Manual Chapter 11
209-03.53	STREAM MITIGATION - ARTICULATED CONCRETE MAT	S.Y.	Drainage Manual Chapter 11
209-03.54	STREAM MITIGATION - CROSS VANE STRUCTURE W/STEP	EACH	Drainage Manual Chapter 11; D-NSD-23
209-03.55 to 209-03.56	STREAM MITIGATION (DESCRIPTION)	EACH	
209-03.57 to 209-03.58	STREAM MITIGATION (DESCRIPTION)	L.F.	
209-03.59	STREAM MITIGATION - BRUSH MATTRESS	S.Y.	Drainage Manual Chapter 11; D-NSD-36
209-03.60	STREAM MITIGATION - ROCK VANE	EACH	Drainage Manual Chapter 11; D-NSD-25,26
209-03.61	STREAM MITIGATION - SPUR DIKES	EACH	Drainage Manual Chapter 11
209-03.62	STREAM MITIGATION - ROOT WAD	EACH	Drainage Manual Chapter 11
209-03.63	STREAM MITIGATION - RACK STRUCTURE (SIZE)	EACH	Drainage Manual Chapter 11
209-03.64	STREAM MITIGATION - FELLED TREE (SIZE)	EACH	Drainage Manual Chapter 11
209-03.65	STREAM MITIGATION - LOG REVETMENTS (DESCRIP)	L.F.	Drainage Manual Chapter 11
209-03.66	PLACING NATIVE STONE IN NEW CHANNEL	S.Y.	
209-03.67	STREAM MITIGATION - WOOD TOE W/REINFORCED EARTH	L.F.	D-NSD-32
209-03.68	STREAM MITIGATION - BOULDER TOE	L.F.	D-NSD-32A
209-03.69	STREAM MITIGATION (DESCRIPTION)	EACH	

209-03.70	BERM DITCH WITH SIDE SLOPE DRAINAGE	EACH	
209-05	SEDIMENT REMOVAL	C.Y.	EC-STR-1, 3B, 3C, 3D, 4, 4A, 6, 6A, 7, 8, 11, 11A, 12, 13, 17, 19, 35, 37, 39, 39A, 59; Chapter 9; Drainage Manual Chapter 9
209-06.01	PERMEABLE PLASTIC DITCH BERM	L.F.	
209-06.02	12" DIA COIR LOG (DESCRIPTION)	L.F.	
209-06.03	16" DIA COIR LOG (DESCRIPTION)	L.F.	
209-06.04	EXCELSIOR SEDIMENT LOG	L.F.	
209-06.05	BALED HAY OR STRAW	BALE	
209-06.10	20IN WATTLE (DESCRIPTION)	L.F.	
209-06.11	WATTLE (SIZE)	L.F.	
209-06.12	9IN DIA COIR LOG (DESCRIPTION)	L.F.	
209-06.13	20IN DIA COIR LOG (DESCRIPTION)	L.F.	
209-08.01	TEMPORARY FILTER BARRIER	L.F.	
209-08.02	TEMPORARY SILT FENCE (WITH BACKING)	L.F.	EC-STR-2, 3C; Drainage Manual Chapter 10
209-08.03	TEMPORARY SILT FENCE (WITHOUT BACKING)	L.F.	EC-STR-3B; Drainage Manual Chapter 10
209-08.04	TEMPORARY ENHANCED SILT FENCE	L.F.	EC-STR-3D; Drainage Manual Chapter 10
209-08.05	ENHANCED SILT FENCE CHECK (V-DITCH)	EACH	EC-STR-4A; Drainage Manual Chapter 10
209-08.06	ENHANCED SILT FENCE CHECK (TRAPEZOIDAL)	EACH	EC-STR-4; Drainage Manual Chapter 10
209-08.07	ROCK CHECK DAM PER	EACH	EC-STR-6; Drainage

			Manual Chapter 10
209-08.08	ENHANCED ROCK CHECK DAM	EACH	EC-STR-6A; Drainage Manual Chapter 10
209-08.09	FILTER SOCK CHECK DAM	EACH	EC-STR-6, 6A, 8; Drainage Manual Chapter 10
209-09.01	SANDBAGS	BAG	EC-STR-32, 33, 33A; Drainage Manual Chapter 10
209-09.02	TEMPORARY SEDIMENT FILTER BAG (14'6" X 2'0" X 13'3")	BAG	
209-09.03	SEDIMENT FILTER BAG (15' X 15')	EACH	EC-STR-2; Drainage Manual Chapter 10
209-09.04	SEDIMENT FILTER BAG (15' X 10')	EACH	EC-STR-2; Drainage Manual Chapter 10
209-09.14	FLOCCULANTS POWDER	LB.	
209-09.15	FLOCCULANTS LIQUID	GAL.	
209-09.16	TACKIFIER POWDER	LB.	Drainage Manual Chapter 10
209-09.17	TACKIFIER LIQUID	GAL.	Drainage Manual Chapter 10
209-09.18	SOIL BINDER POWDER	LB.	Drainage Manual Chapter 10
209-09.19	SOIL BINDER LIQUID	GAL.	Drainage Manual Chapter 10
209-09.20	POLYMER FLOCCULENT	LB.	
209-09.21	POLYACRYLAMIDE GEL LOGS	EACH	Drainage Manual Chapter 10
209-09.22	POLYACRYLAMIDE POWDER	LB.	Drainage Manual Chapter 10

209-09.23	POLYACRYLAMIDE LIQUID	GAL.	Drainage Manual Chapter 10
209-09.24	JUTE MESH FABRIC	S.Y.	
209-09.32	POLYMER BAFFLES (CATCHERS MITT)	EACH	
209-09.40	CURB INLET PROTECTION (TYPE 1)	EACH	EC-STR-39; Drainage Manual Chapter 10
209-09.41	CURB INLET PROTECTION (TYPE 2)	EACH	EC-STR-39; Drainage Manual Chapter 10
209-09.42	CURB INLET PROTECTION (TYPE 3)	EACH	EC-STR-39A; Drainage Manual Chapter 10
209-09.43	CURB INLET PROTECTION (TYPE 4)	EACH	EC-STR-39A; Drainage Manual Chapter 10
209-09.50	FLAT GRATE MS4 INLET PROTECTION W/STORM BOOM	EACH	
209-10.01	TEMPORARY DEWATERING STRUCTURE	C.Y.	EC-STR-1; Drainage Manual Chapter 10
209-10.02	8IN SKIMMER W/6IN HEAD	EACH	
209-10.03	PORTABLE WATER/SEDIMENT BARRIER	L.F.	
209-10.20	TEMPORARY SEDIMENT TRAP	C.Y.	EC-STR-7; Drainage Manual Chapter 10
209-11.01 to 209-11.09	SEDIMENT BASIN RISER(")	EACH	EC-STR-17
209-11.20	SEDIMENT BASIN BAFFLES	L.F.	EC-STR-17
209-13.04 to 209-13.08	TURBIDITY CURTAIN(DESCRIPTION)	L.F.	EC-STR-38; Drainage Manual Chapter 10
209-13.15	TURBIDITY CURTAIN (30FT DEPTH)	L.F.	
209-20.03	POLYETHYLENE SHEETING (6 MIL. MINIMUM)	S.Y.	EC-STR-32, 33, 33A; Drainage

			Manual Chapter 10
209-20.04	POLYETHYLENE SHEETING (10 MIL.)	S.Y.	
209-20.20	DETENTION POND OUTLET STRUCTURE (DISCR.)	EACH	
209-20.21	SEDIMENT POND OUTLET STRUCTURE (DISCR.)	L.S.	EC-STR-17, 18
209-20.50 to 209-20.51	SEDIMENT BASIN (DESCRIPTION)	EACH	
209-40.30	CATCH BASIN PROTECTION (TYPE A)	EACH	EC-STR-19; Drainage Manual Chapter 10
209-40.31	CATCH BASIN PROTECTION (TYPE B)	EACH	EC-STR-19; Drainage Manual Chapter 10
209-40.32	CATCH BASIN PROTECTION (TYPE C)	EACH	EC-STR-19; Drainage Manual Chapter 10
209-40.33	CATCH BASIN PROTECTION (TYPE D)	EACH	EC-STR-19; Drainage Manual Chapter 10
209-40.34	CATCH BASIN PROTECTION (TYPE E)	EACH	EC-STR-19; Drainage Manual Chapter 10
209-40.41	CATCH BASIN FILTER ASSEMBLY (TYPE 1)	EACH	EC-STR-41; Drainage Manual Chapter 10
209-40.42	CATCH BASIN FILTER ASSEMBLY (TYPE 2)	EACH	EC-STR-42; Drainage Manual Chapter 10
209-40.43	CATCH BASIN FILTER ASSEMBLY (TYPE 3)	EACH	EC-STR-43; Drainage Manual Chapter 10
209-40.44	CATCH BASIN FILTER ASSEMBLY (TYPE 4)	EACH	EC-STR-44; Drainage Manual Chapter 10
209-40.45	CATCH BASIN FILTER ASSEMBLY (TYPE 5)	EACH	EC-STR-45; Drainage

			Manual Chapter 10
209-40.46	CATCH BASIN FILTER ASSEMBLY (TYPE 6)	EACH	EC-STR-46; Drainage Manual Chapter 10
209-40.47	CATCH BASIN FILTER ASSEMBLY (TYPE 7)	EACH	EC-STR-47; Drainage Manual Chapter 10
209-40.48	CATCH BASIN FILTER ASSEMBLY (TYPE 8)	EACH	EC-STR-48; Drainage Manual Chapter 10
209-40.49	CATCH BASIN FILTER ASSEMBLY (TYPE 9)	EACH	EC-STR-49; Drainage Manual Chapter 10
209-40.50	CATCH BASIN FILTER ASSEMBLY (TYPE 10)	EACH	EC-STR-50; Drainage Manual Chapter 10
209-40.51	CATCH BASIN FILTER ASSEMBLY (TYPE 11)	EACH	EC-STR-51; Drainage Manual Chapter 10
209-65.01 to 209-65.02	TEMPORARY STREAM DIVERSION (DESCRIPTION)	L.S.	
209-65.03	TEMPORARY DIVERSION CHANNEL	L.F.	EC-STR-31; Drainage Manual Chapter 10
209-65.04	TEMPORARY IN STREAM DIVERSION	L.F.	EC-STR-30, 30A
209-65.14	TEMPORARY STREAM DIVERSION	L.S.	Drainage Manual Chapter 10
209-70.01	VACUUM TRUCK/SWEEPER FOR ROADWAY DEBRIS	HOUR	
209-70.02	DISPOSAL OF VACUUM TRUCK/SWEEPER DEBRIS	EACH	
209-99.91	EROSION CONTROL	L.S.	

SECTION 3 – BASE AND SUBGRADE TREATMENTS

8-302.00 SUBGRADE TREATMENT (LIME)

Item Number	Description	Unit of Measurement	Comment
302-01.01	HYDRATED LIME	TON	
302-02	BITUMINOUS MATERIAL (S.T. LIME)	TON	
203-06	WATER	MG	

See *TDOT Standard Specifications for Road and Bridge Construction* Part 302. If a lime subgrade treatment is needed, the Geotechnical Engineering Office will notify the Designer.

Item No. 302-01.01 Hydrated Lime

$$\frac{\text{Subgrade treatment volume (C.Y.)} \times \text{*Weight (Lb./C.Y.)} \times \text{**\%}}{\text{2,000 Lb./ Ton}} = \text{Tons}$$

* Weight to be supplied by the Pavement Design Section in Lb./C.Y.

** % to be supplied by the Pavement Design Section to be used in decimal form (for example, 5% = 0.05).

NOTE: To be used only when specifically recommended.

Item No. 302-02 Bituminous Material (S. T. Lime)

$$\frac{\text{Surface area (Sq. Yd.)} \times \text{0.20 Gal./Sq. Yd.}}{\text{231 Gal./ Ton}} = \text{Tons}$$

INFORMATIONAL: Subsection 302.08 of the Standard Specifications requires slurry application unless otherwise shown on plans. If dry application is specified by the Pavement Design Section, it shall be necessary to footnote pay items.

8-303.00 MINERAL AGGREGATE BASE

Item Number	Description	Unit of Measurement	Comment
303-01	Mineral Aggregate, Type A Base	TON	Use in Regions 1-3. SP109A; RP-PMR-1; MM-PS-1; S-PL-4
303-01.01	GRANULAR BACKFILL (ROADWAY)	TON	
303-01.02	GRANULAR BACKFILL (BRIDGES)	TON	
303-01.03	GRANULAR BACKFILL (RETAINING WALLS)	TON	
303-01.08	MINERAL AGGREGATE, TYPE A BASE,GRADING D GRAVEL	TON	For Region 4 use. SP109A
303-01.09	MINERAL AGGREGATE, TYPE A BASE, GRADING D LIMESTONE	TON	Use East of the TN River. SP109A
303-02	MINERAL AGGREGATE, TYPE B BASE, GRADING (DESCRIPTION)	TON	Use in Region 4 for resurfacing projects. SP109A
303-02.01 to 303-02.03	MINERAL AGGREGATE, TYPE B BASE, GRADING (DESCRIPTION)	TON	SP109A
303-03.01	INTELLIGENT COMPACTION FOR AGGREGATE BASES	L.S.	SP205IC

See TDOT Standard Specifications for Road and Bridge Construction Part 302.

Item Nos. 303-01, *303-01.08, *303-01.09 and 303-02

* To be used normally when the blending of two or more materials (for example, gravel and chert, etc.) is specified.

Loose weight of material = 2,900 Lb./C.Y.

$$\frac{2{,}900 \text{ Lb./C.Y.} \times 1.4}{2{,}000 \text{ Lb./ Ton}} = 2.03 \text{ Tons/C.Y.}$$

Compacted volume (C.Y.) × 2.03 Tons/C.Y. = Tons

Item No. 303-01.01 Granular Backfill (Roadway)

Compacted volume (C.Y.) × 1.75 Tons/C.Y. = Tons

Item No. 303-01.03 Granular Backfill (Retaining Walls)

Compacted volume (C.Y.) × 1.75 Tons/C.Y. = Tons

Item No. 303-10.01 Mineral Aggregate (Size 57)

Loose weight of material = 2,619 Lb./C.Y.

$$\frac{2{,}619 \text{ Lb./C.Y.} \times 1.4}{2{,}000 \text{ Lb./ Ton}} = 1.34 \text{ Tons/C.Y.}$$

Uncompacted volume (C.Y.) × 1.34 Tons/C.Y. = *Tons

* To be used for fill material between concrete median barriers at areas requiring bridge pier protection in the median (See Standard Drawing No. S-SSMB-4).

$$\frac{2{,}619 \text{ Lb./C.Y.} \times 1.14}{2{,}000 \text{ Lb./ Ton}} = 1.49 \text{ Tons/C.Y.}$$

Compacted volume (C.Y.) × 1.49 Tons/C.Y. =** Tons

** To be used when called for with erosion prevention and sediment control structures.

Item No. 303-10.04 through 303-10.06 Mineral Aggregate (Specify Size)

Compacted volume (C.Y.) × 1.75 Tons/C.Y. = Tons

8-303.01 GRANULAR BACKFILL FOR STRUCTURES

Item No. 303-01.01 Granular Backfill (Roadway) per Ton and 303-01.03 Granular Backfill (Retaining Walls) per Ton will be used for backfilling structures that are included on the Estimated Roadway Quantities sheet only (such as box and slab type culverts and bridges, gravity type retaining walls, etc.). If there is a separate Box Bridge Quantities Block, do not list the item in that block.

For backfilling of structures, where the structure quantities are included in estimated structure items, Item No. 303-01.02 Granular Backfill (Bridges) per Ton will be used, and it will be listed on the Estimated Structures Quantity sheet only. **It cannot be used in the roadway quantities.**

8-304.00 SOIL-CEMENT BASE

Item Number	Description	Unit of Measurement	Comment
304-01.01	SELECT MATERIAL (SOIL-CEMENT BASE)	C.Y.	
304-01.02	CEMENT (SOIL-CEMENT BASE)	TON	
304-01.03	PROCESSING (SOIL-CEMENT BASE)	S.Y.	
304-01.04	PROCESSING (RECLAIMED BASE MATERIAL)	S.Y.	
304-01.08	PORTLAND CEMENT (FULL DEPTH PAVEMENT RECLAMATION)	TON	
203-06	WATER	MG	

Item No. 304-01.02 Cement (Soil-Cement Base)

Volume of New Material × 1.300 (Shrinkage Factor) = Volume of Select Material (C.Y.)

$$\frac{94 \text{ Lb./C.F.} \times 27 \text{ C.F./C.Y.}}{2{,}000 \text{ Lb./ Ton}} = 1.269 \text{ Tons/C.Y.}$$

Total Volume C.Y. × 1.269 Tons/C.Y. × 9% (Volume of Select Material) = Tons

12% (In-place Soil) = Tons

Item No. 304-02 Bituminous Material (Soil-Cement Base)

$$\frac{\text{Surface area (Sq. Yd.)} \times 0.20 \text{ Gal./Sq. Yd.}}{231 \text{ Gal./ Ton}} = \text{Tons}$$

8-307.00 COMPUTATIONS FOR BITUMINOUS PLANT MIX BASE (HOT MIX)

The computed quantity for asphalt base mixtures is as follows. Values for mixture density, Lb. per S.Y. per inch thickness, and item numbers are provided in *Table 8-1*.

$$\frac{\text{Compacted volume (C.Y.)} \times \text{Density (Lb./C.Y.)}}{\text{2,000 Lb./ Ton}} = \text{Tons}$$

OR

$$\frac{\text{Area (S.Y.)} \times \text{Density (Lb/SY-in)} \times \text{Compacted Thickness (in.)}}{\text{2,000 Lb./ Ton}} = \text{Tons}$$

VALUES FOR COMPUTATION OF 307 ASPHALT BASE MIXTURE QUANTITIES			
ITEM NUMBER	DESCRIPTION	DENSITY (LB/CY)	DENSITY (LB/SY-in)
307-01.01	PG 64-22 BASE MIXES (GRADING A)	4140	115
307-01.06	PG 64-22 BASE MIXES (GRADING B)	4068	113
307-01.07	PG 64-22 BASE MIXES (GRADING B-M)	4068	113
307-01.08	PG 64-22 BASE MIXES (GRADING B-M2)	4068	113
307-01.09	PG 64-22 BASE MIXES (GRADING C)	3960	110
307-01.10	PG 64-22 BASE MIXES (GRADING C-W)	3960	110
307-01.15	PG 64-22 BASE MIXES (GRADING CS)	4140	115
307-01.20	PG 64-22 BASE MIXES (GRADING A-S)	3825	106
307-01.21	PG 70-22 BASE MIXES (GRADING A-S)	3825	106
307-01.22	PG 76-22 BASE MIXES (GRADING A-S)	3825	106
307-01.23	PG 64-22 BASE MIXES (GRADING ACRL)	3825	106
307-01.24	PG 70-22 BASE MIXES (GRADING ACRL)	3825	106
307-01.25	PG 76-22 BASE MIXES (GRADING ACRL)	3825	106
307-02.01	PG 70-22 BASE MIXES (GRADING A)	4140	115
307-02.06	PG 70-22 BASE MIXES (GRADING B)	4068	113
307-02.07	PG 70-22 BASE MIXES (GRADING B-M)	4068	113
307-02.08	PG 70-22 BASE MIXES (GRADING B-M2)	4068	113
307-03.01	PG 76-22 BASE MIXES (GRADING A)	4140	115
307-03.06	PG 76-22 BASE MIXES (GRADING B)	4068	113
307-03.07	PG 76-22 BASE MIXES (GRADING B-M)	4068	113
307-03.08	PG 76-22 BASE MIXES (GRADING B-M2)	4068	113
307-03.09	PG 76-22 BASE MIXES (GRADING C)	3960	110
307-03.10	PG 76-22 BASE MIXES (GRADING CS)	4140	115
307-03.11	PG 76-22 BPMB-HM (GRADING C-W)	3960	110
307-04.01	PG 82-22 BASE MIXES (GRADING A)	4140	115
307-04.02	PG 82-22 BPMB-HM (GRADING A-S)	3240	90
307-04.08	PG 82-22 BASE MIXES (GRADING B-M2)	4068	113

TABLE 8-1
COMPUTATION OF 307 ASPHALT BASE MIXTURE QUANTITIES

8-309.00 AGGREGATE-CEMENT BASE COURSE

8-309.01 COMPUTATIONS FOR AGGREGATE-CEMENT BASE COURSE – LIMESTONE

Item No. 309-01.01 Mineral Aggregate (A-CBC)

Compacted volume (C.Y.)× 1.9456 Tons/C.Y.= Tons

Item No. 309-01.02 Portland Cement (A-CBC)

Compacted volume (C.Y.)× 0.0751 Tons/C.Y.= Tons

Item No. 309-02 Bituminous Material (A-CBC)

$$\frac{\text{Surface area (Sq. Yd.)} \times 0.20 \text{ Gal./Sq. Yd.}}{231 \text{ Gal./ Ton}} = \text{Tons}$$

8-309.02 COMPUTATIONS FOR AGGREGATE-CEMENT BASE COURSE – GRAVEL

Item No. 309-01.01 Mineral Aggregate (A-CBC)

Compacted volume (C.Y.)× 1.8145 Tons/C.Y.= Tons

Item No. 309-01.02 Portland Cement (A-CBC)

Compacted volume (C.Y.)× 0.0884 Tons/C.Y.= Tons

Item No. 309-02 Bituminous Material (A-CBC)

$$\frac{\text{Surface area (Sq. Yd.)} \times 0.20 \text{ Gal./Sq. Yd.}}{231 \text{ Gal./ Ton}} = \text{Tons}$$

8-312.00 COMPUTATIONS FOR AGGREGATE-LIME-FLY ASH STABILIZED BASE COURSE

Item No. 312-01 Mineral Aggregate (ALFSB)

Compacted volume (C.Y.)× 1.690 Tons/C.Y.= Tons

Item No. 312-02 Lime

Compacted volume (C.Y.)× 0.0643 Tons/C.Y.= Tons

Item No. 312-03 Fly-Ash

Compacted volume (C.Y.)×0.2019 Tons/C.Y.= Tons

Item No. 312-04 Bituminous Material (ALFSB)

$$\frac{\text{Surface area (Sq. Yd.)} \times 0.20 \text{ Gal./Sq. Yd.}}{231 \text{ Gal./ Ton}} = \text{Tons}$$

SECTION 4 – FLEXIBLE SURFACES

8-401.00 MINERAL AGGREGATE SURFACE

Item Number	Description	Unit of Measurement	Comment
401-01	AGGREGATE FOR MINERAL AGGREGATE SURFACE (MAS)	TON	Local Program Use - Gravel Roadway

8-402.00 PRIME COAT

Item Number	Description	Unit of Measurement	Comment
402-01	BITUMINOUS MATERIAL FOR PRIME COAT (PC)	TON	
402-02	AGGREGATE FOR COVER MATERIAL (PC)	TON	
203-06	WATER	MG	ONLY NEEDED TO DAMPEN SURFACE

8-402.01 COMPUTATIONS FOR PRIME COAT

Item No. 402-01 Bituminous Material for Prime Coat (PC)

$$\frac{\text{Surface area (Sq. Yd.)} \times \text{*Rate (Gal./Sq. Yd.)}}{\text{**231 Gal./ Ton}} = \text{Tons}$$

* Rate 0.30 – 0.35 Gal./Sq. Yd.

Note: Designers shall assume the mid-point of the rate ranges when calculating quantities. If a different value is used, footnote this item on the estimated roadway quantities sheet in the plans to indicate the rate used. Designers shall show the rate range on the pavement schedule in the plans.

Item No. 402-02 Aggregate for Cover Material (PC)**

$$\frac{\text{Surface area (Sq. Yd.)} \times \text{*Rate (Lb./Sq. Yd.)}}{\text{2,000 Lb./ Ton}} = \text{Tons}$$

* Rate 8 – 12 Lb./Sq. Yd.

** Item number 402-02 shall be footnoted on the estimated roadway quantities sheet with: “Item to be used as directed by the engineer.”

Note: Designers shall assume the mid-point of the rate ranges when calculating quantities. If a different value is used, footnote this item on the estimated roadway quantities sheet in the plans to indicate the rate used. Designers shall show the rate range on the pavement schedule in the plans.

8-403.00 TACK COAT

8-403.01 COMPUTATIONS FOR TACK COAT

Item No. 403-01 Bituminous Material for Tack Coat (TC)

$$\frac{\text{Surface area (Sq. Yd.)} \times \text{*Rate (Gal./Sq. Yd.)}}{\text{231 Gal./ Ton}} = \text{Tons}$$

*Rate = 0.05 – 0.10 Gal/Sq. Yd. (General Use)

*Rate = 0.08 – 0.12 Gal/Sq. Yd. (Milling – Cold Plane)

Note: Designers should estimate based on 0.075 or 0.10 respectively for smooth or milled surface. Do not show a rate on the Pavement Schedule, but place note: "See 403.05 for determining application rate in the field." In the pavement schedule.

Item No. 403-02 Asphalt Cement for Tack Coat (TC)

$$\frac{\text{Surface area (Sq. Yd.)} \times 0.05 \text{ (Gal./Sq. Yd.)}}{\text{231 Gal./ Ton}} = \text{Tons}$$

Note: Should rarely call this out. TDOT's preferred method would be a commodity Emulsion (403-01) or for a premium a Trackless Tack (403-03). If we are overlaying a concrete surface, a Hot Applied Trackless Tack (403-02.02) should be called out, using this calculation.

Item No. 403-02.01 Trackless Tack Coat

Calculations and rates are similar to Item No. 403-01. Use Trackless Tack Coat only if deemed necessary on the resurfacing checklist or at field review due to a large number of cross traffic or other reason as determined by the Operations Engineer. When paving asphalt over a scrub, trackless tack shall be calculated at 0.05 GAL/SY.

NOTE: Tack coat shall not be applied on top of either Grading AS or Treated Permeable Base mixtures.

8-403.02 COMPUTATION FOR FOG SEAL

Item No. 403-05.01 Bituminous Material (Fog Seal) Shoulder

$$\frac{\text{Surface area (Sq. Yd.)} \times 0.5 \times \text{*Rate (Gal./Sq. Yd.)}}{\text{231 Gal./ Ton}} = \text{Tons}$$

*rate = 0.10 to 0.15 Gal/SY

NOTE: Designers shall assume the mid-point of the rate ranges when calculating quantities. If a different value is used, footnote this item on the estimated roadway quantities sheet in the plans to indicate the rate used. Designers shall show the rate range on the proposed pavement schedule in the plans.

8-405.00 BITUMINOUS SEAL COAT

8-405.01 COMPUTATIONS FOR BITUMINOUS SEAL COAT (CHIP SEAL)

Item No. 405-01.01 Bituminous Material for Bituminous Seal Coat (BSC)

$$\frac{\text{Surface area (Sq. Yd.)} \times \text{*Rate (Gal./Sq. Yd.)}}{\text{231 Gal./ Ton}} = \text{Tons}$$

* Rate 0.17 - 0.45 Gal./ Sq. Yd.

Note: Designers shall assume the mid-point of the rate ranges when calculating quantities. If a different value is used, footnote this item on the estimated roadway quantities sheet in the plans to indicate the rate used. Designers shall show the rate range on the pavement schedule in the plans.

Item No. 405-01.02 Mineral Aggregate for Bituminous Seal Coat (BSC)

$$\frac{\text{Surface area (Sq. Yd.)} \times \text{*Rate (Lb./Sq. Yd.)}}{\text{2,000 Lb./ Ton}} = \text{Tons}$$

* Rate 17 - 30 Lb./Sq. Yd.

Note: Designers shall assume the mid-point of the rate ranges when calculating quantities. If a different value is used, footnote this item on the estimated roadway quantities sheet in the plans to indicate the rate used. Designers shall show the rate range on the pavement schedule in the plans.

After the bituminous seal coat is placed, a tack coat (see *Section 8-403.01 Computations for Tack Coat*, Item No. 403-01) is to be used prior to the placement of the first lift of proposed pavement. If a specific aggregate size is intended to be used, use the coordinating midpoint of the ranges identified in Table 405.06-1 of Standard and Supplemental Specifications 405.06 and footnote this item on the estimated roadway quantities sheet in the plans to indicate which rate and aggregate size should be used.

8-405.02 COMPUTATIONS FOR DOUBLE BITUMINOUS SURFACE TREATMENT

Item No. 405-01.01 Bituminous Material for Double Bituminous Surface Treatment (DBST)

$$\frac{\text{Surface area (Sq. Yd.)} \times \text{*Rate (Gal./Sq. Yd.)}}{\text{231 Gal./ Ton}} = \text{Tons}$$

* Rate 0.30 – 0.38 Gal./ Sq. Yd. (First Application)

* Rate 0.20 – 0.35 Gal./Sq. Yd. (Second Application)

NOTE: Designers shall assume the mid-point of the rate ranges when calculating quantities. If a different value is used, footnote this item on the estimated roadway quantities sheet in the plans to indicate the rate used. Designers shall show the rate range on the proposed pavement schedule in the plans.

NOTE: See Subsection 405.06 of the *Tennessee Department of Transportation Standard Specifications* for more information regarding the application of Double Bituminous Surface Treatment

Item No. 405-01.02 Mineral Aggregate for Double Bituminous Surface Treatment (DBST)

$$\frac{\text{Surface area (Sq. Yd.)} \times \text{*Rate (Lb./Sq. Yd.)}}{\text{2,000 Lb./ Ton}} = \text{Tons}$$

* Rate 24 - 30 Lb./ Sq. Yd. (First Application)

* Rate 16 – 28 Lb./Sq. Yd. (Second Application)

NOTE: Designers shall assume the mid-point of the rate ranges when calculating quantities. If a different value is used, footnote this item on the estimated roadway quantities sheet in the plans to indicate the rate used. Designers shall show the rate range on the proposed pavement schedule in the plans.

NOTE: See Subsection 405.06 of the *Tennessee Department of Transportation Standard Specifications* for more information regarding the application of Double Bituminous Surface Treatment

8-411.00 ASPHALTIC CONCRETE SURFACE (HOT MIX)

8-411.01 COMPUTATIONS FOR ASPHALTIC CONCRETE SURFACE (HOT MIX)

The computed quantity for asphalt surface mixtures is as follows:

$$\frac{\text{Compacted volume (C.Y.)} \times \text{Density (Lb./C.Y.)}}{\text{2,000 Lb./ Ton}} = \text{Tons}$$

OR

$$\frac{\text{Area (S.Y.)} \times \text{Density (Lb/SY-in)} \times \text{Compacted Thickness (in.)}}{\text{2,000 Lb./ Ton}} = \text{Tons}$$

Values for mixture density, Lb. per S.Y. per inch thickness, and item numbers are provided in *Table 8-2* below.

VALUES FOR COMPUTATION OF 411 ASPHALT SURFACE MIXTURE QUANTITIES			
ITEM NUMBER	DESCRIPTION	DENSITY (LB/CY)	DENSITY LB/SY-in)
411-01.07	ACS MIX(PG64-22) GRADING E SHOULDER	3816	106
411-01.10	GRADING D SURFACE (PG 64-22)	3816	106
411-01.11	ACS MIX(PG64-22) GRADING E RDWY	3816	106
411-02.10	GRADING D SURFACE (PG 70-22)	3816	106
411-03.10	GRADING D SURFACE (PG 76-22)	3816	106
411-04.10	GRADING D SURFACE (PG 82-22)	3816	106
411-03.07	GRADING TL SURFACE (PG 64-22)	3816	106
411-03.08	GRADING TL SURFACE (PG 70-22)	3816	106
411-03.09	GRADING TL SURFACE (PG 76-22)	3816	106
411-03.12	GRADING TLD SURFACE (PG 64-22)	3816	106
411-03.13	GRADING TLD SURFACE (PG 70-22)	3816	106
411-03.14	GRADING TLD SURFACE (PG 76-22)	3816	106
411-03.23	GRADING OGFC SURFACE (PG 76-22)	3168	88*
411-03.24	ACS MIX(PG64-22) THIN LIFT E ASPHALT	3816	106
411-03.25	ACS MIX(PG67-22) THIN LIFT E ASPHALT	3816	106
411-03.26	ACS MIX(PG70-22) THIN LIFT E ASPHALT	3816	106
411-03.27	ACS MIX(PG76-22) THIN LIFT E ASPHALT	3816	106
411-03.28	ACS MIX (PG76-22) OGFC GRADING E SHOULDER	3816	106
411-03.29	ACS MIX (PG64-22) OGFC GRADING E SHOULDER	3816	106
411-04.11	ACS MIX(PG82-22) GRADING E RDWY	3816	106

*For Region 1, McMinn, Bradley, Hamilton, and Marion Counties use 94 LB/SY-in.

TABLE 8-2

COMPUTATION OF 411 ASPHALT SURFACE MIXTURE QUANTITIES

8-414.00 EMULSIFIED ASPHALT SLURRY SEAL AND MICRO-SURFACING

8-414.01 COMPUTATIONS FOR MICRO-SURFACING

Item No. 414-03.01 Emulsified Asphalt for Micro-Surfacing

0.12 × Item No. 414-03.02 aggregate quantity = Tons

NOTE: Application rate based on 12 percent of the dry weight of the aggregate.

Item No. 414-03.02 Aggregate for Micro-Surfacing

$$\frac{\text{Surface area (Sq. Yd.)} \times \textbf{XX} \text{ (Lb./Sq. Yd.)}}{\text{2,000 Lb./ Ton}} = \text{Tons}$$

NOTE: Application rate: 1 pass = 22 pounds (approximate depth 0.275”) per square yard
2 pass = 32 pounds (approximate depth 0.375”) per square yard

Item No. 403-01.01 Bituminous Material for Tack Coat (Micro-Surfacing)

$$(0.25)\ \frac{\text{Surface area (Sq. Yd.)} \times \text{*Rate (Gal./Sq. Yd.)}}{\text{231 Gal./ Ton}} = \text{Tons}$$

* Rate 0.10 - 0.15 (Gal./Sq. Yd.) of the diluted emulsion

FOOTNOTE Quantity: No payment will be made directly for the water required to dilute the tack coat.

A Tack Coat (TC) shall be applied between the existing asphalt surface and the first micro-surface lift. If there are multiple lifts, no tack coat is required between the 1st and 2nd lift.

Note: In order to get the micro to adhere, the pavement marking needs to be removed. A pavement removal item numbers from the 716-08.** should be included in the plans.

8-415.00 COLD PLANING OF BITUMINOUS PLANT MIX PAVEMENTS

Cold Planning projects shall be paid for by the Ton, unless specified by TDOT Operations. For all dense graded asphalt mixes (all mixes except OGFC) cold planning shall be calculated using 105 Lb./S.Y./Inch of estimated depth to be cold planed, converted to Tons. When the existing surface is OGFC, estimate the top 1.25" of the cold planning using 88 Lb./S.Y./Inch. Any depth beyond 1.25" shall be calculated as dense graded mix as stated above.

This shall be measured and paid for under Item No. 415-01.01 Cold Planning of Bituminous Pavement per Ton.

SECTION 5 – RIGID PAVEMENT

8-501.00 PORTLAND CEMENT CONCRETE PAVEMENT

Item Number	Description	Unit of Measurement	Comment
501-01.01	PORTLAND CEMENT CONCRETE PAVEMENT (PLAIN) 8"	S.Y.	SP109A; RP-J-23
501-01.02	PORTLAND CEMENT CONCRETE PAVEMENT (PLAIN) 9"	S.Y.	SP109A; RP-J-23
501-01.03	PORTLAND CEMENT CONCRETE PAVEMENT (PLAIN) 10"	S.Y.	SP109A; RP-J-23
501-01.04	PORTLAND CEMENT CONCRETE PAVEMENT (PLAIN) 11"	S.Y.	SP109A; RP-J-23
501-01.05	PORTLAND CEMENT CONCRETE PAVEMENT (PLAIN) 12"	S.Y.	SP109A; RP-J-23
501-01.06	PORTLAND CEMENT CONCRETE PAVEMENT (PLAIN) 13"	S.Y.	SP109A; RP-J-23
501-01.07	PORTLAND CEMENT CONCRETE PAVEMENT (PLAIN) 14"	S.Y.	SP109A; RP-J-23
501-01.10	PORTLAND CEMENT CONCRETE PAVEMENT (PLAIN) 7" FAST TRACK	S.Y.	SP109A; RP-J-23
501-01.11	PORTLAND CEMENT CONCRETE PAVEMENT (PLAIN) 8" FAST TRACK	S.Y.	SP109A; RP-J-23
501-01.12	PORTLAND CEMENT CONCRETE PAVEMENT (PLAIN) 9" FAST TRACK	S.Y.	SP109A; RP-J-23
501-01.13	PORTLAND CEMENT CONCRETE PAVEMENT (PLAIN) 10" FAST TRACK	S.Y.	SP109A; RP-J-23
501-01.14	PORTLAND CEMENT CONCRETE PAVEMENT (PLAIN) 11" FAST TRACK	S.Y.	SP109A; RP-J-23
501-01.15	PORTLAND CEMENT CONCRETE PAVEMENT (PLAIN) 12" FAST TRACK	S.Y.	SP109A; RP-J-23

501-01.16	PORTLAND CEMENT CONCRETE PAVEMENT (PLAIN) 13" FAST TRACK	S.Y.	SP109A; RP-J-23
501-01.20	PORTLAND CEMENT CONCRETE PAVEMENT (PLAIN) 3" ULTRATHIN	S.Y.	SP109A
501-01.21	PORTLAND CEMENT CONCRETE PAVEMENT (PLAIN) 4" ULTRATHIN	S.Y.	
501-01.30	PORTLAND CEMENT CONCRETE PAVEMENT (PLAIN) ULTRATHIN	S.Y.	
501-02.01	COMPOSITE PORTLAND CEMENT CONCRETE PAVEMENT	S.Y.	
501-03.01	COLORED CONCRETE SHOULDERS	S.Y.	
501-03.02	CONCRETE SHOULDERS	S.Y.	
501-03.10	CONCRETE SHOULDER RUMBLE STRIPS	L.F.	RP-CS-1; RP-CS-2
501-03.15	CONCRETE SHOULDER MILLED RUMBLE STRIPS	L.M.	TO BE USED ON SHOULDERS OF INTERSTATES CONSTRUCTED WITH CONCRETE
501-03.20	CONCRETE PAVEMENT GROOVING	S.Y.	
501-04.01 to 501-04.02	ROLLER COMPACTED CONCRETE PAVEMENT(DEPTH)	C.Y.	SP501RC
501-04.03 to 501-04.04	ROLLER COMPACTED CONCRETE PAVEMENT(DEPTH)	S.Y.	SP501RC
501-05.90	REMOVE EXISTING BITUMINOUS MATERIAL	L.S.	

Silicone sealant shall be used on all new projects using Portland cement concrete pavement as a primary pavement for the main line or ramps, excluding rehabilitation of all old concrete pavement or joint repair. The silicone sealant is specified in Subsection 905.05 of the *Tennessee Department of Transportation Standard Specifications*.

8-502.00 COMPUTATIONS FOR UNDERSEALING CONCRETE PAVEMENT

Item Number	Description	Unit of Measurement	Comment
502-01	CLEANING AND SEALING JOINTS	L.F.	
502-01.02	CLEANING JOINTS	L.F.	
502-02	HOLES	EACH	
502-03.01	CEMENT GROUTING	C.F.	
502-03.05	HOT APPLIED FIBER-POLYMER PATCHING MATERIAL	LB.	SP502FRP
502-03.13	CONCRETE PAVEMENT REMOVAL	S.Y.	
502-03.21	PARTIAL DEPTH PCC PAVEMENT REPAIR	S.Y.	RP-J-24; NOT TO BE USED ON THE INTERSTATE/ FREEWAY OR INTERSTATE RAMPS
502-03.24	FULL DEPTH PCC PAVEMENT REPAIR HIGH EARLY (DESCRIPTION)	C.Y.	
502-03.25	FULL DEPTH PCC PAVEMENT REPAIR HIGH EARLY	C.Y.	SP502C
502-03.26	PARTIAL DEPTH PCC PAVEMENT REPAIR HIGH EARLY	S.Y.	SP502C
502-04.01	SAWING CONCRETE PAVEMENT (FULL DEPTH)	L.F.	SP502A; RP-J-23
502-04.02	LOAD TRANSFER DOWELS	EACH	SP502A; RP-J-23
502-04.03	TRANSVERSE TIE-BARS	EACH	SP502A; RP-J-23
502-05	CALCIUM CHLORIDE (TYPE 1)	BAG	
502-06.01	EXPANSION JOINT REPLACEMENT	L.F.	
502-08	PRE-ROLLING	S.Y.	

502-08.01	RESEALING JOINTS (HOT POURED ELASTIC)	L.F.	SP502J; RP-J-25
502-08.02	RESEALING JOINTS (SILICONE SEALANT)	L.F.	SP502J; RP-J-25
502-08.03	SEALING SHOULDER JOINTS	L.F.	SP502J; RP-J-25
502-08.07	SEALING RANDOM CRACKS (SILICONE SEALANT)	L.F.	SP502J; RP-J-24
502-08.10	SAWING & RESEALING JOINTS (SILICONE SEALANT)	L.F.	SP502J
502-08.23	CLEANING AND RESEALING JOINTS AND CRACKS	L.F.	SP502J
502-08.24	CRACK SEALANT	LB.	
502-10	CEMENT-FLY ASH GROUT	C.F.	
502-20	POLYURETHANE MATERIAL	LB.	
502-25	SAWING CONCRETE JOINTS	L.F.	

NOTE: The quantities are listed in the order of computation procedure.

Item No. 502-02 Holes

$$\frac{\text{Length of project (ft)} \times \text{number of lanes} \times 4 \text{ holes/slab}}{\text{Length of slabs}} = \text{Each}$$

Item No. 502-10 Cement-Fly Ash Grout

a) Cubic feet/hole x number of holes = Cubic Feet

b) Use one of the following values as directed on the Plan-in-Hand Field Review:

1. Concrete pavement in worse than average condition.

0.4 - 0.5 cubic feet/hole

2. Concrete pavement in average condition.

0.4 cubic feet/hole

3. Concrete pavement in better than average condition.

0.3 - 0.4 cubic feet/hole

NOTE: Pavement with cement-treated bases shall fall within the better than average range.

SECTION 6 – STRUCTURES

8-601.00 TIMBER STRUCTURES

Basis of Payment:

Item Number	Description	Unit of Measurement	Comment
601-01	UNTREATED TIMBER	MBFM	
601-02	TREATED TIMBER	MBFM	
601-03.01 to 601-03.05	TREATED TIMBER CROSS TIES (SIZE)	EACH	
601-10.01 to 601-10.02	TREATED TIMBER CROSS TIE REPAIRS (SIZE)	EACH	
601-10.03	TREATED TIMBER STRINGER REPAIRS (SIZE)	EACH	
601-10.04	TREATED TIMBER BENT CAP REPAIRS (SIZE)	EACH	
601-10.05	TREATED TIMBER PILE REPAIRS (SIZE)	EACH	
601-10.06	TREATED TIMBER REPAIRS	MBFM	
601-10.07	TIMBER BENT REPAIRS (RISER BLOCKS)	EACH	

601-10.08	TREATED TIMBER PILE REPAIRS (ENCASEMENT)	EACH	
601-10.09	TREATED TIMBER CAP BEAM REPAIRS (ENCASEMENT)	EACH	
601-10.10	TREATED TIMBER LAMINATED DECKING	MBFM	
601-10.11	TREATED TIMBER (SIDEWALK PLANKS AND CURBS)	MBFM	
601-10.12	TREATED TIMBER ABUTMENT REPAIRS	EACH	

8-602.00 STEEL STRUCTURES

Item Number	Description	Unit of Measurement	Comment
602-01	STRUCTURAL STEEL	LB.	SP602; S-GRS-3
602-02.01 to 602-02.10	STRUCTURAL STEEL (LOCATION & DESCRIPTION)	LB.	SP602
602-02.11 to 602-02.12	STRUCTURAL STEEL (W/SUPP. DESCRIPTION)	L.S.	
602-03 to 602-03.01	STEEL STRUCTURES	L.S.	SP602
602-03.02 to 602-03.04	PEDESTRIAN BRIDGE	L.S.	
602-04.01 to 602-04.09, 602-04.98, 602-04.99	STEEL STRUCTURES (LOCATION & DESCRIPTION)	L.S.	SP602
602-08.01	JACKING STRUCTURES (DESCRIPTION)	L.S.	SP602
602-08.02 to 602-08.05	JACKING STRUCTURES (DESCRIPTION)	EACH	
602-10.01	STRUCTURAL STEEL REPAIRS	L.S.	
602-10.05	BRACING REPAIRS	L.S.	
602-10.06	STRUCTURAL STEEL	LB.	
602-10.09	STEEL HANDRAIL REPAIRS	L.F.	
602-10.10	ANCHOR BOLTS	EACH	
602-10.12	BEARING DEVICE (REPAIR)	L.S.	
602-10.19	JACKING STEEL SPANS	L.S.	
602-10.20	BOLTS	EACH	
602-10.22	STRUCTURAL STEEL WELD REPAIR	EACH	

602-10.32	STRUCTURAL STEEL (REPAIRS)	LB.	
602-10.50	STRUCTURAL STEEL REPAIR	EACH	
602-10.51 to 602.10.59	STRUCTURAL STEEL REPAIR(DESCRIPTION)	EACH	
602-10.60 to 602-10.69	BEARING DEVICE (DESCRIPTION)	EACH	
602-10.70	STRUCTURAL STEEL CRACK REPAIR	EACH	
602-10.81	HEAT STRAIGHTENING	L.S.	

8-603.00 PAINTING

Item Number	Description	Unit of Measurement	Comment
603-01	PAINT STEEL STRUCTURE	L.S.	
603-01.01 to 603-01.09	PAINTING STEEL STRUCTURES (LOCATION & DESCRIPTION)	L.S.	
603-02.01 to 603-02.10	REPAINTING EXISTING STEEL STRUCTURES (LOC. & DES.)	L.S.	
603-02.15	REPAINT EXISTING BEARINGS	L.S.	
603-02.20	SPOT PAINTING EXISTING STEEL STRUCTURES	S.F.	

8-604.00 CONCRETE STRUCTURES

Item Number	Description	Unit of Measurement	Comment
604-01.01	CLASS A CONCRETE (ROADWAY)	C.Y.	EC-STR-29, MM-PS-1
604-01.02	STEEL BAR REINFORCEMENT (ROADWAY)	LB.	EC-STR-29, MM-PS-1
604-01.04	1-1/2" STEEL PIPE HANDRAIL	L.F.	MM-PS-1
604-01.05	2x2x1/4 IN BOX STEEL TUBE HANDRAIL	L.F.	
604-01.12	CLASS A CONCRETE (BRIDGE DECK)	C.Y.	
604-01.20	BOX TUBE SAFETY RAIL	L.F.	
604-01.32	CLASS A CONCRETE (LEVELING)	C.Y.	

604-01.52	CUSTOM ELASTOMERIC FORM LINER	L.S.	
604-01.53	CONCRETE STRUCTURE (DESCRIPTION)	EACH	
604-02.01	CLASS A CONCRETE (BOX BRIDGES)	C.Y.	
604-02.02	STEEL BAR REINFORCEMENT (BOX BRIDGES)	LB.	
604-02.03	EPOXY COATED REINFORCING STEEL	LB.	
604-02.10	REINFORCEMENT STEEL (ASTM A706)	LB.	
604-02.38	EPOXY COATED REINFORCING STEEL COUPLERS	EACH	
604-02.41 to 604-02.48	ENERGY DISSIPATER (DESCRIPTION)	EACH	
604-02.50 to 604-02.51	ENERGY DISSIPATER (DESCRIPTION)	L.S.	
604-02.60	BOX EXTENSION (_____)	L.S.	
604-03.01	CLASS A CONCRETE (BRIDGES)	C.Y.	
604-03.02	STEEL BAR REINFORCEMENT (BRIDGES)	LB.	
604-03.04	PAVEMENT @ BRIDGE ENDS	S.Y.	
604-03.05	CLASS A CONCRETE (FOUNDATION SEAL)	C.Y.	
604-03.06	BRIDGE DRAIN APRON	S.Y.	
604-03.07 to 604-03.08	CLASS A CONCRETE (DESCRIPTION)	C.Y.	
604-03.09	CLASS D CONCRETE (BRIDGE DECK)	C.Y.	
604-03.10 to 604-03.19	CONCRETE OVERLAY (DESCRIPTION)	S.Y.	
604-03.20	BRIDGE JOINT MODIFICATION	L.F.	
604-03.21	BRIDGE JOINT SEISMIC MODIFICATION	EACH	
604-03.22	CONCRETE OVERLAY (DESCRIPTION)	C.Y.	
604-03.24	CLASS A CONCRETE (FOOTING)	L.S.	
604-03.25	CLASS S CONCRETE (FOUNDATION SEAL)	C.Y.	
604-03.30	CLASS D CONCRETE	C.Y.	
604-03.31	CLASS D CONCRETE (DESCRIPTION)	C.Y.	
604-03.32	CLASS DS CONCRETE	C.Y.	
604-03.35	CLASS L CONCRETE	C.Y.	

604-03.36	LEAN CONCRETE	C.Y.	
604-03.37	EPOXY INJECTION	L.F.	
604-03.40 to 604-03.49	SEISMIC MODIFICATION (DESCRIPTION)	EACH	
604-03.50	CLEARANCE GAUGES	L.S.	
604-03.60 to 604-03.69	BRIDGE JOINT SEISMIC MODIFICATION (DESCRIPTION)	EACH	
604-03.70	CLASS A CONCRETE LOW SHRINKAGE	C.Y.	
604-03.71	SHRINKAGE COMPENSATING CONCRETE (PRECAST SLAB CLOSURE MIX)	C.F.	
604-03.74 to 604-03.76	CLASS X CONCRETE	C.Y.	
604-03.80	STEEL BAR REINFORCEMENT (STAINLESS STL)	LB.	
604-04.01	APPLIED TEXTURE FINISH (NEW STRUCTURES)	S.Y.	
604-04.02	APPLIED TEXTURE FINISH (EXISTING STRUCTURES)	S.Y.	
604-04.03	BRIDGE END DRAINS(2'X8')	EACH	
604-04.04	BRIDGE END DRAINS(4'X8')	EACH	
604-04.05	BRIDGE END DRAINS(SIZE)	EACH	
604-04.10	GRAFFITI PROTECTION SYSTEM(DESCRIPTION)	S.Y.	
604-04.12	CONCRETE INSTALLATION MOCK-UP	L.S.	
604-04.20	PAINTING CONCRETE SURFACES	S.F.	
604-04.21	STAINING CONCRETE SURFACES	S.F.	
604-04.25	LIMESTONE VENEER	S.F.	
604-04.41	THREE STAR STATE EMBLEM	EACH	
604-04.62	CLEAN & TEXTURE FINISH CONCRETE MEDIAN BARRIER	L.F.	
604-05.12	NON-REINFORCED CONCRETE LEVELING PAD	S.F.	
604-05.13	NON-REINFORCED CONCRETE LEVELING PAD	L.F.	
604-05.14	NON-REINFORCED CONCRETE LEVELING PAD	C.Y.	
604-05.31	BRIDGE DECK GROOVING (MECHANICAL)	S.Y.	
604-05.32	BRIDGE DECK GRINDING AND GROOVING	S.Y.	
604-06.01	LIGHTWEIGHT CONCRETE (BRIDGES)	C.Y.	

604-07.01 to 604-07.27	RETAINING WALL (DESCRIPTION)	S.F.	SP624
604-07.28	RETAINING WALL EXCAVATION	C.Y.	
604-07.29 to 604-07.39	RETAINING WALL (DESCRIPTION)	L.F.	SP624
604-07.40 to 604-07.59	RETAINING WALL (DESCRIPTION)	S.F.	SP624
604-07.75	RESTORATION OF REINFORCED EARTHWALLS	L.S.	
604-08.01	JACKING ROADWAY CONCRETE SLABS	C.F.	SP604H, SP604HD, SP624
604-08.02	LABOR, EQUIPMENT AND INCIDENTALS	HOUR	SP624
604-09.01	CLASS A CONCRETE (UNDER WATER)	C.Y.	
604-09.10	CLASS A CONCRETE (DESCRIPTION)	C.Y.	
604-09.60	HIGH SLUMP CONCRETE	C.Y.	
604-10.01	CONCRETE REPAIRS	L.S.	
604-10.02	CONCRETE REPAIRS	C.Y.	
604-10.03	CONCRETE DECK SEALANT	L.S.	
604-10.04	DEMOLITION WORK	L.S.	
604-10.05	CONCRETE	S.F.	
604-10.06	CONCRETE HANDRAIL REPAIR	L.F.	
604-10.07	CONCRETE REMOVAL	L.S.	
604-10.08	CONCRETE	L.S.	
604-10.09	CONCRETE	C.Y.	
604-10.10	CONCRETE SLAB REPAIRS	L.S.	
604-10.11	CONCRETE SLAB REPAIRS	S.Y.	
604-10.12	CONCRETE SLAB REPAIRS	C.Y.	
604-10.13	CONCRETE SLAB REMOVAL	L.S.	
604-10.14	REMOVE EXISTING WEARING SURFACE	L.S.	
604-10.15	STRUCTURE REPAIRS (FOUNDATIONS)	L.S.	
604-10.16	EXPANSION JOINT REPAIRS	L.S.	
604-10.17	NON-PENETRATING CONCRETE SEAL	S.Y.	
604-10.18	REINFORCING STEEL (REPAIRS)	LB.	
604-10.19	REINFORCING STEEL (REPAIRS)	L.S.	
604-10.20	HYDRODEMOLITION	S.Y.	SP604H, SP604HD

604-10.21	CONTAINMENT & DISPOSAL OF WASTE	L.S.	
604-10.22	CONCRETE PARAPET REPAIR	L.F.	
604-10.23	CONCRETE PARAPET REPAIR	L.S.	
604-10.24	JACKING CONCRETE SPANS	L.S.	
604-10.25	REPAIR OF EXISTING BENT ENDS	EACH	
604-10.26	BRACING	EACH	
604-10.29	CONCRETE SLOPE PAVING REPAIRS	S.Y.	
604-10.30	BRIDGE DECK REPAIRS (FULL DEPTH OF SLAB)	S.Y.	SP604HD
604-10.31	RESETTING EXISTING EXPANSION JOINTS	L.F.	
604-10.32	EXPANSION JOINT REPAIRS (TYPE A)	L.F.	
604-10.33	EXPANSION JOINT REPAIRS (TYPE B)	L.F.	
604-10.34	CONCRETE OVERLAYED BRIDGE DECK REPAIR (FULL DEPTH)	S.Y.	
604-10.35	EXPANSION JOINT REPAIRS (TYPE C)	L.F.	
604-10.36	CONCRETE CURTAIN WALL REPAIR	EACH	
604-10.39	PRECAST REINFORCED CONCRETE UNITS	S.F.	
604-10.40	EXPANSION JOINT REPAIRS (TYPE D)	L.F.	
604-10.41	EXPANSION JOINT REPAIRS (TYPE E)	L.F.	
604-10.42	CONCRETE REPAIRS	C.F.	
604-10.43	PENETRATING WATER REPELLENT CONCRETE SEAL	S.Y.	
604-10.44	EXPANSION JOINT REPAIRS	L.F.	
604-10.45	EXPANSION JOINT REPAIRS (TYPE F)	L.F.	
604-10.46	EXPANSION JOINT REPAIRS (TYPE G)	L.F.	
604-10.47	EXPANSION JOINT REPAIRS (TYPE H)	L.F.	
604-10.48	EXPANSION JOINT REPAIRS (TYPE J)	L.F.	
604-10.49	EXPANSION JOINT REPAIRS (TYPE K)	L.F.	
604-10.50	BRIDGE DECK REPAIRS (PARTIAL DEPTH OF SLAB)	S.Y.	
604-10.51	SCARIFYING	S.Y.	

604-10.52	PRESTRESSED BEAM REPAIR	L.S.	
604-10.53	CONCRETE REPAIRS	S.Y.	
604-10.54	CONCRETE REPAIRS	S.F.	
604-10.55	CONCRETE (FOUNDATION REPAIRS)	C.Y.	
604-10.56	CONCRETE OVERLAYED BRIDGE DECK REPAIR (PARTIAL DEPTH)	S.Y.	
604-10.57	BRIDGE DECK OVERLAY (RUBBERIZED ASPHALT ADDITIVE)	LB.	
604-10.58	EPOXY INJECTION (INJECTION)	GAL.	
604-10.59	CLOSURE POUR MATERIAL (ACCELERATED STRENGTH)	C.F.	
604-10.60 to 604-10.61	EXPANSION JOINT REPAIRS (MODULAR TYPE)	L.F.	
604-10.62	EPOXY INJECTION REPAIR (COMPLETE AND IN PLACE)	L.F.	
604-10.63	CONCRETE REPAIRS (CRACKS)	L.F.	
604-10.64	EXPANSION JOINT REPAIRS (MODULAR TYPE)	L.F.	
604-10.65	EXPANSION JOINT REPAIRS (TYPE L)	L.F.	
604-10.66	EXPANSION JOINT REPAIRS (TYPE M)	L.F.	
604-10.67 to 604-10.68	CONCRETE REPAIRS (DESCRIPTION)	L.F.	
604-10.69	PRESTRESSING STRAND SPLICE	EACH	
604-10.70	EXPANSION JOINT REPAIRS	L.F.	
604-10.71	MEASUREMENT OF EXISTING CLEARANCE GAGES	EACH	
604-10.72	REPAINTING EXISTING CLEARANCE GAGES	EACH	
604-10.73	LONGITUDINAL BRIDGE JOINT REPAIR	L.F.	
604-10.74	MODIFIED CLASS A CONCRETE (PARTIAL DEPTH REPAIR)	S.Y.	
604-10.75	MODIFIED CLASS A CONCRETE (FULL DEPTH REPAIR)	S.Y.	
604-10.76	BRIDGE DECK CRACK REPAIR	L.F.	
604-10.78	RISER BLOCK REPAIR	EACH	
604-10.79	COST OF MANUFACTURER REPRESENTATIVE	L.S.	
604-10.80	BRIDGE REPAIRS	L.S.	
604-10.81	CONCRETE REPAIRS	EACH	
604-10.83	COMPOSITE FIBER ENCASEMENT	S.F.	SP604FRP
604-10.84	FULL DEPTH REPAIR	S.Y.	

604-10.85	CLASS "D" CONCRETE (OVERLAY)	C.Y.	SP604HD
604-10.86	CLASS "D" CONCRETE (REPAIR)	C.Y.	SP604HD
604-10.87	CLASS "A" CONCRETE (OVERLAY)	C.Y.	
604-10.88	CLASS "A" CONCRETE (REPAIR)	C.Y.	
604-10.89, 604-10.91	MISCELLANEOUS BRIDGE ITEMS (Description)	L.S.	
604-10.90, 604-10.93 to 604-10.94	MISCELLANEOUS BRIDGE ITEMS	L.S.	
604-10.92	MEDIAN BARRIER REPAIR	L.F.	
604-10.97	CLASS "DS" CONCRETE (OVERLAY)	C.Y.	SP604HD
604-10.98	CLASS "DS" CONCRETE (REPAIR)	C.Y.	SP604HD
604-10.99	RETAINING WALL PILE ADJUSTMENT	L.F.	
604-11.01 to 604-11.10	EXPANSION DEVICE (DESCRIPTION)	L.F.	
604-11.64	EXPANSION JOINT FOR MEDIAN BARRIER	EACH	
604-11.99	CONCRETE WALL (BENT MODIFICATION)	S.F.	
604-12.01	CONCRETE IMPRINTING	S.F.	
604-12.02	FORM LINE FINISH	S.F.	
604-12.03	CONCRETE PIGMENT	LB.	
604-12.04	STONE VENEER FINISH	S.F.	
604-12.05	EXPOSED AGGREGATE FINISH	S.F.	
604-12.15	DRILL & GROUT STEEL BARS	EACH	
604-13.01 to 604-13.09	PRESTRESSED BEAM REPAIR (DESCRIPTION)	L.S.	
604-15.01	PORTLAND CEMENT GROUT	C.Y.	
604-15.02	PORTLAND CEMENT GROUT	BAG	
604-15.03	GROUTING BEAM JOINTS	L.F.	
604-15.20	COMPACTION GROUT	C.F.	SP204CG
604-15.21	COMPACTION GROUT (DESCRIPTION)	C.F.	
604-18.26	STEEL BAR COUPLERS AT APPROACH SLABS	EACH	
604-20.10	MODIFY BRIDGE RAIL	L.F.	
604-20.11	PAINTED METAL HANDRAIL	L.F.	
604-36	SCARIFYING	S.Y.	
604-36.05	HAND SCARIFYING	S.Y.	
604-36.10	BRIDGE DECK REPAIRS	S.Y.	
604-36.20	BRIDGE DECK REMOVAL (DESCRIPTION)	S.Y.	

604-36.30	BRIDGE DECK REMOVAL (DESCRIPTION)	L.S.	
604-40.01 to 604-40.09	BEAM END REPAIR (DESCRIPTION&STATION)	EACH	
604-42.01	UNDERWATER DIVERS	DAY	
604-44.10	TEMPORARY COVERED PEDESTRIAN GREENWAY	L.F.	
604-44.20	REMOVE & RESET (DESCRIPTION)	L.S.	
604-44.25	REMOVE & REPLACE DRAINAGE THROUGH WALL	L.F.	
604-50.01	DISTRIBUTION SLAB	S.Y.	
604-50.10	MECHANICAL COUPLER	EACH	

8-604.01 TYPE DESIGNATION FOR CONCRETE BOX AND SLAB TYPE CULVERTS AND BRIDGES

The plans must clearly indicate for each culvert or bridge, the type (box or slab) on which the quantities are based. This should be accomplished by showing a column in the tabulation block for culverts or bridges, indicating the type.

8-604.02 PAVED APRON FOR BOX CULVERT AND BRIDGE OUTLETS

The quantities for a paved apron shall be added to the concrete and steel quantities for the box culvert or bridge. Footnote these quantities to show the amount of concrete and steel bar reinforcement included for the paved aprons. The steel bar reinforcement may be computed using a weight of 58 pounds per 100 square feet of apron, plus the weight of the A-400 bars.

8-604.40 STOCK PASSES

Refer to Drainage Manual Chapter 6 Section 6.04.3.5. A 6’x6’ concrete box is the standard stock pass.

8-606.00 PILING

Item Number	Description	Unit of Measurement	Comment
606-02.01	TEST PILES (STEEL PILES, 10 INCH)	L.F.	
606-02.02	LOADING TEST (STEEL PILES, 10 INCH)	EACH	
606-02.03	STEEL PILES (10 INCH)	L.F.	
606-02.05	STEEL PILES (10 INCH) COLUMN	L.F.	

606-02.06	PILE TIPS (STEEL PILES, 10 INCH)	EACH	
606-03.01	TEST PILES (STEEL PILES, 12 INCH)	L.F.	
606-03.02	LOADING TEST (STEEL PILES, 12 INCH)	EACH	
606-03.03	STEEL PILES (12 INCH)	L.F.	
606-03.05	STEEL PILES (12 INCH) COLUMN	L.F.	
606-03.06	PILE TIPS (STEEL PILES, 12 INCH)	EACH	
606-04.01	TEST PILES (STEEL PILES, 14 INCH)	L.F.	
606-04.02	LOADING TEST (STEEL PILES, 14 INCH)	EACH	
606-04.03	STEEL PILES (14 INCH)	L.F.	
606-04.05	STEEL PILES (14 INCH) COLUMN	L.F.	
606-04.06	PILE TIPS (STEEL PILES, 14 INCH)	EACH	
606-05.01	TEST PILES (UNTREATED TIMBER, SIZE 1)	L.F.	
606-05.02	LOADING TEST (UNTREATED TIMBER, SIZE 1)	EACH	
606-05.03	UNTREATED TIMBER PILES (SIZE 1)	L.F.	
606-06.01	TEST PILES (UNTREATED TIMBER, SIZE 2)	L.F.	
606-06.02	LOADING TEST (UNTREATED TIMBER, SIZE 2)	EACH	
606-06.03	UNTREATED TIMBER PILES (SIZE 2)	L.F.	
606-07.01	TEST PILES (TREATED TIMBER, SIZE 1)	L.F.	
606-07.02	LOADING TESTS (TREATED TIMBER, SIZE 1)	EACH	
606-07.03	TREATED TIMBER PILES (SIZE 1)	L.F.	
606-07.05	PILE TIPS (TIMBER, SIZE 1)	EACH	
606-08.01	TEST PILES (TREATED TIMBER, SIZE 2)	L.F.	
606-08.02	LOADING TESTS (TREATED TIMBER, SIZE 2)	EACH	
606-08.03	TREATED TIMBER PILES (SIZE 2)	L.F.	
606-08.05	PILE TIPS (TIMBER, SIZE 2)	EACH	
606-09.01	TEST PILES (PRECAST CONCRETE, SIZE 1)	L.F.	
606-09.02	LOADING TEST (PRECAST CONCRETE, SIZE 1)	EACH	
606-09.03	PRECAST CONCRETE PILES (SIZE 1)	L.F.	
606-09.05	PILE TIPS (CONCRETE SIZE 1)(14 X 14)	EACH	
606-09.99	PRECAST CONCRETE PILES (SIZE _____)	L.F.	

606-10.01	TEST PILES (PRECAST CONCRETE, SIZE 2)	L.F.	
606-10.02	LOADING TEST (PRECAST CONCRETE, SIZE 2)	EACH	
606-10.03	PRECAST CONCRETE PILES (SIZE 2)	L.F.	
606-10.05	PILE TIPS (CONCRETE SIZE 2) (16 X 16)	EACH	
606-11.01	TEST PILES (CAST-IN-PLACE CONCRETE PILES)	L.F.	
606-11.02	LOADING TESTS (CAST-IN-PLACE CONCRETE PILES)	EACH	
606-11.03	CAST-IN-PLACE CONCRETE PILES	L.F.	
606-12.01	PILE ANCHORAGE SYSTEM (SEISMIC)	EACH	
606-12.02	ANCHORAGE SYSTEM (CABLE ENCASEMENT)	EACH	
606-15.01	TEST PILES (PRECAST CONCRETE) 18" SQUARE	L.F.	
606-15.02	LOADING TEST (PRECAST CONCRETE) 18" SQUARE	EACH	
606-15.03	18" PRESTRESSED CONCRETE PILES	L.F.	
606-15.04	PILE TIPS (CONCRETE)(18 X 18)	EACH	
606-15.06	PILE REMOVAL (DESCRIPTION)	EACH	
606-16.01	TEST PILES (STEEL PIPE PILES 10-INCH)	L.F.	
606-16.02	LOADING TEST (STEEL PIPE PILES 10-INCH)	EACH	
606-16.03	STEEL PIPE PILES (10-INCH)	L.F.	
606-16.05	STEEL PIPE PILES (10-INCH) COLUMN	L.F.	
606-16.06	PILE TIPS (STEEL PIPE PILES, 10-INCH)	EACH	
606-17.01	TEST PILES (STEEL PIPE PILES, 12-INCH)	L.F.	
606-17.02	LOADING TEST (STEEL PIPE PILES, 12-INCH)	EACH	
606-17.03	STEEL PIPE PILES (12-INCH)	L.F.	
606-17.05	STEEL PIPE PILES (12-INCH) COLUMN	L.F.	
606-17.06	PILE TIPS (STEEL PIPE PILES, 12-INCH)	EACH	
606-18.01	TEST PILES (STEEL PIPE PILES, 14-INCH)	L.F.	
606-18.02	LOADING TEST (STEEL PIPE PILES, 14-INCH)	EACH	

606-18.03	STEEL PIPE PILES (14-INCH)	L.F.	
606-18.05	STEEL PIPE PILES (14-INCH) COLUMN	L.F.	
606-18.06	PILE TIPS (STEEL PIPE PILES, 14-INCH)	EACH	
606-19.01	TEST PILES (STEEL PIPE PILES, 16-INCH)	L.F.	
606-19.02	LOADING TEST (STEEL PIPE PILES, 16-INCH)	EACH	
606-19.03	STEEL PIPE PILES (16-INCH)	L.F.	
606-19.05	STEEL PIPE PILES (16-INCH) COLUMN	L.F.	
606-19.06	PILE TIPS (STEEL PIPE PILES, 16-INCH)	EACH	
606-20.01	TEST PILES (STEEL PIPE PILES, 18-INCH)	L.F.	
606-20.02	LOADING TEST (STEEL PIPE PILES, 18-INCH)	EACH	
606-20.03	STEEL PIPE PILES (18-INCH)	L.F.	
606-20.05	STEEL PIPE PILES (18-INCH) COLUMN	L.F.	
606-20.06	PILE TIPS (STEEL PIPE PILES, 18-INCH)	EACH	
606-20.10	TEST PILES (STEEL PIPE PILES, SIZE)	L.F.	
606-20.20	LOADING TEST (STEEL PIPE PILES, SIZE)	EACH	
606-20.30	STEEL PIPE PILES (SIZE)	L.F.	
606-20.50	STEEL PIPE PILES - COLUMN (SIZE)	L.F.	
606-20.60	PILE TIPS - STEEL PIPE PILES (SIZE)	EACH	
606-21.10	TEST PILES - STEEL PIPE PILES (SIZE)	L.F.	
606-21.20	LOADING TEST - STEEL PIPE PILES (SIZE)	EACH	
606-21.30	STEEL PIPE PILES (SIZE)	L.F.	
606-21.50	STEEL PIPE PILES - COLUMN (SIZE)	L.F.	
606-21.60	PILE TIPS - STEEL PIPE PILES (SIZE)	EACH	
606-22.01	STEEL PIPE PILES (20 IN)	L.F.	
606-22.02	PILE TIPS (STEEL PIPE PILES 20 IN)	EACH	
606-22.03	TEST PILES (STEEL PIPE PILES 20 IN)	L.F.	
606-22.04	LOAD TESTING (STEEL PIPE PILES 20 IN)	EACH	
606-22.07	STEEL PIPE PILES (22 IN)	L.F.	
606-22.08	PILE TIPS (STEEL PIPE PILES 22 IN)	EACH	

606-22.09	TEST PILES (STEEL PIPE PILES 22 IN)	L.F.	
606-22.10	LOAD TESTING (STEEL PIPE PILES 22 IN)	EACH	
606-22.13	STEEL PIPE PILES (24 IN)	L.F.	
606-22.14	PILE TIPS (STEEL PIPE PILES 24 IN)	EACH	
606-22.15	TEST PILES (STEEL PIPE PILES 24 IN)	L.F.	
606-22.16	LOAD TESTING (STEEL PIPE PILES 24 IN)	EACH	
606-23.01	STEEL PIPE PILES AND TIPS (24-INCH)	L.F.	
606-24.10	SHEET PILES	S.F.	
606-24.11	SHEET PILES	L.S.	
606-24.12	TEMPORARY SHEET PILES	S.F.	
606-24.13	TEMPORARY SHEET PILES	L.S.	
606-25.01	TEST PILES (10" ROUND CONCRETE FILLED)	L.F.	
606-25.02	LOAD TEST (10" ROUND CONCRETE FILLED)	EACH	
606-25.03	10" ROUND STEEL PILES (CONCRETE FILLED)	L.F.	
606-28.03	MICROPILE (7 5/8" S .500" MICROPILE)	L.F.	
606-28.05	VERIFICATION LOADING TEST	EACH	TO BE USED FOR ALL VERIFICATION TESTS REGARDLESS OF MICROPILE SIZE.
606-28.06	PROOF LOADING TEST	EACH	TO BE USED FOR ALL PROOF LOADING TESTS REGARDLESS OF MICROPILE SIZE.
606-28.12	MICROPILE (9 5/8" X .500" MICROPILE)	L.F.	
606-28.14	MICROPILE (10 3/4" X .545" MICROPILE)	L.F.	

8-607.00 PIPE CULVERTS AND STORM SEWERS

Item Number	Description	Unit of Measurement	Comment
607-01.02	12" CONCRETE PIPE CULVERT (CLASS III)	L.F.	
607-02.01	15" CONCRETE PIPE CULVERT (CLASS II)	L.F.	
607-02.02	15" CONCRETE PIPE CULVERT (CLASS III)	L.F.	
607-02.03	15" CONCRETE PIPE CULVERT (CLASS IV)	L.F.	
607-02.04	15" CONCRETE PIPE CULVERT (CLASS V)	L.F.	
607-02.30	15IN PIPE CULVERT	L.F.	
607-03.02	18" CONCRETE PIPE CULVERT (CLASS III)	L.F.	
607-03.03	18" CONCRETE PIPE CULVERT (CLASS IV)	L.F.	
607-03.04	18" CONCRETE PIPE CULVERT (CLASS V)	L.F.	
607-03.05	18" CONCRETE PIPE CULVERT (CLASS IV) JACKED-IN-PLACE	L.F.	
607-03.30	18" PIPE CULVERT	L.F.	
607-05.01	24" CONCRETE PIPE CULVERT (CLASS II)	L.F.	
607-05.02	24" CONCRETE PIPE CULVERT (CLASS III)	L.F.	
607-05.03	24" CONCRETE PIPE CULVERT (CLASS IV)	L.F.	
607-05.04	24" CONCRETE PIPE CULVERT (CLASS V)	L.F.	
607-05.05	24" CONCRETE PIPE CULVERT (CLASS IV) JACKED-IN-PLACE	L.F.	
607-05.06	24" PIPE CULVERT (JACKED-IN-PLACE)	L.F.	
607-05.07	24" CONCRETE PIPE CULVERT CLASS V (JACKED-IN-PLACE)	L.F.	
607-05.30	24" PIPE CULVERT	L.F.	
607-06.01	30" CONCRETE PIPE CULVERT (CLASS II)	L.F.	
607-06.02	30" CONCRETE PIPE CULVERT (CLASS III)	L.F.	
607-06.03	30" CONCRETE PIPE CULVERT (CLASS IV)	L.F.	

607-06.04	30" CONCRETE PIPE CULVERT (CLASS V)	L.F.	
607-06.05	30" CONCRETE PIPE CULVERT (CLASS IV) JACKED-IN-PLACE	L.F.	
607-06.06	30" PIPE CULVERT (JACKED-IN-PLACE)	L.F.	
607-06.07	36" PIPE CULVERT (JACKED-IN-PLACE)	L.F.	
607-06.08	36" CONCRETE PIPE CULVERT CLASS V (JACKED-IN-PLACE)	L.F.	
607-06.30	30" PIPE CULVERT	L.F.	
607-07.01	36" CONCRETE PIPE CULVERT (CLASS II)	L.F.	
607-07.02	36" CONCRETE PIPE CULVERT (CLASS III)	L.F.	
607-07.03	36" CONCRETE PIPE CULVERT (CLASS IV)	L.F.	
607-07.04	36" CONCRETE PIPE CULVERT (CLASS V)	L.F.	
607-07.05	36" CONCRETE PIPE CULVERT (CLASS IV) JACKED-IN-PLACE	L.F.	
607-07.30	36" PIPE CULVERT	L.F.	
607-08.01	42" CONCRETE PIPE CULVERT (CLASS II)	L.F.	
607-08.02	42" CONCRETE PIPE CULVERT (CLASS III)	L.F.	
607-08.03	42" CONCRETE PIPE CULVERT (CLASS IV)	L.F.	
607-08.04	42" CONCRETE PIPE CULVERT (CLASS V)	L.F.	
607-08.05	42" CONCRETE PIPE CULVERT (CLASS IV) JACKED-IN-PLACE	L.F.	
607-08.06	42" CONCRETE PIPE CULVERT (CLASS V) JACKED-IN-PLACE	L.F.	
607-08.30	42" PIPE CULVERT	L.F.	
607-09.01	48" CONCRETE PIPE CULVERT (CLASS II)	L.F.	
607-09.02	48" CONCRETE PIPE CULVERT (CLASS III)	L.F.	
607-09.03	48" CONCRETE PIPE CULVERT (CLASS IV)	L.F.	
607-09.04	48" CONCRETE PIPE CULVERT (CLASS V)	L.F.	
607-09.05	48" CONCRETE PIPE CULVERT (CLASS IV)J ACKED-IN-PLACE	L.F.	
607-09.30	48" PIPE CULVERT	L.F.	

607-10.01	54" CONCRETE PIPE CULVERT (CLASS II)	L.F.	
607-10.02	54" CONCRETE PIPE CULVERT (CLASS III)	L.F.	
607-10.03	54" CONCRETE PIPE CULVERT (CLASS IV)	L.F.	
607-10.04	54" CONCRETE PIPE CULVERT (CLASS V)	L.F.	
607-10.05	54" CONCRETE PIPE CULVERT (CLASS IV) JACKED-IN-PLACE	L.F.	
607-10.30	54" PIPE CULVERT	L.F.	
607-11.01	60" CONCRETE PIPE CULVERT (CLASS I)	L.F.	
607-11.02	60" CONCRETE PIPE CULVERT (CLASS II)	L.F.	
607-11.03	60" CONCRETE PIPE CULVERT (CLASS III)	L.F.	
607-11.04	60" CONCRETE PIPE CULVERT (CLASS IV)	L.F.	
607-11.05	60" CONCRETE PIPE CULVERT (CLASS V)	L.F.	
607-11.06	60" CONCRETE PIPE CULVERT (CLASS IV) JACKED-IN-PLACE	L.F.	
607-11.07	66" CONCRETE PIPE CULVERT (CLASS IV) JACKED-IN-PLACE	L.F.	
607-11.30	60" PIPE CULVERT	L.F.	
607-12.01	66" CONCRETE PIPE CULVERT (CLASS I)	L.F.	
607-12.02	66" CONCRETE PIPE CULVERT (CLASS II)	L.F.	
607-12.03	66" CONCRETE PIPE CULVERT (CLASS III)	L.F.	
607-12.04	66" CONCRETE PIPE CULVERT (CLASS IV)	L.F.	
607-12.05	66" CONCRETE PIPE CULVERT (CLASS V)	L.F.	
607-12.30	66" PIPE CULVERT	L.F.	
607-13.01	72" CONCRETE PIPE CULVERT (CLASS I)	L.F.	
607-13.02	72" CONCRETE PIPE CULVERT (CLASS II)	L.F.	
607-13.03	72" CONCRETE PIPE CULVERT (CLASS III)	L.F.	
607-13.04	72" CONCRETE PIPE CULVERT (CLASS IV)	L.F.	
607-13.05	72" CONCRETE PIPE CULVERT (CLASS V)	L.F.	

607-13.30	72" PIPE CULVERT	L.F.	
607-14.01	78" CONCRETE PIPE CULVERT (CLASS I)	L.F.	
607-14.02	78" CONCRETE PIPE CULVERT (CLASS II)	L.F.	
607-14.03	78" CONCRETE PIPE CULVERT (CLASS III)	L.F.	
607-14.04	78" CONCRETE PIPE CULVERT (CLASS IV)	L.F.	
607-14.05	78" CONCRETE PIPE CULVERT (CLASS V)	L.F.	
607-14.30	78" PIPE CULVERT	L.F.	
607-15.01	84" CONCRETE PIPE CULVERT (CLASS I)	L.F.	
607-15.02	84" CONCRETE PIPE CULVERT (CLASS II)	L.F.	
607-15.03	84" CONCRETE PIPE CULVERT (CLASS III)	L.F.	
607-15.04	84" CONCRETE PIPE CULVERT (CLASS IV)	L.F.	
607-15.05	84" CONCRETE PIPE CULVERT (CLASS V)	L.F.	
607-15.30	84" PIPE CULVERT	L.F.	
607-16.01	23"X 14" HORIZONTAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-16.02	30"X 19" HORIZONTAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-16.03	34"X 22" HORIZONTAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-16.04	38"X 24" HORIZONTAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-16.05	45"X 29" HORIZONTAL OVAL CONCRETE PIPE CULVERT (CLASS__)	L.F.	
607-16.06	45"X 29" HORIZONTAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-16.07	49"X 32" HORIZONTAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-16.08	53"X 34" HORIZONTAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-16.09	60"X 38" HORIZONTAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-16.10	68"X 43" HORIZONTAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-16.11	76"X 48" HORIZONTAL OVAL CONCRETE PIPE CULVERT	L.F.	

607-16.12	83"X 53" HORIZONTAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-16.13	91"X 58" HORIZONTAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-16.14	98"X 63" HORIZONTAL OVAL CONCRETE. PIPE CULVERT	L.F.	
607-16.15	106"X 68" HORIZONTAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-16.16	113"X 72" HORIZONTAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-16.17	121"X 77" HORIZONTAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-16.18	128"X 82" HORIZONTAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-16.19	136"X 87" HORIZONTAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-16.20	143"X 92" HORIZONTAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-16.21	151"X 97" HORIZONTAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-16.22	166"X 106" HORIZONTAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-16.23	180"X 116" HORIZONTAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-16.34	34IN X 22IN HORIZONTAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-16.99	HORIZONTAL OVAL CONCRETE PIPE CULVERT (DESCRIPTION)	L.F.	
607-17.06	29"X 45" VERTICAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-17.07	32"X 49" VERTICAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-17.08	34"X 53" VERTICAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-17.09	38"X 60" VERTICAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-17.10	43"X 68" VERTICAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-17.11	48"X 76" VERTICAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-17.12	53"X 83" VERTICAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-17.13	58"X 91" VERTICAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-17.14	63"X 98" VERTICAL OVAL CONCRETE PIPE CULVERT	L.F.	

607-17.15	68"X 106" VERTICAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-17.16	72"X 113" VERTICAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-17.17	77"X 121" VERTICAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-17.18	82"X 128" VERTICAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-17.19	87"X 136" VERTICAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-17.20	92"X 143" VERTICAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-17.21	97"X 151" VERTICAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-17.22	106"X 166" VERTICAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-17.23	116"X 180" VERTICAL OVAL CONCRETE PIPE CULVERT	L.F.	
607-17.24	48"X 72" FLAT BASE CONCRETE PIPE CULVERT (CP)	L.F.	
607-18.01	CULVERT INSPECTION WITH CAMERA	L.F.	
607-19.01	18 IN A-2000 PVC	L.F.	
607-19.02	24 IN A-2000 PVC	L.F.	
607-19.03	30 IN A-2000 PVC	L.F.	
607-19.04	36 IN A-2000 PVC	L.F.	
607-20.01	18" CROSSDRAIN PIPE CULVERT (COLLECTORS & LOCAL ROADS)	L.F.	
607-20.02	24" CROSSDRAIN PIPE CULVERT (COLLECTORS & LOCAL ROADS)	L.F.	
607-20.03	30" CROSSDRAIN PIPE CULVERT (COLLECTORS & LOCAL ROADS)	L.F.	
607-20.04	36" CROSSDRAIN PIPE CULVERT (COLLECTORS & LOCAL ROADS)	L.F.	
607-20.05	42" CROSSDRAIN PIPE CULVERT (COLLECTORS & LOCAL ROADS)	L.F.	
607-20.06	48" CROSSDRAIN PIPE CULVERT (COLLECTORS & LOCAL ROADS)	L.F.	
607-20.07	54" CROSSDRAIN PIPE CULVERT (COLLECTORS & LOCAL ROADS	L.F.	
607-20.08	60" CROSSDRAIN PIPE CULVERT (COLLECTORS & LOCAL ROADS)	L.F.	
607-20.09	66" CROSSDRAIN PIPE CULVERT (COLLECTORS & LOCAL ROADS)	L.F.	
607-20.10	72" CROSSDRAIN PIPE CULVERT (COLLECTORS & LOCAL ROADS)	L.F.	

607-20.11	78" CROSSDRAIN PIPE CULVERT (COLLECTORS & LOCAL ROADS)	L.F.	
607-20.12	84" CROSSDRAIN PIPE CULVERT (COLLECTORS & LOCAL ROADS)	L.F.	
607-25.01	SAPL TYPE 1 GROUT (PIPE/CULVERT REPAIR)	C.F.	SP607SAPL
607-25.02	SPRAY APPLIED PIPE LINER (SAPL)	C.F.	SP607SAPL
607-36.01 to 607-36.05	FLAP GATE (SIZE PIPE)	EACH	
607-36.06 to 607-36.10	FLOOD GATE (BOX SIZE)	EACH	
607-37.01	15" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.02	18" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.03	24" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.04	30" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.05	36" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.06	42" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.07	48" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.08	54" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.09	60" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.10	66" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.11	72" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.12	78" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.13	84" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.14	90" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.15	96" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.16	102" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.17	108" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.18	114" CORRUGATED METAL PIPE CULVERT	L.F.	

607-37.19	120" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.20	126" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.21	132" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.22	138" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.23	144" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.24	150" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.25	156" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.26	162" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.27	168" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.28	174" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.29	180" CORRUGATED METAL PIPE CULVERT	L.F.	
607-37.30	12IN CORRUGATED METAL PIPE CULVERT	L.F.	
607-38.02	18" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.03	24" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.04	30" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.05	36" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.06	42" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.07	48" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.08	54" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.09	60" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.10	66" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.11	72" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.12	78" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	

607-38.13	84" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.14	90" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.15	96" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.16	102" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.17	108" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.18	114" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.19	120" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.20	126" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.21	132" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.22	138" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.23	144" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.24	150" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.25	156" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.26	162" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.27	168" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.28	174" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-38.29	180" CORRUGATED METAL PIPE CULVERT (PRECOATED)	L.F.	
607-39.01	15" PIPE CULVERT (SIDE DRAIN)	L.F.	
607-39.02	18" PIPE CULVERT (SIDE DRAIN)	L.F.	
607-39.03	24" PIPE CULVERT (SIDE DRAIN)	L.F.	
607-39.04	30" PIPE CULVERT (SIDE DRAIN)	L.F.	
607-39.05	36" PIPE CULVERT (SIDE DRAIN)	L.F.	
607-39.06	42" PIPE CULVERT (SIDE DRAIN)	L.F.	
607-39.07	48" PIPE CULVERT (SIDE DRAIN)	L.F.	
607-39.08	54" PIPE CULVERT (SIDE DRAIN)	L.F.	
607-39.09	60" PIPE CULVERT (SIDE DRAIN)	L.F.	
607-39.10	66" PIPE CULVERT (SIDE DRAIN)	L.F.	

607-40.02	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 18" ROUND)	L.F.	
607-40.03	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 21" ROUND)	L.F.	
607-40.04	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 24" ROUND)	L.F.	
607-40.05	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 30" ROUND)	L.F.	
607-40.06	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 36" ROUND)	L.F.	
607-40.07	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 42" ROUND)	L.F.	
607-40.08	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 48" ROUND)	L.F.	
607-40.09	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 54" ROUND)	L.F.	
607-40.10	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 60" ROUND)	L.F.	
607-40.11	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 66" ROUND)	L.F.	
607-40.12	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 72" ROUND)	L.F.	
607-40.13	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 78" ROUND)	L.F.	
607-40.14	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 84" ROUND)	L.F.	
607-40.15	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 90" ROUND)	L.F.	
607-40.16	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 96" ROUND)	L.F.	
607-40.17	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 102" ROUND)	L.F.	
607-40.18	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 108" ROUND)	L.F.	
607-40.19	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 114" ROUND)	L.F.	
607-40.20	CORRUGATED METAL PIPE ARCH (SIZE EQUVI. 120" ROUND)	L.F.	
607-40.21	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 126" ROUND)	L.F.	
607-40.22	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 132" ROUND)	L.F.	
607-40.23	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 138" ROUND)	L.F.	
607-40.24	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 144" ROUND)	L.F.	

607-40.25	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 150" ROUND)	L.F.	
607-40.26	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 156" ROUND)	L.F.	
607-40.27	CORRUGATED METAL PIPE ARCH (SIZE EQUIV. 162" ROUND)	L.F.	
607-40.70	CORRUGATED ALUMINUM BOX CULVERT (SIZE)	L.F.	
607-40.71	CORRUGATED ALUMINUM BOX CULVERT (SIZE)	L.F.	
607-40.72	CORRUGATED ALUMINUM BOX CULVERT (SIZE)	L.F.	
607-40.73	CORRUGATED ALUMINUM BOX CULVERT (SIZE)	L.F.	
607-40.74	CORRUGATED ALUMINUM BOX CULVERT (SIZE)	L.F.	
607-40.75	CORRUGATED ALUMINUM BOX CULVERT (SIZE)	L.F.	
607-41.02	15" SLOPE DRAIN PIPE	L.F.	EC-STR-29
607-41.03	18" SLOPE DRAIN PIPE	L.F.	EC-STR-29
607-41.04	24" SLOPE DRAIN PIPE	L.F.	EC-STR-29
607-41.05	30" SLOPE DRAIN PIPE	L.F.	EC-STR-29
607-41.06	36" SLOPE DRAIN PIPE	L.F.	EC-STR-29
607-45	12" SLOTTED DRAIN PIPE	L.F.	
607-45.01	15" SLOTTED DRAIN PIPE	L.F.	
607-45.02	18" SLOTTED DRAIN PIPE	L.F.	
607-45.03	24" SLOTTED DRAIN PIPE	L.F.	
607-45.04	30" SLOTTED DRAIN PIPE	L.F.	
607-45.05	36" SLOTTED DRAIN PIPE	L.F.	
607-50.01	PRECAST CONCRETE BOX CULVERT (10' X 5')	L.F.	
607-50.02	PRECAST CONCRETE BOX CULVERT (10' X 7')	L.F.	
607-50.03	PRECAST CONCRETE BOX CULVERT (12' X 4')	L.F.	
607-50.04	PRECAST CONCRETE BOX CULVERT (10' X 4')	L.F.	
607-50.05	PRECAST CONCRETE BOX CULVERT (8' X 4')	L.F.	
607-50.06	PRECAST CONCRETE BOX CULVERT (12' X 8')	L.F.	
607-50.07	PRECAST CONCRETE BOX CULVERT (12' X 6')	L.F.	
607-50.08	PRECAST CONCRETE BOX CULVERT (10' X 6')	L.F.	

607-50.09	PRECAST CONCRETE BOX CULVERT (6' X 4')	L.F.	
607-50.10	PRECAST CONCRETE BOX CULVERT (10' X 8')	L.F.	
607-50.11	PRECAST CONCRETE BOX CULVERT (8' X 6')	L.F.	
607-50.12	PRECAST CONCRETE BOX CULVERT (SIZE)	L.F.	
607-50.13	PRECAST CONCRETE BOX CULVERT (SIZE)	L.F.	
607-50.14	PRECAST CONCRETE BOX CULVERT (SIZE)	L.F.	
607-50.15	PRECAST CONCRETE BOX CULVERT (SIZE)	L.F.	
607-50.16	PRECAST CONCRETE BOX CULVERT (SIZE)	L.F.	
607-50.17	PRECAST CONCRETE BOX CULVERT (SIZE)	L.F.	
607-50.18	PRECAST CONCRETE BOX CULVERT (SIZE)	L.F.	
607-50.30 to 607-50.35	PRECAST CONCRETE BOX BRIDGE (SIZE)	L.F.	
607-50.50 to 607-50.55	PRECAST CONCRETE BOX CULVERT (SIZE)	L.S.	
607-50.60 to 607-50.64	THREE SIDED PRECAST CULVERT STRUCTURE - BARREL(SIZE)	L.F.	SP607CS
607-50.65	THREE SIDED PRECAST CULVERT STRUCTURE - BARREL(SIZE)	L.S.	SP607CS
607-57.01	REINFORCED CONCRETE PIPE ARCH (22" X 13")	L.F.	
607-57.02	REINFORCED CONCRETE PIPE ARCH (29" X 18")	L.F.	
607-57.03	REINFORCED CONCRETE PIPE ARCH (36" X 23")	L.F.	
607-57.04	REINFORCED CONCRETE PIPE ARCH (44" X 27")	L.F.	
607-57.05	REINFORCED CONCRETE PIPE ARCH (51" X 31")	L.F.	
607-57.06	REINFORCED CONCRETE PIPE ARCH (58" X 36")	L.F.	
607-57.07	REINFORCED CONCRETE PIPE ARCH (65" X 40")	L.F.	
607-57.08	REINFORCED CONCRETE PIPE ARCH (73" x 45")	L.F.	
607-57.09 to 607-57.10	REINFORCED CONCRETE PIPE ARCH (SIZE)	L.F.	

607-60.01 to 607-60.09	ENCASEMENT PIPE (DESCRIPTION)	L.F.	
607-60.11	18" STEEL PIPE CULVERT (JACK-IN-PLACE)	L.F.	
607-60.12	24" STEEL PIPE CULVERT (JACK-IN-PLACE)	L.F.	
607-60.13	30" STEEL PIPE CULVERT (JACK-IN-PLACE)	L.F.	
607-60.14	42" STEEL PIPE CULVERT (JACK-IN-PLACE)	L.F.	
607-60.15	48" STEEL PIPE CULVERT (JACK-IN-PLACE)	L.F.	
607-60.16	54 STEEL PIPE CULVERT (JACK-IN-PLACE)	L.F.	
607-60.17	60" STEEL PIPE CULVERT (JACK-IN-PLACE)	L.F.	
607-60.18	36" STEEL PIPE CULVERT (JACK-IN-PLACE)	L.F.	
607-65.19	SITE PREPARATION	L.S.	
607-65.20	SITE PREPARATION	EACH	
607-65.57	6IN MINIMUM ID PIPE TO SLIP LINE 8IN PIPE	L.F.	
607-65.61	10" MINIMUM ID PIPE TO SLIP LINE 12" PIPE	L.F.	SP607G
607-65.62	12" MINIMUM ID PIPE TO SLIP LINE 15" PIPE	L.F.	SP607G
607-65.63	15" MINIMUM ID PIPE TO SLIP LINE 18" PIPE	L.F.	SP607G
607-65.64	18" MINIMUM ID PIPE TO SLIP LINE 24" PIPE	L.F.	SP607G
607-65.65	24" MINIMUM ID PIPE TO SLIP LINE 30" PIPE	L.F.	SP607G
607-65.66	30" MINIMUM ID PIPE TO SLIP LINE 36" PIPE	L.F.	SP607G
607-65.67	33" MINIMUM ID PIPE TO SLIP LINE 42" PIPE	L.F.	SP607G
607-65.68	36" MINIMUM ID PIPE TO SLIP LINE 48" PIPE	L.F.	SP607G
607-65.69	42" MINIMUM ID PIPE TO SLIP LINE 54" PIPE	L.F.	SP607G
607-65.70	48" MINIMUM ID PIPE TO SLIP LINE 60" PIPE	L.F.	SP607G
607-65.71	60" MINIMUM ID PIPE TO SLIP LINE 72" PIPE	L.F.	SP607G
607-65.72	21" MINIMUM ID PIPE TO SLIP LINE 30" PIPE	L.F.	SP607G

607-65.73	27" MINIMUM ID PIPE TO SLIP LINE 36" PIPE	L.F.	SP607G
607-65.74	30" MINIMUM ID PIPE TO SLIP LINE 42" PIPE	L.F.	SP607G
607-65.75	40" MINIMUM ID PIPE TO SLIP LINE 54" PIPE	L.F.	SP607G
607-65.76	42" MINIMUM ID PIPE TO SLIP LINE 60" PIPE	L.F.	SP607G
607-65.77	40IN X 56IN HDPE TO SLIP LINE 47IN X 71IN	L.F.	SP607G
607-65.78	54IN MIN I.D. to SLIP LINE 60IN CMP	L.F.	SP607G
607-65.79	54"MINIMUM ID PIPE TO SLIP LINE 72"PIPE	L.F.	SP607G
607-65.80	60IN MIN ID PIPE TO SLIP LINE 66IN PIPE	L.F.	SP607G
607-65.81	60X47IN MIN ID PIPE TO SLIP LINE 70X50IN PIPE	L.F.	SP607G
607-65.89	10.75" OD PIPE TO SLIP LINE 12" PIPE	L.F.	
607-65.90	12.75" OD PIPE TO SLIP LINE 16" PIPE	L.F.	
607-65.91	16" OD PIPE TO SLIP LINE 18" PIPE	L.F.	
607-65.92	20" OD PIPE TO SLIP LINE 24" PIPE	L.F.	
607-65.93	28" OD PIPE TO SLIP LINE 32" PIPE	L.F.	
607-65.94	32" OD PIPE TO SLIP LINE 36" PIPE	L.F.	
607-65.95	36" OD PIPE TO SLIP LINE 42" PIPE	L.F.	
607-65.96	48" OD PIPE TO SLIP LINE 54" PIPE	L.F.	
607-66.01	PORTLAND CEMENT 94 LB BAG	EACH	

8-610.00 PIPE DRAINS

Item Number	Description	Unit of Measurement	Comment
610-07.01	12" PIPE DRAIN (BRIDGE DRAIN)	L.F.	
610-07.02	15" PIPE DRAIN (BRIDGE DRAIN)	L.F.	
610-07.03	18" PIPE DRAIN (BRIDGE DRAIN)	L.F.	
610-09.01	DRAINAGE SYSTEM RAILROAD ABUTS & RETAINING WALL(DESCR)	L.S.	
610-09.02 to 610-09.03	DRAINAGE SYSTEM RAILROAD ABUTS & RETAINING WALL(DESCR)	L.S.	
610-10.01 to 610-10.03	DRAINAGE SYSTEM RAILROAD - BRIDGE DECK(DESCR)	L.S.	
610-10.04, 610-10.14	DRAINAGE SYSTEM - BRIDGE DECK (DESCRIPTION)	L.S.	

610-10.35 to 610-10.36	MODIFY BRIDGE DECK DRAIN SYSTEM	L.S.	
610-10.40 to 610-10.41	BRIDGE DECK DRAINS	L.S.	
610-10.45 to 610-10.46	DECK DRAINS (DESCRIPTION)	EACH	
610-12.01	HORIZONTAL DRAINS AND CASING	L.F.	Utilized for emergency and CMGC
610-12.02	HORIZONTAL DRAINS	L.F.	Utilized for emergency and CMGC
610-12.03	HORIZONTAL DRAIN OUTLET	EACH	

8-611.00 MANHOLES, CATCHBASINS, INLETS, AND PIPE END WALLS

Item Number	Description	Unit of Measurement	Comment
611-01.01	MANHOLES, 0' - 4' DEPTH	EACH	
611-01.02	MANHOLES, > 4' - 8' DEPTH	EACH	D-MH-2, D-MH-5, D-MH-6, D-MH-7
611-01.03	MANHOLES, > 8' - 12' DEPTH	EACH	D-MH-2, D-MH-5, D-MH-6, D-MH-7
611-01.04	MANHOLES, > 12' - 16' DEPTH	EACH	D-MH-2, D-MH-5, D-MH-6, D-MH-7
611-01.05	MANHOLES, > 16' - 20' DEPTH	EACH	D-MH-2, D-MH-5, D-MH-6, D-MH-7
611-01.06	MANHOLES, > 20' - 24' DEPTH	EACH	D-MH-2, D-MH-5, D-MH-6, D-MH-7
611-01.07	MANHOLES, > 24' - 28' DEPTH	EACH	D-MH-2, D-MH-5, D-MH-6, D-MH-7
611-01.08	MANHOLES, > 28' - 32' DEPTH	EACH	
611-01.10 to 611-01.19	MANHOLES,(__' - __' DEPTH)	EACH	D-MH-2

611-01.20	ADJUSTMENT OF EXISTING MANHOLE	EACH	
611-01.21	REWORK MANHOLE	EACH	
611-01.22	CAPPING EXISTING MANHOLE	EACH	
611-01.23	ADJUSTMENT OF WATER VALVE	EACH	
611-02.01	SPRING DRAIN BOX, TYPE 1	EACH	D-SDS-1
611-02.02	SPRING DRAIN BOX, TYPE 2A	EACH	D-SDS-2A
611-02.03	SPRING DRAIN BOX, TYPE 2B	EACH	D-SDS-2B
611-02.04	SPRING DRAIN BOX, TYPE 3A	EACH	D-SDS-3A
611-02.10	JUNCTION BOX, TYPE 1	EACH	D-JBS-1
611-02.11	JUNCTION BOX, TYPE 2	EACH	D-JBS-2
611-02.12	JUNCTION BOX, TYPE 3	EACH	D-JBS-3
611-02.13	JUNCTION BOX, TYPE 4	EACH	D-JBS-4
611-02.14	JUNCTION BOX, TYPE 5	EACH	D-JBS-5
611-02.15	JUNCTION BOX, TYPE 6	EACH	
611-02.16	JUNCTION BOX (DESCRIPTION)	EACH	
611-02.20 to 611-02.25	SPRING DRAIN BOX(DESCRIPTION)	EACH	
611-03.04	GRAY IRON CASTINGS (CATCHBASIN)	LB	D-CBB-12A,12B, 12D,13,31,42
611-05.01	TRENCH DRAINS	L.F.	MM-SW-2,D-TD-1
611-05.02	12IN PVC PIPE FOR TRENCH DRAINS	L.F.	
611-06.10	BRIDGE END DRAIN (2' X 3')	EACH	
611-06.11	BRIDGE END DRAIN (4' X 3')	EACH	
611-06.12	BRIDGE END DRAIN (6' X 3')	EACH	
611-06.13 to 611-06.15	BRIDGE END DRAIN (SIZE)	EACH	
611-07.01	CLASS A CONCRETE (PIPE ENDWALLS)	C.Y.	D-PE-4;SD-MSE-1
611-07.02	STEEL BAR REINFORCEMENT (PIPE ENDWALLS)	LB.	D-PE-4
611-07.03	STRUCTURAL STEEL (PIPE ENDWALLS)	LB.	
611-07.10	CLEAN DRAIN (TRENCH DRAIN)	L.F.	
611-07.11	CLEAN DRAIN(WITH GRATE)	EACH	
611-07.12	CLEAN DRAIN(WALL DRAIN)	EACH	
611-07.13	PIPE CLEANING (<18IN DIA.)	L.F.	
611-07.14	PIPE CLEANING (>OR=18IN DIA.)	L.F.	
611-07.16	PIPE CLEANING (18IN TO 24IN)	L.F.	
611-07.17	PIPE CLEANING (>24IN TO 36IN)	L.F.	

611-07.18	PIPE CLEANING (>36IN TO 42IN)	L.F.	
611-07.19	PIPE CLEANING (>42IN TO 60IN)	L.F.	
611-07.30	15IN ENDWALL (SIDE DRAIN)	EACH	D-SEW-1A
611-07.31	18IN ENDWALL (SIDE DRAIN)	EACH	D-SEW-1A
611-07.32	24IN ENDWALL (SIDE DRAIN)	EACH	D-SEW-1A
611-07.33	30IN ENDWALL (SIDE DRAIN)	EACH	D-SEW-1A
611-07.34	36IN ENDWALL (SIDE DRAIN)	EACH	D-SEW-1A
611-07.35	42IN ENDWALL (SIDE DRAIN)	EACH	D-SEW-1A
611-07.36	48IN ENDWALL (SIDE DRAIN)	EACH	D-SEW-1A
611-07.51	15IN ENDWALL (CROSS DRAIN) 3:1	EACH	D-PE-15A
611-07.52	15IN ENDWALL (CROSS DRAIN) 4:1	EACH	D-PE-15A
611-07.53	15IN ENDWALL (CROSS DRAIN) 6:1	EACH	D-PE-15A
611-07.54	18IN ENDWALL (CROSS DRAIN) 3:1	EACH	D-PE-18A
611-07.55	18IN ENDWALL (CROSS DRAIN) 4:1	EACH	D-PE-18A
611-07.56	18IN ENDWALL (CROSS DRAIN) 6:1	EACH	D-PE-18A
611-07.57	24IN ENDWALL (CROSS DRAIN) 3:1	EACH	D-PE-24A
611-07.58	24IN ENDWALL (CROSS DRAIN) 4:1	EACH	D-PE-24A
611-07.59	24IN ENDWALL (CROSS DRAIN) 6:1	EACH	D-PE-24A
611-07.60	30IN ENDWALL (CROSS DRAIN) 3:1	EACH	D-PE-30A
611-07.61	30IN ENDWALL (CROSS DRAIN) 4:1	EACH	D-PE-30A
611-07.62	30IN ENDWALL (CROSS DRAIN) 6:1	EACH	D-PE-30A
611-07.63	36IN ENDWALL (CROSS DRAIN) 3:1	EACH	D-PE-36A
611-07.64	36IN ENDWALL (CROSS DRAIN) 4:1	EACH	D-PE-36A
611-07.65	36IN ENDWALL (CROSS DRAIN) 6:1	EACH	D-PE-36A
611-07.66	42IN ENDWALL (CROSS DRAIN) 3:1	EACH	D-PE-42A
611-07.67	42IN ENDWALL (CROSS DRAIN) 4:1	EACH	D-PE-42A
611-07.68	42IN ENDWALL (CROSS DRAIN) 6:1	EACH	D-PE-42A
611-07.69	48IN ENDWALL (CROSS DRAIN) 3:1	EACH	D-PE-48A
611-07.70	48IN ENDWALL (CROSS DRAIN) 4:1	EACH	D-PE-48A
611-07.71	48IN ENDWALL (CROSS DRAIN) 6:1	EACH	D-PE-48A
611-07.72	15IN ENDWALL (MEDIAN DRAIN)	EACH	D-SEW-12D
611-07.73	18IN ENDWALL (MEDIAN DRAIN)	EACH	D-SEW-12D
611-09.01	ADJUSTMENT OF EXISTING CATCHBASIN	EACH	
611-09.02	REWORK CATCHBASIN	EACH	
611-09.03	CAPPING EXISTING CATCHBASIN	EACH	
611-09.04	CATCHBASIN RETROFIT	EACH	
611-10.01	CATCH BASINS, TYPE 10, 0' - 4' DEPTH	EACH	D-CB-10LPC, 10RA, 10S, 10SB

611-10.02	CATCH BASINS, TYPE 10, > 4' - 8' DEPTH	EACH	D-CB-10LPC, 10RA,10S,10 SB
611-10.03	CATCH BASINS, TYPE 10, > 8' - 12' DEPTH	EACH	D-CB-10RA, 10S,10SB
611-10.04	CATCH BASINS, TYPE 10, > 12' - 16' DEPTH	EACH	D-CB-10RA,10S,10 SB
611-10.05	CATCH BASINS, TYPE 10, > 16' - 20' DEPTH	EACH	D-CB-10RA, 10S,10SB
611-10.06	CATCH BASINS, TYPE 10, > 20' - 24' DEPTH	EACH	D-CB-10SB
611-10.07	CATCH BASINS, TYPE 10, > 24' - 28' DEPTH	EACH	D-CB-10SB
611-10.08	CATCH BASINS, TYPE 10, >(' - ' DEPTH)	EACH	
611-12.01	CATCH BASINS, TYPE 12, 0' - 4' DEPTH	EACH	D-CB-12LP, 12P, 12RA, 12RB, 12S, 12SB; D-CB-DI
611-12.02	CATCH BASINS, TYPE 12, > 4' - 8' DEPTH	EACH	D-CB-12LP, 12RA,12RC,12RC, 12S,12SB,12SC, 12SD, 12SE
611-12.03	CATCH BASINS, TYPE 12, > 8' - 12' DEPTH	EACH	D-CB-12P, 12RA,12RB,12RC,12S,12SB,12SC,12SD,12SE
611-12.04	CATCH BASINS, TYPE 12, > 12' - 16' DEPTH	EACH	D-CB-12RA,12RB,12RC,12S,12SB,12SC,12SD,12SE
611-12.05	CATCH BASINS, TYPE 12, > 16' - 20' DEPTH	EACH	D-CB-12RA, 12RB,12RC,12S,12SB,12SC,12SD,12SE
611-12.06	CATCH BASINS, TYPE 12, > 20' - 24' DEPTH	EACH	D-CB-12RB,12RC,12SB,12SC,12SD,12SE
611-12.07	CATCH BASINS, TYPE 12, > 24' - 28' DEPTH	EACH	D-CB-12RB, 12RC, 12SB,

			12SC, 12SD, 12SE
611-12.08	CATCH BASINS, TYPE 12, >(' - ' DEPTH)	EACH	D-CB-12RB, 12RC
611-13.01	CATCH BASINS, TYPE 13, 0' - 4' DEPTH	EACH	D-CB-13P, 13RA,13RB,13S
611-13.02	CATCH BASINS, TYPE 13, > 4' - 8' DEPTH	EACH	D-CB-13P, 13RA,13RB,13RC,13S
611-13.03	CATCH BASINS, TYPE 13, > 8' - 12' DEPTH	EACH	D-CB-13P, 13RA,13RB,13RC,13S
611-13.04	CATCH BASINS, TYPE 13, > 12' - 16' DEPTH	EACH	D-CB-13RA, 13RB,13RC,13S
611-13.05	CATCH BASINS, TYPE 13, > 16' - 20' DEPTH	EACH	D-CB-13RA, 13RB,13RC,13S
611-13.06	CATCH BASINS, TYPE 13, > 20' - 24' DEPTH	EACH	D-CB-13RB, 13RC
611-13.07	CATCH BASINS, TYPE 13, > 24' - 28' DEPTH	EACH	D-CB-13RB, 13RC
611-13.08	CATCH BASINS, TYPE 13, >(' - ' DEPTH)	EACH	D-CB-13RB, 13RC
611-14.01	CATCH BASINS, TYPE 14, 0' - 4' DEPTH	EACH	D-CB-DI
611-14.02	CATCH BASINS, TYPE 14, > 4' - 8' DEPTH	EACH	D-CB-14P, 14RB,14S,14SE
611-14.03	CATCH BASINS, TYPE 14, > 8' - 12' DEPTH	EACH	D-CB-14P, 14RB,14S,14SE
611-14.04	CATCH BASINS, TYPE 14, > 12' - 16' DEPTH	EACH	D-CB-14RB, 14S,14SE
611-14.05	CATCH BASINS, TYPE 14, > 16' - 20' DEPTH	EACH	D-CB-14RB, 14S,14SE
611-14.06	CATCH BASINS, TYPE 14, > 20' - 24' DEPTH	EACH	D-CB-14RB, 14S,14SE
611-14.07	CATCH BASINS, TYPE 14, > 24' - 28' DEPTH	EACH	D-CB-14RB, 14SE
611-14.08	CATCH BASINS, TYPE 14, >(' - ' DEPTH)	EACH	D-CB-14RB
611-16.01	CATCH BASINS, TYPE 16, 0' - 4' DEPTH	EACH	
611-16.02	CATCH BASINS, TYPE 16, > 4' - 8' DEPTH	EACH	D-CB-16S

611-16.03	CATCH BASINS, TYPE 16, > 8' - 12' DEPTH	EACH	D-CB-16S
611-16.04	CATCH BASINS, TYPE 16, > 12' - 16' DEPTH	EACH	D-CB-16S
611-16.05	CATCH BASINS, TYPE 16, > 16' - 20' DEPTH	EACH	D-CB-16S
611-16.08	CATCH BASINS, TYPE 16, >(' - ' DEPTH)	EACH	
611-17.01	CATCH BASINS, TYPE 17, 0' - 4' DEPTH	EACH	
611-17.02	CATCH BASINS, TYPE 17, > 4' - 8' DEPTH	EACH	D-CB-17S
611-17.03	CATCH BASINS, TYPE 17, > 8' - 12' DEPTH	EACH	D-CB-17S
611-17.04	CATCH BASINS, TYPE 17, > 12' - 16' DEPTH	EACH	D-CB-17S
611-17.05	CATCH BASINS, TYPE 17, > 16' - 20' DEPTH	EACH	D-CB-17S
611-17.08	CATCH BASINS, TYPE 17, >(' - ' DEPTH)	EACH	
611-25.01	CATCH BASINS, TYPE 25, 0' - 4' DEPTH	EACH	D-CB-25LP, 25P,25RA,25 RB,25S,25SB
611-25.02	CATCH BASINS, TYPE 25, > 4' - 8' DEPTH	EACH	D-CB-25LP, 25P,25RA,25 RB,25S,25SB ,25SC,25SD, 25SE
611-25.03	CATCH BASINS, TYPE 25, > 8' - 12' DEPTH	EACH	D-CB-25P, 25RA,25RB,2 5S,25SB,25S C,25SD,25SE
611-25.04	CATCH BASINS, TYPE 25, > 12' - 16' DEPTH	EACH	D-CB-25RA, 25RB,25S,25 SB,25SC,25S D,25SE
611-25.05	CATCH BASINS, TYPE 25, > 16' - 20' DEPTH	EACH	D-CB-25RA, 25RB,25S,25 SB,25SC,25S D,25SE
611-25.06	CATCH BASINS, TYPE 25, > 20' - 24' DEPTH	EACH	D-CB-25RB, 25SB,25SD,2 5SE
611-25.07	CATCH BASINS, TYPE 25, > 24' - 28' DEPTH	EACH	D-CB-25RB, 25SB,25SD,2 5SE
611-25.08	CATCH BASINS, TYPE 25, >(' - ' DEPTH)	EACH	D-CB-25RB

611-26.01	CATCH BASINS, TYPE 26, 0' - 4' DEPTH	EACH	
611-26.02	CATCH BASINS, TYPE 26, > 4' - 8' DEPTH	EACH	D-CB-26P, 26S
611-26.03	CATCH BASINS, TYPE 26, > 8' - 12' DEPTH	EACH	D-CB-26S
611-26.04	CATCH BASINS, TYPE 26, > 12' - 16' DEPTH	EACH	D-CB-26S
611-26.05	CATCH BASINS, TYPE 26, > 16' - 20' DEPTH	EACH	D-CB-26S
611-26.08	CATCH BASINS, TYPE 26, >(' - ' DEPTH)	EACH	
611-27.01	CATCH BASINS, TYPE 27, 0' - 4' DEPTH	EACH	
611-27.02	CATCH BASINS, TYPE 27, > 4' - 8' DEPTH	EACH	D-CB-27S
611-27.03	CATCH BASINS, TYPE 27, > 8' - 12' DEPTH	EACH	D-CB-27S
611-27.04	CATCH BASINS, TYPE 27, > 12' - 16' DEPTH	EACH	D-CB-27S
611-27.05	CATCH BASINS, TYPE 27, > 16' - 20' DEPTH	EACH	D-CB-27S
611-27.08	CATCH BASINS, TYPE 27, >(' - ' DEPTH)	EACH	
611-28.01	CATCH BASINS, TYPE 28, 0' - 4' DEPTH	EACH	
611-28.02	CATCH BASINS, TYPE 28, > 4' - 8' DEPTH	EACH	
611-28.03	CATCH BASINS, TYPE 28, > 8' - 12' DEPTH	EACH	
611-28.04	CATCH BASINS, TYPE 28, > 12' - 16' DEPTH	EACH	
611-28.05	CATCH BASINS, TYPE 28, > 16' - 20' DEPTH	EACH	
611-28.06	CATCH BASINS, TYPE 28, > 20' - 24' DEPTH	EACH	
611-28.07	CATCH BASINS, TYPE 28, > 24' - 28' DEPTH	EACH	
611-28.08	CATCH BASINS, TYPE 28, >(' - ' DEPTH)	EACH	
611-29.01	CATCH BASINS, TYPE 29, 0' - 4' DEPTH	EACH	
611-29.02	CATCH BASINS, TYPE 29, > 4' - 8' DEPTH	EACH	
611-29.03	CATCH BASINS, TYPE 29, > 8' - 12' DEPTH	EACH	

611-29.04	CATCH BASINS, TYPE 29, > 12' - 16' DEPTH	EACH	
611-29.05	CATCH BASINS, TYPE 29, > 16' - 20' DEPTH	EACH	
611-29.08	CATCH BASINS, TYPE 29, >(' - ' DEPTH)	EACH	
611-31.01	CATCH BASINS, TYPE 31, 0' - 4' DEPTH	EACH	
611-31.02	CATCH BASINS, TYPE 31, > 4' - 8' DEPTH	EACH	D-CB-31R, 31SD,31SE
611-31.03	CATCH BASINS, TYPE 31, > 8' - 12' DEPTH	EACH	D-CB-31R, 31SD,31SE
611-31.04	CATCH BASINS, TYPE 31, > 12' - 16' DEPTH	EACH	D-CB-31R, 31SD,31SE
611-31.05	CATCH BASINS, TYPE 31, > 16' - 20' DEPTH	EACH	D-CB-31R, 31SD,31SE
611-31.06	CATCH BASINS, TYPE 31, > 20' - 24' DEPTH	EACH	D-CB-31R, 31SD,31SE
611-31.07	CATCH BASINS, TYPE 31, > 24' - 28' DEPTH	EACH	D-CB-31R, 31SD,31SE
611-31.08	CATCH BASINS, TYPE 31, >(' - ' DEPTH)	EACH	D-CB-31R
611-32.01	CATCH BASINS, TYPE 32, > 0' - 4' DEPTH	EACH	D-CB-32LP
611-32.02	CATCH BASINS, TYPE 32, > 4' - 6' DEPTH	EACH	D-CB-32LP
611-38.01	CATCH BASINS, TYPE 38, 0' - 4' DEPTH	EACH	D-CB-38RB, 38S,38SB
611-38.02	CATCH BASINS, TYPE 38, > 4' - 8' DEPTH	EACH	D-CB-38RB, 38S,38SB,38 SC
611-38.03	CATCH BASINS, TYPE 38, > 8' - 12' DEPTH	EACH	D-CB-38RB, 38SB,38SC
611-38.04	CATCH BASINS, TYPE 38, > 12' - 16' DEPTH	EACH	D-CB-38RB, 38SB,38SC
611-38.05	CATCH BASINS, TYPE 38, > 16' - 20' DEPTH	EACH	D-CB-38RB, 38SB,38SC
611-38.06	CATCH BASINS, TYPE 38, > 20' - 24' DEPTH	EACH	D-CB-38RB, 38SB,38SC
611-38.07	CATCH BASINS, TYPE 38, > 24' - 28' DEPTH	EACH	D-CB-38RB, 38SB,38SC
611-38.08	CATCH BASINS, TYPE 38, >(' - ' DEPTH)	EACH	D-CB-38RB
611-39.01	CATCH BASINS, TYPE 39, 0' - 4' DEPTH	EACH	D-CB-39S

611-39.02	CATCH BASINS, TYPE 39, > 4' - 8' DEPTH	EACH	D-CB-39RB, 39S,39SC,39 SD,39SE
611-39.03	CATCH BASINS, TYPE 39, > 8' - 12' DEPTH	EACH	D-CB-39RB, 39S,39SC,39 SD,39SE
611-39.04	CATCH BASINS, TYPE 39, > 12' - 16' DEPTH	EACH	D-CB-39RB, 39S,39SC,39 SD,39SE
611-39.05	CATCH BASINS, TYPE 39, > 16' - 20' DEPTH	EACH	D-CB-39RB, 39S,39SC,39 SD,39SE
611-39.06	CATCH BASINS, TYPE 39, > 20' - 24' DEPTH	EACH	D-CB-39RB, 39S,39SC,39 SD,39SE
611-39.07	CATCH BASINS, TYPE 39, > 24' - 28' DEPTH	EACH	D-CB-39RB, 39S,39SC,39 SD,39SE
611-39.08	CATCH BASINS, TYPE 39, >(' - ' DEPTH)	EACH	D-CB-39RB
611-40.01	CATCH BASINS, TYPE 40, 0' - 4' DEPTH	EACH	D-CB-40S
611-40.02	CATCH BASINS, TYPE 40, > 4' - 8' DEPTH	EACH	D-CB-40S, 40SE
611-40.03	CATCH BASINS, TYPE 40, > 8' - 12' DEPTH	EACH	D-CB-40S, 40SE
611-40.04	CATCH BASINS, TYPE 40, > 12' - 16' DEPTH	EACH	D-CB-40S, 40SE
611-40.05	CATCH BASINS, TYPE 40, > 16' - 20' DEPTH	EACH	D-CB-40S, 40SE
611-40.08	CATCH BASINS, TYPE 40, >(' - ' DEPTH)	EACH	
611-41.01	CATCH BASINS, TYPE 41, 0' - 4' DEPTH	EACH	D-CB-41LP, 41P,41RB,41 S,41SB
611-41.02	CATCH BASINS, TYPE 41, > 4' - 8' DEPTH	EACH	D-CB-41LP, 41P,41RB,41 S,41SB,41SC ,41SD,41SE
611-41.03	CATCH BASINS, TYPE 41, > 8' - 12' DEPTH	EACH	D-CB-41P, 41RB,41S,41 SB,41SC,41S D,41SE
611-41.04	CATCH BASINS, TYPE 41, > 12' - 16' DEPTH	EACH	D-CB-41P, 41RB,41S,41 SB,41SC,41S D,41SE

611-41.05	CATCH BASINS, TYPE 41, > 16' - 20' DEPTH	EACH	D-CB-41P, 41RB,41S,41SB,41SC,41SD,41SE
611-41.06	CATCH BASINS, TYPE 41, > 20' - 24' DEPTH	EACH	D-CB-41RB, 41SB,41SC,41SD,41SE
611-41.07	CATCH BASINS, TYPE 41, > 24' - 28' DEPTH	EACH	D-CB-41RB,41SB,41SC,41SD,41SE
611-41.08	CATCH BASINS, TYPE 41, >(' - ' DEPTH)	EACH	D-CB-41RB
611-42.01	CATCH BASINS, TYPE 42, 0' - 4' DEPTH	EACH	D-CB-42S, 42SB
611-42.02	CATCH BASINS, TYPE 42, > 4' - 8' DEPTH	EACH	D-CB-42S, 42SB,42SC,42SD
611-42.03	CATCH BASINS, TYPE 42, > 8' - 12' DEPTH	EACH	D-CB-42SB, 42SC,42SD
611-42.04	CATCH BASINS, TYPE 42, > 12' - 16' DEPTH	EACH	D-CB-42SB, 42SC,42SD
611-42.05	CATCH BASINS, TYPE 42, > 16' - 20' DEPTH	EACH	D-CB-42SB, 42SC,42SD
611-42.06	CATCH BASINS, TYPE 42, > 20' - 24' DEPTH	EACH	D-CB-42SB, 42SC,42SD
611-42.07	CATCH BASINS, TYPE 42, > 24' - 28' DEPTH	EACH	D-CB-42SB, 42SC,42SD
611-42.08	CATCH BASINS, TYPE 42, >(' - ' DEPTH)	EACH	
611-43.01	CATCH BASINS, TYPE 43, 0' - 4' DEPTH	EACH	D-CB-43SB
611-43.02	CATCH BASINS, TYPE 43, > 4' - 8' DEPTH	EACH	D-CB-43R, 43SB,43SC
611-43.03	CATCH BASINS, TYPE 43, > 8' - 12' DEPTH	EACH	D-CB-43R, 43SB,43SC
611-43.04	CATCH BASINS, TYPE 43, > 12' - 16' DEPTH	EACH	D-CB-43R, 43SB,43SC
611-43.05	CATCH BASINS, TYPE 43, > 16' - 20' DEPTH	EACH	D-CB-43R, 43SB,43SC
611-43.06	CATCH BASINS, TYPE 43, > 20' - 24' DEPTH	EACH	D-CB-43R
611-43.07	CATCH BASINS, TYPE 43, > 24' - 28' DEPTH	EACH	D-CB-43R
611-43.08	CATCH BASINS, TYPE 43, >(' - ' DEPTH)	EACH	D-CB-43R

611-44.01	CATCH BASINS, TYPE 44, 0' - 4' DEPTH	EACH	
611-44.02	CATCH BASINS, TYPE 44, > 4' - 8' DEPTH	EACH	D-CB-44SE
611-44.03	CATCH BASINS, TYPE 44, > 8' - 12' DEPTH	EACH	D-CB-44SE
611-44.04	CATCH BASINS, TYPE 44, > 12' - 16' DEPTH	EACH	D-CB-44SE
611-44.05	CATCH BASINS, TYPE 44, > 16' - 20' DEPTH	EACH	D-CB-44SE
611-44.06	CATCH BASINS, TYPE 44, > 20' - 24' DEPTH	EACH	D-CB-44SE
611-44.07	CATCH BASINS, TYPE 44, > 24' - 28' DEPTH	EACH	D-CB-44SE
611-44.08	CATCH BASINS, TYPE 44, >(' - ' DEPTH)	EACH	
611-45.01	CATCH BASINS, TYPE 45, 0' - 4' DEPTH	EACH	D-CB-45S
611-45.02	CATCH BASINS, TYPE 45, > 4' - 8' DEPTH	EACH	D-CB-45S
611-45.03	CATCH BASINS, TYPE 45, > 8' - 12' DEPTH	EACH	D-CB-45S
611-45.04	CATCH BASINS, TYPE 45, > 12' - 16' DEPTH	EACH	D-CB-45S
611-45.05	CATCH BASINS, TYPE 45, > 16' - 20' DEPTH	EACH	D-CB-45S
611-45.08	CATCH BASINS, TYPE 45, >(' - ' DEPTH)	EACH	
611-46.01	CATCH BASINS, TYPE 46, 0' - 4' DEPTH	EACH	
611-46.02	CATCH BASINS, TYPE 46, > 4' - 8' DEPTH	EACH	D-CB-46SE
611-46.03	CATCH BASINS, TYPE 46, > 8' - 12' DEPTH	EACH	D-CB-46SE
611-46.04	CATCH BASINS, TYPE 46, > 12' - 16' DEPTH	EACH	D-CB-46SE
611-46.05	CATCH BASINS, TYPE 46, > 16' - 20' DEPTH	EACH	D-CB-46SE
611-46.06	CATCH BASINS, TYPE 46, > 20' - 24' DEPTH	EACH	D-CB-46SE
611-46.07	CATCH BASINS, TYPE 46, > 24' - 28' DEPTH	EACH	D-CB-46SE
611-46.08	CATCH BASINS, TYPE 46, >(' - ' DEPTH)	EACH	
611-51.01	CATCH BASINS, TYPE 51, 0' - 4' DEPTH	EACH	

611-51.02	CATCH BASINS, TYPE 51, > 4' - 8' DEPTH	EACH	D-CB-51SC, 51SD,51SE
611-51.03	CATCH BASINS, TYPE 51, > 8' - 12' DEPTH	EACH	D-CB-51SC, 51SD,51SE
611-51.04	CATCH BASINS, TYPE 51, > 12' - 16' DEPTH	EACH	D-CB-51SC, 51SD,51SE
611-51.05	CATCH BASINS, TYPE 51, > 16' - 20' DEPTH	EACH	D-CB-51SC, 51SD,51SE
611-51.06	CATCH BASINS, TYPE 51, > 20' - 24' DEPTH	EACH	D-CB-51SC, 51SD,51SE
611-51.07	CATCH BASINS, TYPE 51, > 24' - 28' DEPTH	EACH	D-CB-51SC, 51SD,51SE
611-51.08	CATCH BASINS, TYPE 51, >(' - ' DEPTH)	EACH	
611-52.02	CATCH BASINS, TYPE 52, > 4FT - 8FT DEPTH	EACH	D-CB-52SE
611-52.03	CATCH BASINS, TYPE 52, > 8FT - 12FT DEPTH	EACH	D-CB-52SE
611-52.04	CATCH BASINS, TYPE 52, > 12FT - 16FT DEPTH	EACH	D-CB-52SE
611-52.05	CATCH BASINS, TYPE 52, > 16FT - 20FT DEPTH	EACH	D-CB-52SE
611-52.06	CATCH BASINS, TYPE 52, > 20FT - 24FT DEPTH	EACH	D-CB-52SE
611-52.07	CATCH BASINS, TYPE 52, > 24FT - 28FT DEPTH	EACH	D-CB-52SE
611-90.01 to 611-90.09	CATCH BASINS, (TYPE __, __' DEPTH)	EACH	

8-611.01 BRIDGE END DRAINS

When bridge end drains are included on a project, the Designer will only have to calculate quantities for drain pipe and end treatment. The Structures Division Standard Drawings STD-1-6 through STD-1-9 show bridge end drain for structures, which have concrete approach slabs and Standard Drawings STD-1-10 through STD-1-13 show bridge end drain for structures without concrete approach slabs. The Designer shall check the preliminary structures layout sheet to see which drawings are included. On some structures, such as those having open bridge railing, bridge end drains will not be used. If there are questions about these drawings or the type of bridge end drain to use, check with the appropriate Structures Division personnel.

The length of the outlet pipe is to be measured from the outside limits of the bridge end drain pipe, which is included in the cost of the bridge drain box (as shown on Standard Drawings STD-1-7 or STD-1-11), down the slope to the end of the outlet pipe. Actual length for payment will come from measurement taken from the appropriate sheet in the Roadway Plans. It shall be paid for as Item No. 610-07.03, 18-inch Pipe Drain (Bridge Drain) per linear foot. The cost of the bridge drain outlet pipe endwall shall be paid for as Item No. 709-01.01, Rubble-Stone Rip-Rap per cubic yard. These pay items in the estimated roadway quantities block shall be footnoted as follows:

“Standard Drawing STD-1-7 (or STD-1-11) is to be used for burial of the outlet pipe and for end treatment details.”

The Designer shall reference only the appropriate Standard Drawing in the above note. Standard Drawing STD-1-7 will be used in the note when the structure has a concrete approach slab. Standard Drawing STD-1-11 will be used in the note when the structure does not have a concrete approach slab.

When bridge end drains are not required, the shoulder shall be paved full width for a distance of 25 feet past the end of the parapet, and rip-rap shall be hand placed around the guardrail for an equal distance.

8-617.00 BRIDGE DECK SEALANT

Item Number	Description	Unit of Measurement	Comment
617-01	BRIDGE DECK SEALANT	S.Y.	
617-02	BRIDGE DECK CRACK SEALING	L.F.	SP604CR
617-03	BRIDGE DECK CRACK SEALING	GAL.	
617-04.01	TYPE 1 THIN EPOXY OVERLAY (EPOXY-URETHANE)	S.Y.	
617-04.02	TYPE 2 THIN EPOXY OVERLAY (LOW-MOD EPOXY)	S.Y.	
617-05	SEALANT (DESCRIPTION)	GAL.	SP604CR

When calculating the quantity of bridge deck sealant, include a two foot transition length beyond each end of the bridge. Do not use sealant on approach pavement.

The following is the procedure for using bridge deck sealant:

1. Bare concrete decks considered sealable shall be sealed using a "sandwich seal", system "A" or "B", as follows:

```
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\     <-- 1.25” (Specified topping on contract plans)
/////////////////////////////////////////     <-- 1” E
==================     <-- System "A" or "B"
/////////////////////////////////////////     <-- 1” E
******************************     <-- Concrete Deck
```

2. Concrete decks with existing asphalt overlays shall be sealed using a "sandwich seal", System "A" or "B".

    a) For State projects the existing asphalt will be sealed as follows:

```
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\   <-- 1.25" (Specified topping on contract plans)
////////////////////////////////////////////   <-- 1" E
==================                             <-- System "A" or "B"
|||||||||||||||||||||                          <-- 403-01 Bituminous Material (Tack Coat)
#####################                          <-- Existing Asphalt
```

Existing asphalt overlays are not to be removed unless the bridge deck has deteriorated to the point that the overlay is unstable.

    b) On State projects, if the deck survey indicates the existing asphalt is too rough to seal, a 1-inch layer of "E" mix will be substituted for the tack coat. Since the membrane must be installed on a uniform surface, leveling ("C" mix), or additional "E" mix may be necessary to bring the deck surface to a true plane.

NOTE: When overlaying existing bridges, the Structures Division will furnish expansion joint adjustment details upon request by the Designer if expansion joints exist.

NOTE: On construction projects where "E" mix is not specified, but "D" mix is specified, "D" mix may be substituted for "E" mix.

NOTE: On construction projects where "C-W" mix is specified in lieu of "D" or "E" mix for surface course, "C-W" mix shall be used as follows:

1. Bottom layer below System "A" or "B" = 1.25 inches thick
2. Top layer above System "A" or "B" = 1.75 inches thick

The bridge deck sealant and the wearing surface over the sealant will continue to be roadway items with the Structures Division furnishing the quantity of deck sealant as part of the bridge design.

Unless otherwise directed, the appropriate pay item for bridge deck sealant is:

Item Number 617-01 Bridge Deck Sealant per square yard

8-621.00 TEMPORARY STRUCTURES

Item Number	Description	Unit of Measurement	Comment
621-01.01 to 621-01.10	TEMPORARY STRUCTURE (DESCRIPTION - STATION)	L.S.	
621-03.01	15" TEMPORARY DRAINAGE PIPE	L.F.	
621-03.02	18" TEMPORARY DRAINAGE PIPE	L.F.	
621-03.03	24" TEMPORARY DRAINAGE PIPE	L.F.	
621-03.04	30" TEMPORARY DRAINAGE PIPE	L.F.	
621-03.05	36" TEMPORARY DRAINAGE PIPE	L.F.	
621-03.06	42" TEMPORARY DRAINAGE PIPE	L.F.	
621-03.07	48" TEMPORARY DRAINAGE PIPE	L.F.	
621-03.08	54" TEMPORARY DRAINAGE PIPE	L.F.	
621-03.09	60" TEMPORARY DRAINAGE PIPE	L.F.	
621-03.10	66" TEMPORARY DRAINAGE PIPE	L.F.	
621-03.11	72" TEMPORARY DRAINAGE PIPE	L.F.	
621-05.01	TEMPORARY SHORING	S.F.	
621-05.02 to 621-05.03	TEMPORARY SHORING	L.S.	

On all construction projects having detours requiring temporary drainage structures, the Designer shall use Item Nos. 621-01.01 through 621-01.10 Temporary Structures (Description-Station) per lump sum, as opposed to using the specific item numbers for each type of structure (pipe, box culvert, etc.). Item Nos. 621-01.01 through 621-01.10 shall be footnoted as follows:

"Quantity is based on minimum calculated length. Actual length required will be determined based on field conditions encountered. The bidder is responsible for verifying estimated lengths prior to submitting their bid. Additional length, if any, required by actual field measurements will be installed at no additional cost. All costs shall be included in the bid price for these items."

This footnote is for Item Nos. 621-01.01 through 621-01.10, which have been identified by the Structures Division or as needed by the design. The above footnote does not apply to any temporary structure used for a channel change or erosion prevention and sediment control.

SECTION 7 – INCIDENTAL CONSTRUCTION AND SERVICES

8-701.00 CEMENT CONCRETE SIDEWALKS, DRIVEWAYS AND MEDIAN PAVEMENT

Item Number	Description	Unit of Measurement	Comment
701-01.01	CONCRETE SIDEWALK (4 ")	S.F.	MM-SW-1; RP-J-26; RP-D-15,16
701-01.02	CONCRETE SIDEWALK (6 ")	S.F.	MM-SW-1; RP-J-26; RP-D-16
701-01.05	CONCRETE SIDEWALK -6IN (DESCRIPTION)	S.F.	
701-01.07	EXPOSED AGGREGATE CONCRETE DRIVEWAY	S.F.	
701-01.08	CONCRETE PAVERS (CROSS-WALK)	S.F.	
701-01.09	ORNAMENTAL CONCRETE (DESCRIPTION)	S.F.	
701-01.10	CONCRETE SIDEWALK (DESCRIPTION)	S.F.	
701-01.20	BRICK SIDEWALK	S.Y.	
701-02	CONCRETE DRIVEWAY	S.F.	RP-D-15
701-02.01	CONCRETE CURB RAMP (RETROFIT)	S.F.	MM-CR-2,3,4,5,6,7,8,9
701-02.02	CONCRETE DRIVEWAY (8")	S.F.	
701-02.03	CONCRETE CURB RAMP	S.F.	MM-CR-1,2,3,4,5,6,7,8,9
701-02.06	DETECTABLE WARNING SURFACE (REHABILITATION)	S.F.	MM-CR-1
701-99.91	RAISED CONCRETE MEDIAN	L.S.	
701-99.92	RAISED GRASS MEDIAN WITH CONCRETE CURB	L.S.	

8-702.00 CEMENT CONCRETE SIDEWALKS, DRIVEWAYS AND MEDIAN PAVEMENT

Item Number	Description	Unit of Measurement	Comment
702-01	CONCRETE CURB	C.Y.	MM-CR-2,3,4,5,6,7,8,9; RP-J-26; RP-SC-1; RP-VC-10,11
702-01.01	EXTRUDED SLOPING CURB	L.F.	RP-SC-1
702-01.02	CONCRETE CURB	L.F.	
702-01.03	MODULAR CURB W/DELINEATOR	L.F.	
702-03	CONCRETE COMBINED CURB & GUTTER	C.Y.	MM-CR-2,3,4,5,6,7,8,9; D-SLD-1; RP-J-26; RP-D-16; RP-SC-1; RP-VC-10,11
702-10.02	WHEEL STOP	EACH	

8-703.00 CEMENT CONCRETE DITCH PAVING

Item Number	Description	Unit of Measurement	Comment
703-01	PORTLAND CEMENT CONCRETE DITCH PAVING	C.Y.	
703-02	CEMENT CONCRETE DITCH PAVING (REINFORCED)	C.Y.	
703-02.05	CEMENT CONCRETE DITCH PAVING (SLOTTED DRAINS)	C.Y.	

8-705.00 GUARDRAIL

Item Number	Description	Unit of Measurement	Comment
705-01.01	ROCK DRILLING GUARDRAIL POST	L.F.	S-GR31-1D

705-02.01	SINGLE GUARDRAIL WITH RUB-RAIL (TYPE 2)	L.F.	S-GRT-1A and 1B
705-02.10	GUARDRAIL TRANSITION 27IN TO 31IN	EACH	S-GRS-4
705-04.02	GUARDRAIL TERMINAL (TYPE 12)	EACH	SP705A; S-GRT-1; S-GRA-1A
705-04.10	EARTH PAD FOR GUARD RAIL END TREATMENT	EACH	S-GRT-2P,2R
705-04.11	STONE FOR GUARDRAIL END TERMINAL PAD	TON	SP705A
705-04.21	GUARDRAIL DELINEATION ENHANCEMENT	L.F.	USED WITH SAFETY UPGRADE AND RESURFACING
705-04.22	GUARDRAIL DELINEATION ENHANCEMENT (BI-DIRECTIONAL)	EACH	USED WITH SAFETY UPGRADE AND RESURFACING
705-04.23	GUARDRAIL DELINEATION ENHANCEMENT (BI-DIRECTIONAL)	L.F.	USED WITH SAFETY UPGRADE AND RESURFACING
705-04.24	GUARDRAIL END TERMINAL DELINEATION SHEETING	S.F.	USED WITH SAFETY UPGRADE AND RESURFACING
705-04.25	GUARDRAIL & BARRIER DELINEATOR	EACH	USED WITH SAFETY UPGRADE AND RESURFACING
705-04.26	REMOVE AND REPLACE BARRIER DELINEATOR	EACH	USED WITH SAFETY UPGRADE AND RESURFACING
705-06.01	W BEAM GR (TYPE 2) MASH TL3	L.F.	S-PL-6; S-GR31-1; S-GR31-1A; S-GRC-6; S-GRS-1,2,3; S-GRT-2,3; S-GRA-5; S-SSMB-6,6C,6F; S-PL-2M
705-06.02	W BEAM GR (TYPE 2) MASH TL3 (LONG POST)	L.F.	S-PL-6; S-SSMB-6E

705-06.09	WEAK-POST GUARDRAIL ATTACHMENT TO CULVERT(MASH TL-3)(TYPE _)	L.F.	S-GRC-5, 5A, AND 5B
705-06.10	GR TERMINALTRAILING END (TYPE 13) MASH TL3	EACH	S-GRA-3; S-PL-2M
705-06.11	GR TERMINAL (IN-INLINE) MASH TL3	EACH	S-GRA-4; S-PL-2M
705-06.15	SHORT-RADIUS GUARDRAIL SYSTEM MASH TL-3 (DESCRIPTION)	EACH	S-GRS-7
705-06.20	TANGENT ENERGY ABSORBING TERM MASH TL-3	EACH	S-PL-3,5; S-GRT-2,2P,2R; S-SSMB-6C,6F; S-PL-2M
705-06.21	TANGENT ENERGY ABSORBING TERM MASH TL-3 (POWDER COATING)	EACH	
705-06.25	THRIE BEAM BRIDGE TRANSITION MASH TL-3	EACH	S-PL-3,5; S-GRT-2,2P,2R, S-SSMB-6B,6C,6E; S-PL-2M
705-06.26	THRIE BEAM BRIDGE TRANSITION MASH TL-2	EACH	S-PL-3,4;S-SSMB-6
705-06.27	THRIE BEAM 38IN VEHICLE & PEDESTRIAN SAFETY RAIL MASH TL-3	L.F.	MM-VPR-1
705-06.30	GR TERMINAL (ENERGY ABSORBING) MASH TL2	EACH	S-PL-3; S-GR31-1; S-GRC-6; S-GRT-2P,2R,3; S-SSMB-6; S-PL-2M
705-06.40	CABLE BARRIER (MASH TL-3)	L.F.	S-CB-1
705-06.41	CABLE BARRIER ANCHOR (MASH TL-3)	EACH	S-CB-1
705-06.50	CABLE BARRIER (MASH TL-4)	L.F.	
705-06.51	CABLE BARRIER ANCHOR (MASH TL-4)	EACH	
705-08.13	PERMANENT IMPACT ATTENUATOR NCHRP350 TL-3	EACH	
705-10.33	GUARDRAIL ATTACHMENT TO STEEL BRIDGERAIL	L.F.	
705-10.39	GUARDRAIL BRIDGERAIL ATTACHED TO BRIDGERAIL POST	L.F.	
705-11.21	W BEAM GR (TYPE 2) MASH TL-3 (POWDER COATED)	L.F.	SP909A

705-11.22	W BEAM GR (TYPE 2) MASH TL-3 (LONG POST)(POWDER COATED)		
705-11.29	WEAK-POST GR ATTACHMENT TO CULVERT(MASH TL-3) (TYPE _)(POWDER COATED)	L.F.	S-GRC-5, 5A, AND 5B
705-11.30	GR TERMINAL TRAILING END (TYPE 13) MASH TL-3 (POWDER COATED)	EACH	SP909A
705-11.31	GR TERMINAL (TYPE IN LINE) MASH TL-3 (POWDER COATED)	EACH	SP909A
705-11.41	TANGENT ENERGY ABSORBING TERM MASH TL-3 (POWDER COATING)	EACH	SP909A
705-20.20	LOW MAINT CRASH CUSHN NARROW (MASH TL-3)	EACH	
705-20.21	LOW MAINT CRASH CUSHION WIDE (MASH TL-3)	EACH	S-CC-1, USE INSTEAD OF 705-08.10 OR 8
705-20.22	REUSABLE CRSH CUSHION NARW (MASH TL-3)	EACH	S-CC-1, USE INSTEAD OF 705-08.10 OR 9
705-20.23	REUSABLE CRASH CUSHION WIDE (MASH TL-3)	EACH	S-CC-1, USE INSTEAD OF 705-08.10
705-20.24	GATING CRASH CUSHION (MASH TL-3)	EACH	USE INSTEAD OF 705-08.10 OR 11
705-80.24	CONCRETE MONOLITHIC BLOCK FOR CABLE END TERMINAL FOUNDATION	EACH	

8-706.00 GUARDRAIL REMOVED

Item Number	Description	Unit of Measurement	Comment
706-01	GUARDRAIL REMOVED	L.F.	ALWAYS ADD WHEN GUARDRAIL WILL BE REMOVED

8-707.00 FENCES

Item Number	Description	Unit of Measurement	Comment

707-01.01	CHAIN-LINK FENCE (4-FOOT)	L.F.	S-F-10B; MM-BPR-1
707-01.02	END & CORNER POST ASSEMBLY (CHAIN-LINK FENCE 4')	EACH	S-F-10B; MM-BPR-1
707-01.03	GATE - CHAIN-LINK FENCE-4 FOOT (DESCRIPTION)	EACH	S-F-10B
707-01.04	GATE - CHAIN-LINK FENCE-4 FOOT (DESCRIPTION)	EACH	S-F-10B; MM-BPR-1
707-01.11	CHAIN LINK FENCE (6 FOOT)	L.F.	S-F-10B
707-01.12	END & CORNER POST ASSEMBLY (CHAIN-LINK FENCE 6')	EACH	S-F-10B
707-01.13 to 707-01.14	GATE - CHAIN-LINK FENCE-6 FOOT (DESCRIPTION)	EACH	S-F-10B
707-01.28	END & CORNER POST ASSEMBLY (DESCRIPTION)	EACH	
707-01.50	CHAIN-LINK FENCE (__ FOOT)	L.F.	
707-01.51	END & CORNER POST ASSEMBLY (CHAIN-LINK FENCE __')	EACH	
707-01.52 to 707-01.53	GATE - CHAIN-LINK FENCE (__ FOOT - DESCRIPTION)	EACH	S-F-10B
707-02.01	CHAIN-LINK FENCE (4') (VINYL COATED)	L.F.	
707-02.02	END & CORNER POST ASSEMBLIES (4' VINYL COATED)	EACH	
707-02.03 to 707-02.04	GATE - CHAIN-LINK FENCE-4',VINYL COATED (DESCRIPTION)	EACH	
707-02.11	CHAIN-LINK FENCE (6 FOOT) (VINYL COATED)	L.F.	
707-02.12	END & CORNER POST ASSEMBLIES (6' VINYL COATED)	EACH	
707-02.13 to 707-02.14	GATE - CHAIN-LINK FENCE-6',VINYL COATED (DESCRIPTION)	EACH	
707-02.41	ROCK ANCHOR, TYPE I	EACH	SP707D, SP707E
707-02.42	ROCK ANCHOR, TYPE II	EACH	SP707D, SP707E
707-02.43	ROCK ANCHOR, TYPE I	L.F.	SP707D, SP707E
707-02.44	ROCK ANCHOR, TYPE II	L.F.	SP707D, SP707E
707-03.01	STOCK FENCE	L.F.	S-F-10; S-F-10A
707-03.02	END, BRACED LINE, CORNER POST ASSEMBLY (STOCK FENCE)	EACH	S-F-10; S-F-10A
707-03.03 to 707-03.04	STOCK FENCE GATE (DESCRIPTION)	EACH	
707-03.08	TEMPORARY STOCK FENCE	L.F.	

707-03.20	DRIVE GATE (STOCK FENCE) (DESCRIPTION)	EACH	S-FG-11
707-04	WATER CROSSING	L.F.	S-FG-20
707-04.01 to 707-04.02	WATER CROSSING(DESCRIPTION)	L.F.	
707-05	WATER GATE	S.F.	S-FG-20
707-06.01	REMOVAL OF FENCE (DESCRIPTION)	L.F.	
707-06.02	REMOVAL OF GATE (DESCRIPTION)	EACH	
707-06.03	REMOVAL AND RESET FENCE (DESCRIPTION)	L.F.	
707-06.04	REMOVAL AND RESET GATE (DESCRIPTION)	EACH	
707-06.05	REMOVAL OF FENCE (DESCRIPTION)	L.S.	
707-07.01	CHAIN-LINK FENCE (BRIDGES)	S.F.	
707-08.01	FENCE (DESCRIPTION)	L.F.	S-F-1
707-08.02	GATE (DESCRIPTION)	EACH	
707-08.11	HIGH-VISIBILITY CONSTRUCTION FENCE	L.F.	
707-10.01	ROCKFALL FENCE (TYPE I)	L.F.	SP707H
707-10.02	ROCKFALL FENCE (TYPE II)	L.F.	SP707H
707-10.03	ROCKFALL FENCE (TYPE III)	L.F.	SP707H
707-10.04	ROCKFALL FENCE (TYPE IV)	L.F.	SP707H
707-10.05	ROCKFALL DRAPE (TYPE I)	S.Y.	SP707D, SP707E
707-10.06	ROCKFALL DRAPE (TYPE II)	S.Y.	SP707D, SP707E
707-10.07	ROCKFALL DRAPE (TYPE III)	S.Y.	SP707D, SP707E
707-10.08	WIRE MESH (DESCRIPTION)	S.Y.	SP707H; SD-MSE-1
707-10.21	ROCKFALL DRAPE TYPE IV (A)	S.Y.	SP707D, SP707E
707-10.22	ROCKFALL DRAPE TYPE IV (B)	S.Y.	SP707D
707-10.30	ROCKFALL FENCE (PORTABLE-TEMPORARY)		
707-11.01	PEDESTRIAN CONSTRUCTION BARRIER FENCE	L.F.	T-WZ-55
707-15.55	REMOVAL & SITE PREPARATION (STOCK FENCE)	L.F.	

On projects where right-of-way stock fence is required use standard drawing S-F-10. Standard drawing S-F-10C is approved for use on right-of-way fence for bridge and culverts and S-F-10D is approved for use on right-of-way fence locations at interchanges.

8-708.00 MONUMENTS AND MARKERS

Item Number	Description	Unit of Measurement	Comment
708-01.01	MONUMENTS (DESCRIPTION)	EACH	
708-02.01	MARKERS (CONCRETE R.O.W. POSTS)	EACH	
708-02.02	MARKERS (DESCRIPTIONS)	EACH	
708-02.03	HISTORICAL MARKER – MOVE AND RESET	EACH	
708-02.04	(DESCRIPTION) MOVE AND RESET	EACH	

8-709.00 RIP-RAP AND SLOPE PAVEMENT

Item Number	Description	Unit of Measurement	Comment
709-01.01	RUBBLE STONE RIP-RAP	C.Y.	
709-01.02	RUBBLE STONE RIP-RAP	TON	
709-02.01	RUBBLE STONE RIP-RAP (GROUTED)	C.Y.	
709-03	CONCRETE BLOCK RIP-RAP	C.Y.	
709-03.01 to 709-03.02	RUBBLE STONE(DESCRIPTION)	C.Y.	
709-04	REINFORCED CONCRETE SLOPE PAVEMENT	C.Y.	
709-05.04	MACHINED RIP-RAP (3" TO 6")	C.Y.	EC-STR-25
709-05.05	MACHINED RIP-RAP (CLASS A-3)	TON	EC-STR-13,21,25,27,29,31,32,33; SD-MSE-1
709-05.06	MACHINED RIP-RAP (CLASS A-1)	TON	
709-05.07	MACHINED RIP-RAP (CLASS A-2)	TON	EC-STR-12,21,32,33
709-05.08	MACHINED RIP-RAP (CLASS B)	TON	EC-STR-21,32,33
709-05.09	MACHINED RIP-RAP (CLASS C)	TON	NOTE 1, RDG 9-150.00
709-05.10	MACHINED RIP-RAP (DESCRIPTION)	C.Y.	NOTE 1, RDG 9-150.00

709-05.11	MACHINED RIP-RAP (DESCRIPTION)	C.Y.	
709-05.12 to 709-05.13	MACHINED RIP-RAP (DESCRIPTION)	TON	
709-05.81	ROCK RIFFLES	L.S.	
709-10.01 to 709-10.05	GABIONS (DESCRIPTION)	C.Y.	
709-99.99	ROUND RIVER STONE RIP-RAP (SIZE)	C.Y.	

8-709.01 RIP-RAP

For estimating purposes, multiply cubic yards by 1.75 to convert to tons.

Machined Rip-Rap (Class A-1, A-2, A-3, B, and C) will be measured by the ton (1.75 Tons/C.Y.) as designed and completed in place (unless revised by the sequence of construction, which may require reconstruction and re-measurement.)

Computed Quantity (C.Y.) x 1.75 Tons/C.Y. = Total (Tons)

Classifications of machined rip-rap and their pay item nos. are as follows:

709-05.05 Machined Rip-Rap (Class A-3)
709-05.06 Machined Rip-Rap (Class A-1)
709-05.07 Machined Rip-Rap (Class A-2)
709-05.08 Machined Rip-Rap (Class B)
709-05.09 Machined Rip-Rap (Class C)

These classifications are detailed in Subsection 709.03 of the Standard Specifications.

If a gradation of machined rip-rap other than these is required, use Item No. 709-05.10 through 709-05.13, Machined Rip-Rap (Description), and use the notes in *Section 9-150.00, Rip-Rap.*

All machined rip-rap quantities are to be shown in the estimated roadway quantities block. Those quantities supplied by the Structures Division shall be added to any roadway quantities for the same item number, and they shall be footnoted. Footnote each structure separately identifying all quantities and the structures with which they are used.

8-710.00 UNDERDRAINS

Item Number	Description	Unit of Measurement	Comment
710-02	AGGREGATE UNDERDRAINS (WITH PIPE)	L.F.	RD-UD-3; MM-SW-2
710-04	FILTER CLOTH UNDERDRAIN (WITH PIPE)	L.F.	RD-UD-3; MM-SW-2
710-05	LATERAL UNDERDRAIN	L.F.	RD-UD-4; MM-SW-2
710-06.10	LATERAL UNDERDRAIN ENDWALL (1:1)	EACH	RD-UD-6
710-06.11	LATERAL UNDERDRAIN ENDWALL (2:1)	EACH	RD-UD-6
710-06.12	LATERAL UNDERDRAIN ENDWALL (3:1)	EACH	RD-UD-7
710-06.13	LATERAL UNDERDRAIN ENDWALL (4:1)	EACH	RD-UD-7
710-06.14	LATERAL UNDERDRAIN ENDWALL (5:1)	EACH	RD-UD-8
710-06.15	LATERAL UNDERDRAIN ENDWALL (6:1)	EACH	RD-UD-9
710-09.01	6" PERFORATED PIPE WITH VERTICAL DRAIN SYSTEM	L.F.	
710-09.02	6" PIPE UNDERDRAIN	L.F.	
710-09.06	6" PERFORATED PIPE WITH STONE	L.F.	
710-09.07	6" PERFORATED PLASTIC PIPE (FRENCH DRAIN)	L.F.	
710-10.01	4" PERFORATED PLASTIC PIPE	L.F.	
710-10.02	6" PERFORATED PLASTIC PIPE	L.F.	
710-10.03	8" PERFORATED PLASTIC PIPE	L.F.	
710-10.04	10" PERFORATED PLASTIC PIPE	L.F.	
710-10.05	12" PERFORATED PLASTIC PIPE	L.F.	
710-10.06	14" PERFORATED PLASTIC PIPE	L.F.	
710-10.07	16" PERFORATED PLASTIC PIPE	L.F.	
710-10.08	18" PERFORATED PLASTIC PIPE	L.F.	
710-10.09	24" PERFORATED PLASTIC PIPE	L.F.	
710-13.03	FILTER CLOTH	S.Y.	

The Designer will use underdrains, with or without filter cloth, as detailed on Standard Drawings RD-UD-3 and RD-UD-4, on all new paving projects and rehabilitation projects as directed by the Pavement Design Section.

The Designer will need only to show the underdrain on the roadway typical section and refer to it as "Detail____" using the proper detail identification letter shown on Standard Drawing RD-UD-3.

8-711.00 CONCRETE MEDIAN BARRIER

Item Number	Description	Unit of Measurement	Comment
711-01.08	MEDIAN BARRIER EMERGENCY ACCESS GATE	EACH	
711-02.01	REINFORCED CONCRETE BARRIER (BRIDGE PIER PROTECTION)	L.F.	
711-02.03	REINFORCED CONCRETE MEDIAN BARRIER (BRIDGES)	L.F.	
711-02.04 to 711-02.06	REINFORCED CONCRETE MEDIAN BARRIER (DESCRIPTION)	L.F.	
711-04.21	CONCRETE BARRIER DELINEATION ENHANCEMENT	L.F.	QPL
711-04.23	CONCRETE BARRIER DELINEATION ENHANCEMENT (BI-DIRECTIONAL)	L.F.	QPL
711-05.01	REMOVAL & DISPOSAL OF CONCRETE MEDIAN BARRIER	L.F.	
711-05.69	36IN SINGLE SLOPE CONCRETE BARRIER WALL	L.F.	S-SSMB-1A
711-05.70	32IN SINGLE SLOPE CONCRETE BARRIER WALL	L.F.	MM-BPR-2; S-SSMB-1
711-05.71	51IN SINGLE SLOPE CONCRETE BARRIER WALL	L.F.	S-PL-4; S-SSMB-2
711-05.72	SINGLE SLOPE HALF CONCRETE BARRIER WALL	L.F.	S-SSMB-3
711-05.77	FLARED S/S CONCRETE MEDIAN BARRIER WALL	L.F.	S-SSMB-4
711-05.78	GRADE SEPARATED SINGE SLOPE MEDIAN WALL	L.F.	
711-05.81	32IN HALF SIZE SINGLE SLOPE CONCRETE BARRIER WALL	L.F.	MM-BPR-3
711-05.82	32IN HALF SIZE SINGLE SLOPE CONC BARRIER SLOPED END TREATMNT	L.F.	MM-BPR-3

8-712.00 TEMPORARY TRAFFIC CONTROL

Item Number	Description	Unit of Measurement	Comment
712-01	TRAFFIC CONTROL	L.S.	T-WZ-33, T-WZ-34; RDG NOTES 17,18, RDG 9-135.03

712-01.02	LANE CLOSURE	EACH	MAINTENANCE USE
712-01.03	LANE CLOSURE(NIGHT WORK)	EACH	MAINTENANCE USE
712-01.04	TRAFFIC CONTROL SUPERVISOR	L.S.	SP712B
712-01.05	FLAGMAN	HOUR	CONSTRUCTION USE – BY CHANGE ORDER
712-01.50	MAINTENANCE OF TRAFFIC	EACH	MAINTENANCE USE
712-01.51	PORTABLE BARRIER RAIL DELINEATOR (DOUBLE)	EACH	
712-01.52 to 712-01.56	MAINTENANCE OF TRAFFIC ( )	EACH	MAINTENANCE USE
712-02.02	INTERCONNECTED PORTABLE BARRIER RAIL	L.F.	T-WZ-PBR1
712-02.10	PORTABLE BARRIER RAIL (MASH TL-3)	L.F.	T-WZ-PCB1, T-WZ-PCB2, T-WZ-PCB3, T-WZ-PCB4
712-02.12	PORTABLE BARRIER RAIL, REDUCED DEFLECTION (MASH TL-3)	L.F.	T-WZ-PCB1, T-WZ-PCB2, T-WZ-PCB2A, T-WZ-PCB3, T-WZ-PCB4
712-02.36	REMOVE AND RELOCATE PORTABLE BARRIER RAIL	L.F.	
712-02.45	INTERCONNECTED PORTABLE BARRIER RAIL(TO REMAIN)	L.F.	
712-02.47	BRIDGE MOUNTED INTERCONNECTED PORTABLE BARRIER RAIL	L.F.	
712-02.60	TEMPORARY WORK ZONE CRASH CUSHION (MASH TL-3)	EACH	T-WZ-11, T-WZ-12, T-WZ-14, T-WZ-16, T-WZ-18, T-WZ-19
712-04.01	FLEXIBLE DRUMS (CHANNELIZING)	EACH	T-WZ-11, T-WZ-12, T-WZ-13,

			T-WZ-14, T-WZ-15, T-WZ-16, T-WZ-18, T-WZ-19, T-WZ-21
712-04.10	TEMPORARY FLEXIBLE TUBULAR DELINEATOR	EACH	
712-04.50	BARRIER RAIL DELINEATOR	EACH	T-WZ-11, T-WZ-12, T-WZ-14, T-WZ-16, T-WZ-18, T-WZ-19, T-WZ-32, T-WZ-PBR2
712-05.01	WARNING LIGHTS (TYPE A)	EACH	
712-05.03	WARNING LIGHTS (TYPE C)	EACH	
712-06	SIGNS (CONSTRUCTION)	SF	T-WZ-30, T-WZ-31, T-WZ-34, T-WZ-50, T-WZ-51, T-WZ-52, T-WZ-53, T-WZ-54
712-06.16	SIGNS (CONSTRUCTION) (REDUCED SPEED WARNING)	EACH	T-WZ-60
712-07.01	TEMPORARY BARRICADES (TYPE I)	L.F.	
712-07.02	TEMPORARY BARRICADES (TYPE II)	L.F.	
712-07.03	TEMPORARY BARRICADES (TYPE III)	L.F.	
712-08.01	UNIFORMED POLICE OFFICER	DOLL	MAY BE REQUESTED AT CFR
712-08.03	ARROW BOARD (TYPE C)	EACH	T-WZ-11, T-WZ-12, T-WZ-13, T-WZ-14, T-WZ-15, T-WZ-18, T-WZ-19, T-WZ-21, T-WZ-FAB-1

712-08.07	PORTABLE SPEED MONITOR UNIT	EACH	BY TRAFFIC REQUEST
712-08.08	SPEED FEEDBACK SIGN ASSEMBLY	EACH	SP712SFS, MAY BE ADDED BY TRAFFIC OPERATIONS REQUEST
712-08.09	DIGITAL SPEED LIMIT SIGN ASSEMBLY	EACH	SP712DSL, MAY BE ADDED BY TRAFFIC OPERATIONS REQUEST
712-08.10	MOBILE MESSAGE SIGN UNIT W/ATTENUATOR	HOUR	
712-08.12	QUEUE PROTECTION TRUCK	DAY	SP712PTQ
712-08.13	QUEUE PROTECTION TRUCK (EMERGENCY CALL OUT)	DAY	
712-08.14	PORTABLE QUEUE WARNING SYSTEM	DAY	SP712PQWS
712-08.20	TRUCK MOUNTED ATTENUATOR W/MSSAGE BOARD	DAY	
712-09.02	REMOVABLE PAVEMENT MARKING (8" BARRIER LINE)	L.F.	T-WZ-11, T-WZ-12, T-WZ-13, T-WZ-14, T-WZ-15, T-WZ-18, T-WZ-19, T-WZ-21 T-WZ-32; NOTE 17, RDG 9-135.03
712-09.03	REMOVABLE PAVEMENT MARKING (CHANNELIZING STRIPING)	S.Y.	
712-09.04	REMOVABLE PAVEMENT MARKING (STOP LINE)	L.F.	T-WZ-32
712-09.05	REMOVABLE PAVEMENT MARKING (ARROW)	EACH	
712-09.07	REMOVABLE PAVEMENT MARKING (STOP AHEAD)	EACH	

712-09.08	REMOVABLE PAVEMENT MARKING (6" LINE)	L.F.	T-WZ-16, T-WZ-32; NOTE 17, RDG 9-135.03
712-09.09	REMOVABLE PAVEMENT MARKING (4" LINE)	L.F.	NOTE 17, RDG 9-135.03
712-09.20	TEMPORARY PLASTIC PAVEMENT MARKING (NOISE STRIP)	L.F.	
712-09.21	REMOVABLE WET REFLECTIVE PAVEMENT MARKING TAPE	L.F.	
712-09.30	REMOVABLE BLACK-OUT TAPE (6")	L.F.	
712-09.31	REMOVABLE BLACK-OUT TAPE (8IN)	L.F.	
712-09.33	MODIFY EXISTING OVERHEAD SIGNS	EACH	
712-10.01	TEMPORARY PORTABLE RUMBLE STRIPS	EACH	
712-10.02	TEMPORARY TRANSVERSE RUMBLE STRIPS	L.F.	T-WZ-56
712-12.10	TEMPORARY CURB W/FLEXIBLE DELINEATOR	L.F.	
712-12.47	BRIDGE MOUNTED INTERCONNECTED PORTABLE BARRIER RAIL	L.F.	

- The TDOT Standard Specifications for Road and Bridge Construction specifies that “The lump sum payment for Traffic Control is full compensation for providing Temporary Work Zone Lighting and all equipment, labor and materials, and for furnishing flaggers and traffic cones, and for removing conflicting and incorrect pavement markings, as required, until Project Completion”.

- Removable Pavement Marking (Line) will be measured by the linear foot of installed line.

8-713.00 SIGNS

Item Number	Description	Unit of Measurement	Comment
713-01.01	CLASS A CONCRETE (FOUNDATION FOR SIGN SUPPORTS)	C.Y.	

713-01.02	STEEL BAR REINFORCEMENT (FOUNDATION FOR SIGN SUPPORTS)	LB	
713-02.04	DELINEATOR (MILE MARKER) & STEEL POST	EACH	
713-02.11	REMOVAL OF EXISTING DELINEATORS	EACH	
713-02.14	FLEXIBLE DELINEATOR (WHITE)	EACH	T-WZ-16, T-WZ-PBR2
713-02.15	FLEXIBLE DELINEATOR (YELLOW)	EACH	T-WZ-PBR2
713-02.16	FLEXIBLE TYPE II OBJECT MARKER	EACH	T-WZ-PBR2
713-02.26 TO 713-02.27	CONCRETE BARRIER PARAPET DELINEATOR	EACH	
713-02.30	FLEXIBLE TUBULAR DELINEATOR	EACH	T-WZ-PBR2
713-02.33	FLEXIBLE TUBULAR DELINEATOR (RED)	EACH	T-WZ-PBR2
713-04.02	STEEL I-BEAMS & W-F BEAMS FOR SIGN SUPPORTS	LB	
713-05	STEEL HOLLOW SQUARE POST (BREAKAWAY) SIGN SUPPORTS	LB	
713-06	STEEL I-BEAMS & WF-BEAMS (BREAKAWY) SIGN SUPPORT	EACH	
713-09.01 TO 713-09.42	STEEL OVERHEAD SIGN STRUCTURE (SPAN __)	EACH	
713-10.01 TO 713-10.19	STEEL CANTILEVER SIGN STRUCTURE (SIGN NO)	EACH	
713-11.01	“U” SECTION STEEL POSTS	LB	
713-11.02	PERFORATED/KNOCKOUT SQUARE TUBE POST	LB	
713-11.03	2 ½” DIA ROUND STEEL TUBE SIGN POST	LB	
713-11.04	SURFACE MNT BREAKAWAY BASE FOR SIGN POST	EACH	
713-11.05	SQUARE TUBE SIGN SUPPORT	LB	
713-11.21	P POST SLIP BASE	EACH	

713-11.22	U POST SLIP BASE	EACH	
713-11.23	ROUND POST SLIP BASE	EACH	
713-13.01 TO 713-13.04	FLAT SHEET ALUMINUM SIGN (__" THICK)	S.F.	
713-14	EXTRUDED ALUMINUM PANEL SIGNS	S.F.	
713-15	REMOVAL OF SIGNS, POSTS AND FOOTINGS	L.S.	
713-15.02	REMOVAL & RELOCATION OF SIGN & SUPPORT	L.S.	
713-15.35	METAL BARRICADE (TYPE III)	EACH	T-WZ-19
713-16.01 and 713-16.04	CHANGEABLE MESSAGE SIGN UNIT	EACH	T-WZ-15, T-WZ-21
713-16.05	RAILROAD CROSS-BUCK SIGN & SUPPORT	EACH	
713-16.06	DEAD END SIGN AND SUPPORT	EACH	
713-16.09	RAILROAD ADVANCE WARNING SIGN AND SUPPORT	EACH	
713-16.20 TO 713-16.39	SIGNS (DESCRIPTION)	EACH	
713-16.50	REMOVE AND REPLACE SIGN (DESCRIPTION)	EACH	
713-17.60 TO 713-17.64	SIGN MOUNTED ON CONCRETE MEDIAN BARRIER (_____)	EACH	
713-30.05	BARRIER MOUNTED SQUARE TUBE SIGN SUPPORT	EACH	T-S-21
713-30.08	BARRIER MOUNTED PERFORATED/KNOCKOUT SIGN SUPPORT	EACH	T-S-21
713-30.09	BARRIER MOUNTED SIGN SUPPORT	EACH	T-S-21
713-30.10	BARRIER MOUNTED SIGN SUPPORT (PERF/KNOCKOUT)	EACH	T-S-21

8-714.00 ROADWAY AND STRUCTURE LIGHTING

The quantities for these items should come from the Traffic Operations Division – Signals and Lighting Section.

If the inclusion of construction items are required and the project includes any traffic signal work, notify the Manager of Traffic Operations Division, Signals and Lighting section in order to avoid possible duplication of construction items.

8-715.00 ASPHALTIC CONCRETE CURB (HOT MIX)

The quantities for these items should come from the Traffic Operations Division – Signals and Lighting Section.

8-716.00 PAVEMENT MARKINGS

Item Number	Description	Unit of Measurement	Comment
716-01.05	TEMPORARY RAISED PAVEMENT MARKER	EACH	
716-01.06	TEMPORARY RAISED PAVEMENT MARKER, WHITE	EACH	
716-01.07	TEMPORARY RAISED PAVEMENT MARKER, YELLOW	EACH	
716-01.11	RAISED PVMT MARKER (BI-DIRECTIONAL) (1 COLOR LENS)	EACH	T-WZ-16
716-01.12	RAISED PVMT MARKER (MONO-DIRECTIONAL) (1 COLOR LENS)	EACH	
716-01.13	RAISED PVMT MARKER (BI-DIRECTIONAL) (2 COLOR LENS)	EACH	
716-01.14	RAISED PAVEMENT MARKER REMOVAL	EACH	
716-01.21	SNOWPLOWABLE RAISED PAVEMENT MARKERS (BI-DIR) (1 COLOR)	EACH	T-M-1, T-M-2
716-01.22	SNOWPLOWABLE RAISED PAVEMENT MARKERS (MONO-DIR) (1 COLOR)	EACH	T-M-1, T-M-2
716-01.23	SNOWPLOWABLE RAISED PAVEMENT MARKERS (BI-DIR) (2 COLOR)	EACH	T-M-2, T-M-5, T-M-6, T-M-7, T-M-8
716-01.30	REMOVAL OF SNOWPLOWABLE REFLECTIVE MARKER	EACH	
716-01.40	REMOVE AND REPLACE LENS ON SNOWPLOWABLE REFLECTIVE MARKER	EACH	

716-02.03	PLASTIC PAVEMENT MARKING (CROSS-WALK)	L.F.	T-M-4
716-02.04	PLASTIC PAVEMENT MARKING (CHANNELIZATION STRIPING)	S.Y.	T-M-3
716-02.05	PLASTIC PAVEMENT MARKING (STOP LINE)	L.F.	T-M-4
716-02.06	PLASTIC PAVEMENT MARKING (TURN LANE ARROW)	EACH	T-M-4
716-02.07	PLASTIC PAVEMENT MARKING (24” BARRIER LINE)	L.F.	T-M-3, T-M-7, T-M-8
716-02.08	PLASTIC PAVEMENT MARKING (8” DOTTED LINE)	L.F.	T-M-4, RDG 2-508.00
716-02.09	PLASTIC PAVEMENT MARKING (LONGITUDINAL CROSS-WALK)	L.F.	T-M-4, RDG 2-508.00
716-02.11	PLASTIC PAVEMENT MARKING (6” DOTTED LINE)	L.F.	
716-02.12	PLASTIC PAVMENT MARKING (8 IN LINE)	L.M.	
716-02.15	PLASTIC PAVEMENT MARKING (U TURN ARROW)	EACH	
716-02.22	PLASTIC AERIAL SPEED BARS	L.F.	
716-02.23	PLASTIC PAVEMENT MARKING (12 IN BARRIER LINE)	L.F.	
716-02.24	PLASTIC PAVEMENT MARKING (12 IN DWL)	L.F.	
716-02.30	RETRACING PAVEMENT MARKINGS-PLASTIC (4” LINE)	L.M.	
716-02.31	RETRACING PAVEMENT MARKINGS-PLASTIC (8” BARRIER LINE)	L.F.	
716-02.32	RETRACING PAVEMENT MARKINGS-PLASTIC (6” LINE)	L.M.	
716-02.33	RETRACING PAVEMENT MARKINGS-PLASTIC (DOTTED LINE)	L.F.	
716-03.01	PLASTIC WORD PAVEMENT MARKING (ONLY)	EACH	T-M-4

716-03.02	PLASTIC WORD PAVEMENT MARKING (RXR)	EACH	
716-03.03	PLASTIC WORD PAVEMENT MARKING (STOP AHEAD)	EACH	
716-03.04	PLASTIC WORD PAVEMENT MARKING (SCHOOL)	EACH	
716-03.05	PLASTIC WORD PAVEMENT MARKING (BIKE LANE)	EACH	
716-03.06	PLASTIC WORD PAVEMENT MARKING (SIGNAL AHEAD)	EACH	
716-03.07	PLASTIC WORD PAVEMENT MARKING (STOP)	EACH	
716-03.08	PLASTIC WORD PAVEMENT MARKING (PED XING)	EACH	
716-03.09 TO 716-03.11	PLASTIC WORD PAVEMENT MARKING (DESCRIPTION)	EACH	
716-03.12	PLASTIC PVMT MARKING (DESCRIPTION)	EACH	
716-03.13	PLASTIC PVMT MARKING (NO TRUCKS THIS LANE)	EACH	
716-04.01	PLASTIC PAVEMENT MARKING (STRAIGHT-TURN ARROW)	EACH	T-M-6
716-04.02	PLASTIC PAVEMENT MARKING (DOUBLE TURNING ARROW)	EACH	
716-04.03	PLASTIC PAVEMENT MARKING (4” DOTTED LINE)	L.F.	
716-04.04	PLASTIC PAVEMENT MARKING (TRANSVERSE SHOULDER)	L.F.	T-M-3, T-M-7, T-M-8
716-04.05	PLASTIC PAVEMENT MARKING (STRAIGHT ARROW)	EACH	T-M-6
716-04.06	PLASTIC PAVEMENT MARKING (WRONG WAY ARROW)	EACH	T-M-9
716-04.07	PLASTIC PAVEMENT MARKING (EXIT ONLY ARROW)	EACH	T-M-6
716-04.08	PLASTIC PAVEMENT MARKING (OPTION LANE ARROW)	EACH	
716-04.09	PLASTIC PAVEMENT MARKING (H.O.V. DIAMOND)	EACH	T-M-5

716-04.10	PLASTIC PAVEMENT MARKING (HANDICAP SYMBOL)	EACH	
716-04.11	PLASTIC PAVEMENT MARKING (BICYCLE SYMBOL W/ RIDER)	EACH	
716-04.12	PLASTIC PAVEMENT MARKING (YIELD LINE)	S.Y.	
716-04.13	PLASTIC PAVEMENT MARKING (BIKELANE SYMBOL & ARROW)	EACH	
716-04.14	PLASTIC PAVEMENT MARKING (LANE REDUCTION ARROW)	EACH	T-M-2, T-M-5
716-04.15	PLASTIC PAVEMENT MARKING (BIKE SYMBOL/ARROW SHARED)	EACH	
716-04.16	PLASTIC PAVEMENT MARKING (NOISE STRIP)	L.F.	
716-04.17	PLASTIC PAVEMENT MARKING (YIELD SYMBOL)	EACH	
716-04.18	PLASTIC PAVEMENT MARKING (BIKE/XING)	EACH	
716-04.21	GREEN TEXTURED BIKE LANE	S.Y.	
716-04.23	PLASTIC PAVEMENT MARKING (FISH-HOOKS WITH 1 ARROW)	EACH	
716-04.24	PLASTIC PAVEMENT MARKING (FISH-HOOKS WITH 2 ARROWS)	EACH	
716-04.25	PLASTIC PAVEMENT MARKING (FISH-HOOKS WITH 3 ARROWS)	EACH	
716-05.01	PAINTED PAVEMENT MARKING (4” LINE)	L.M.	T-RR-1
716-05.02	PAINTED PAVEMENT MARKING (8” BARRIER LINE)	L.F.	T-WZ-11, T-WZ-12, T-WZ-13, T-WZ-14, T-WZ-15, T-WZ-18, T-WZ-19
716-05.03	PAINTED PAVEMENT MARKING (CROSS-WALK)	L.F.	T-M-4
716-05.04	PAINTED PAVEMENT MARKING (CHANNELIZATION STRIPING)	S.Y.	
716-05.05	PAINTED PAVEMENT MARKING (STOP LINE)	L.F.	MM-PM-1

716-05.06	PAINTED PAVEMENT MARKING (TURN LANE ARROW)	EACH	
716-05.07	PAINTED PAVEMENT MARKING (24” BARRIER LINE)	L.F.	
716-05.08	PAINTED PAVEMENT MARKING (PARKING LINE)	L.F.	
716-05.09	PAINTED PAVEMENT MARKING (STRAIGHT-TURN ARROW)	EACH	
716-05.10	PAINTED PAVEMENT MARKING (RXR)	EACH	MM-PM-1
716-05.11	PAINTED PAVEMENT MARKING (STRAIGHT ARROW)	EACH	
716-05.12	PAINTED PAVEMENT MARKING (CONTRAST 6” LINE)	L.M.	
716-05.13	PAINTED PAVEMENT MARKING (CONTRAST 8” LINE)	L.M.	
716-05.20	PAINTED PAVEMENT MARKING (6” LINE)	L.M.	
716-05.21	PAINTED PAVEMENT MARKING (4” DOTTED LINE)	L.F.	
716-05.22	PAINTED PAVEMENT MARKING (LONGITUDINAL CROSS-WALK)	L.F.	T-M-4
716-05.49	PAINTED PAVEMENT MARKINGS (8” LINE)	L.M.	
716-05.50	PAINTED PAVEMENT MARKINGS (8” LINE)	L.F.	
716-05.51	PAINTED PAVEMENT MARKINGS (12” LINE)	L.F.	
716-05.52	PAINTED PAVEMENT MARKING (AREA)	S.F.	
716-06.01	PAINTED WORD PAVEMENT MARK ( )	EACH	
716-08.01	REMOVAL OF PAVEMENT MARKING (LINE)	L.F.	PAID WHEN REMOVAL IS REQUIRED PRIOR TO BEGINNING OF WORK (EG. INTERSECTION IMPROVEMENTS)

716-08.02	REMOVAL OF PAVEMENT MARKING (8” BARRIER LINE)	L.F.	PAID WHEN REMOVAL IS REQUIRED PRIOR TO BEGINNING OF WORK (EG. INTERSECTION IMPROVEMENTS)
716-08.03	REMOVAL OF PAVEMENT MARKING (CROSS-WALK)	L.F.	PAID WHEN REMOVAL IS REQUIRED PRIOR TO BEGINNING OF WORK (EG. INTERSECTION IMPROVEMENTS)
716-08.04	REMOVAL OF PAVEMENT MARKING (CHANNELIZATION STRIPING)	S.Y	PAID WHEN REMOVAL IS REQUIRED PRIOR TO BEGINNING OF WORK (EG. INTERSECTION IMPROVEMENTS)
716-08.05	REMOVAL OF PAVEMENT MARKING (STOP LINE)	L.F.	PAID WHEN REMOVAL IS REQUIRED PRIOR TO BEGINNING OF WORK (EG. INTERSECTION IMPROVEMENTS)
716-08.06	REMOVAL OF PAVEMENT MARKING (TURN LANE ARROW)	EACH	PAID WHEN REMOVAL IS REQUIRED PRIOR TO BEGINNING OF WORK (EG. INTERSECTION IMPROVEMENTS)
716-08.07	REMOVAL OF PAVEMENT MARKING (STRAIGHT-TURN ARROW)	EACH	PAID WHEN REMOVAL IS REQUIRED PRIOR TO BEGINNING OF WORK (EG. INTERSECTION IMPROVEMENTS)
716-08.08	REMOVAL OF PAVEMENT MARKING (DOUBLE TURNING ARROW)	EACH	PAID WHEN REMOVAL IS REQUIRED PRIOR TO

			BEGINNING OF WORK (EG. INTERSECTION IMPROVEMENTS)
716-08.09	REMOVAL OF PAVEMENT MARKING (DOTTED LINE)	L.F.	PAID WHEN REMOVAL IS REQUIRED PRIOR TO BEGINNING OF WORK (EG. INTERSECTION IMPROVEMENTS)
716-08.10	REMOVAL OF PAVEMENT MARKING (TRANSVERSE SHOULDER)	L.F.	PAID WHEN REMOVAL IS REQUIRED PRIOR TO BEGINNING OF WORK (EG. INTERSECTION IMPROVEMENTS)
716-08.11 THRU 716-08.17	REMOVAL OF PAVEMENT MARKING (DESCRIPTION)	EACH	PAID WHEN REMOVAL IS REQUIRED PRIOR TO BEGINNING OF WORK (EG. INTERSECTION IMPROVEMENTS)
716-08.18	REMOVAL OF PAVEMENT MARKING (WRONG WAY ARROW)	EACH	PAID WHEN REMOVAL IS REQUIRED PRIOR TO BEGINNING OF WORK (EG. INTERSECTION IMPROVEMENTS)
716-08.19	REMOVAL OF PAVEMENT MARKING (YIELD LINE)	S.Y.	PAID WHEN REMOVAL IS REQUIRED PRIOR TO BEGINNING OF WORK (EG. INTERSECTION IMPROVEMENTS)
716-08.20	REMOVAL OF PAVEMENT MARKING (LINE)	L.M.	PAID WHEN REMOVAL IS REQUIRED PRIOR TO BEGINNING OF WORK (EG.

			INTERSECTION IMPROVEMENTS)
716-08.21	REMOVAL OF PAVEMENT MARKING (24 IN BARRIER LINE)	L.F.	PAID WHEN REMOVAL IS REQUIRED PRIOR TO BEGINNING OF WORK (EG. INTERSECTION IMPROVEMENTS)
716-08.22	REMOVAL OF PAVEMENT MARKING (NOISE STRIP)	L.F.	PAID WHEN REMOVAL IS REQUIRED PRIOR TO BEGINNING OF WORK (EG. INTERSECTION IMPROVEMENTS)
716-08.30	HYDROBLAST REMOVAL OF PAVEMENT MARKING (LINE)	L.M.	USED BY CONSTRUCTION REQUEST
716-08.31	HYDROBLAST REMOVAL OF PAVEMENT MARKING (DESCRIPTION)	L.M.	USED BY CONSTRUCTION REQUEST
716-08.32	HYDROBLAST REMOVAL OF PAVEMENT MARKING (DESCRIPTION)	L.F.	USED BY CONSTRUCTION REQUEST
716-08.33	HYDROBLAST REMOVAL OF PAVEMENT MARKING (DESCRIPTION)	EACH	USED BY CONSTRUCTION REQUEST
716-08.34	HYDROBLAST REMOVAL OF PAVEMENT MARKING (DESCRIPTION)	S.Y.	USED BY CONSTRUCTION REQUEST
716-09.02	WET REFLECT. PVMT MARKING (8” BARRIER LINE)	L.F.	USED BY CONSTRUCTION REQUEST
716-09.03	WET REFLECTIVE PAVEMENTT MARKING (6” LINE)	L.M.	USED BY CONSTRUCTION REQUEST
716-09.30	WET REFLECTIVE CHANNELIZATION STRIPING	S.Y.	USED BY CONSTRUCTION REQUEST
716-09.32	EXIT ONLY ARROW	EACH	

716-09.33	6 INCH DOTTED LINE	L.F.	
716-09.72	WET REFLECTIVE PAVEMENT MARKING (4” LINE)	L.M.	
716-09.85	CONTRAST PAVEMENT MARKING 4”	L.M.	
716-09.86	CONTRAST PAVEMENT MARKING 6”	L.M.	SP716CPM
716-09.87	CONTRAST PAVEMENT WORDS AND SYMBOLS	EACH	SP716CPM
716-09.88	CONTRAST PAVEMENT MARKING 8”	L.M.	SP716CPM
716-09.89	CONTRAST PAVEMENT MARKING 12”	L.F.	SP716CPM
716-09.90	CONTRAST PAVEMENT MARKING 6” DOTTED	L.F.	SP716CPM
716-09.94	CONTRAST PAVEMENT SHADOW MARKING 6”	L.M.	SP716CPM
716-09.95	CONTRAST PAVEMENT SHADOW MARKING 8”	L.M.	SP716CPM
716-10.07	PREFORMED PLASTIC PAVEMENT MARKING (STOP LINE)	L.F.	
716-10.50	PREFORMED PLASTIC PAVEMENT MARKING (INTERSTATE SHIELD)	EACH	
716-10.51	PREFRMED PLSTC PVMNT MRKNG (STATE SHLD)	EACH	
716-10.52	PREFRMED PLSTC PVMNT MRKNG (US SHLD)	EACH	
716-12.01	ENHANCED FLATLINE THERMO PVMT MRKNG (4 IN LINE)	L.M.	FOR LOCAL USE
716-12.02	ENHANCED FLATLINE THERMO PVMT MRKNG (6 IN LINE)	L.M.	T-M-5, T-M-16A
716-12.03	ENHANCED FLATLINE THERMO PVMT MRKNG (8 IN BARRIER LINE)	L.F.	
716-12.04	ENHANCED FLATLINE THERMO PVMT MRKNG (4 IN DOTTED LINE)	L.F.	

716-12.05	ENHANCED FLATLINE THERMO PVMT MRKNG (6 IN DOTTED LINE)	L.F.	T-M-5
716-12.06	ENHANCED FLAT LINE THERMO (8 IN LINE)	L.F.	
716-12.07	ENHANCED FLAT LINE THERMO (8 IN BROKEN LINE)	L.F.	
716-12.08	ENHANCED FLAT LINE THERMO (12 IN BARRIER LINE)	L.F.	
716-12.09	ENHANCED FLAT LINE THERMO (12 IN LINE)	L.F.	T-M-5
716-12.10	ENHANCED FLAT LINE THERMO (12 IN DOTTED)	L.F.	T-M-5
716-14.01	PROFILED THERMO PVMT MRKNG AUDIBLE (4 IN)	L.M.	SP716PTA
716-14.02	PROFILED THERMO PVMT MRKNG AUDIBLE (6 IN)	L.M.	T-M-16, T-M-16A, SP716PTA
716-40.01	POLYUREA PAVEMENT MARKING (6 IN LINE)	L.M.	
716-40.02	POLYUREA PAVEMENT MARKINGS-WORDS-SYMBOLS	EACH	
716-40.03	POLYUREA PAVEMENT MARKING (STOP BAR)	L.F.	
716-40.41	GROOVING FOR RECESSED PAVEMENT MARKING (DOTTED LINE)	L.F.	
716-40.42	GROOVING FOR RECESSED PAVEMENT MARKING (SOLID)	L.M.	

A. 716-02.04, Plastic Pavement Marking (Channelization Striping) - Sq. Yd.

The unit of payment is per square yard of striping material applied including the boundary lines of the channelized area. This is applicable for 8 inch wide border lines only. All other border lines (edge lines and double yellow centerline) are paid for under their respective pay items and measured by the linear foot. This is used on medians, pavement transitions, obstruction approaches and traffic islands with areas greater than 400 Sq. ft.

Note that the unit of payment for Item No. 716-08.04, Removal of Pavement Marking (Channelization Striping), has been changed from per linear foot to per square yard of striping material removed.

B. 716-02.07, Plastic Pavement Marking (24" Barrier Line) - Linear Feet

The unit of payment is per linear foot of boundary line (with no diagonal marking used).

For all channelization markings detailed on Standard Drawing T-M-3, the following pay items and methods of measurement shall be used:

A. 716-04.04, Plastic Pavement Marking (Transverse Shoulder) - Linear Feet

The unit of payment is per linear foot of diagonal marking.

8-717.00 MOBILIZATION OF FORCES, SUPPLIES AND EQUIPMENT

Item Number	Description	Unit of Measurement	Comment
717-01	MOBILIZATION	L.S.	
717-01.04 TO 717-01.10	MOBILIZATION (DESCRIPTION)	EACH	
717-01.11 TO 717-01.12	MOBILIZATION (DESCRIPTION)	L.S.	
717-10.01	INVOLUNTARY WORK SUSPENSION (DESCRIPTION)	DAY	SP107AQ

8-718.00 NOISE BARRIER

Item Number	Description	Unit of Measurement	Comment
718-01.01 to 718-01.18	NOISE BARRIER (DESCRIPTION)	S.F.	
718-01.45	BOAT RAMP / PARKING AREA	L.S.	
718-01.50	RELOCATED KEY STONE WALL	L.F.	
718-02	NOISE BARRIER SAFETY WALL	L.F.	

718-02.75	NOISE BARRIER SAFETY WALL (EPOXY STEEL)	L.F.	

8-721.00 LANDSCAPING

Item Number	Description	Unit of Measurement	Comment
721-01.01	BENCH	EACH	
721-01.02	TRASH RECEPTACLE	EACH	

8-722.00 FIELD OFFICE

Item Number	Description	Unit of Measurement	Comment
722-01.01	FIELD OFFICE (TYPE 1)	L.S.	
722-01.02	FIELD OFFICE (TYPE 2)	L.S.	

During the Plan-in-Hand Field Review, the Operations representative will let the Designer know if a field office is to be added to the project.

8-730.00 TRAFFIC SIGNALS

Information concerning traffic signals can be found within the Traffic Operations Division, Signal and Lighting Design Section of TDOT.

8-730.01 REPLACEMENT OF TRAFFIC SIGNAL DETECTION LOOPS

Item Number	Description	Unit of Measurement	Comment
730-14.02	SAW SLOT	L.F.	
730-14.03	LOOP WIRE	L.F.	

When there are existing traffic signals on a cold planning project, contact shall be made with the City or County to determine the presence and location of detection loops. If loops are

present, and there is no way to avoid them in the cold planning process, then add Item Nos. 730-14.02, Saw Slot, and 730-14.03, Loop Wire, to the plans.

The Designer will obtain as-built plans from the maintaining agency to utilize for quantity calculations. These plans shall then be forwarded to the Regional Construction Office for submission to the contractor at the Pre-Construction Conference.

Roadway Standard Drawings T-SG-2 and T-SG-3 shall be included.

The Designer shall be aware that other pavement rehabilitation and resurfacing projects may affect the detection loops, in which case procedures described above will be required. Another type of project is the resealing of concrete pavement joints when a signal is controlling interstate ramp terminals with a local street.

The quantities for these items should come from the Traffic Operations Division – Signals and Lighting Section with the exception of Temporary Traffic Signal Systems.

8-730.02 TEMPORARY TRAFFIC SIGNAL SYSTEMS USED AT TWO-LANE BRIDGE RECONSTRUCTION SITES

When using Item No. 730-40 Temporary Traffic Signal System per each to provide traffic control for one-lane alternating flow at two-lane bridge reconstruction sites, see Standard Drawing Nos. T-WZ-32, T-WZ-33, T-WZ-34, and T-WZ-35 for details and general notes.

8-740.00 GEOSYNTHETICS

Item Number	Description	Unit of Measurement	Comment
740-06.01	GEOMEMBRANE	S.Y.	SP740D
740-07.01	GEO GRID REINFORCEMENT	S.Y.	
740-07.02	GEOGRID REINFORCEMENT (SOIL SLOPES)	S.Y.	SP205RSS
740-07.03	GEOGRID REINFORCEMENT TYPE 1	S.Y.	
740-07.04	GEOGRID REINFORCEMENT TYPE 2	S.Y.	
740-07.05	GEOGRID REINFORCEMENT TYPE 3	S.Y.	
740-07.06	GEOGRID REINFORCEMENT TYPE 4	S.Y.	
740-08.01	CELLULAR CONFINEMENT SYSTEM (DESCRIPTION)	S.Y.	
740-08.02 to 740.08.03	CELLULAR CONFINEMENT SYSTEM (DESCRIPTION)	S.Y.	

740-10.01	GEOTEXTILE(TYPE I) (SUBSURFACE DRAINAGE)	S.Y.	
740-10.02	GEOTEXTILE (TYPE II)(SEDIMENT CONTROL)	S.Y.	
740-10.03	GEOTEXTILE (TYPE III)(EROSION CONTROL)	S.Y.	EC-STR-2,11,11A,12,13,17,21,25,31,32,59; D-PB-1,2; D-NSD-13; D-NSD-32A
740-10.04	GEOTEXTILE (TYPE IV)(STABILIZATION)	S.Y.	EC-STR-12
740-10.05	GEOTEXTILE - TYPE V (DESCRIPTION)	S.Y.	
740-10.06	GEOTEXTILE TUBE	L.F.	Not Commonly Used
740-11.01	TEMPORARY SEDIMENT TUBE 8IN	L.F.	EC-STR-37
740-11.02	TEMPORARY SEDIMENT TUBE 12IN	L.F.	EC-STR-37
740-11.03	TEMPORARY SEDIMENT TUBE 18IN	L.F.	EC-STR-37
740-11.04	TEMPORARY SEDIMENT TUBE 20IN	L.F.	EC-STR-37
740-11.05	TEMPORARY SEDIMENT TUBE 24IN	L.F.	EC-STR-37
740-11.06	TEMPORARY SEDIMENT TUBE CHECK DAM	EACH	

SECTION 8 – ROADSIDE DEVELOPMENT

8-801.00 SEEDING

Item Number	Description	Unit of Measurement	Comment
801-01	SEEDING (WITH MULCH)	UNIT	NOTES 1, 4 RDG 9-105.00
801-01.02	CROWN VETCH MIXTURE (WITH MULCH)	UNIT	
801-01.04	SEEDING (WILDFLOWER MIXTURE)	UNIT	
801-01.06	SEEDING (SPECIAL MIXTURE)	UNIT	
801-01.07	TEMPORARY SEEDING (WITH MULCH)	UNIT	EC-STR-13,17
801-01.08	SEEDING (SPECIAL MIXTURE) WITH MULCH	UNIT	
801-01.10	SEEDING (WITH BONDED FIBER MATRIX)	UNIT	
801-01.16	BONDED FIBER MATRIX HYDROMULCH (W/PERMANENT SEED)	UNIT	
801-01.30	COVER CROP SEED MIX (RIPZN/FLPL) W/MULCH	UNIT	
801-01.34	GRASS SEED MIX (RIPZN/FLPL)	UNIT	
801-01.35	GRASS SEED MIX (RIPZN/FLPL) W/MULCH	UNIT	
801-01.36	SPECIAL WETLAND SEED MIXTURE	UNIT	
801-01.40	HYDRAULIC EROSION CONTROL PRODUCT (HECP) TYPE 1	UNIT	DRAINAGE MANUAL CHAPTER 10
801-01.41	HYDRAULIC EROSION CONTROL PRODUCT (HECP) TYPE 2	UNIT	DRAINAGE MANUAL CHAPTER 10
801-01.42	HYDRAULIC EROSION CONTROL PRODUCT (HECP) TYPE 3	UNIT	DRAINAGE MANUAL CHAPTER 10

801-01.43	HYDRAULIC EROSION CONTROL PRODUCT (HECP) TYPE 4	UNIT	DRAINAGE MANUAL CHAPTER 10
801-01.44	HYDRAULIC EROSION CONTROL PRODUCT (HECP) TYPE 5	UNIT	DRAINAGE MANUAL CHAPTER 10
801-01.65	TEMPORARY MULCH	UNIT	
801-02	SEEDING (WITHOUT MULCH)	UNIT	EC-STR-34,36; NOTE 5, RDG 9-105.00
801-02.01	CROWN VETCH MIXTURE (WITHOUT MULCH)	UNIT	EC-STR-34,36
801-02.08	TEMPORARY SEEDING (WITHOUT MULCH)	UNIT	EC-STR-34,36
801-02.15	FERTILIZER	TON	
801-03	WATER (SEEDING & SODDING)	M.G.	
801-06.11	STRAW WATTLES (SIZE)	L.F.	
801-07	SEED (SUPPLEMENTAL APPLICATION)	LB	
801-07.01	CROWN VETCH SEED (SUPPLEMENTAL APPLICATION)	LB	
801-08	FERTILIZER (SUPPLEMENTAL APPLICATION)	TON	
801-09	AGRICULTURAL LIME	TON	

8-801.01 SEEDING (WITH MULCH)

Method for computation of seeding on right-of-way.

$$\frac{\text{Area to be seeded (Sq. ft.)}}{\text{1,000 Sq. ft./ unit}} \times 1.25 = \_\_\_\_\_\text{units}$$

Item No. 801-01
and/or
Item No. 801-01.02

Method for computation of seeding on waste areas and borrow pits outside right-of-way.

$$\frac{\text{Excess material to be wasted (C.Y.)}}{\text{500 C.Y./ unit}} = \_\_\_\_\_\text{units}$$

Item No.801-01
and/or
Item No. 801-01.02

$$\frac{\text{Borrow material (C.Y.)}}{\text{500 C.Y./ unit}} = \_\_\_\_\_\text{units}$$

Item No. 801-01
and/or
Item No. 801-01.02

Note: The cost of fertilizer and lime used in initial seed bed preparation is to be included in the cost of seeding. See Section 801 of TDOT Standard Specifications for Road and Bridge Construction.

8-801.02 CROWN VETCH MIXTURE (WITH MULCH)

Item Number	Description	Unit of Measurement	Comment
801-01.02	CROWN VETCH MIXTURE (WITH MULCH)	UNIT	

Item No. 801-01.02 Crown Vetch Mixture (with Mulch) per unit shall be used on slopes 3:1 or steeper and other areas that are inaccessible for mowing.

Crown vetch mixture shall be used, unless otherwise directed on the Plan-in-Hand Field Review, in all areas of Tennessee except Region IV.

On any project requiring crown vetch, the following note shall be put in the general notes with the parentheses being replaced by the proper item.

Item No. 801-01.02, Crown Vetch Mixture (with mulch) shall be used on slopes 3H:1V or steeper and other areas, as indicated in the plans, that are inaccessible for mowing.

Note: The cost of fertilizer and lime used in initial seed bed preparation is to be included in the cost of seeding. See Section 801 of TDOT Standard Specifications for Road and Bridge Construction.

8-801.03 TEMPORARY SEEDING (WITH MULCH)

Item Number	Description	Unit of Measurement	Comment
801-01.07	TEMPORARY SEEDING (WITH MULCH)	UNIT	EC-STR-13,17
801-02	SEEDING (WITHOUT MULCH)	UNIT	EC-STR-34,36; NOTE 5, RDG 9-105.00

The use of Temporary Seeding (with Mulch) is strongly recommended on projects.

Temporary seeding (with mulch) and seeding (without mulch) will be measured by the Unit (1,000 Sq. Ft.) as designed and completed in place, unless revised by the sequence of construction, in which case complete replacement and re-measurement may be required.

Note: The cost of fertilizer and lime used in initial seed bed preparation is to be included in the cost of seeding. See Section 801 of TDOT Standard Specifications for Road and Bridge Construction.

$$\frac{\text{Total area of seeding (Sq. ft.)} \times \text{number of effective phases of the sequence of construction}}{\text{1,000 (Sq. ft.)/unit}} = \text{Total seeding (UNITS)}$$

Exceptional locations where the slopes are flatter than 3H:1V, but where crown vetch is requested on the Plan-in-Hand Field Review, shall be outlined on the proposed layout sheet in a manner similar to *Figure 8-8*.

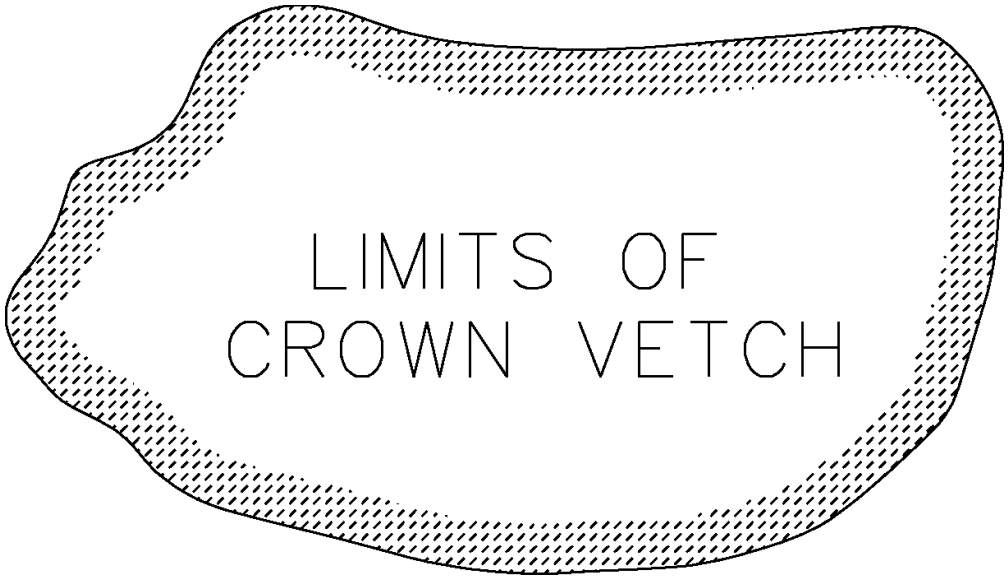

Figure 8-8
Typical Limits of Crown Vetch

8-801.04 WATER (SEEDING AND SODDING)

Item Number	Description	Unit of Measurement	Comment
801-03	WATER (SEEDING & SODDING)	M.G.	

Water for seeding, sodding, crown vetch mixture or sprigging (crown vetch):

Water will be measured by the thousand gallons (M.G.) as designed and completed in place, unless revised by the sequence of construction, in which case complete replacement and re-measurement may be required.

Seeding (all areas):

$$\frac{\text{Surface area (Sq.ft.)} \times 0.1 \text{ M.G./unit}}{1{,}000 \text{ Sq.ft./unit}} = \_\_\_\_\_ \text{M.G.}$$ **Item 801-03**

Total seeding (units) × 0.1 M.G./ unit = Total Water (M.G.)

The Designer shall **footnote** pay item as follows:

"Includes _____ thousand gallons for erosion prevention and sediment control."

Sodding:

$$\frac{\text{Surface area (Sq.Yd.)} \times \text{10 Gal./Sq.Yd.}}{\text{1,000 Gal./M.G.}} = \_\_\_\_\_\text{M.G.}$$ **Item 801-03**

8-801.05 SEEDING (SUPPLEMENTAL APPLICATION)

Item Number	Description	Unit of Measurement	Comment
801-07	SEED (SUPPLEMENTAL APPLICATION)	LB.	10 LB MINIMUM
801-07.01	CROWN VETCH SEED (SUPPLEMENTAL APPLICATION)	LB.	

Units of **801-01** (Seeding (with Mulch)) × 1.5 Lb/Unit × 1.15 =_____Lbs. **Item 801-07**

Units of **801-01.02** (Crown Vetch Mixture (with Mulch)) × 1.5 Lb/Unit × 1.15 = _____Lbs. **Item 801-07.01**

Note: For larger projects with significant amount of disturbed area, include Item No. 801-07 and/or Item No. 801-07.01 when using item no. 801-01 and/or 801-01.02.

8-801.06 FERTILIZER (SUPPLEMENTAL APPLICATION)

Item Number	Description	Unit of Measurement	Comment
801-08	Fertilizer (Supplemental Application)	TON	1 TON MINIMUM

1 Ton Minimum Quantity

Units of 801-01 and/or 801-01.02 x $\frac{23 \text{ Lbs./Unit}}{2{,}000 \text{ Lb./ Ton}}$ x 1.15 =_____Ton **Item 801-08**

For larger projects with significant amount of disturbed area, include Item No. 801-08 and/or when using Item No. 801-01 and/or 801-01.02.

Note: The cost of any necessary lime to be used in conjunction with supplemental fertilizer is to be included in the cost of the supplemental fertilizer. See Section 801 of TDOT Standard Specifications for Road and Bridge Construction.

8-802.00 LANDSCAPE PLANTING

Item Number	Description	Unit of Measurement	Comment
802-01.07	TREES (LIQUIDAMBER STYRACIFLUA) (1.5 - 2" CAL. B&B)	EACH	
802-01.08	TREES (PLATANUS OCCIDENTALIS) (1.5 - 2"CAL. B&B)	EACH	
802-01.10 TO 802-01.50	TREES (DESCRIPTION)	EACH	
802-02.01 TO 802-02.11	SEEDLINGS (DESCRIPTION)	EACH	
802-02.30	CUTTINGS: SALIX NIGRA (18IN-24IN LENGTH)	EACH	
802-02.31	CUTTINGS: SALIX SERICEA (18IN-24IN)	EACH	

802-02.32	CUTTINGS: CORNUS AMOMUM (18IN-24IN)	EACH	
802-02.33	CUTTINGS: SAMBUCUS CANADENSIS (18IN-24IN)	EACH	
802-02.34	CUTTINGS: SALIX INTERIOR (18IN-24IN)	EACH	
802-02.35	CUTTINGS: CEPHALANTHUS OCCIDENTALIS (18IN-24IN)	EACH	
802-02.36	CUTTINGS: CORNUS SERICEA (18IN-24IN)	EACH	
802-02.37	CUTTINGS: ALNUS SERRULATA (18IN-24IN)	EACH	
802-02.38	CUTTINGS: PLATANUS OCCIDENTALIS (18IN-24IN)	EACH	
802-02.39	CUTTINGS: POPULUS DELTOIDES (18IN-24IN)	EACH	
802-02.40	CUTTINGS: SALIX NIGRA (24-48IN LENGTH)	EACH	D-NSD-34
802-02.41	CUTTINGS: SALIX SERICEA (24-48IN)	EACH	D-NSD-34
802-02.42	CUTTINGS: CORNUS AMOMUM (24-48IN)	EACH	D-NSD-34
802-02.43	CUTTINGS: SAMBUCUS CANADENSIS (24-48IN)	EACH	D-NSD-34
802-02.44	CUTTINGS: SALIX INTERIOR (24-48IN)	EACH	D-NSD-34
802-02.45	CUTTINGS: CEPHALANTHUS OCCIDENTALIS (24-48IN)	EACH	D-NSD-34
802-02.46	CUTTINGS: CORNUS SERICEA (24-48IN)	EACH	D-NSD-34
802-02.47	CUTTINGS: ALNUS SERRULATA (24-48IN)	EACH	D-NSD-34
802-03.01 TO 802-03.21	SHRUBS (DESCRIPTION)	EACH	
802-04.01 TO 802-04.21	GROUND COVER (DESCRIPTION)	S.Y.	
802-04.70-04.95	GROUND COVER (DESCRIPTION)	EACH	
802-07.01 – 802-07.09	FLOWER (DESCRIPTION OF GROUPS)	EACH	
802-11.01	ACER NEGUNDO (BOX ELDER 2-5FT CNTNR GRWN)	EACH	
802-11.02	ACER RUBRUM (RED MAPLE 2-5FT CNTNR GRWN)	EACH	

802-11.03	ACER SACCHARINUM (SILVER MAPLE 2-5FT CNTNR GRWN)	EACH	
802-11.04	ACER SACCHARUM (SUGAR MAPLE 2-5FT CNTNR GRWN)	EACH	
802-11.05	AESCULUS GLABRA (OHIO BUCKEYE 2-5FT CNTNR GRWN)	EACH	
802-11.06	ASIMINA TRILOBA (PAWPAW 2-5FT CNTNR GRWN)	EACH	
802-11.07	BETULA NIGRA (RIVER BIRCH 2-5FT CNTNR GRWN)	EACH	
802-11.08	CARYA GLABRA (PIGNUT HICKORY 2-5FT CNTNR GRWN)	EACH	
802-11.09	CARYA OVATA (SHAGBARK HICKORY 2-5FT CNTNR GRWN)	EACH	
802-11.10	CARYA TOMENTOSA (MOCKERNUT HICKORY 2-5FT CNTNR GRWN)	EACH	
802-11.11	CERCIS CANADENSIS (REDBUD 2-5FT CNTNR GRWN)	EACH	
802-11.12	CORNUS FLORIDA (FLOWERING DOGWOOD 2-5FT CNTNR GRWN)	EACH	
802-11.13	CRATAEGUS PHAENOPYRUM (WSHNGTN HAWTHORN 2-5FT CNTNR GRWN)	EACH	
802-11.14	DIOSPYROS VIRGINIANA (PERSIMMON 2-5FT CNTNR GRWN)	EACH	
802-11.15	FAGUS GRANDIFOLIA (BEECH 2-5FT CNTNR GRWN)	EACH	
802-11.16	FRAXINUS PENNSYLVANICA (GREEN ASH 2-5FT CNTNR GRWN)	EACH	
802-11.17	JUGLANS NIGRA (BLACK WALNUT 2-5FT CNTNR GRWN)	EACH	
802-11.18	LIQUIDAMBER STYRACIFLUA (SWEETGUM 2-5FT CNTNR GRWN)	EACH	
802-11.19	LIRIODENDRON TULIPIFERA (TULIP POPLAR 2-5FT CNTNR GRWN)	EACH	
802-11.20	NYSSA AQUATICA (SWAMP TUPELO 2-5FT CNTNR GRWN)	EACH	
802-11.21	NYSSA SYLVATICA (BLCKGUM 2-5FT CNTNR GRWN)	EACH	

802-11.22	OSTRYA VIRGINIANA (IRONWOOD 2-5FT CNTNR GRWN)	EACH	
802-11.23	PINUS ENCHINATA (SHORTLEAF PINE 2-5FT CNTNR GRWN)	EACH	
802-11.24	PINUS STROBUS (WHITE PINE 2-5FT CNTNR GRWN)	EACH	
802-11.25	PINUS TAEDA (LOBLOLLY PINE 2-5FT CNTNR GRWN)	EACH	
802-11.26	PLATANUS OCCIDENTALIS (SYCAMORE 2-5FT CNTNR GRWN)	EACH	
802-11.27	POPULUS DELTOIDES (COTTONWOOD 2-5FT CNTNR GRWN)	EACH	
802-11.28	PRUNUS SEROTINA (BLACK CHERRY 2-5FT CNTNR GRWN)	EACH	
802-11.29	QUERCUS ALBA (WHITE OAK 2-5FT CNTNR GRWN)	EACH	
802-11.30	QUERCUS BICOLOR (SWAMP WHITE OAK 2-5FT CNTNR GRWN)	EACH	
802-11.31	QUERCUS FALCATA (SOUTHERN RED OAK 2-5FT CNTNR GRWN)	EACH	
802-11.32	QUERCUS LYRATA (OVERCUP OAK 2-5FT CNTNR GRWN)	EACH	
802-11.33	QUERCUS MICHAUXII (SWMP CHSTNT OAK 2-5FT CNTNR GRWN)	EACH	
802-11.34	QUERCUS MUEHLENBERGII (CHINKAPIN OAK 2-5FT CNTNR GRWN)	EACH	
802-11.35	QUERCUS NIGRA (WATER OAK 2-5FT CNTNR GRWN)	EACH	
802-11.36	QUERCUS NUTTALLII (NUTTALL OAK 2-5FT CNTNR GRWN)	EACH	
802-11.37	QUERCUS PALUSTRIS (PIN OAK 2-5FT CNTNR GRWN)	EACH	
802-11.38	QUERCUS PHELLOS (WILLOW OAK 2-5FT CNTNR GRWN)	EACH	
802-11.39	QUERCUS RUBRA (NORTHERN RED OAK 2-5FT CNTNR GRWN)	EACH	
802-11.40	SALIX NIGRA (BLACK WILLOW 2-5FT CNTNR GRWN)	EACH	

802-11.41	SASSAFRAS ALBIDUM (SASSAFRAS 2-5FT CNTNR GRWN)	EACH	
802-11.42	TAXODIUM DISTICHUM (BALD CYPRESS 2-5FT CNTNR GRWN)	EACH	
802-11.43	TSUGA CANADENSIS (HEMLOCK 2-5FT CNTNR GRWN)	EACH	
802-11.44	ULMUS AMERICANA (AMERICAN ELM 2-5FT CNTNR GRWN)	EACH	
802-11.45	CARPINUS CAROLINIANA (AMERICAN HORNBEAM 2-5FT CONTAINER GR)	EACH	
802-11.46	QUERCUS SHUMARDII (SHUMARD OAK 2-5 FT CNTNR GRWN)	EACH	
802-11.48	ROSA PALUSTRIS (SWAMP ROSE 2-5FT CNTNR GRWN)	EACH	
802-11.57	VIBURNUM RUFIDULUM (RUSTY BLACKHAW 2-5FT C.G.)	EACH	
802-11.58	OXYDENDRUM ARBOREUM (SOURWOOD 2-5FT C.G.)	EACH	
802-11.59	PRUNUS AMERICANA (AMERICAN PLUM 2-5FT CNTNR GRWN)	EACH	
802-11.60	KALMIA LATIFOLIA (MOUNTAIN LAUREL 2-5 FT CNTNR GRWN)	EACH	
802-11.61	ALNUS SERRULATA (HAZEL ALDER 2-5FT CNTNR GRWN)	EACH	
802-11.62	CORNUS ALTERNIFOLIA (ALTERNATE LEAF DGWOOD 2-5FT CNTNR GRWN)	EACH	
802-11.63	HAMAMELIS VIRGINIANA (AMERICAN WITCHHAZEL 2-5FT CNTNR GRWN)	EACH	
802-11.64	ILEX DECIDUA (DECIDUOUS HOLLY 2-5FT CNTNR GRWN)	EACH	
802-11.65	MALUS ANGUSTIFOLIA (SOUTHERN CRABAPPLE 2-5FT CNTNR GRWN)	EACH	
802-11.66	PRUNUS ANGUSTIFOLIA (CHICKASAW PLUM 2-5FT CNTNR GRWN)	EACH	
802-11.67	EUONYMUS AMERICANUS (STRAWBERRY BUSH 2-5FT CONTAINER GR0WN)	EACH	

802-12.01	ACER NEGUNDO (BOX ELDER SEEDLNG B.R.)	EACH	
802-12.02	ACER RUBRUM (RED MAPLE SEEDLNG B.R.)	EACH	
802-12.03	ACER SACCHARINUM (SILVER MAPLE SEEDLNG B.R.)	EACH	
802-12.04	ACER SACCHARUM (SUGAR MAPLE SEEDLNG B.R.)	EACH	
802-12.05	AESCULUS GLABRA (OHIO BUCKEYE SEEDLNG B.R.)	EACH	
802-12.06	ASIMINA TRILOBA (PAWPAW SEEDLNG B.R.)	EACH	
802-12.07	BETULA NIGRA (RIVER BIRCH SEEDLNG B.R.)	EACH	
802-12.08	CARYA GLABRA (PIGNUT HICKORY SEEDLNG B.R.)	EACH	
802-12.09	CARYA OVATA (SHAGBARK HICKORY SEEDLNG B.R.)	EACH	
802-12.10	CARYA TOMENTOSA (MOCKERNUT HICKORY SEEDLNG B.R.)	EACH	
802-12.11	CERCIS CANADENSIS (REDBUD SEEDLNG B.R.)	EACH	
802-12.12	CORNUS FLORIDA (FLOWERING DOGWOOD SEEDLNG B.R.)	EACH	
802-12.13	CRATAEGUS PHAENOPYRUM (WSHNGTN HAWTHORN SEEDLNG B.R.)	EACH	
802-12.14	DIOSPYROS VIRGINIANA (PERSIMMON SEEDLNG B.R.)	EACH	
802-12.15	FAGUS GRANDIFOLIA (BEECH SEEDLNG B.R.)	EACH	
802-12.16	FRAXINUS PENNSYLVANICA (GREEN ASH SEEDLNG B.R.)	EACH	
802-12.17	JUGLANS NIGRA (BLACK WALNUT SEEDLNG B.R.)	EACH	
802-12.18	LIQUIDAMBER STYRACIFLUA (SWEETGUM SEEDLNG B.R.)	EACH	
802-12.19	LIRIODENDRON TULIPIFERA (TULIP POPLAR SEEDLNG B.R.)	EACH	
802-12.20	NYSSA AQUATICA (SWAMP TUPELO SEEDLNG B.R.)	EACH	
802-12.21	NYSSA SYLVATICA (BLCKGUM SEEDLNG B.R.)	EACH	
802-12.22	OSTRYA VIRGINIANA (IRONWOOD SEEDLNG B.R.)	EACH	

802-12.23	PINUS ENCHINATA (SHORTLEAF PINE SEEDLNG B.R.)	EACH	
802-12.24	PINUS STROBUS (WHITE PINE SEEDLNG B.R.)	EACH	
802-12.25	PINUS TAEDA (LOBLOLLY PINE SEEDLNG B.R.)	EACH	
802-12.26	PLATANUS OCCIDENTALIS (SYCAMORE SEEDLNG B.R.)	EACH	
802-12.27	POPULUS DELTOIDES (COTTONWOOD SEEDLNG B.R.)	EACH	
802-12.28	PRUNUS SEROTINA (BLACK CHERRY SEEDLNG B.R.)	EACH	
802-12.29	QUERCUS ALBA (WHITE OAK SEEDLNG B.R.)	EACH	
802-12.30	QUERCUS BICOLOR (SWAMP WHITE OAK SEEDLNG B.R.)	EACH	
802-12.31	QUERCUS FALCATA (SOUTHERN RED OAK SEEDLNG B.R.)	EACH	
802-12.32	QUERCUS LYRATA (OVERCUP OAK SEEDLNG B.R.)	EACH	
802-12.33	QUERCUS MICHAUXII (SWMP CHSTNT OAK SEEDLNG B.R.)	EACH	
802-12.34	QUERCUS MUEHLENBERGII (CHINKAPIN OAK SEEDLNG B.R.	EACH	
802-12.35	QUERCUS NIGRA (WATER OAK SEEDLNG B.R.)	EACH	
802-12.36	QUERCUS NUTTALLII (NUTTALL OAK SEEDLNG B.R.)	EACH	
802-12.37	QUERCUS PALUSTRIS (PIN OAK SEEDLNG B.R.)	EACH	
802-12.38	QUERCUS PHELLOS (WILLOW OAK SEEDLNG B.R.)	EACH	
802-12.39	QUERCUS RUBRA (NORTHERN RED OAK SEEDLNG B.R.)	EACH	
802-12.40	SALIX NIGRA (BLACK WILLOW SEEDLNG B.R.)	EACH	
802-12.41	SASSAFRAS ALBIDUM (SASSAFRAS SEEDLNG B.R.)	EACH	
802-12.42	TAXODIUM DISTICHUM (BALD CYPRESS SEEDLNG B.R.)	EACH	
802-12.43	TSUGA CANADENSIS (HEMLOCK SEEDLNG B.R.)	EACH	
802-12.44	ULMUS AMERICANA (AMERICAN ELM SEEDLNG B.R.)	EACH	

802-12.45	CARPINUS CAROLINIANA (AMERICAN HORNBEAM SEEDLING B.R.)	EACH	
802-12.46	QUERCUS SHUMARDII (SHUMARD OAK SEEDLING B.R.)	EACH	
802-12.50	CARYA AQUATICA (WATER HICKORY SEEDLING B.R.)	EACH	
802-12.51	CORNUS AMOMUM (SILKY DOGWOOD SEEDLING B.R.)	EACH	
802-12.52	CORNUS FOEMINA (STIFF DOGWOOD SEEDLING B.R.)	EACH	
802-12.53	QUERCUS PAGODA (CHERRYBARK OAK SEEDLING B.R.)	EACH	
802-12.54	CARYA CORDIFORMIS (BITTERNUT HICKORY SEEDLING B.R.)	EACH	
802-12.55	CARYA LACINIOSA (SHELLBARK HICKORY SEEDLING B.R.)	EACH	
802-12.56	CARYA ILLINOINESIS (PECAN SEEDLING B.R.)	EACH	
802-12.57	VIBURNUM RUFIDULUM (RUSTY BLACKHAW SDLNG B.R.)	EACH	
802-12.58	OXYDENDRUM ARBOREUM (SOURWOOD SDLNG B.R.)	EACH	
802-12.59	PRUNUS AMERICANA (AMERICAN PLUM SEEDLING B.R.)	EACH	
802-12.60	KALMIA LATIFOLIA (MOUNTAIN LAUREL SEEDLING B.R.)	EACH	
802-12.61	ALNUS SERRULATA (HAZEL ALDER SEEDLING B.R.)	EACH	
802-12.62	CORNUS ALTERNIFOLIA (ALTERNATE LEAF DOGWOOD SEEDLING B.R.)	EACH	
802-12.63	HAMAMELIS VIRGINIANA (AMERICAN WITCHHAZEL SEEDLING B.R.)	EACH	
802-12.64	ILEX DECIDUA (DECIDUOUS HOLLY SEEDLING B.R.)	EACH	
802-12.65	MALUS ANGUSTIFOLIA (SOUTHERN CRABAPPLE SEEDLING B.R.)	EACH	
802-12.66	PRUNUS ANGUSTIFOLIA (CHICKASAW PLUM SEEDLING B.R.)	EACH	

802-13.01	ALNUS SERRULATA (HAZEL ALDER 2-5FT CNTNR GRWN)	EACH	
802-13.02	CALYCANTHUS FLORIDUS (SWEETSHRUB 2-5FT CNTNR GRWN)	EACH	
802-13.03	CEPHALANTHUS OCCIDENTALIS (BUTTONBUSH 2-5FT CNTNR GRWN)	EACH	
802-13.04	CORNUS AMOMUM (SILKY DOGWOOD 2-5FT CNTNR GRWN)	EACH	
802-13.05	HAMAMELIS VIRGINIANA (WITCH HAZEL 2-5FT CNTNR GRWN)	EACH	
802-13.06	HYDRANGEA QUERCIFOLIA (OAKLF HYDRANGEA 2-5FT CNTNR GRWN)	EACH	
802-13.07	ILEX OPACA (AMERICAN HOLLY 2-5FT CNTNR GRWN)	EACH	
802-13.08	ITEA VIRGINICA (VIRGINIA SWEETSPIRE 2-5FT CNTNR GRWN)	EACH	
802-13.09	LINDERA BENZOIN (SPICEBUSH 2-5FT CNTNR GRWN)	EACH	
802-13.10	SAMBUCUS CANADENSIS (ELDERBERRY 2-5FT CNTNR GRWN)	EACH	
802-13.11	ARONIA MELANOCARPA (BLCK CHOKEBERRY 2-5FT C.G.)	EACH	
802-13.12	ILEX VERTICILLATA (CMMN WINTERBERRY 2-5FT C.G.)	EACH	
802-13.13	VACCINIUM STAMINEUM (DEERBERRY 2-5FT C.G.)	EACH	
802-13.14	CALLICARPA AMERICANA (AMRCN BEAUTYBERRY) 2-5FT C.G.	EACH	
802-13.15	PHYSOCARPUS OPULIFOLIUS (NINEBARK) 2-5FT C.G.	EACH	
802-13.16	CORYLUS AMERICANA (HAZELNUT) 2-5FT C.G.	EACH	
802-13.17	HIBISCUS MOSCHEUTOS (SWAMP MALLOW SDLNG B.R.)	EACH	
802-13.18	HIBISCUS MOSCHEUTOS (SWAMP MALLOW 2-5 FT C.G.)	EACH	
802-13.19	ROSA PALUSTRIS (SWAMP ROSE SDLNG B.R.	EACH	
802-13.20	ROSA PALUSTRIS (SWAMP ROSE 2-5FT CNTNR GRWN)	EACH	

802-13.21	VACCINIUM ARBOREUM (FARKLEBERRY 2-5FT C.G.)	EACH	
802-13.22	VACCINIUM ARBOREUM (FARKLEBERRY SDLNG B.R.)	EACH	
802-13.23	RHODODENDRON CANESCENS (WILD AZALEA SDLNG BR)	EACH	
802-13.24	RHODODENDRON CANESCENS (WILD AZALEA 2-5 FT CG)	EACH	
802-13.25	RHODODENDRON MAXIMUM (ROSEBAY RHODODENDRON SDLNG BR)	EACH	
802-13.26	RHODODENDRON MAXIMUM (ROSEBAY RHODODENDRON 2-5 FT CG)	EACH	
802-13.27	AESCULUS PAVIA (RED BUCKEYE 2-5 FT CNTNR GRWN)	EACH	
802-13.28	AMORPHA FRUTICOSA (INDIGOBUSH 2-5 FT CNTNR GRWN)	EACH	
802-13.29	CORNUS DRUMMONDII (ROUGH LEAF DOGWOOD 2-5 FT CNTNR GRWN)	EACH	
802-13.30	RHODODENDRON CALENDULACEUM (FLAMING AZALEA 2-5 FT	EACH	
802-13.31	RHODODENDRON MAXIMUM (RHODODENDRON 2-5 FT CNTNR GRWN)	EACH	
802-13.32	RHUS AROMATICA (FRAGRANT SUMAC 2-5 FT CNTNR GRWN)	EACH	
802-13.33	RHUS COPALLINUM (WINGED SUMAC 2-5 FT CNTNR GRWN)	EACH	
802-13.34	RHUS GLABRA (SMOOTH SUMAC 2-5 FT CNTNR GRWN)	EACH	
802-13.35	RHUS TYPHINA (STAGHORN SUMAC 2-5 FT CNTNR GRWN)	EACH	
802-13.36	VIBURNUM DENTATUM (ARROWWOOD VIBURNUM 2-5 FT CNTNR GRWN)	EACH	
802-13.37	VIBURNUM NUDUM (POSSUMHAW VIBURNUM 2-5 FT CNTNR GRWN)	EACH	
802-13.51	ALNUS SERRULATA (HAZEL ALDER SDLNG BARE ROOT)	EACH	
802-13.52	CALYCANTHUS FLORIDUS (SWEETSHRUB SDLNG BARE ROOT)	EACH	

802-13.53	CEPHALANTHUS OCCIDENTALIS (BUTTONBUSH SDLNG BARE ROOT)	EACH	
802-13.54	CORNUS AMOMUM (SILKY DOGWOOD SDLNG BARE ROOT)	EACH	
802-13.55	HAMAMELIS VIRGINIANA (WITCH HAZEL SDLNG BARE ROOT)	EACH	
802-13.56	HYDRANGEA QUERCIFOLIA (OAKLF HYDRANGEA SDLNG BARE ROOT)	EACH	
802-13.57	ILEX OPACA (AMERICAN HOLLY SDLNG BARE ROOT)	EACH	
802-13.58	ITEA VIRGINICA (VIRGINIA SWEETSPIRE SDLNG BARE ROOT)	EACH	
802-13.59	LINDERA BENZOIN (SPICEBUSH SDLNG BARE ROOT)	EACH	
802-13.60	SAMBUCUS CANADENSIS (ELDERBERRY SDLNG BARE ROOT)	EACH	
802-13.61	ARONIA MELANOCARPA (BLCK CHOKEBERRY SDLNG B.R.)	EACH	
802-13.62	ILEX VERTICILLATA (CMMN WINTERBERRY SDLNG B.R.)	EACH	
802-13.63	VACCINIUM STAMINEUM (DEERBERRY SDLNG B.R.)	EACH	
802-13.64	AESCULUS PAVIA (RED BUCKEYE SDLING B.R.)	EACH	
802-13.65	AMORPHA FRUTICOSA (INDIGOBUSH SDLING B.R.)	EACH	
802-13.66	CORNUS DRUMMONDII (ROUGH LEAF DOGWOOD SDLING B.R.)	EACH	
802-13.67	RHODODENDRON CALENDULACEUM (FLAMING AZALEA SDLING B.R.)	EACH	
802-13.68	RHODODENDRON MAXIMUM (RHODODENDRON SDLING B.R.)	EACH	
802-13.69	RHUS AROMATICA (FRAGRANT SUMAC SDLING B.R.)	EACH	
802-13.70	RHUS COPALLINUM (WINGED SUMAC SDLING B.R.)	EACH	
802-13.71	RHUS GLABRA (SMOOTH SUMAC SDLING B.R.)	EACH	
802-13.72	RHUS TYPHINA (STAGHORN SUMAC SDLING B.R.)	EACH	

802-13.73	VIBURNUM DENTATUM (ARROWWOOD VIBURNUM SDLING B.R.)	EACH	
802-13.74	VIBURNUM NUDUM (POSSUMHAW VIBURNUM SDLING B.R.)	EACH	
802-13.75	ARONIA ARBUTIFOLIA (RED CHOKEBERRY SEEDLING B.R.)	EACH	
802-13.76	CELTIS LAEVIGATA (SUGARBERRY SEEDLING B.R.)	EACH	
802-14.01	PARTHENOCISSUS QUINQUEFOLIA (VIRGINIA CREEPER C.G.)	EACH	
802-15.01	ELEOCHARIS ACICULARIS (SLENDER SPIKERUSH)	EACH	
802-15.02	JUSTICIA AMERICANA (WATERWILLOW AKA BASSGRASS)	EACH	
802-15.03	ELEOCHARIS PALUSTRIS (CREEPING SPIKERUSH)	EACH	
802-15.04	JUNCUS EFFUSUS (SOFT RUSH)	EACH	
802-15.05	ACORUS CALAMUS (SWEET FLAG)	EACH	
802-15.06	CASTANEA DENTATA (AMERICAN CHESTNUT)	EACH	
802-31.10	CARYA TOMENTOSA (MCKRNT HCKRY 12-15FT CG)	EACH	
802-31.41	QUERCUS STELLATA (POST OAK 12-15FT CG)	EACH	
802-50.99	PLANTING SOIL	C.Y.	

Additional Item No. 802-11.01 to 802-31.10 area available for specific varies and sizes. Designers need to include a quantity for water for plant establishment.

8-803.00 SODDING

Item Number	Description	Unit of Measurement	Comment
803-01	SODDING (NEW SOD)	S.Y.	

Topsoil at a depth of 3” is required under sod. Designers should remember to add the appropriate item number for topsoil to the estimated quantities. Designers should also remember to

include the appropriate amount of Item Number 801-03 Water (Seeding & Sodding). See RDG 2-1007.00 for additional information on topsoil.

8-805.00 EROSION CONTROL BLANKETS

Item Number	Description	Unit of Measurement	Comment
805-01.01	TURF REINFORCEMENT MAT (CLASS I)	S.Y.	EC-STR-36
805-01.02	TURF REINFORCEMENT MAT (CLASS II)	S.Y.	EC-STR-36
805-01.03	TURF REINFORCEMENT MAT (CLASS III)	S.Y.	EC-STR-36
805-01.04	TURF REINFORCEMENT MAT (CLASS IV)	S.Y.	
805-05.02	SOIL NAIL STABILIZATION	L.F.	
805-05.03	REINFORCED SHOTCRETE FACING	S.F.	
805-05.04	SECONDARY WALL (DESCRIPTION)	S.F.	
805-12.01	EROSION CONTROL BLANKET (TYPE I)	S.Y.	EC-STR-34
805-12.02	EROSION CONTROL BLANKET (TYPE II)	S.Y.	EC-STR-34
805-12.03	EROSION CONTROL BLANKET (TYPE III)	S.Y.	EC-STR-34
805-12.04	EROSION CONTROL BLANKET (TYPE IV)	S.Y.	EC-STR-34
805-12.08	700 GRAM COIR FIBER EROSION BLANKET	S.Y.	D-NSD-33

See Chapter 10 of the Drainage Manual for additional information.

8-806.00 ROADSIDE MAINTENANCE

Item Number	Description	Unit of Measurement	Comment
806-01	MOWING	ACRE	
806-02.03	MOWING AND VEGETATION REMOVAL	MOWING CYCLE	
806-02.05 TO 806-02.09	HERBICIDE APPLICATION (DESCRIPTION)	ACRE	
806-02.13	SWATH MOWING	ACRE	

Projects on State Routes with high traffic volumes and high visibility shall include Item No. 806-02.03 Project Mowing per cycle on their construction plans. This item is not intended for use on resurfacing projects.

For the purpose of determining applicable projects, Designers will include Project Mowing on new construction projects, reconstruction projects (including widening) or on-system bridge replacement projects where one or more of the following apply:

- Expected project duration is one year or greater
- Project is in an urban area (an urban area is defined as any city with a population of 5,000 or greater)
- The current Average Daily Traffic (ADT) is 20,000 or greater

The quantity to be set up for a project should be based on a minimum of 2 mowing cycles per year of construction. Since most projects fall into the 2 to 3 year range, a minimum of 4-6 cycles would be needed. The number of mowing cycles per year of construction may be increased based upon input received at the Plan-in-Hand Field Review. Design Managers should check with the Construction Division to determine the length of the contract.

Item No. 806-02.03 Project Mowing per cycle shall include the following footnote under the estimated roadway quantities block:

“Item includes litter and trash removal. This work will not be measured and paid for directly but will be included in the cost of Item No. 806-02.03 Project Mowing per Cycle.”