

**PROJECT SPECIAL PROVISIONS**

**ROADWAY**

**CLEARING AND GRUBBING – METHOD II:**

(9-17-02)

LS2 R01

Perform clearing on this project to the limits established by Method "II" shown on Standard No. 200.02 of the *Roadway Standard Drawings*.

**ROADWAY CONSTRUCTION:**

(7-27-04)

LS2 R03

**Scope of Work**

This work shall consist of furnishing and installing all materials, labor and equipment for construction of the roadway in accordance with the typical sections, and pavement schedule.

This item of work shall include clearing and grubbing; excavation and embankment; pipes; drainage structures, pavement removal, pavement structure; furnish and place borrow material; undercut; erosion control, construction surveying if applicable, and all incidentals necessary to complete the work required of the plans.

**Materials**

All materials shall meet the applicable requirements of *Standard Specifications*, except as otherwise specified herein.

**Construction Methods**

The Contractor shall perform all construction in accordance with the applicable requirements of the *Standard Specifications*, except as otherwise specified herein.

**Measurement and Payment**

Payment for work required of this provision will be made at the contract lump sum price for *Roadway Construction*.

**EXPANDABLE CELLULAR SLOPE PROTECTION**

9-19-06

SPI

**Description**

Prior to beginning any work on cellular slope protection, conduct a meeting with the Resident Engineer, the Geotechnical Operations Engineer, the subcontractor, and the manufacturer's representative to discuss a plan of operation for this work.

Perform the required shoulder and slope construction for this project in accordance with the applicable requirements of Section 560 and Section 235 of *the Standard Specifications* except as follows:

Use expandable cellular slope protection material to form the outer surface of slopes and top surface of outside shoulders as indicated on the drawings.

### Materials

Refer to Division 10:

Item	Section
Engineering Fabric Material, Type 1	1056
No. 57 Stone	1005

Cell-forming strips: Heavy-duty polyethylene stabilized with 1.5% carbon black, having a density between 56 and 62 pounds per cubic foot and an Environmental Stress Crack Resistance of 2000 hours minimum. The minimum thickness of strips forming the cells shall be ½ inch. Strips shall be 6" wide. The strips shall be perforated with horizontal rows of holes 0.39 to 0.4" in diameter spaced at least ¾" on centers. Each horizontal row shall be separated from the adjacent row by at least ½" with holes staggered. Holes on the outer rows shall be at least ½" from edge to center, and holes shall be no closer than 1" to a seam weld. Welded seams shall have minimum peel strength of 225 pounds per 4" of seam length. Seams shall also be capable of sustaining a 160 pound load hung vertically for 7 days minimum in a temperature environment cycling every hour from 72 to 130° F.

Cell Dimensions: The strips shall be connected using uniformly spaced, full depth, ultrasonic spot welds perpendicular to the longitudinal axis of the strips and offset. Weld spacing shall be approximately 26" and the weld melt pool width shall not exceed 1 inch. The fabricated strips shall form, when expanded, roughly diamond-shaped cells that are about 8" by 9.5" in size and 6" high.

Anchoring Components Standard-reinforcing bars of No. 3 or 4 size formed with a J hook on one end. Bars shall be a minimum of 4 feet long.

Staples Standard ½" staples as manufactured for use in pneumatic staplers equal to Stanley Bostich P50-10B.

Provide soil with a P.I. greater than 6 and less than 25 and with a pH ranging from 5.5 to 6.8. Remove stones and other foreign material 1 inch or larger in diameter. All soil is subject to test and acceptance or rejection by the Engineer.

Obtain material from within the project limits or approved borrow source.

**Construction Methods**

Excavate below existing slope surface as indicated on drawings. Place engineering fabric on excavated surface, anchor at top of slope, then place expandable cell material and stretch to open cells to plan size. Follow expandable cellular material manufacturer’s recommendations for placement procedure. Place J-bar anchors as indicated on drawings.

Fill Bottom 4 inches of cells with No. 57 stone and top 2 inches with topsoil. Limit drop height of No. 57 stone to 3 feet maximum. Overfill topsoil and tamp until level with top of cells. Seed topsoil in accordance with the plans.

**Measurement and Payment**

Expandable cellular slope protection will be included in the contract bid price for Lump Sum *Roadway Construction*.

**REINFORCED BRIDGE APPROACH FILL:**

(3-18-03) (Rev.7-18-06)

LS4 R01

**Description**

This work consists of all work necessary to construct reinforced bridge approach fills in accordance with these provisions and the plans, and as directed by the Engineer.

**Materials**

Geomembrane

Provide geomembrane that is impermeable, composed of polyethylene polymers or polyvinyl chloride, and meets the following physical requirements:

<b>Property</b>	<b>Requirements</b>	<b>Test Method</b>
Thickness	25 mils Minimum	ASTM D1593
Tensile Strength at Break	100 lb/inch Minimum	ASTM D638
Puncture Strength	40 lbs Minimum	ASTM D 4833
Moisture Vapor Transmission Rate	0.018 ounce/yard <sup>2</sup> per Day Maximum	ASTM E96

Fabric

Refer to Section 1056 for Type 2 Engineering Fabric and the following:

Use a woven fabric consisting of strong rot-proof synthetic fibers such as polypropylene, polyethylene, or polyester formed into a stable network such that the filaments or yarns retain their relative positions to each other.

<b>Fabric Property</b>	<b>Requirements</b>	<b>Test Method</b>
Minimum Flow Rate	2 gallons/min/square foot	ASTM D 4491

Lamination of fabric sheets to produce the physical requirements of a fabric layer will not be accepted. Furnish letters of certification from the manufacturer with each shipment of the fabric and geomembrane attesting that the material meets the requirements of this provision; however, the material is subject to inspection, test, or rejection by the Engineer at any time.

During all periods of shipment and storage, wrap the geomembrane and fabric in a heavy-duty protective covering to protect the material from ultraviolet rays. After the protective wrapping has been removed, do not leave the material uncovered under any circumstances for longer than 4 days.

#### Select Material

Provide select material meeting the requirements of Class III, Type 1 or Type 2, or Class V select material of Section 1016 of the *Standard Specifications*. When select material is required under water, use select material class V only, up to one foot above the existing water elevation.

#### 4 inch Diameter Corrugated Drainage Pipe and Fittings

Provide pipe and fittings that meet all the applicable requirements of Section 815 or 816 of the *Standard Specifications*.

#### Construction Methods

Place the geomembrane and fabric as shown on the plans or as directed by the Engineer. Perform the excavation for the fabric reinforced fill to the limits shown on the plans. Provide an excavated surface free of obstructions, debris, pockets, stumps, and cleared of all vegetation. The geomembrane or fabric will be rejected if it has defects, rips, holes, flaws, deterioration or damage incurred during manufacture, transportation, handling or storage. Lay all layers smooth, and free from tension, stress, folds, wrinkles or creases. Place all the fabric layers with the machine direction (roll direction) parallel to the centerline of the roadway. A minimum roll width of 10.0 feet for the fabric is required. Overlap geomembrane or fabric splices parallel to the centerline of the roadway a minimum of 18 inches. Geomembrane or fabric splices parallel to the backwall face will not be allowed.

Deposit and spread select material in successive, uniform, approximately horizontal layers of not more than 10 inches in depth, loose measurement, for the full width of the cross section, and keep each layer approximately level. Place and compact each layer of select material fill no more than 10 inches thick with low ground pressure equipment. Use hand operated equipment to compact the fill material within three feet of the backwall and wingwalls as directed by the

Engineer. Compact select material to a density equal to at least 95% of that obtained by compacting a sample of the material in accordance with AASHTO T99 as modified by the Department. Compact the top eight inches of select material to a density to at least 100% of that obtained by compacting a sample of the material in accordance with AASHTO T99 as modified by the Department. Density requirements are not applicable to select material, class V; however compact the fill with at least four passes of low ground pressure equipment on the entire surface as directed by the Engineer. The compaction of each layer of select material shall be inspected and approved by the Department prior to the placement of the next fill layer. No equipment will be allowed to operate on the drainage pipe or any geomembrane/fabric layer until it is covered with at least six inches of fill material. Compaction shall not damage the drainage pipe, geomembrane, or fabric under the fill. Cover the geomembrane/fabric with a layer of fill material within four days after placement of the geomembrane/fabric. Geomembrane and fabric that are damaged as a result of installation will be replaced as directed by the Department at no additional cost.

Place the geomembrane on the ground, and attach and secure it tightly to the vertical face of the backwall and wingwalls with adhesives, duct-tape, nails or any other method approved by the Engineer. Place the first fabric layer on the surface of the geomembrane with the same dimensions of the geomembrane. No material or void is allowed between the geomembrane and the first fabric layer. Place and fold the remaining fabric layers on the edges as shown on the plans or as directed by the Engineer. Provide vertical separation between fabric layers as specified on the plans. The number of fabric layers will be shown in the plans.

Place four inch diameter perforated drainage pipe along the base of the backwall and sloped to drain as shown on the plans. Completely wrap perforated drainage pipe and #78M stone with Type 2 Engineering Fabric as shown on the plan detail. Install a pipe sleeve through the bottom of or under the wing wall prior to placing concrete for the wing wall. The pipe sleeve shall be of adequate strength to withstand the wingwall load. Place the pipe sleeve in position to allow the drainage pipe to go through the wing wall with a proper slope. Connect four-inch diameter nonperforated (plain) drainage pipe with a coupling to the perforated pipe near the inside face of the wingwall. Place the nonperforated drainage pipe through the pipe sleeve, extend down to the toe of the slope and connect, to a ditch or other drainage systems as directed by the Engineer. For bridge approaches in cut sections where no side slope is available, direct the drainage pipe outlet to the end slope down to the toe using elbows as directed by the Engineer.

### **Measurement and Payment**

Payment at the contract lump sum price for the pay item *Roadway Construction* will be full compensation for this work.

**ASPHALT PAVEMENTS - SUPERPAVE:**

(7-18-06) (Rev 9-19-06)

LS6 R01

Revise the *2006 Standard Specifications* as follows:

Page 6-2, Article 600-9 Measurement and Payment

Delete the second paragraph.

Page 6-12, 609-5(C)2(c) add after (AASHTO T 209):

*or ASTM D 2041*

Page 6-13, last line on page & Page 6-14, Subarticle 609-5(C)(2)(e), delete and substitute the following:

(e) Retained Tensile Strength (TSR) - (AASHTO T 283 Modified), add subarticle (1) Option 1 before the first paragraph.

(1) Option 1

Add subarticle (2) Option 2 and the following sentence as the first sentence of the second paragraph:

(2) Option 2

Mix sampled from truck at plant with one set of specimens prepared by the Contractor and then tested jointly by QA and QC at a mutually agreed upon lab site within the first 7 calendar days after beginning production of each new mix design.

Page 6-28, 610-3(A) Mix Design-General, third sentence of the fourth paragraph:

Substitute 20% for 15%

First, second and third sentence of the fifth paragraph:

Substitute 20% for 15%

Page 6-44, 610-8, third full paragraph, replace the first sentence with the following:

Use the 30 foot minimum length mobile grade reference system or the non-contacting laser or sonar type ski *with at least four referencing stations mounted on the paver at a minimum length of 24 feet* to control the longitudinal profile when placing the initial lanes and all adjacent lanes of all layers, including resurfacing and asphalt in-lays, unless otherwise specified or approved.

Page 6-69, Table 660-1 **Material Application Rates and Temperatures**, add the following:

Type of Coat	Grade of Asphalt	Asphalt Rate gal/yd <sup>2</sup>	Application Temperature °F	Aggregate Size	Aggregate Rate lb./sq. yd. Total
Sand Seal	CRS-2 or CRS-2P	0.22-0.30	150-175	Blotting Sand	12-15

Page 6-75, 660-9(B), add the following as sub-item (5)

(5) Sand Seal

Place the fully required amount of asphalt material in one application and immediately cover with the seal coat aggregate. Uniformly spread the fully required amount of aggregate in one application and correct all non-uniform areas prior to rolling.

Immediately after the aggregate has been uniformly spread, perform rolling.

When directed, broom excess aggregate material from the surface of the seal coat.

When the sand seal is to be constructed for temporary sealing purposes only and will not be used by traffic, other grades of asphalt material meeting the requirements of Articles 1020-6 and 1020-7 may be used in lieu of the grade of asphalt required by Table 660-1 when approved.

Page 10-41, Table 1012-1, add the following:

Mix Type	Course Aggregate Angularity <sup>(b)</sup> ASTM D5821	Fine Aggregate Angularity % Minimum AASHTO T304 Method A	Sand Equivalent % Minimum AASHTO T176	Flat & Elongated 5:1 Ratio % Maximum ASTM D4791 Section 8.4
S 9.5 D	100/100	45	50	10

Page 10-45, Replace Table 1012-2 with the following:

**TABLE 1012-2**  
**NEW SOURCE RAP GRADATION and BINDER TOLERANCES**  
 (Apply Tolerances to Mix Design Data)

Mix Type	0-20% RAP			21-25% RAP			26%+ RAP			
	Sieve (mm)	Base	Inter.	Surf.	Base	Inter.	Surf.	Base	Inter.	Surf.
P <sub>b</sub> , %			± 0.7%			± 0.4%			± 0.3%	
1 1/2" (37.5)	±10	-	-	±7	-	-	±5	-	-	
3/4" (19.0)	±10	±10	-	±7	±7	-	±5	±5	-	
1/2" (12.5)	-	±10	±6	-	±7	±3	-	±5	±2	
3/8" (9.5)	-	-	±8	-	-	±5	-	-	±4	
No. 4 (4.75)	±10	-	±10	±7	-	±7	±5	-	±5	
No. 8 (2.36)	±8	±8	±8	±5	±5	±5	±4	±4	±4	
No.16 (1.18)	±8	±8	±8	±5	±5	±5	±4	±4	±4	
No. 30 (0.600)	±8	±8	±8	±5	±5	±5	±4	±4	±4	
No. 50 (0.300)	-	-	±8	-	-	±5	-	-	±4	
No. 200 (0.075)	±4	±4	±4	±2	±2	±2	±1.5	±1.5	±1.5	

**ASPHALT BINDER CONTENT OF ASPHALT PLANT MIXES:**  
 (11-21-00)

LS6 R15

The approximate asphalt binder content of the asphalt concrete plant mixtures used on this project will be as follows:

Asphalt Concrete Base Course	Type B 25.0__	4.3%
Asphalt Concrete Intermediate Course	Type I 19.0__	4.7%
Asphalt Concrete Surface Course	Type S 4.75A	7.0%
Asphalt Concrete Surface Course	Type SF 9.5A	6.5%
Asphalt Concrete Surface Course	Type S 9.5__	6.0%
Asphalt Concrete Surface Course	Type S 12.5__	5.5%

The actual asphalt binder content will be established during construction by the Engineer within the limits established in the *Standard Specifications*.

**ASPHALT PLANT MIXTURES:**

(7-1-95)

LS6 R20

Place asphalt concrete base course material in trench sections with asphalt pavement spreaders made for the purpose or with other equipment approved by the Engineer.

**PAINTED GALVANIZED STEEL BEAM GUARDRAIL**

9-19-06

SPI

**Description**

Install painted galvanized steel beam guardrail and anchor units at locations shown on the plans.

**Materials**

<b>Material</b>	<b>Section</b>
Galvanizing	1076
Reflective sheeting	1088-3

Guardrail materials shall meet the requirements of Section 1046 except that guardrail materials shall not be water quenched or treated with chromate conversion coatings.

For painted Guardrail Anchor Units, Type 350, the Contractor may at his option, furnish any one of the following guardrail anchor units.

Guardrail anchor unit (ET-2000) as manufactured by:

Trinity Industries, Inc.  
 2525 N. Stemmons Freeway  
 Dallas, Texas 75207  
 Telephone: 800-644-7976

The guardrail anchor unit (SKT 350) as manufactured by:

Road Systems, Inc.  
 3616 Old Howard County Airport  
 Big Spring, Texas 79720  
 Telephone: 915-263-2435

Prior to installation the Contractor shall submit the following to the Engineer:

- (A) FHWA acceptance letter for each guardrail anchor unit certifying it meets the requirements of NCHRP Report 350, Test Level 3, in accordance with Section 106-2 of the *Standard Specifications*.

- (B) Certified working drawings and assembling instructions from the manufacturer for each guardrail anchor unit in accordance with Section 105-2 of the *Standard Specifications*.

No modifications shall be made to the guardrail anchor unit without the express written permission from the manufacturer.

Painting shall be performed in accordance with the requirements of Section 1080 and Section 442 of the *Standard Specifications* using System 4 as modified herein.

**System 4 (Modified)  
Acrylic Primer and Top Coats**

Coat	Material	Mils Dry/Wet Film	Mils Dry/Wet Film
		Thickness Minimum	Thickness Maximum
Primer	1080-12 White	3.0 DFT	5.0 DFT
Stripe	1080-12 Brown	4.0 WFT	7.0 WFT
Topcoat	1080-12 Brown	2.0 DFT	4.0 DFT
<b>Total</b>		5.0 DFT	9.0 DFT

**Construction Methods**

- (A) *Preparation of galvanized beams and hardware for painting:* Perform surface smoothing by removing or cleaning all zinc high spots, such as metal drip line, by hand or power tools in accordance with SSPC SP 2 or 3. Level zinc material flush with the surrounding plane without removing the base coating.

Abrasive sweep blasting shall be performed in accordance with Section 5.4.1 of ASTM D 6386. This section also provides a description of the abrasive blast material to be used. The material and technique used will provide a stripping action to remove corrosion products and to provide a rough surface profile while leaving base zinc layers intact.

All surfaces of the blasted beams and hardware shall be blown down with clean compressed air to provide a clean, dry surface for additional coating to be applied.

All surfaces shall be free of visible zinc oxides or zinc hydroxides.

- (B) (1) *Certification:* Only SSPC QP-3 certified contractor shall shop paint guardrail material.
- (2) *Shop Paint:* Galvanized guardrail beams, both front and back, posts, anchor units and hardware shall be shop painted within 8 hours after surface preparation with the following exceptions:
- (a) Paint bolt heads after installation.
  - (b) Do not paint impact head of end terminals.

(C) *Repair of Damaged Coating:*

Repair damage occurring to the galvanized portion of the coating during shipment or installation in accordance with Articles 1076-6 and 1080-9 of the *Standard Specifications*. Repair damage occurring to the painted portion of the coating during shipment or installation by applying 4.0-7.0 wet mils of topcoat with a brush or roller and feather or taper this to be level with the surrounding areas.

(D) *Guardrail Installation:* Install guardrail in accordance with Section 862, details in the plans, and details and assembling instructions furnished by the manufacturer. Guardrail end delineation shall be applied to the entire end section of all approach and trailing end sections.

**Measurement and Payment**

*Painted Steel Beam Guardrail and Painted Steel Beam Guardrail, Shop Curved* will be measured and paid for in accordance with the applicable requirements of Article 862-6 of the *Standard Specifications*.

*Painted Guardrail Anchor Units, Type \_\_\_\_* will be measured and paid for in accordance with the applicable requirements of Article 862-6 of the *Standard Specifications*.

*Painted Steel Beam Guardrail Terminal Sections and Painted Additional Guardrail Posts* will be measured and paid for in accordance with the applicable requirements of Article 862-6 of the *Standard Specifications*.

Such price and payment includes, but is not limited to furnishing and erecting posts, offset blocks, rail, terminal sections, miscellaneous hardware, and all other materials, field curving and shop curving of the rail; excavation; furnishing and installing additional guardrail posts and additional offset blocks; backfilling; fabrication; welding; painting, galvanizing; furnishing and installing guardrail delineators and end delineation.

Payment will be made under:

<b>Pay Item</b>	<u>Pay Unit</u>
Painted Steel Beam Guardrail	Linear Foot
Painted Steel Beam Guardrail, Shop Curved	Linear Foot
Painted Guardrail Anchor Units, Type ____	Each
Painted Guardrail Terminal Section	Each
Painted Additional Guardrail Posts	Each

**AGGREGATE PRODUCTION:**

(11-20-01)

LS10 R05

Provide aggregate from a producer who uses the new Aggregate Quality Control/Quality Assurance Program that is in effect at the time of shipment.

No price adjustment is allowed to contractors or producers who utilize the new program. Participation in the new program does not relieve the producer of the responsibility of complying with all requirements of the *Standard Specifications*. Copies of this procedure are available upon request from the Materials and Test Unit.

**CONCRETE BRICK AND BLOCK PRODUCTION:**

(11-20-01)

LS10 R10

Provide concrete brick and block from a producer who utilizes the new Solid Concrete Masonry Brick/Unit Quality Control/Quality Assurance Program that is in effect on the date that material is received on the project.

No price adjustment is allowed to contractors or producers who utilize the new program. Participation in the new program does not relieve the producer of the responsibility of complying with all requirements of the *Standard Specifications*. Copies of this procedure are available upon request from the Materials and Test Unit.

**ENGINEERING FABRICS TABLE 1056-1:**

(7-18-06)

LS10 R40

Revise the *Standard Specifications* as follows:

Page 10-100, Table 1056-1, replace the values for Trapezoidal Tear Strength with the following:

Physical Property	ASTM Test Method	Type 1	Type 2	Type 3		Type 4
Typical Applications		Shoulder Drain	Under Riprap	Class A Temporary Silt Fence	Class B	Soil Stabilization
Trapezoidal Tear Strength	D4533	45 lb	75 lb	--	--	75 lb