PROJECT SPECIAL PROVISIONS

ROADWAY

CLEARING AND GRUBBING – METHOD III:

(4-6-06) SP2 R02

Perform clearing on this project to the limits established by Method "III" shown on Standard No. 200.03 of the *Roadway Standard Drawings*.

BURNING RESTRICTIONS:

(7-1-95) SP2 R05

Open burning is not permitted on any portion of the right-of-way limits established for this project. Do not burn the clearing, grubbing or demolition debris designated for disposal and generated from the project at locations within the project limits, off the project limits or at any waste or borrow sites in this county. Dispose of the clearing, grubbing and demolition debris by means other than burning, according to state or local rules and regulations.

TEMPORARY FABRIC WALL:

Description:

Furnish and install synthetic fabric for a temporary fabric wall in accordance with the Special Provisions and as directed. Maintain the fabric in the required configuration until completion and acceptance of overlying work items. Place the fabric at locations as shown in the plans and as directed. A preconstruction conference must be scheduled with representatives from the Contractor, Resident Engineer and Geotechnical Engineering Unit present to discuss construction details.

Materials:

Fabric:

The fabric must be composed of strong rot-proof synthetic fibers formed into a fabric of the woven type. The fabric must be free of any treatment or coating which might significantly alter its physical properties after installation. The fabric must contain stabilizers and/or inhibitors to make the filaments resistant to deterioration resulting from ultraviolet or heat exposure. The fabric must be a pervious sheet of synthetic fibers oriented into a stable network so that the fibers retain their relative position with respect to each other. The edges of the fabric must be finished to prevent the outer yarn from pulling away from the fabric. The fabric must be free of defects or flaws which significantly affect its physical and/or filtering properties. Lamination of fabric will not be allowed.

During all periods of shipment and storage, keep the fabric wrapped in a heavy-duty protective covering to protect it from direct sunlight, ultraviolet rays, mud, dust, dirt, and debris. Do not expose the fabric to temperatures greater than 140°F. After the protective wrapping has been

removed, do not leave the fabric uncovered under any circumstances for longer than one (1) week.

The fabric must meet the following physical requirements:

All values represent minimum average roll values (any roll in a lot should meet or exceed the minimum values in this table).

Fabric Property	Test Method	Requirements
Wide Width Tensile Strength at 5% Elongation	ASTM D-4595	Warp & Fill Direction 131 lb/in. Minimum
Ultimate Wide Width Tensile Strength	ASTM D-4595	Warp Direction 318 lb./in .
Puncture Strength	ASTM D-4833	130 lbs. Minimum
Trapezoid Tear	ASTM D-4533	Warp Direction 100 lb. Minimum
Bursting Strength (Mullen)	ASTM D-3786, (Diaphragm Method)	450 psi Minimum
AOS, U.S. Std. Sieve	ASTM D-4751	20 min.-70 max.
Permeability	ASTM D-4491	0.01 in/sec
Ultraviolet (UV) % Strength Retained	ASTM D-4355	70% Minimum

Furnish certified test reports by an approved independent testing laboratory with each shipment of material attesting that the fabric meets the requirements of this provision; however, the material shall be subject to inspection, test, or rejection by the Engineer at any time. Furnish the Engineer certified test reports by an independent testing laboratory attesting that the sewn seam provides the strength properties required for the fabric.

Asphalt Emulsion:

Apply a 0.25 gallon/sq.yd. application rate of CRS-1 emulsified asphalt on the fabric reinforced earth wall surface.

Use emulsified asphalt conforming to Article 1020-5 of the North Carolina Department of Transportation Standard Specifications for Roads and Structures with the following additions below:

1. The maximum temperature of the material at the time of application shall be not more than 140°F.

2. Immediately after emulsified asphalt has been applied place a thin layer of local sand on the emulsified asphalt to the satisfaction of the Engineer.

Select Granular Material:

Furnish and place select granular material over the fabric in accordance with this provision and as directed by the Engineer.

The select granular material must meet one of the following requirements:
1. A-1 or A-3 soils, as defined by AASHTO Classification.
2. Select Material Class II, type 1 as defined in Article 1016-3 of the North Carolina Department of Transportation Specifications for Roads and Structures.

Construction Methods:

Place the fabric at locations as shown on the plans or as directed. The excavated surface must be free of obstructions, debris, pockets, stumps, and cleared of all vegetation.

At the time of installation, the fabric will be rejected if it has defects, rips, holes, flaws, deterioration or damage incurred during manufacture, transportation, or storage.

Lay the fabric smooth and free from tension, stress, folds, wrinkles or creases. Place fabric sheets perpendicular to the face of the wall. No splices will be allowed parallel to the wall face. Overlap adjacent sheets of fabric a minimum of 18 inches. Adjacent sheets may be seamed with the seam oriented perpendicular to the wall face. Seam strength must be no less than the required strength in the fill direction - ASTM D-4884.

Should the geotextile be torn or punctured, or the overlaps or sewn joints disturbed as evidenced by visible geotextile damage, subgrade pumping, intrusion, or distortion, remove the backfill around the damaged or displaced area and repair or replace the damaged fabric at no cost to the Department. The repair must consist of a patch of the same type of geotextile which replaces the ruptured area. Remove all geotextile within 12 inches of the ruptured area or from the smooth geotextile edge in such a way as to not cause additional ripping or tearing. The patch must be sewn onto the geotextile.

Compact the select granular material to a density of 95% of the maximum density determined in accordance with AASHTO T99 as modified by the Department. Compaction within 3 feet of the wall face must be performed with light compaction equipment such as mechanical tampers and vibro plates. Every effort shall be made to avoid damaging the fabric when placing and

compacting the backfill material. Heavy equipment must not be allowed to operate on the fabric until it is covered with 9 inches of backfill material. End dumping fill directly on the geotextile will not be permitted. Do not use sheepsfoot rollers or other rollers with protrusions, as well as vibratory rollers, over the fabric.

Temporary support forms at the wall face will be required for each layer to allow compaction of the backfill material against the vertical face of the fabric. Each subsequent layer of fabric and backfill material must be offset back only that amount required to construct the wall face.

Maintain the embankment fill height consistent with the fabric wall as it is brought up.

Before any fabric on the wall face has been exposed for more than one week, apply the asphalt emulsion to the surface of the wall-face fabric in accordance with the description for asphalt emulsion stated elsewhere in these provisions.

Method of Measurement:

The quantity of temporary fabric wall to be paid for will be the actual number of square feet of the exposed face. The embedded portion of the wall will not be measured for payment purposes.

Basis of Payment:

The quantity of fabric, quantity of emulsified asphalt, and quantity of select granular material measured as provided above will be paid for at the contract unit price per square foot of "Temporary Fabric Wall". Such price and payment shall be full compensation for all the work covered by this provision including, but not limited to, furnishing materials, installing, and maintaining the wall and all incidentals necessary for the wall construction and maintenance.

Payment will be made under:

"Temporary Fabric Wall".....Square Feet

EXCAVATION OF ROCK BY USE OF EXPLOSIVES:

(1-1-02) SP2 R20

The Contractor's attention is directed to Article 107-11 of the *Standard Specifications*.

In addition to the requirements of this Article, submit to the Engineer a written report after each blast that gives complete details of the blast procedure. Submit the blast report on forms provided by the Engineer within 24 hours after each blast.

The Engineer will, as necessary, monitor blasting operations with an engineering seismograph. In order to facilitate such work, provide to the Engineer seven days advance notice before the initial blasting is performed and 24 hours notice of subsequent blasting operations.

Cooperate with the Engineer in establishing a signal system that will allow vibrations to be effectively monitored.

The monitoring blast vibrations by the Engineer or the submission of blast reports by the Contractor in no way relieves the Contractor of his responsibilities as defined in Article 107-11 of the *Standard Specifications*.

TEMPORARY DETOURS:

(8-15-00) SP2 R31

Construct the temporary detours required on this project in accordance with the typical sections in the plans or as directed by the Engineer.

Payment for the construction of the detours will be made at the contract unit prices for the various items involved. After the detours have served their purpose, remove the portions deemed unsuitable for use as a permanent part of the project as directed by the Engineer. Salvage and stockpile the aggregate base course removed from the detours at locations within the right of way, as directed by the Engineer, for removal by State Forces. Pipe culverts removed from the detours remain the property of the Contractor. Remove pipe culverts from the project when they are no longer needed. Place pavement and earth material removed from the detour in embankments or dispose of in waste areas furnished by the Contractor. No direct payment will be made for removing the aggregate base course, earth material and pavement, as the cost of same shall be included in the lump sum price bid for *Grading*. Pipe culverts that are removed will be measured and will be paid for at the contract unit price per linear foot for *Pipe Removal*. Such prices and payments will be full compensation for the work of removing, salvaging, and stockpiling aggregate base course; removing any pipe culverts; and for placing earth material and pavement in embankments or disposing of earth material and pavement in waste areas.

SHALLOW UNDERCUT:

(2-19-02) (Rev 7-18-06) SP2 R35

Perform undercut excavation and place a combination of fabric for soil stabilization and Class IV Subgrade Stabilization at locations as directed. Work includes performing undercut excavation, disposing of unsuitable material, furnishing and placing fabric for soil stabilization; and furnishing, placing and compacting Class IV Subgrade Stabilization.

Materials

Item	Section
Fabric for Soil Stabilization	270
Class IV Subgrade Stabilization	1016-3, Class IV, or Material meeting gradation requirements of Table 520-1, Column C

Construction Methods

Perform undercut excavation in accordance with Section 225 and/or Section 226.

Place fabric for soil stabilization in accordance with Section 270.

Place Class IV Subgrade Stabilization by back dumping material on previously placed fabric.

Compact material to 95% of AASHTO T-99, Method "D" density or compact material to the highest density that can be reasonably obtained.

Measurement and Payment

Undercut Excavation will be measured and paid for in accordance with Section 225 and/or Section 226 of the *Standard Specifications*.

Fabric for Soil Stabilization will be measured and paid for in accordance with Article 270-4 of the *Standard Specifications*.

Class IV Subgrade Stabilization, as accepted in place, will be measured and paid for by the ton in accordance with Section 106-7 of the *Standard Specifications*.

Payment will be made under:

Pay Item	**Pay Unit**
Undercut Excavation	Cubic Yard
Fabric for Soil Stabilization	Square Yard
Class IV Subgrade Stabilization	Ton

SHOULDER AND FILL SLOPE MATERIAL:
(5-21-02) SP2 R50

Description

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:

Construct the top 6 inches of shoulder and fill slopes with soils capable of supporting vegetation.

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 2 inches 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.

Compensation

When the Contractor elects to obtain material from an area located beneath a proposed fill sections which does not require excavation for any reason other than to generate acceptable shoulder and fill slope material, the work of performing the excavation will be considered incidental to the item of *Borrow Excavation* or *Shoulder Borrow*. If there is no pay item for *Borrow* or *Shoulder Excavation* in the contract, this work will be considered incidental to *Unclassified Excavation*. Stockpile the excavated material in a manner to facilitate measurement

by the Engineer. Fill the void created by the excavation of the shoulder and fill slope material with suitable material. Payment for material used from the stockpile will be made at the contract unit price for *Borrow Excavation* or *Shoulder Borrow*. If there is no pay item for *Borrow Excavation* or *Shoulder Borrow*, then the material will be paid for at the contract unit price for *Unclassified Excavation*. The material used to fill the void created by the excavation of the shoulder and fill slope material will be made at the contract unit price for *Unclassified Excavation*, *Borrow Excavation*, or *Shoulder Borrow*, depending on the source of the material.

Material generated from undercut excavation, unclassified excavation or clearing and grubbing operations that is placed directly on shoulders or slope areas, will not be measured separately for payment, as payment for the work requiring the excavation will be considered adequate compensation for depositing and grading the material on the shoulders or slopes.

When undercut excavation is performed at the direction of the Engineer and the material excavated is found to be suitable for use as shoulder and fill slope material, and there is no area on the project currently prepared to receive the material generated by the undercut operation, the Contractor may construct a stockpile for use as borrow at a later date. Payment for the material used from the stockpile will be made at the contract unit price for *Borrow Excavation* or *Shoulder Borrow*.

When shoulder material is obtained from borrow sources or from stockpiled material, payment for the work of shoulder construction will be made at the contract unit price per cubic yard for *Borrow Excavation* or *Shoulder Borrow* in accordance with the applicable provisions of Section 230 or Section 560 of the *Standard Specifications*.

PIPE ALTERNATES:

(7-18-06) SP3 R35

Description

The Contractor may substitute Aluminized Corrugated Steel Pipe, Type IR or HDPE Pipe, Type S or Type D up to 48 inches in diameter in lieu of concrete pipe in accordance with the following requirements.

Material

Item	Section
HDPE Pipe, Type S or D	1044-7
Aluminized Corrugated Steel Pipe, Type IR	1032-3(A)(7)

Aluminized Corrugated Steel Pipe will not be permitted in counties listed in Article 310-2 of the *Standard Specifications*.

Construction Methods

Aluminized Corrugated Steel Pipe Culverts and HDPE Pipe Culverts shall be installed in accordance with the requirements of Section 300 of the *Standard Specifications* for Method A,

except that the minimum cover shall be at least 12 inches. Aluminized Corrugated Steel Pipe Culvert and HDPE Pipe Culvert will not be permitted for use under travelways, including curb and gutter.

Measurement and Payment

The quantity of ____ "*Aluminized Corrugated Steel Pipe Culvert* to be paid for will be the actual number of linear feet installed and accepted. Measurement will be in accordance with Section 310-6 of the *Standard Specifications*.

The quantity of _____ "*HDPE Pipe Culvert* to be paid for will be the actual number of linear feet installed and accepted. Measurement will be in accordance with Section 310-6 of the *Standard Specifications*.

Payment will be made under:

Pay Item	**Pay Unit**
___" Aluminized Corrugated Steel Pipe Culverts, ___" Thick	Linear Foot
___" HDPE Pipe Culverts	Linear Foot

AGGREGATE BASE COURSE:
12-19-06 SP5 R03

Revise the *2006 Standard Specifications* as follows:

Page 5-11, Article 520-5 Hauling and Placing Aggregate Base Material, 6th paragraph, replace the first sentence with the following:

Base course that is in place on November 15 shall have been covered with a subsequent layer of pavement structure or with a sand seal. Base course that has been placed between November 16 and March 15 inclusive shall be covered within 7 calendar days with a subsequent layer of pavement structure or with a sand seal.

ASPHALT PAVEMENTS - SUPERPAVE:
(7-18-06) (Rev 9-19-06) SP6 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 sentences 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 6-54, Article 620-4, add the following pay item:

Pay Item	**Pay Unit**
Asphalt Binder for Plant Mix, Grade PG 70-28	Ton

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

Type of Coat	Grade of Asphalt	Asphalt Rate gal/yd^2	Application Temperature ^{o}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 [(b)] 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_b, %		± 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) SP6 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) SP6 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.

PRICE ADJUSTMENT - ASPHALT BINDER FOR PLANT MIX:

(11-21-00) SP6 R25

Price adjustments for asphalt binder for plant mix will be made in accordance with Section 620 of the *Standard Specifications.*

The base price index for asphalt binder for plant mix is $315.36 per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on December 1, 2006.

SEALING EXISTING PAVEMENT CRACKS:

(7-1-95) SP6 R50

Description

The work covered by this provision consists of sealing existing longitudinal and transverse pavement cracks with Sealant Type 2, PS/AR (hot-poured rubber asphalt) at locations as directed by the Engineer. The Contractor will not be required to seal the existing edge joints.

Materials

Use Sealant Type 2, PS/AR (hot-poured rubber asphalt) meeting the requirements of Article 1028-2 of the *Standard Specifications.*

Construction Methods

Install the sealant so that it forms a complete watertight bond with a high degree of elasticity, with maximum flexibility and longevity under extreme temperature ranges.

Use a HCA (hot compressed air) lance at all times to blast out any vegetation, dirt, dampness, and loose materials from the cracks.

Use a concentrated hot air jet that is a minimum of 3000°F in temperature and that has a minimum air jet force of 3000 feet per second of blasting.

Force open asphalt cracks, clean warm and dry, and have ready for the application of the preheated sealant for maximum crack sealability.

Preheat the sealant to correct temperature, using the air jacketed flow method to prevent the burning of the modified rubber in the sealant. Perform this by means of a trailer mounted 190 gallon safety tested crack sealant preheater melter kettle, with a horizontally mounted full sweep double paddle agitator.

Apply sealant in the prepared cracks at a temperature range of 370°F minimum and 420°F maximum, using the pressure screed shoe to completely fill the crack, leaving a sealed 2" overband. Excessive overbanding or waste of sealant materials will not be tolerated.

Do not apply the PS/AR sealant when the surface temperature of the pavement is below 32°F.

All cracks sealed must have a minimum of 1/8" depth of sealant installed.

After the crack has been sealed, promptly remove any surplus sealer on the pavement. Do not permit traffic over the sealed cracks without approval by the Engineer.

The sealant is to be packaged in polyethylene bags and placed in boxes that weigh approximately 60 pounds. The sealant may be packed in 60 pound boxes containing two polyethylene bags of sealant, which weigh approximately 30 pounds each. Boxes of sealant are to be palletized for shipment. The pallets are to be protected with a weatherproof covering. The Contractor is responsible for storage.

Measurement and Payment

Sealing Existing Pavement Cracks - The amount of the sealant material to be paid for will be the actual number of pounds of material that has satisfactorily been used to seal pavement cracks in the designated highway. Any material that has been spilled, used in excessive overbanding, wasted, misapplied, or unsatisfactorily used in any way will be deducted in determining quantities for payment. The Engineer will determine the quantity, if any, to be deducted. The Engineer's decision on the quantity to be deducted will be final and binding.

The above price and payment will be full compensation for all work required to seal the pavement cracks including but not limited to furnishing, hauling, loading and unloading, and storage of all sealant materials; cleaning and preparation of cracks to be sealed; application of sealant material in the prepared cracks; any clean-up; and any incidentals necessary to satisfactorily complete the work.

Payment will be made under:

Pay Item	**Pay Unit**
Sealing Existing Pavement Cracks	Pound

GUARDRAIL ANCHOR UNITS, TYPE 350:

(4-20-04) SP8 R65

Description

Furnish and install guardrail anchor units in accordance with the details in the plans, the applicable requirements of Section 862 of the *Standard Specifications*, and at locations shown in the plans.

Materials

The Contractor may at his option, furnish any one of the 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 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 Specifications.

No modifications shall be made to the guardrail anchor unit without the express written permission from the manufacturer. Perform installation in accordance with the details in the plans, and details and assembling instructions furnished by the manufacturer.

Construction Methods

Guardrail end delineation is required on all approach and trailing end sections for both temporary and permanent installations. Guardrail end delineation consists of yellow reflective sheeting applied to the entire end section of the guardrail in accordance with Section 1088-3 of the *Standard Specifications* and is incidental to the cost of the guardrail anchor unit.

Measurement and Payment

Measurement and payment will be made in accordance with Articles 862-6 of the *Standard Specifications*.

Payment will be made under:

Pay Item	**Pay Unit**
Guardrail Anchor Units, Type 350	Each

STREET SIGNS AND MARKERS AND ROUTE MARKERS:

(7-1-95) SP9 R01

Move any existing street signs, markers, and route markers out of the construction limits of the project and install the street signs and markers and route markers so that they will be visible to the traveling public if there is sufficient right of way for these signs and markers outside of the construction limits.

Near the completion of the project and when so directed by the Engineer, move the signs and markers and install them in their proper location in regard to the finished pavement of the project.

Stockpile any signs or markers that cannot be relocated due to lack of right of way, or any signs and markers that will no longer be applicable after the construction of the project, at locations directed by the Engineer for removal by others.

The Contractor will be responsible to the owners for any damage to any street signs and markers or route markers during the above described operations.

No direct payment will be made for relocating, reinstalling, and/or stockpiling the street signs and markers and route markers as such work will be considered incidental to other work being paid for by the various items in the contract.

STEEL U-CHANNEL POSTS:

(7-18-06) SP9 R02

Amend the *2006 Standard Specifications* as follows:

Page 9-15 Subarticle 903-3(D) first paragraph, last sentence, delete the last sentence and add the following:

Use posts of sufficient length to permit the appropriate sign mounting height. Spliced posts are not permitted on new construction.

AGGREGATE PRODUCTION:
(11-20-01) SP10 R05

Provide aggregate from a producer who uses the current 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 use the program. Participation in the 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) SP10 R10

Provide concrete brick and block from a producer who uses the current 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 use the program. Participation in the 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.

GLASS BEADS:
(7-18-06) SP10 R35

Revise the *Standard Specifications* as follows:

Page 10-223, 1087-4(C) Gradation & Roundness

Replace the second sentence of the first paragraph with the following:

All Drop-On and Intermixed Glass Beads shall be tested in accordance with ASTM D1155.

Delete the last paragraph.

ENGINEERING FABRICS TABLE 1056-1:
(7-18-06) SP10 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
				Class A	Class B	
Typical Applications		Shoulder Drain	Under Riprap	Temporary Silt Fence		Soil Stabilization
Trapezoidal Tear Strength	D4533	*45* lb	*75* lb	--	--	*75* lb

TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC:
(1-15-02) (Rev.7-18-06) SP11 R01

Description

Furnish, install, and remove sheeting, shoring, and bracing necessary to maintain traffic at locations shown on the plans, and other locations determined during construction. Shoring required to maintain traffic is defined as shoring necessary to provide lateral support to the side of an excavation or embankment parallel to an open travelway when a theoretical 2:1 or steeper slope from the bottom of the excavation or embankment intersects the existing ground line closer than 5 feet from the edge of pavement of the open travelway. The Contractor has option of submitting their own shoring design or using the standard shoring design, unless otherwise noted in the plans.

Materials

Sheet piling shall be hot rolled and conform to the requirements of ASTM A328.

Steel piles shall conform to the requirements of ASTM A36.

Timber and lumber shall conform to the requirements of Article 1082-3 in *Standard Specifications*.

Include all materials proposed for use in temporary shoring in the shoring design submittal described below.

Provide a Type 7 Contractor's Certification for all shoring materials used.

Contractor Shoring Design

Submit shoring design for review and approval by the Engineer prior to beginning construction.

Submit calculations and detail drawings in accordance with Article 400-3 of the *Standard Specifications*.

Design all temporary shoring in accordance with the latest edition of AASHTO's *Guide Design Specifications for Bridge Temporary Works.*

If temporary concrete barrier is to be located within 3 feet of the top of the shoring, measured to the back face of the barrier, design the temporary shoring to resist the lateral movement of the barrier when struck by a vehicle and extend the shoring out of the ground at least to the top elevation of the temporary concrete barrier. Design the temporary shoring to resist an impact load of 2 kips/foot applied at one and half feet above ground.

Standard Shoring Design

Select the appropriate shoring design from the *Standard Temporary Shoring for Maintenance of Traffic* detail drawing as shown in the plans.

Submit a *Standard Shoring Selection Form* to the Engineer a minimum of 14 days prior to beginning construction of shoring.

Forms are located at website:
http://www.ncdot.org/doh/preconstruct/highway/geotech/formprovdet/

Criteria for the Standard Shoring Designs

Maximum height of shoring excavation is 11 feet.
Groundwater table is not above bottom of shoring excavation.
Traffic surcharge equal to 240 psf
Soldier pile spacing is 6 feet.
Soldier pile embedment depths are for driven piles.
Timber lagging shall have minimum thickness of 3 inches
Timber shall have a minimum allowable bending stress of 1000 psi.

If conditions at the shoring location do not meet the criteria of the standard shoring design as shown above and in the plans, the Contractor shall submit a shoring design to the Engineer for approval.

Construction Methods

Install and interlock steel sheet piles to a tolerance of not more than 3/8 inch per foot from vertical.

If soldier piles are used, then install piles to a tolerance of not more than 1/4 inch per foot from vertical.

If soldier piles are to be installed in drilled holes, set piles in drilled holes and fill the holes as soon as practical after installing the piles.

Excavate or auger the soil and rock in 2 foot diameter holes to the required embedment depth as shown on the approved design. Maintain holes, if required, by casing or other means. Set soldier piles to bottom of the hole prior to backfilling. Backfill holes with Class A concrete to the bottom of excavation. Fill remainder of hole with a lean sand-grout mixture to the ground surface. Remove mixture as necessary to install timber lagging.

Use timber lagging with a minimum 3 inch thickness perpendicular to the pile flange. Install timber lagging with a minimum bearing distance of 3 inches on each pile flange. Backfill voids behind lagging with granular material or compacted excavated material to the satisfaction of the Engineer.

Backfill and compact fill for shoring excavation prior to removal of shoring.

If the design embedment depth is not achieved, then notify the Engineer immediately.

Measurement and Payment

Temporary Shoring will be measured and paid for as the actual number of square feet of exposed face of the shoring measured from the bottom of the shoring excavation or embankment to the top of the shoring, with the upper limit for pay purposes not to exceed 1 foot above the retained ground elevation.

Temporary Shoring - Barrier Supported will be measured and paid for will as the actual number of square feet of exposed face of the shoring measured from the bottom of the excavation or embankment to the top of the shoring, with the upper limit for pay purposes not to exceed 1 foot above the retained ground elevation. Payment for temporary shoring will be made only at locations where it is required in order to maintain traffic.

Such payment will include, but not limited to boring, furnishing all labor, tools, equipment, and all incidentals necessary to install shoring and complete the work. Trench boxes are not considered temporary shoring for the maintenance of traffic and will not be paid for under this special provision.

Payment will be made under:

Pay Item	**Pay Unit**
Temporary Shoring	Square Feet
Temporary Shoring - Barrier Supported	Square Feet

PAVEMENT MARKING LINES MEASUREMENT AND PAYMENT:
(11-21-06) SP 12 R01

Revise the *2006 Standard Specifications* as follows:

Page 12-14, Subarticle 1205-10, delete the first sentence of the first paragraph and replace with the following:

Pavement Marking Lines will be measured and paid for as the actual number of linear feet of pavement marking lines per application that has been satisfactorily placed and accepted by the Engineer.