DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

CONTRACT

DO NOT UNSTAPLE THIS BOOKLET....ENTER ALL REQUIRED INFORMATION
EITHER BY HAND OR BY STAMP.

DATE OF OPENING : September 21, 2007 CALL ORDER : 001

CONTRACT ID : B12937-07-000-0

PCN	PROJECTS AND CONTRACT NO.
0008274010000	CSNHS-0008-00(274) 01

COUNTY : HENRY

CODE: 2MA850

1. C. W. MATTHEWS CONTRACTING CO., INC.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

CONTRACT ID : B12937-07-000-0

DESIGN BUILD PROJECT COVERING 1.420 MILES OF CONSTRUCTION
CONSISTING OF WIDENING FOR ADDITIONAL LANE, GRADING,
DRAINAGE, BASE AND PLANT MIX RESURFACING ON I-75/SR 401 SB
BEGINNING AT I-675/SR 413 AND EXTENDING TO EAGLES LANDING
PKWY.
(FOS)

DBE GOAL : 16.0 %

SITE	CONTRACT TIME		LIQUIDATED DAMAGES
00	04/30/09	COMPLETION DATE	$ 800.00
COMPLETE CONTRACT			
01		AVAILABLE DAYS	$ 5000.00
FAIL TO REOPEN LANES - SEE SPEC PROV SEC 108			
02	30	CALENDAR DAYS	$ 1000.00
FAIL TO RECONNECT SERVICE - SEE SPEC PROV SEC 108			

CONTRACT ID: B12937-07-000-0

PROJECT(S) : 0008274010000 CSNHS-0008-00(274) 01

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
	SECTION 0001 ROADWAY				11,541,886.06	
0005	150-9011 TRAFFIC CONTROL - WORKZONE LAW ENFORCEMENT (CONTRACTOR BIDS)	2,500.000 HR	50.00000		125,000.00	
0010	158-1000 TRAINING HOURS	2,000.000 HR	0.80000		1,600.00	
0015	999-2010 DESIGN COMPLETE	LUMP	LUMP		995,448.00	
0020	999-2015 CONSTRUCTION COMPLETE	LUMP	LUMP		10,419,838.06	
	TOTAL BID				11,541,886.06	

DBE G OALS

VENDOR ID: 2MA850 BIDDER'S COMPANY NAME: C. W. MATTHEWS CONTRACTING CO., INC.

PROJECT NO. & COUNTY: CSNHS-0008-00(274) 01 HENRY

LET NO: 001 LET DATE: September 21, 2007 TOTAL BID: $11,541,886.06

THE REQUIRED DBE GOAL ON THIS CONTRACT IS: 16%

I PROPOSE TO UTILIZE THE FOLLOWING DBE CONTRACTORS:

LIST OF DBE PARTICIPANTS

VENDOR NUMBER	DBE NAME/ ADDRESS (CITY, STATE)	TYPE OF WORK	*WORK CODE	Race Neutral	Race Conscious	AMOUNT
2MC875	MC PRECAST, INC. ATLANTA, GA	Sound Barrier			✓	$2,025,000.00
					TOTAL	$2,025,000.00

***For Departmental use only. Do not fill in Work codes.**

PLEASE NOTE: Only 60 % of the participation of a DBE Supplier who does not manufacture or install the product will be counted toward the goal. See below for further instructions.

INSTRUCTIONS FOR LIST OF DBE PARTICIPANTS

If a DBE Goal is indicated, you must propose to achieve a goal that is equal or greater then the percentage required. If no goal is indicated, you may propose your own goal.

The DBE firms to be utilized as counting toward the proposed goal must be listed on this form, along with their addresses, type of work and the amount to be paid to each of the minority firms. The amount entered will not necessarily be the contract amount, but must be the actual amount that will be paid to the DBE firm. In the case of a DBE supplier, the amount paid and 60% of that amount both will be entered; and only the 60% figure should be added to the total. An example of this is shown in the example chart:

Vendor Number	Company Name And Address (City and State)	Type Of Work	*Work Code	Race Neutral	Race Conscious	Amount
	ABC Oil Company Atlanta, GA	Diesel Fuel Supplier				$80.000.00 (60%= $48,000.00)

* For Departmental use ONLY. Do not fill in Work Codes.

The Contractor shall indicate for each DBE and Type of Work whether the DBE Participant is Race Neutral or Race Conscious by placing a checkmark in the appropriate column.

PLEASE NOTE: For 60% of the amount paid to a DBE supplier to be eligible to count toward fulfilling the DBE goal, the supplier must be an established “regular dealer’ in the product involved, and not just a broker. A “regular dealer” would normally sell the product to several customers and would usually have product inventory on hand.

FEDERAL AID CERTIFICATION

(English Project)

August 23, 2001
First Use Date 2001 Specifications: November 1, 2002

Failure to complete appropriate certification requirements identified below or submission of a false certification shall render the bid non-responsive.

EQUAL EMPLOYMENT OPPORTUNITY

I further certify that I have ☒ / have not ☐ participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246, and that I have ☒ / have not ☐ filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

I understand that if I have participated in a previous Contract or Subcontract subject to the Executive Orders above and have not filed the required reports that 41 CFR 60-1.7(b)(1) prevents the award of this Contract unless I submit a report governing the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U. S. Department of Labor.

Reports and notifications required under 41 CFR 604, including reporting subcontract awards in excess of $10,000.00 should be addressed to:

Ms. Carol Gaudin
Regional Director, U. S. Department of Labor
Office of Federal Contract Compliance Programs, Region 4
Rm. 7B75
61 Forsyth St. SW
Atlanta, GA 30303

EXAMINATION OF PLANS AND SPECIFICATIONS

I acknowledge that this Project will be constructed in English units.

I certify that I have carefully examined the Plans for this Project and the Standard Specifications, 2001 Edition, and the Supplemental Specifications and Special Provisions included in and made a part of this Proposal, and have also personally examined the site of the work. On the basis of the said Specifications and Plans, I propose to furnish all necessary machinery, tools, apparatus and other means of construction, and do all the work and furnish all the materials in the manner specified.

I understand the quantities mentioned are approximate only and are subject to either increase or decrease and hereby propose to perform any increased or decreased quantities of work or extra work on the basis provided for in the Specifications.

I also hereby agree that the State, or the Department of Transportation, would suffer damages in a sum equal to at least the amount of the enclosed Proposal Guaranty, in the event my Proposal should be accepted and a Contract tendered me thereunder and I should refuse to execute same and furnish bond as herein required, in consideration of which I hereby agree that, in the event of such failure on my part to execute said Contract and furnish bond within fifteen (15) days after the date of the letter transmitting the Contract to me, the amount of said Proposal Guaranty shall be and is hereby, forfeited to the State, or to the Department of Transportation, as liquidated damages as the result of such failure on my part.

I further propose to execute the Contract agreement described in the Specifications as soon as the work is awarded to me, and to begin and complete the work within the time limit provided. I also propose to furnish a Contract Bond, approved by the State Transportation Board, as required by the laws of the State of Georgia. This bond shall not only serve to guarantee the completion of the work on my part, but also to guarantee the excellence of both workmanship and materials until the work is finally accepted, as well as to fully comply with all the laws of the State of Georgia.

CONFLICT OF INTEREST

By signing and submitting this Contract I hereby certify that employees of this company or employee of any company supplying material or subcontracting to do work on this Contract will not engage in business ventures with employees of the Georgia Department of Transportation (GA D.O.T.) nor shall they provide gifts, gratuities, favors, entertainment, loans or other items of value to employees of this department.

Also, by signing and submitting this Contract I hereby certify that I will notify the Georgia Department of Transportation through its District Engineer of any business ventures entered into between employees of this company or employees of any company supplying material or subcontracting to do work on this Contract with a family member of GA D.O.T. employees.

DRUG FREE WORKPLACE

The undersigned certifies that the provisions of Code Sections 50-24-1 through 50-24-6 of the Official Code of Georgia Annotated, relating to the "Drug-free Workplace Act", have been complied with in full. The undersigned further certifies that:

(1) A drug-free workplace will be provided for the Contractor's employees during the performance of the Contract; and

(2) Each Contractor who hires a Subcontractor to work in a drug-free workplace shall secure from that Subcontractor the following written certification:

"As part of the subcontracting agreement with _____(Contractor's name)_____, __(Subcontractor's name)_____ certifies to the Contractor that a drug free workplace will be provided for the Subcontractor's employees during the performance of this Contract pursuant to paragraph (7) of subsection (b) of Code Section 50-24-3."

Also, the undersigned further certifies that he will not engage in the unlawful manufacture, sale distribution, dispensation, possession, or use of a controlled substance or marijuana during the performance of the Contract.

NON-COLLUSION CERTIFICATION

I hereby certify that I have not, nor has any member of the firm(s) or corporation(s), either directly or indirectly entered into any agreement, participated in any collusion, nor otherwise taken any action in restraint of free competitive bidding in connection with this submitted bid.

It is understood and agreed that this Proposal is one of several competitive bids made to the Department of Transportation, and in consideration of mutual agreements of the bidders, similar hereto, and in consideration of the sum of One Dollar cash in hand paid, receipt whereof is hereby acknowledged, the undersigned agrees that this Proposal shall be an option, which is hereby given by the undersigned to the Department of Transportation to accept or reject this Proposal at any time within thirty (30) calendar days from the date on which this sealed proposal is opened and read, unless a longer period is specified in the Proposal or the successful bidder agrees in writing to a longer period of time for the award, and in consideration of the premises, it is expressly covenanted and agreed that this Proposal is not subject to withdrawal by the Proposer or Bidder, during the term of said option.

I hereby acknowledge receipt of the following checked amendments of the Proposal, Plans, Specifications and/or other documents pertaining to the Contract.

Amendment Nos.: 1☒ 2☒ 3☒ 4☒ 5☒ 6☐ 7☐ 8☐ 9☐ 10☐ I understand that failure to confirm the receipt of amendments is cause for rejection of bids.

Witness my hand and seal this the 21st day of September, 2007.

The bidder(s) whose signature(s) appears on this document, having personally appeared before me, and being duly sworn, deposes and says that the above statements are true and correct.

Sworn to and subscribed before me this
day of , .

(Notary Public)

My commission expires day of
, .

FEDERAL ID NO./ IRS NO.
58-0652729

C. W. MATTHEWS CONTRACTING CO., INC.
Company Name (Print Name)

By Q. William Hammack, Jr.
VP

Joint Bidder:

Company Name (Print Name)

By

Joint Bidder:

Company Name (Print Name)

By

PAGES 13-16 OMITTED

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

PROPOSAL INDEX

Call Order Number: Let Date: **September 21, 2007**

Project No.: **NHS-0008-00(274) HENRY**

Modifications and additions to the 2001 Standard Specifications contained in this proposal are listed below:

DBE Requirements
Federal Aid Requirements
Certification/Drug Free Workplace
Prime Contractors Work Authorized Form
Signature Page
Proposal Index
Notice to All Bidders
Federal Labor Provisions (FHWA 1273)
Wage Rates
Standard EEO Specifications
Notice of Affirmative Action
Disadvantaged Business Enterprise Program
Prompt Payment
Buy America
Errata Corrections
Utility Conflicts
Sec. 102 - Bidding Requirements and Conditions (2)
Sec. 107 - Legal Regulation and Responsibility to the Public (2)
Sec. 109 - Measurement and Payment
Sec. 149 - Construction Layout
Sec. 150 - Traffic Control
Sec. 153 - Field Engineers Office
Sec. 163 - Miscellaneous Erosion Control
Sec. 165 - Maintenance of Temporary Erosion and sedimentation Control Devices
Sec. 167 - Water Quality Monitoring
Sec. 170 - Silt Retention Barrier
Sec. 171 - Silt Fence
Sec. 201 - Clearing and Grubbing Right of Way
Sec. 208 - Embankments
Sec. 209 - Subgrade Construction
Sec. 210 - Grading Complete
Sec. 310 - Graded Aggregate Construction
Sec. 400 - Hot Mix Asphaltic Concrete Construction
Sec. 402 - Hot Mix Recycled Asphaltic Concrete
Sec. 413 - Bituminous Tack Coat
Sec. 430 - Portland Cement Concrete Pavement
Sec. 432 - Mill Asphaltic Concrete Pavement
Sec. 433 - Reinforced Concrete Approach Slabs
Sec. 436 - Asphaltic Concrete Curb
Sec. 439 - Portland Cement Concrete Pavement
Sec. 441 - Miscellaneous Concrete (Wheel Chair Ramps)
Sec. 442 - Roller Compacted Concrete Pavements
Sec. 446 - Placement of Pavement Reinforcement Fabric
Sec. 500 - Concrete Structures
Sec. 501 - Steel Structures
Sec. 507 - Prestressed Concrete Bridge
Sec. 509 - Prestressing Concrete by Post Tensioning
Sec. 511 - Reinforcement Steel
Sec. 524 - Drilled Caisson Foundations
Sec. 600 - Controlled Low Strength Flowable Fill
Sec. 603 - Rip Rap
Sec. 615 - Jacking or Boring Pipe
Sec. 620 - Temporary Barrier
Sec. 621 - Concrete Barrier
Sec. 634 - Monuments and Road Markers
Sec. 636 - Highway Signs
Sec. 638 - Structural Support For Overhead Signs
Sec. 639 - Strain Poles for Overhead Sign and Signal Assembliess
Sec. 641 - Guardrail
Sec. 648 - Traffic Impact Attenuator
Sec. 652 - Painting Traffic Stripe (Polyurea)
Sec. 653 - Thermoplastic Traffic Stripe
Sec. 654 - Raised Pavement Markers
Sec. 655 - Pavement Arrow and Raised Reflectors
Sec. 657 - Wet Reflective Preformed Pavement Markings
Sec. 668 - Miscellanenous Drainage Structures
Sec. 681 - Lighting Standards and Luminaires
Sec. 682 - Electrical Wire, Cable and Conduit
Sec. 683 - High Level Lightings System
Sec. 700 - Grassing
Sec. 702 - Vine, Shrubs, And Tree Planting
Sec. 710 - Permanent Soil Reinforcing Mat
Sec. 715 - Bituminous Treated Roving
Sec. 716 - Erosion Control Mats
Sec. 800 - Coarse Aggregate
Sec. 801 - Fine Aggregate
Sec. 802 - Aggregates for Asphaltic Concrete
Sec. 803 - Stabilizer Aggregate
Sec. 810 - Roadway Materials
Sec. 812 - Backfill Materials
Sec. 814 - Soil Base Materials
Sec. 815 - Graded Aggregate
Sec. 819 - Fiber Stabilizing Additives
Sec. 820 - Asphalt Cement
Sec. 828 - Hot Mix Asphaltic Concrete Mixtures
Sec. 841 - Iron Pipe
Sec. 843 - Concrete Pipe
Sec. 846 - Polyvinyl Chloride (PVC) Drain Pipe
Sec. 851 - Structural Steel
Sec. 854 - Castings and Forgings
Sec. 861 - Piling and Round Timber
Sec. 865 - Manfacture of Prestressed Concrete Bridge Memebers
Sec. 866 - Precast Concrete Catch Basin, Drop Inlet, and Manhole Units
Sec. 868 - Bituminous Adhesive For raised Pavement Markers
Sec. 881 - Fabrics
Sec. 882 - Lime
Sec. 893 - Miscellaneous Planting Materials
Sec. 894 - Fencing
Sec. 895 - Polyacrylamide (Pam)
Sec. 911- Sign Post
Sec. 913 - Reflectorizing Materials
Sec. 917 - Reflectors and Nonreflective Characters
Sec. 941 - Macro-Synthetic Fibers for Concrete Reinforcement

Escrow Bid Documentation
Sec. 103 - Award and Execution of Contract (90 Day Clause)
Sec. 107 - Legal Regulations and Responsibilities to the Public
Sec. 108 - Prosecution and Progress (Temporary Suspension of Work)
Sec. 108 - Prosecution and Progress (Failure or Delay in Completing work on Time)
Sec. 150 - Traffic Control (Special Conditions)
Sec. 999 - Design Build

NOTICE TO ALL BIDDERS

To report bid rigging activities call:

1-800-424-9071

The U.S. Department of Transportation (DOT) operates the above toll-free "hotline" Monday through Friday, 8:00 AM to 5:00 PM, Eastern Time. Anyone with the knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the "hotline" to report such activities.

The "hotline" is part of the DOT's continuing effort to identify and investigate highway construction contract fraud and abuse, and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

Table of Contents.

I. General
II. Nondiscrimination
Ill. Non-segregated Facilities
IV. Payment of Predetermined Minimum Wage
V. Statements and Payrolls
VI. Record of Materials. Supplies, and Labor
VII. Subletting or assigning the Contract
VIll. Safety: Accident Prevention
IX. False Statements Concerning Highway Projects
X. Implementation of Clean Air Act and Federal Water Pollution Control Act
XI. Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion
XII. Certification Regarding Use of Contract Funds for Lodging

ATTACHMENTS

A. Employment Preference for Appalachian Contracts (included in Appalachian contracts only)

1. GENERAL

1. These contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.

3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.

4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:

   Section I, paragraph 2;

   Section IV, paragraphs 1, 2, 3, 4, and 7;

   Section V, paragraphs 1 and 2a through 2g.

5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the DOL, or the contractor's employees or their representatives.

6. **Selection of Labor:** During the performance of this contract, the contractor shall not:

a. discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A), or

b. employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts, who are on parole, supervised release, or probation.

II. NONDISCRIMINATION

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630 and 41 CFR 60) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American Disabilities Act of 1990 (42 U.S.C. 12101 et sea.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

   a. The contractor will work with the State highway agency (SHA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.

   b. The contractor will accept as his operating policy the following statement:

   "It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training.'

2. **EEO Officer.** The contractor will designate and make known to the SHA contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of EEO and who must be assigned adequate authority and responsibility to do so.

3. **Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. Alt new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minority group employees.

d. Notices and posters setting forth the contractors EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer.' All such advertisements will be placed in publications having a large circulation among minority groups in the area from which the project work force would normally be derived.

    a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority group applicants may be referred to the contractor for employment consideration.

    b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)

    c. The contractor will encourage his present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants wilt be discussed with employees:

5. **Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shat) be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

    a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action, if the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of his avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the contractor either directly or through a contractors association acting as agent will include the procedures set forth below:

a. The contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.

b. The contractor will use best efforts to incorporate an EEO clause into each union agreement to the end that such union wilt be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the tabor union and such labor union refuses to furnish such information to the contractor, the

contractor shall so certify to the SHA and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minority group persons and women. (The *DOL* has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the contractor from meeting the' obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the SHA.

8. **Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shaft not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

   a. The contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

   b. Disadvantaged business enterprises (DBE), as defined in 49 CFR 23 shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use his best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of DBE construction firms from SHA personnel.

   c. The contractor will use his best efforts to ensure subcontractor compliance with their EEO obligations.

9. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the SHA and the FHWA.

   a. The records kept by the contractor shall document the following:

      i. The number of minority and non-minority group members and women employed in each work classification on the project;

      ii. The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women;

      iii. The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and

      iv. The progress and efforts being made in securing the services of DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

b. The contractors will submit an annual report to the SHA each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. If on-the job training is being required by special provision, the contractor will be required to collect and report training data.

III. NONSEGREGATED FACILITIES

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

1. By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement or purchase order, as appropriate, the bidder, Federal-aid construction contractor, subcontractor, material supplier, or vendor, as appropriate, certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The firm agrees that a breach of this certification is a violation of the EEO provisions of this contract. The firm further certifies that no employee will be denied access to adequate facilities on the basis of sex or disability.

2. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive, or are, in fact, segregated on the basis of race, color, religion, national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be for the disabled when the demands for accessibility override (e.g. disabled parking).

3. The contractor agrees that it has obtained or will obtain identical certification from proposed subcontractors or material suppliers prior to award of subcontracts or consummation of material supply agreements of $10,000 or more and that it will retain such certifications in ifs files.

IV. PAYMENT OF PREDETERMINED MINIMUM WAGE

(Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural minor collectors, which are exempt.)

1. General:
    a. All mechanics and laborers employed or working upon the site of the work will be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account [except such payroll deductions as are permitted by regulations (29 CFR 3) issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c)] the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than arose contained in the wage determination of the Secretary of Labor (hereinafter "the wage determination") which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act (40 U.S.C. 276a) on behalf of laborers or

mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section IV, paragraph 3b, hereof. Also, for the purpose of this Section, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in paragraphs 4 and 5 of this Section IV.

b. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided, that the employers payroll records accurately set forth the time spent in each classification in which work is performed.

c. All rulings and interpretations of the Davis-Bacon Act and related acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.

2. Classification:

a. The SHA contracting officer shall require that any class of laborers or mechanics employed under the contract, which is not listed in the wage determination, shall be classified in conformance with the wage determination.

b. The contracting officer shall approve an additional classification, wage rate and fringe benefits only when the following criteria have been met:

i. The work to be performed by the additional classification requested is not performed by a classification in the wage determination;

ii. The additional classification is utilized in the area by the construction industry;

iii. The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination;
and

iv, with respect to helpers, when such a classification prevails in the area in which the work is performed.

c. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the DOL, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, D.C. 20210. The Wage and Hour Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

d. In the event the contractor or subcontractors, as appropriate, the laborers or mechanics to be employed in the additional classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. Said Administrator, or an authorized representative, will issue a determination within 30 days

of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

e. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification.

3. Payment of Fringe Benefits:

a. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor or subcontractors, as appropriate, shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly case equivalent thereof.

b. If the contractor or subcontractor, as appropriate, does not make payments to a trustee or other third person, he/she may consider as a part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

4. Apprentices and Trainees (Programs of the U.S. DOL) and Helpers:

a. Apprentices:

i. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the DOL, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his/her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice.

ii. The allowable ratio of apprentices to journeyman-level employees on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate listed in the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor or subcontractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman-level hourly rate) specified in the contractors or subcontractor's registered program shall be observed.

iii. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions *of* the apprenticeship program. If the apprenticeship program does not specify fringe

benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

iv. In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor or subcontractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

b. Trainees:

i. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the DOL, Employment and Training Administration.

ii. The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

iii. Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman-level wage rate on the wage determination which provides for less than full fringe benefits for apprentices, in which case such trainees shall receive the same fringe benefits as apprentices.

iv. In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Helpers

d. Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV2. Any worker listed on a payroll at a helper wage rate, who is not a helper under a approved definition, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

5. Apprentices and Trainees (Programs of the U.S. DOT):

Apprentices and trainees working under apprenticeship and skit! training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-Aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

6. Withholding:

The SHA shall upon its own action or upon written request of an authorized representative of the DOL withhold, or cause to be withheld, from the contractor or subcontractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements which is held by the same prime contractor, as much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the SHA contracting officer may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

7. Overtime Requirements:

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4 and 5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

8. Violation:

Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of $10 for each calendar day on which such employee was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

9. Withholding for Unpaid Wages and Liquidated Damages:

The SHA shall upon its own action or upon written request of any authorized representative of the DOL withhold, or cause to be withheld, from any movies payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may

be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 8 above.

V. STATEMENTS AND PAYROLLS

(Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

1. Compliance with Copeland Regulations (29 CFR 3):

   The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

2. Payrolls and Payroll Records:

   a. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.

   b. The payroll records shall contain the name, social security number, and address of each such employee; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof the types described in Section 1(b)(2)(B) of the Davis Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis Bacon Act, the contractor and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.

   c. Each contractor and subcontractor shall furnish, each week in which any contract work is performed, to the SHA resident engineer a payroll of wages paid each of its employees (including apprentices, trainees, and helpers, described in Section IV, paragraphs 4 and 5, and watchmen and guards engaged on work during the preceding weekly payroll period). The payroll submitted shall set out accurately and completely all of the information required to be maintained under paragraph 2b of this Section V. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal stock number 029-005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

   d. Each payroll submitted shall be accompanied by a 'Statement of Compliance," signed by the contractor or subcontractor or his/her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

i. that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;

ii. that such laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR 3;

iii, that each laborer or mechanic has been paid not less that the applicable wage rate and fringe benefits or cash equivalent for the classification of worked performed, as specified in the applicable wage determination incorporated into the contract.

e. The weekly submission of a property executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 2d of this Section V.

f. The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.

g. The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the SHA, the FHWA, the OOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such actions as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12

VI. RECORD OF MATERIALS, SUPPLIES, AND LABOR

1. On all Federal-aid contracts on the National Highway System, except those which provide solely for the installation of protective devices at railroad grade crossings, those which are constructed on a force account or direct labor basis, highway beautification contracts, and contracts for which the total final construction cost for roadway and bridge is less than $1,000,000 (23 CFR 635), the contractor shall:

    a. Become familiar with the list of specific materials and supplies contained in Form FHWA 47, "Statement of Materials and Labor Used by Contractor of Highway Construction Involving Federal Funds; prior to the commencement of work under this contract.

    b. Maintain a record of the total cost of all materials and supplies purchased for and incorporated in the work, and also of the quantities of those specific materials and supplies listed on Forth FHWA-47, and in the units shown on Form FHWA-47.

    c. Furnish, upon the completion of the contract, to the SHA resident engineer on Form FHWA-47 together with the data required in paragraph 1b relative to materials and

supplies, a final labor summary of all contract work indicating the total hours worked and the total amount earned.

2. At the prime contractor's option, either a single report covering all contract work or separate reports for the contractor and for each subcontract shall be submitted.

VII. **SUBLETTING OR ASSIGNING THE CONTRACT**

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the State. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractors own organization (23 CFR 635).

    a. 'Its own organization" shall be construed to include only workers employed and paid directly by the prime contractor and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor, assignee, or agent of the prime contractor.

    b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract as a whole and in general are to be limited to minor components of the overall contract.

    c. The contract amount upon which the requirements set forth in paragraph 1 of Section VII is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

    d. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the SHA contracting officer determines is necessary to assure the performance of the contract.

    e. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the SHA contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the SHA has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

VIII. SAFETY: ACCIDENT PREVENTION

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and kcal laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the SHA contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his./her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor.

in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

- In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, the following notice shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID HIGHWAY PROJECTS

18 U.S.C. 1020 reads as follows:

- *"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantify or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or*

- *Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or*

- *Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 7916, (39 Stat. 355), as amended and supplemented;*

- *Shall be fined not more that $10,000 or imprisoned not more than 5 years or both.*"

X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $100,000 or more.) By submission of this bid or the execution of this contract, or subcontract, as appropriate, the bidder, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub.L. 91-804), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub.L. 92-500), Executive Order 11738, and regulations in implementation

thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.

2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.

3. That the firm shall promptly notify the SHA of the receipt of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility chat is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

4. That the firm agrees to Include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

XI. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

1. Instructions for Certification - Primary Covered Transactions:

   (Applicable to all Federal-aid contracts - 49 CFR 29)

   a. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.

   b. The inability of a person to provide the certification set out below will not necessarily result in denial-of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

   c. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.

   d. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary participant teams that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

   e. The terms "covered transaction," “debarred,” “suspended,” “ineligible,” “lower tier covered transaction,” “participant,” “person,” “primary covered transaction” “principal,” “proposal,” and “voluntarily excluded,” as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.

   f. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the "Lists of Parties Excluded From Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph f of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion—Primary Covered Transactions

7. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

   a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

   b. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or loran transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

   c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1 b of this certification; and

   d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

3. Instructions for Certification - Lower Tier Covered Transactions:

(Applicable to all subcontracts, purchase orders and other lower tier transactions of $25,000 or more - 49 CFR 29)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide Immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction, ”participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement Lwsst.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph a of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

XII. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

(Applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 - 49 CFR 20)

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

    a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

    b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, 'Disclosure Form to Report Lobbying,' in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C.1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

APPENDIX A
NOTICE TO CONTRACTORS
COMPLIANCE WITH TITLE VI OF THE CIVIL RIGHTS ACT OF 1964
FOR
FEDERAL-AID CONTRACTS

During the performance of this Contract, the Contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "Contractor"), agrees as follows:

1. Compliance with Regulations: The Contractor will comply with the Regulations of the Department of Transportation relative to nondiscrimination in Federally-assisted programs of the Department of Transportation (Title 49, Code of Federal Regulations, Part 21, hereinafter referred to as the "Regulations"), which are herein incorporated by reference and made a part of this Contract.

2. Nondiscrimination: The Contractor, with regard to the work performed by it afterward and prior to completion of the contract work, will not discriminate on the ground of race, color, sex, or national origin in the selection and retention of subcontracts including procurements of materials and leases of equipment. The Contractor will not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when contract covers a program set forth in Appendix B of the Regulations. In addition, the Contractor will not participate either directly or indirectly in discrimination prohibited by 23 CFR 710.405 (b).

3. Solicitations for subcontracts, including procurements of materials and equipment: In all solicitations, either by competitive bidding or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials or equipment, each potential subcontractor or supplier shall be notified by the Contractor of the Contractor's obligations under this Contract and the Regulations relative to nondiscrimination on the ground of race, color, national origin or sex.

4. Information and Reports: The Contractor will provide all information and reports required by the Regulations, or orders and instructions issued pursuant thereto, and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Department of

Transportation or the Federal Highway Administration to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a Contractor is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to the Department of Transportation, or the Federal Highway Administration as appropriate, and shall set forth what efforts it has made to obtain the information.

5. Sanctions for Noncompliance: In the event of the Contractor's noncompliance with the nondiscrimination provisions of this Contract, the Department of Transportation shall impose such Contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:

(a) withholding of payments to the Contractors under the Contract until the Contractor complies, and/or

(b) Cancellation, termination or suspension of the Contract, in whole or in pan.

6. Incorporation of Provisions: The-Contractor will include the provisions of paragraph (1) through,(6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, orders or instruction issued pursuant thereto. The Contractor will take such action with respect to any subcontract or procurement as the Department of Transportation or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as result of such direction, the Contractor may request the State to enter into such litigation to protect the interests of the State, and, in addition, the Contractor may request the United States to enter into such litigation to protect the interest of the Untied States.

U. S. Department of Labor

GENERAL WAGE DECISION NO. GA20070009

Superseded General Wage Decision No. GA20030009

State: GEORGIA

County(ies): BUTTS, CHEROKEE, CLAYTON, COBB, COWETA, DEKALB, DOUGLAS, FAYETTE, FORSYTH, FULTON, GWINNETT, HENRY, NEWTON, PAULDING ROCKDALE, SPALDING AND WALTON

Construction Type: Highway

Construction Description: HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects, and railroad construction; bascule, suspension, and spandrel arch bridges; bridges designed for commercial navigation; bridges involving marine construction; other major bridges).

SUGA 1990-008 05/01/1990

	RATES	FRINGES
ASPHALT RAKER	8.00	
CARPENTER	9.03	
CONCRETE FINISHER	8.65	
ELECTRICIAN	17.01	
FLAGGER	7.19	
FORM SETTER (Road)	7.73	
GUARDRAIL ERECTOR	8.95	
IRONWORKER (Reinforcing)	11.21	
IRONWORKER (Structural)	11.01	
LABORER	6.74	
MASON (Structures)	9.11	
PAINTER	9.65	
PILEDRIVER LEAD PERSON	10.14	
PIPELAYER	8.18	
POWER EQUIPMENT OPERATOR:		
Asphalt Distributor	8.79	
Asphalt Paver	8.91	
Backhoe	9.39	
Bulldozer	8.97	
Concrete Paver	8.92	
Crane	10.67	
Dragline	10.07	
Drill Operator	10.95	
Loader	9.30	

Traffic Controller (Barricades, Traffic Lines and Detours).....7.28
Grade Checker.....6.86
Hydro Seeder.....8.00
Mechanic.....10.51
Milling Machine.....11.97
Motor Grader Operator.....10.27
Motor Grade Operator (fine grade).....9.60
Oiler - greaser.....10.07
Scrapers.....8.27
Pavement striping operator.....6.20
Roller.....8.09
Roller operator (finish).....8.58
Screed - asphalt.....8.46
Sweeper.....9.25
Shovel.....9.19
Tractor operator (utility).....8.00
TRUCK DRIVERS:
Single rear axle.....6.70
Multi rear axle.....7.50
Heavy duty.....9.05
WELDER.....10.87

GENERAL WAGE DECISION NO. GA20070010

Superseded General Wage Decision No. GA20030010

State: GEORGIA

County(ies): BANKS, BARTOW, CHATTOOGA, DAWSON, ELBERT, FANNIN, FLOYD, FRANKLIN, GILMER, GORDON, HABERSHAM, HALL, HARALSON, HART, LUMPKIN, MURRAY, PICKENS, POLK, RABUN, STEPHENS, TOWNS, UNION, WHITE, WHITFIELD

Construction Type: Highway

Construction Description: HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects, and railroad construction; bascule, suspension, and spandrel arch bridges; bridges designed for commercial navigation; bridges involving marine construction; and other major bridges).

SUGA 1990-003 05/01/1990

	RATES	FRINGES
ASPHALT RAKER	7.51	
CARPENTER	8.38	
CONCRETE FINISHER	8.05	
FLAGGER	5.58	
FORM SETTER (ROAD)	7.10	
GUARDRAIL ERECTOR	9.13	
IRONWORKER, REINFORCING	11.35	
LABORER	6.42	

MASON (STRUCTURES)……..7.74
PIPELAYER……..……7.17
POWER EQUIPMENT OPERATORS:
- Asphalt distributor……8.18
- Asphalt paver..... 8.39
- Backhoe..... 8.85
- Bulldozer..... 8.48
- Crane 9.44
- Dragline..... 9.91
- Drill Operator 7.48
- Loader..... 7.89
- Mechanic 9.31
- Milling machine 8.75
- Motor grader (fine grade)..... 9.40
- Motor grader operator 9.07
- Oiler - greaser..... 8.09
- Power tool operator 7.55
- Scraper..... 8.05
- Screed - asphalt 7.71
- Striping Machine 6.23
- Sweeper 6.10
- Roller..... 7.10
- Roller operator (finish)..... 8.44
- Tractor (utility)..... 8.00

TRUCK DRIVERS:
- Single Rear Axle 6.55
- Multi Rear Axle..... 7.08
- Heavy Duty 9.50

WELDER 10.12

GENERAL WAGE DECISION NO. GA20070011

Supersedes General Wage Decision No. GA20030011

State: GEORGIA

County(ies): APPLING, ATKINSON, BACON, BAKER, BALDWIN, BEN HILL, BERRIEN, BLECKLEY, BRANTLEY, BROOKS, BRYAN, BULLOCH, BURKE, CALHOUN, CAMDEN, CANDLER, CARROLL, CHARLTON, CLAY, CLINCH, COFFEE, COLQUITT, COOK, CRAWFORD, CRISP, DECATUR, DODGE, DOOLY, EARLY, ECHOLS, EMANUEL, EVANS, GLASCOCK, GLYNN, GRADY, GREENE, HANCOCK, HARRIS, HEARD, IRWIN, JASPER, JEFF DAVIS, JEFFERSON, JENKINS, JOHNSON, LAMAR, LANIER, LAURENS, LIBERTY, LINCOLN, LONG LOWNDES, MACON, MARION, MCINTOSH, MERIWETHER, MILLER, MITCHELL, MONROE, MONTGOMERY, MORGAN, OGLETHORPE, PIERCE, PIKE, PULASKI, PUTNAM, QUITMAN, RANDOLPH, SCHLEY, SCREVEN, SEMINOLE, STEWART, SUMTER, TALBOT, TALIAFERRO, TATTNALL, TAYLOR, TELFAIR, TERRELL, THOMAS, TIFT, TOOMBS, TREUTLEN, TROUP, TURNER, TWIGGS, UPSON, WARE, WARREN, WASHINGTON, WAYNE, WEBSTER, WHEELER, WILCOX, WILKES, WILKINSON, WORTH

Construction Type: Highway

Construction
Description: HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects, and railroad construction; bascule, suspension, and spandrel arch bridges; bridges designed for commercial navigation; bridges involving marine construction; and other major bridges).

SUGA 1990-004 05/01/1990

	RATES	FRINGES
ASPHALT RAKER	6.25	
CARPENTER	8.46	
MASON (STRUCTURES)	8.54	
CONCRETE FINISHER	7.45	
FORM SETTER (ROAD)	6.66	
FLAGGER	5.22	
GUARDRAIL ERECTOR	10.71	
GRADE CHECKER	6.08	
IRONWORKER (REINFORCING)	10.54	
LABORERS:		
General laborer	5.50	
Pipelayer	6.02	
POWER EQUIPMENT OPERATORS:		
Asphalt distributor	6.73	
Asphalt paver	6.83	
Backhoe	8.11	
Bulldozer	7.66	
Concrete Curb Machine	6.60	
Concrete Paver	8.36	
Crane	9.46	
Dragline	8.80	
Loader	7.31	
Mechanic	8.92	
Milling Machine	8.49	
Mixer Box Operator	6.00	
Motor grade (fine grade)	8.55	
Motor grader	8.64	
Scraper	7.16	
Pavement striping operator	6.57	
Oiler - greaser	6.00	
Roller	6.03	
Roller (finish)	6.32	
Screed - asphalt	7.42	
Shovel	9.26	
Sign erector	6.00	
Sweeper/broom	6.26	
Stone spreader	6.55	
Tractor (utility)	6.12	
POWER TOOL OPERATOR	6.00	
TRAFFIC SIGNAL INSTALLER	6.20	
TRAFFIC CONTROLLER (Barricades, traffic lines and detours)	6.97	

TRUCK DRIVERS:
Single/multi rear axle 5.80
Heavy duty 5.98
WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

GENERAL WAGE DECISION NO. GA20070012

Superseded General Wage Decision No. GA20030012

State: GEORGIA

Construction type: Highway

County(ies): CHATHAM, EFFINGHAM

Construction Description: HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects, and railroad construction; bascule, suspension, and spandrel arch bridges; bridges designed for commercial navigation; bridges involving marine construction; and other major bridges).

SUGA 1990-005 05/01/1990

	RATES	FRINGES
ASPHALT RAKER	6.92	
CARPENTER	10.83	
CONCRETE FINISHER	8.61	
ELECTRICIAN	14.95	
IRONWORKER, REINFORCING	13.60	
LABORER	6.20	
PAINTER	12.00	
PILEDRIVER	10.19	
POWER EQUIPMENT OPERATORS:		
Asphalt distributor	7.88	
Asphalt Paver	8.23	
Backhoe operator	10.03	
Bulldozer operator	9.44	
Crane	13.36	
Loader	9.99	
Mechanic	10.66	
Motor grade operator (fine grade)	10.70	
Striping machine operator	6.18	
Roller	7.98	
Screed - asphalt	7.69	
TRUCK DRIVERS:		
Single-rear axle	6.39	
Multi-rear axle	7.69	
WELDER	10.00	

GENERAL WAGE DECISION No. GA20070024

Superseded General Wage Decision No. GA20030024

State: GEORGIA

Construction type: Highway

County(ies): BIBB, HOUSTON, JONES, PEACH

Construction Description: HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects, and railroad construction; bascule, suspension, and spandrel arch bridges; bridges designed for commercial navigation; other major bridges).

SUGA 1990-006 05/01/1990

	RATES	FRINGES
ASPHALT RAKER	5.80	
CARPENTER	8.48	
CONCRETE FINISHER	7.68	
FLAGGER	5.15	
FORM SETTER (ROAD)	6.67	
LABORER	5.52	
PIPELAYER	6.82	
POWER EQUIPMENT OPERATORS:		
Asphalt Distributor	6.77	
Asphalt Paver	7.22	
Backhoe	8.24	
Bulldozer	7.73	
Crane	10.00	
Loader	6.93	
Mechanic	9.15	
Motor Grade Operator	9.09	
Oiler - Greaser	6.68	
Striping Machine Operator	6.05	
Rollers	6.31	
Tractors (Utility)	6.34	
TRAFFIC CONTROLLER	5.35	
TRUCK DRIVERS		
Single rear axle	6.12	
Multi rear axle	6.23	

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

GENERAL WAGE DECISION NO. GA20070025

Superseded General Wage Decision No. GA20030025

State: GEORGIA

Construction type: Highway

County(ies): CATOOSA, DADE, WALKER

Construction Description: HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects, and railroad construction; bascule, suspension, and spandrel arch bridges; bridges designed for commercial navigation; bridges involving marine construction; other major bridges).

SUGA1990-007 05/01/1990

	RATES	FRINGES
ASPHALT RAKER		7.66
CARPENTER		9.75
CONCRETE FINISHER		7.42
LABORER		6.21
POWER EQUIPMENT OPERATORS:		
Asphalt distributor		7.81
Asphalt paver		8.18
Backhoe		9.12
Bulldozer		8.87
Crane		9.00
Loader		7.82
Mechanic		11.18
Motor grade operator (fine grade)		10.52
Roller		6.67
TRUCK DRIVERS:		
Single-rear axle		6.65
Multi-rear axle		7.38

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

GENERAL WAGE DECISION NO. GA20070027

Superseded General Wage Decision No. GA20030027

State: GEORGIA

Construction type: Highway

County(ies): CHATTAHOOCHEE, MUSCOGEE

Construction Description: HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects, and railroad construction; bascule, suspension, and spandrel arch bridges; bridges designed for commercial navigation; bridges involving marine construction; other major bridges).

SUGA 1990-009 05/01/1990

	RATES	FRINGES
ASPHALT RAKER	6.39	
CARPENTER	8.35	
MASON (STRUCTURES)	8.07	
CONCRETE FINISHER	7.48	
FLAGGER	5.15	
FORM SETTER (ROAD)	7.56	
IRONWORKER (REINFORCING)	9.52	
LABORER	5.78	
PIPELAYER	5.96	
POWER EQUIPMENT OPERATORS:		
Asphalt distributor	6.78	
Asphalt paver	6.59	
Backhoe	8.37	
Bulldozer	8.42	
Crane	9.88	
Loader	7.52	
Mechanic	9.12	
Motor grader operator	8.65	
Oiler - greaser	6.68	
Striping machine operator	6.09	
Roller	6.02	
Scraper	8.30	
Screed - asphalt	5.90	
Sweeper	6.95	
Tractors (utility)	6.84	
TRUCK DRIVERS:		
Single/multi rear axle	6.08	
Heavy duty	6.75	

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

GENERAL WAGE DECISION NO. GA20070028

Superseded General Wage Decision No. GA20030028

State: GEORGIA

Construction Type: Highway

County(ies): BARROW, CLARKE, JACKSON, MADISON, OCONEE

Construction description: HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects, and railroad construction; bascule, suspension, and spandrel arch bridges; bridges designed for commercial navigation; bridges involving marine construction; other major bridges).

SUGA 1990-010 05/01/1990

	RATES	FRINGES
CARPENTER	8.95	
CONCRETE FINISHER	8.61	
FLAGGER	6.25	
FORM SETTER (ROAD)	7.15	
IRONWORKER (REINFORCING)	11.79	
LABORER	6.78	
MASON (STRUCTURES)	8.44	
POWER EQUIPMENT OPERATORS:		
Asphalt distributor	8.79	
Asphalt paver	8.77	
Backhoe	9.50	
Bulldozer	8.87	
Dragline	10.00	
Mechanic	11.00	
Motor grader operator (fine grade)	9.73	
Motor grader operator	9.61	
Oiler/greaser	7.87	
Scraper	8.50	
Roller	7.89	
Rollers - finish	8.31	
Striping machine	6.44	
Tractor (utility)	8.00	
TRUCK DRIVERS:		
Single-rear axle	6.00	
Multi-rear axle	7.90	

WELDERS: Receive rate prescribed for craft performing operation to which welding is incidental.

GENERAL WAGE DECISION NO. GA20070029

Superseded General Wage Decision No. GA20030027

State: GEORGIA

Construction type: Highway

County(ies); COLUMBIA, MCDUFFIE, RICHMOND

Construction Description: HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects, and railroad construction; bascule, suspension, and spandrel arch bridges; bridges designed for commercial navigation; bridges involving marine construction; other major bridges).

SUGA1990-011 05/01/1990

	RATES	FRINGES
ASPHALT RAKER	6.08	
CARPENTER	8.72	
CONCRETE FINISHER	7.43	
FLAGGER	5.15	
IRONWORKER, REINFORCING	10.83	
LABORER	5.84	
PILEDRIVER	14.99	
POWER EQUIPMENT OPERATORS:		
Asphalt distributor	7.07	
Asphalt paver	7.64	
Backhoe	8.35	
Bulldozer	8.40	
Crane	10.00	
Loader	7.62	
Milling machine	12.18	
Motor grader operator	8.56	
Scraper	8.00	
Roller	6.36	
Striping machine operator	6.26	
Tractor (utility)	5.65	
TRUCK DRIVERS:		
Single rear Axle	5.67	
Multi rear Axle	6.58	
WELDER	11.23	

GENERAL WAGE DECISION NO. GA20070030

Superseded General Wage Decision No. GA20030030

State: GEORGIA

Construction Type: Highway

County(ies): DOUGHERTY, LEE

Construction Description: HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects, and railroad construction; bascule, suspension, and spandrel arch bridges; bridges designed for commercial navigation; bridges involving marine construction; other major bridges).

SUGA1990-012 05/01/1990

	RATES	FRINGE
ASPHALT RAKER	6.09	
MASON (STRUCTURES)	6.97	
CONCRETE FINISHER	7.00	
LABORER	5.44	
POWER EQUIPMENT OPERATORS:		
Asphalt paver	6.26	
Loader	7.13	
Motor grader operator	8.39	
Roller	5.57	
Scraper	7.11	
Tractor (utility)	6.39	
Striping machine	5.93	
TRUCK DRIVERS		
(Multi rear axle)	5.25	
(Heavy duty)	5.94	

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR, 5.5 (a)(1)(v)).

In the listings above, the “SU” designation means that rates listed under that identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246) (43 FR 14895)

1. As used in these specifications:

   a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

   b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

   c. "Employer Identification Number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U. S. Treasury Department Form 941.

   d. "Minority" includes:

      (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

      (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

      (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

      (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U. S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U. S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

   a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

   b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organization's responses. .

   c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

   d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

   e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minority and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

   f. Disseminate the Contractor's EEO policy by providing the notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year, and

by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the-openings, screening procedures, and test to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of' which the contractor is a member and participant, may be asserted as fulfilling any one or more of its

obligations under 7a through p of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246) (43 FR 14895)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered areas, are as follows:

GOALS FOR FEMALE PARTICIPATION

APPENDIX A
(43 FR 19473)

The following goals and timetables for female utilization shall be included in all Federal and federally assisted construction contracts and subcontracts in excess of $10,000. The goals ire applicable to the contractor's aggregate on-site construction workforce whether or not part of that workforce is performing work on a Federal or federally-assisted construction contract or subcontract. Area covered: Goals for Women apply nationwide.

Goals and timetables

Timetable		Goals percent)
4-1-78	to 3-31-79	3.1
4-1-79	to 3-31-80	*5.0*
4-1-80	Until Further Notice	6.9

GOALSFOR
MINORITY PARTICIPATION

Appendix B-80

Until further notice, the following goals for minority utilization in each construction craft and trade shall be included in all Federal or federally assisted construction contracts and subcontracts in excess of $10,000 to be performed in the respective geographical areas. The goals are applicable to each nonexempt contractor's total onsite construction workforce, regardless of whether or not part of that workforce is performing work on a Federal, federally assisted or non-federally related project, contract or subcontract.

Construction contractors which are participating in an approved Hometown Plan (see 41 CFR 60-4-5) are required to comply with the goals of the Hometown Plan with regard to construction work they perform in the areas covered by the Hometown Plan. With regard to all their other covered construction work, such contractors are required to comply with the applicable SMSA or EA goal contained in this appendix B-80.

FEDERAL REGISTER / VOL. 45, NO. 194 / FRIDAY. OCTOBER 3,1980 / NOTICES

State	Goal (percent)
Georgia:	
035 Augusta, GA:	
SMSA Counties:	
0600 Augusta, GA-SC……..	27.2
GA Columbia; GA Richmond; SC Aiken;	
Non-SMSA Counties…….	32.-8
GA Burke; GA Emanuel; GA Glascock; GA Jefferson; GA Jenkins; GA Lincoln; GA McDuffie; GA Talleferro; GA Warren; GA Wilkes; SC Allendale; SC Bamburg; SC Barnwell; SC Edgefield; SC McCormick;	
036 Atlanta, GA:	
SMSA Counties:	
0520 Atlanta, GA ……21.2	
GA Butts; GA Cherokee; GA Clayton; GA Cobb; GA DeKalb; GA Douglas; GA Fayette; GA Forsyth; GA Fulton; GA Gwinnett; GA Henry; GA Newton; GA Paulding; GA Rockdale; GA Walton	
Non-SMSA Counties……..	19.5
GA Banks; GA Barrow; GA Carroll; GA Clarke; GA Coweta; GA Dawson; GA Elbert; GA Fannin; GA Floyd; GA Franklin; GA Gilmer; GA Gordon; GA Greene; GA Habersham; GA Hall; GA Haralson; GA Hart; GA Heard; GA Jackson; GA Jasper; GA Lamar; GA Lumpkin; GA Madison; GA Morgan; GA Oconee; GA Oglethorpe; GA Pickins; GA Pike; GA Polk; GA Rabun; GA Spalding; GA Stephens; GA Towns; GA Upson; GA White	
037 Columbus, GA:	
SMSA Counties:	
1800 Columbus, GA-AL……..29.6	
Al Russell; GA Chattahoochee; GA Columbus	

Non-SMSA Counties……36.1
Al Chambers; AJ Lee: GA Harris; GA Marion: GA
Meriwether; GA Quitman; GA Schley; GA
Stewart; GA Sumter; GA Talbot; GA Troup;
GA Webster

038 MACON. GA
SMSA Counties:
4680 Macon, GA…….. 27.5
GA Bibb; GA Houston: GA Jones; GA Twiggs
Non-SMSA Counties ……. 31.7
GA Baldwin: GA Bleckley: Crawford; GA Crisp;
GA Dodge; GA Dooly; GA Hancock: GA Johnson;
GA Laurens: GA Macon; GA Monroe; GA Peach;
GA Pulaski; GA Putnam; GA Taylor; GA Telfair;
GA Treutlan; GA Washington; GA Wheeler;
GA Wilcox; GA Wilkinson

039 Savannah, GA:
SMSA Counties:
7520 Savannah, GA …… 30.6
GA Bryan; GA Chatham; GA Effingham

Non-SMSA, Counties…… 29.8
GA Appling; GA Atkinson;
GA Bacon; GA Bulloch; GA Candler; GA
Coffee; GA Evans; GA Jeff Davis; GA Liberty;
GA Long; GA McIntosh; GA Montgomery; GA
Screven; GA Tattnall; GA Toombs; GA Wayne;
SC Beaufort; SC Hampton; SC Jasper

040 Albany, GA:
SMSA Counties:
0120 Albany, GA……..…….. 32.1
GA Dougherty; GA Lee

Non-SMSA Counties ……..…….. 31.1
GA Baker; GA Ben Hill; GA Berrien; GA
Brooks; GA Calhoun; GA Clay; GA Clinch;
GA Colquitt; GA Cook; GA Decatur; GA
Early; GA Echols; GA Grady; GA Irwin; GA
Lanier; GA Lowndes; GA Miller; GA Mitchell;
GA Randolph; GA Seminole; GA Terrell; GA
Thomas; GA Tift; GA Turner; GA Worth

DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

CRITERIA FOR ACCEPTABILITY

The purpose of this special provision is to establish criteria for acceptability of DBE firms for work performed on this contract. The intent is to ensure that all participation counted toward fulfillment of the DBE goals is (1) real and substantial, (2) actually performed by viable, independent DBE owned firms, and (3) in accordance with the spirit of the applicable laws and regulations.

It is the policy of the Georgia Department of Transportation to ensure compliance with Title VI of the Civil Rights Act of 1964, 49 Code of Federal Register, Part 26 and related statutes and regulations in all program activities.

To this end the Georgia Department of Transportation shall not discriminate on the basis of race, color, sex or national origin in the award, administration and performance of any Georgia Department of Transportation assisted contract or in the administration of its Disadvantaged Business Enterprise Program. The Georgia Department of Transportation shall take all necessary and reasonable steps to ensure nondiscrimination.

DBE payments and commitments for Federal-Aid and State-Aid projects shall be separate and distinct and cannot be transferred or combined in any manner.

DBE PROCEDURES: The Contractor shall develop techniques to facilitate DBE participation in Subcontracting activities. These techniques include:

(A) Arranging solicitations, time for the presentation of quotes, quantities, specifications, and delivery schedules so as to facilitate the participation of DBEs.

(B) Providing assistance to DBEs in overcoming barriers such as the inability to obtain bonding, financing, or technical assistance.

DBE DIRECTORY: The Department has available a directory or source list to facilitate identifying DBEs with capabilities relevant to general contracting requirements and to particular solicitations. The Department will make the directory available to bidders and proposers in their efforts to meet the DBE requirements. It includes firms which the Department has certified to be eligible DBEs in accordance with 49 CFR Part 26.

GOAL FOR PARTICIPATION: If a percentage goal for DBE participation in this contract is set forth elsewhere in this proposal, the Contractor shall complete the DBE GOALS Form included in the proposal. The Contractor is encouraged to make every effort to achieve the goal set by the Department. However, if the Contractor cannot find sufficient DBE participants to meet the goal established by the Department, the Department will consider for award a proposal with less participation than the established goal if:

(A) The bidder can demonstrate that no greater participation could be obtained. This should be well documented by demonstrating the Contractor's actions through good faith efforts.

The following is a list of types of actions which the Department will consider as part of the Contractor's good faith efforts to obtain DBE participation. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.

(1) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBEs who have the capability to perform the work of the contract. The Contractor must solicit this interest within sufficient time to

allow the DBEs to respond to the solicitation. The Contractor must determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.

(2) Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the Contractor might otherwise prefer to perform these work items with its own forces.

(3) Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

(4) (a) Negotiating in good faith with interested DBEs. It is the Contractor's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.

(b) A Contractor using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a Contractor to perform the work of a contract with its own organization does not relieve the Contractor of the responsibility to make good faith

efforts. Contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

(5) Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The Contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. nonunion employee status) are not legitimate causes for the rejection or nonsolicitation of bids in the Contractor's efforts to meet the project goal.

(6) Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the contractor.

(7) Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

(8) Effectively using the services of available minority/women community organizations; minority/women Contractors' groups; local, state, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBE's.

(B) The participation proposed by the low bidder is not substantially less than the participation proposed by the other bidders on the same contract.

If no percentage goal is set forth in the proposal, the contractor may enter a proposed DBE participation. This voluntary DBE participation will count as race neutral DBE participation.

To be eligible for award of this contract,

All bidders will be required to submit the following information to the Department by the close of business on the 3rd working day following opening of the bid as a matter of bidder responsibility.

(1) The names and addresses of DBE firms that will participate in the contract;

(2) A description of the work that each DBE will perform;

(3) The dollar amount of the participation of each DBE firm participating;

(4) Written documentation of the bidder's commitment to use a DBE subcontractor whose participation it submits to meet a contract goal;

(5) Written confirmation from the DBE that is participating in the contract, as provided in the prime contractor's commitment.

(6) If the contract goal is not met, evidence of good faith efforts must be provided.

Failure by a bidder to furnish the above information may subject the bid to disqualification. Also failure by the bidder to submit satisfactory evidence of good faith efforts may subject the bid to disqualification.

Award of a contract by the Department to a Prime Contractor who has listed DBE participants with the bid may not constitute final approval by the Department of the listed DBE. The Department reserves the right to approve or disapprove a Disadvantaged firm after a review of the Disadvantaged firm's proposed participation. Payment to the Contractor under the contract may be withheld until final approval of the listed DBEs is granted by the Department.

If the Contractor desires to substitute a DBE in lieu of those listed in the proposal, a letter of concurrence shall be required from the listed DBE prior to approval of the substitution, unless this requirement is waived by the Department.

Agreements between bidder and a DBE in which DBE promises not to provide Subcontracting quotations to other bidders are prohibited.

DEFINITION: For the purposes of this provision, the following definitions will apply:

Disadvantaged Business Enterprise or DBE means a for-profit small business concern -

(1) That is at least 51 percent owned by one or more individuals who are both socially and economically disadvantaged or, in the case of a corporation,

in which 51 percent of the stock is owned by one or more such individuals; and

(2) Whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.

Good Faith Efforts means efforts to achieve a DBE goal or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement.

Joint Venture means an association of a DBE firm and one or more other firms to carry out a single, for-profit business enterprise, for which the parties combine their property, capital, efforts, skills and knowledge, and in which the DBE is responsible for a distinct, clearly defined portion of the work of the contract and whose share in the capital contribution, control, management, risks, and profits of the joint venture are commensurate with its ownership interest.

Socially and Economically Disadvantaged Individual means any individual who is a citizen (or lawfully admitted permanent resident) of the United States and who is -

(1) Any individual who the Department finds to be a socially and economically disadvantaged individual on a case-by-case basis.

(2) Any individual in the following groups, members of which are rebuttably presumed to be socially and economically disadvantaged:

(i) "Black Americans," which includes persons having origins, in any of the Black racial groups of Africa;

(ii) "Hispanic Americans," which includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race;

(iii)"Native Americans," which includes persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians;

(iv)"Asian-Pacific Americans," which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia,

Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands (Republic of Palau), the Commonwealth of the Northern Marianas Islands, Macao, Fiji, Tonga, Kirbati, Juvalu, Nauru, Federated States of Micronesia, or Hong Kong;

(v) "Subcontinent Asian Americans," which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka;

(vi)Women;

(vii)Any additional groups whose members are designated as socially and economically disadvantaged by the SBA, at such time as the SBA designation becomes effective.

(3) GDOT will presume that such persons are socially and economically disadvantaged only to the extent permitted by applicable federal law.

Race-conscious measure is one that is -focused specifically on assisting only DBEs, including women-owned DBEs.

Race-neutral measure is one that is, or can be, used to assist all small businesses. For the purposes of this part, race-neutral includes gender-neutrality.

DISCRIMINATION PROHIBITED: No person shall be excluded from participation in, denied the benefits of, or otherwise discriminated against in connection with the award and performance of this contract on the grounds of race, color, sex or national origin.

The following assurance becomes a part of this contract and must be included in and made a part of each subcontract the prime contractor enters into with their subcontractors.

"The contractor, and/or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT - assisted contracts. Failure by the

contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract or such other remedy as the Department deems appropriate."

Failure to Achieve Requirements: Periodic reviews shall be made by the Department to determine the extent of compliance with the requirements set forth in this provision. The Contractor is found to be in noncompliance, it shall constitute a breach of contract and further payments for any work performed may be withheld until corrective action is taken. If corrective action is not taken, it may result in termination of this contract.

Participation will be counted toward fulfillment of the DBE goal as follows:

(A) When a DBE participates in a contract, you count only the value of the work actually performed by the DBE toward DBE goals.

1) Count the entire amount of that portion of a construction contract (or other contract not covered by paragraph (A) (2) of this section) that is performed by the DBE's own forces. Include the cost of supplies and materials obtained by the DBE for the work of the contract, including supplies purchased or equipment leased by the DBE (except supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate).

(2) Count the entire amount of fees or commissions charged by a DBE firm for providing a bona fide service, such as professional, technical consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a DOT-assisted contract, toward DBE goals, provided it is determined that the fee is reasonable and not excessive as compared with fees customarily allowed for similar services.

(3) When a DBE subcontracts part of the work of its contract to another firm, the value of the subcontracted work may be counted toward DBE goals only if the DBE's subcontractor is itself a DBE. Work that a DBE subcontracts to a non-DBE firm does not count toward DBE goals.

(B) When a DBE performs as a participant in a joint venture, count a portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work of the contract that the DBE performs with its own forces toward DBE goals.

(C) Count expenditures to a DBE contractor toward DBE goals only if the DBE is performing a commercially useful function on that contract.

(1) A DBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself.

(2) A DBE does not perform a commercially useful function if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of DBE participation.

(3) If a DBE does not perform or exercise responsibility for at least 30 percent of the total cost of its contract with its own work force, or the DBE subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved, the Department will presume that it is not performing a commercially useful function.

(4) When a DBE is presumed not to be performing a commercially useful function as provided in paragraph (C) (3) of this section, the DBE may present evidence to rebut this presumption.

(5) The Departments decisions on commercially useful function matters are subject to review by the US DOT. but are not administratively appealable to the US DOT.

(D)The following factors are to be used in determining whether a DBE trucking company is performing a commercially useful function:

(1) The DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there cannot be a contrived arrangement for the purpose of meeting DBE goals.

(2) The DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the contract.

(3) The DBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates using drivers it employs.

(4) The DBE may lease trucks from another DBE firm, including an owner/-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.

(5) The DBE may also lease trucks from a non-DBE and is entitled to credit only for the fee or commission it receives as a result of the lease arrangement. The DBE does not receive credit for the total value of the transportation services provided by the lessee, since these services are not provided by a DBE.

(6) For purposes of this paragraph (D), a lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE.

(E) Count expenditures with DBEs for materials or supplies toward DBE goals as provided in the following:

(1) If the materials or supplies are obtained from a DBE manufacturer, count 100 percent of the cost of the materials or supplies toward DBE goals.

For purposes of this paragraph, a manufacturer is a firm that operates or maintains a factory or establishment that produces, on the premises, the

materials, supplies, articles, or equipment required under the contract and of the general character described by the specifications.

(2) If the materials or supplies are purchased from a DBE regular dealer, count 60 percent of the cost of the materials or supplies toward DBE goals.

For purposes of this section, a regular dealer is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business.

(a) To be a regular dealer, the firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question.

(b) A person may be a regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating, or maintaining a place of business as provided in this paragraph (E) (2) (b) if the person both owns and operates distribution equipment for the products. Any supplementing of regular dealers' own distribution equipment shall be by a long-term lease agreement and not on an ad hoc or contract-by-contract basis.

(c) Packagers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions are not regular dealers within the meaning of this paragraph (E) (2).

(3) With respect to materials or supplies purchased from a DBE which is neither a manufacturer nor a regular dealer, count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site, toward DBE goals, provided you determine the fees to be reasonable and not excessive as compared with fees customarily allowed for similar services. Do not count any

portion of the cost of the materials and supplies themselves toward DBE goals, however.

(4) Do not count the participation of a DBE subcontractor toward the prime contractor's DBE achievements until the amount being counted toward the goal has been paid to the DBE.

(5) No participation will be counted that is not in compliance with Special Provision entitled "Criteria for Acceptability" which is a part of this contract or with any provisions included in 49 CFR Part 26.

(6) If the contract amount overruns, 'the contractor will not be required to increase the dollar amount of DBE participation. If the contract amount underruns, the contractor will not be allowed to underrun the dollar amount of DBE participation except when the DBE subcontracted items themselves underrun.

REPORTS

A: The contractor shall submit a "DBE Participation Report" on this contract quarterly which shall include the following:

1. The name of each DBE participating in the contract.
2. A description of the work to be performed, materials, supplies, and services provided by each DBE.
3. Whether each DBE is a supplier, subcontractor, owner/operator, or other.
4. The dollar value of each DBE subcontract or supply agreement.
5. The actual payment to date of each DBE participating in the contract.
6. The report shall be updated by the Prime Contractor whenever the approved DBE has performed a portion of the work that has been designated for the contract. Copies of this report should be transmitted promptly to the Engineer. Failure to submit the report within 30 calendar days following the end of the quarter may cause payment to the contractor to be withheld.
7. In addition to the aforementioned report, the Prime Contractor shall notify the Project Engineer at least 24 hours prior to the time the DBE

commences working on the project. The DBE must furnish supervision of the DBE portion of the work, and the person responsible for this supervision must report to the Project Engineer when they begin work on the project. They must also inform the project engineer when their forces will be doing work on the project.

B: In order to comply with 49CFR 26.11 the Department may periodically request that certain information be supplied by the Contractor. Failure to respond within the time allowed in the request will be grounds for withholding all payments on all Contracts.

SUBSTITUTION OF DBEs: The Contractor shall make a reasonable effort to replace a DBE Subcontractor that is unable to perform for any reason with another DBE. The Department shall approve all substitutions of Subcontractors in order to ensure that the substitute firms are eligible DBEs.

CERTIFICATION OF DBEs: To ensure that the DBE Program benefits only firms owned and controlled by Disadvantaged Individuals, the Department shall certify the eligibility of DBEs and joint ventures involving DBEs that are named by bidders.

Questions concerning DBE Certification should be directed to the EEO office at (404) 656-5323.

First Use 2001 Specifications: November 01, 2002
Revised: November 19, 2006

SPECIAL PROVISION

PROMPT PAYMENT:

Prime Contractors, who sublet a portion of their work, shall pay their subcontractors for satisfactory performance of their contracts no later then 10 calendar days from receipt of each payment made to them.

Any delay or postponement of payment among the parties may take place only for good cause with prior written approval from the Department.

If the contractor is found to be in noncompliance with these provisions, it shall constitute a breach of contract and further payments for any work performed may be withheld until corrective action is taken. If corrective action is not taken, it may result in termination of the contract.

All subcontract agreements shall contain this requirement.

REQUIRED CONTRACT PROVISIONS FOR FEDERAL-AID CONTRACTS

BUY AMERICA

Revised: March 25, 1992
Revised: January 7, 1994
Revised: June 9, 1995
First Use 2001 Specifications: November 1, 2002

All manufacturing processes for steel and iron materials and steel and iron coatings permanently incorporated into this project must occur in the United States of America. However, pig iron and processed, pelletized, or reduced iron ore used in the production of these products may be manufactured outside the United States.

This requirement, however, does not prevent a minimal use of foreign materials and coatings, provided the cost of materials and coatings used does not exceed one-tenth of one percent (0.1 percent) of the total contract cost or $2,500.00, whichever is greater.

NOTE: Coatings include: epoxy coating, galvanizing, painting and any other coating that protects or enhances the value of the material.

CONVICT PRODUCED MATERIALS

March 25, 1992
Revised: September 6, 1993
First Use 2001 Specifications: November 1, 2002

Materials produced by convict labor after July 1, 1991, may not be used for Federal-Aid highway construction projects unless it meets the following criteria:

1. The materials must be produced by convicts who are on parole, supervised release or probation from a prison; or,

2. If produced in a qualified prison facility, the amount of such materials produced in any 12-month period shall not exceed the amount produced in such facility for such construction during the 12-month period ending July 1, 1987. A qualified prison is defined as one producing convict made materials prior to July 1, 1987.

Date: November 22, 2002
First Use Date: December 1, 2002
Revised: January 28, 2003
Revised: December 8, 2003
Revised: December 7, 2004
Revised: April 8, 2005
Revised: July 27, 2005
Revised: September 13, 2005
Revised: May 2, 2006

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

2001 Standard Specifications Editorial and Errata Corrections

Page	Section	Correction
37	107.14.C.7	In Figure 1, Tandem Axle Trucks, change the maximum acceptable gross weight from "24,947 kg to 27,679 kg."
313	432.1.02.B	Change GDT 93 to GDT 126.
599	551.5	
938	800.2.01.C	
971	815.2.02.A.1.d	In the table under “Carbonate content (magnesium or calcium)” – Delete “At least 90%” and add “At least 80%.”
972	815.2.03.A.3	In the first sentence under Gradation – Delete “, except that the aggregate will be recycled concrete.” And add “, except that the minimum required to pass the No. 200 (75 micron) sieve shall be 2%.”
990	828.1.02.B 828.2.A	Change the word "pipe" to "pile".
1119	883.1.01.B	In the table under the test for “Reactivity” – Delete “ASTM C 227, C 289 and C 586” and add “AASHTO T 303”
1162	919.2.A.2	In the Table, change the description of Type 1 rpm from “One-way, one-color, 4x2 in (100mm x 400mm), reflective” to “Two-way, one-color, 4x2 in (100mm x 400mm), reflective”
1162	919.2.A.2	In the Table, change the description of Type 2 rpm from “Two-way, one-color, 4x2 in (100mm x 400mm), reflective” to “One-way, one-color, 4x2 in (100mm x 400mm), reflective”
950	805.2.02.A.1	Change “Type 1” to “Type A”.
950	805.2.02.A.2	Change “Type 2” to “Type B”.
951	805.2.02.A.2.h	Change "Type 2" to "Type B".
707	627.5.G	In the payment for Item No. 627 Traffic barrier, V, wall No._, change the measurement from "Per cubic yard (meter)" to Per linear foot (meter)".
1116	881.2.07.A.2	In the Table, change the minimum fabric width (metric value) for Type A from 900 mm to 914 mm.
1116	881.2.07.A.2	In the Table, change the minimum fabric width (metric value) for Type B from 550 mm to 559 mm.
1116	881.2.07.A.2	In the Table, change the minimum fabric width (metric value) for Type C from 900 mm to 914 mm.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Utility Conflicts

Utility companies having known facilities that conflict with the construction of this project will be directed by the Department to adjust or relocate their facilities and will be notified of the contract award.

Conform to all the requirements of the Specifications as they relate to cooperation with utility owners and the protection of utility installations that exist on the project. Refer to the requirements of Section 107, Legal Regulations and Responsibility to the Public, with particular attention to Subsection 107.21.

Coordinate The Work with any work to be performed by others in any right of way clearance and arrange a schedule of operations that will allow for completion of the Project within the specified contract time. Where stage construction is required, notify the utility owner when each stage of work is completed and the site is available for utility work to proceed.

Information concerning utility facilities known to exist within the project limits, including the list of owners, is shown on the plans.

Under Georgia Code Section 32-6-171, utilities are required to remove or relocate their facilities. The Department is required to give the utility at least 60 days written notice directing the removal and relocation, and the utility is required to begin removal within a reasonable time thereafter.

Utility Owners that are under agreement with the Department, as listed on the Office of Utilities website at http://www.dot.state.ga.us/dot/operations/utilities/index.shtml, are liable to the Contractor for his cost for delays to construction that are due to the utilities' failure to clear conflicts within the time submitted by the Utility Owner in the Utility Adjustment Schedule as approved by the Department. Any modifications to the approved Utility Adjustment Schedule shall require review and approval by the Department, the Utility Owner, and the Contractor. Utility facilities originally permitted within State Rights of Way are similarly liable to the Department and Contractor for extraordinary costs or damages. The Contractor may bill the utility company directly for any costs or delays as described in the agreement between the Department and the utility company. Such bill shall be sufficiently detailed to allow the utility company to verify that the charges are accurate and properly attributable to delays in relocation of their facilities. Upon request, copies of all agreements with utility companies having facilities on this project will be made available for examination by the Contractor at the

Department's District Office. Utility Adjustment Schedules, when submitted to the Department by the utilities, will be made available to the Contractor upon request at the Department's District Office unless furnished by Contracts Administration at the Plans Sales window or may be included with the Utility Special Provision in the Contract Proposal on select projects.

In accordance with Subsection 105.06 of the Specifications, the Department is not liable for payment of any claims due to utility delays, inconvenience or damage sustained by the Contractor due to interference of any utilities or appurtenances, or the operation of moving them. In accordance with Subsection 107.21.G delays by utilities will continue to be considered by the Department in charging Contract Time. For purposes of applying provisions of this paragraph, railroads and the Metropolitan Atlanta Rapid Transit Authority (MARTA) are considered utilities.

First use date: November 1, 2004
Revised 10/27/04
Revised March 1, 2007

Georgia Department of Transportation

State of Georgia

Special Provision

Project Number: CSNHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 102—Bidding Requirements and Conditions

Delete Subsection 102.01 and Substitute the following:

102.01 Prequalification of Bidders

Before submitting a bid in excess of $2,000,000, the Bidder shall have been prequalified with the Department and received a Certificate of Qualification in accordance with the Rules and Regulations approved and adopted by the State Transportation Board. Bidders submitting bids of $2,000,000 or less may be exempt from prequalification requirements. In addition, the aggregate total amount a Non-prequalified Bidder may have under contract shall not exceed $4,000,000.

Bidders intending to consistently submit Proposals shall prequalify at least once a year. However, qualifications may be changed during that period upon the submission of additional favorable reports or upon unsatisfactory performance. In addition, the Department reserves the right at any time to require the Contractor to furnish a current financial and experience statement.

Delete Subsection 102.03 and Substitute the following:

102.03 Contents of Proposal Forms

Upon request, the Department will furnish the prospective Bidder with a Proposal Form. This form will state the location and description of the contemplated construction and will show the approximate estimate of the various quantities and kinds of work to be performed or materials to be furnished, and will have a schedule of Items for which Unit Bid prices are invited. The Proposal Form will state the time in which The Work must be completed, the amount of the Proposal Guaranty, and the date of the opening of Proposals. The Form will also include any Special Provisions or requirements that vary from or are not contained in the *Standard Specifications*. Also included with each Proposal Form will be a Non-Collusion Certificate. All papers bound with or attached to the Proposal Form are considered a part thereof and must not be detached or altered when the Proposal is submitted. The Plans, Specifications, and other documents designated in the Proposal Form will be considered a part of the Proposal whether attached or not. The prospective Bidder will be required to pay the Department the sum stated in the Notice to Contractors for each copy of the Proposal Form and each set of Plans.

Delete Subsection 102.06 and Substitute the following:

102.06 Preparation of Proposal

The Bidder shall submit its Proposal on the form furnished by the Department (GADOT). The blank spaces on the Proposal shall be filled in correctly for each Pay Item (except alternate items) and the Bidder shall write in ink the Unit Price or a Lump Sum Price as called for in the Proposal for each Pay Item listed therein. In addition, the Bidder shall also show the products of the respective Unit Prices and quantities and the total amount of the Bid by adding the amounts of all Bid Items. In the event of a discrepancy in any of the figures, the Unit Price will govern and the Bid will be recalculated.

In addition, the Bidder shall submit a technical proposal which shall include, but is not limited to, the design build firm's detailed project schedule (including those submittals and estimated review periods shown in Table 999-1 of the attached Special Provision 999, and in others areas of Special Provision 999 where due dates are mentioned), total contract time, mobilization assumptions, construction staging assumptions, as well as, a detailed estimate with all material quantities and price assumptions used to form the basis of the bid. The technical proposal shall also include a cost basis for all items described in Section 999.1.03, subsection I, titled „Highways for Life' in Special Provision 999. **The Bidder shall clearly document all assumptions in this technical proposal**. There are no page limit restrictions for the technical proposal.

These items listed above are the minimum requirements of what shall be included in the technical proposal. The intent of the technical proposal is to provide some insight into the Contractor's approach both with schedule and with the assumed quantities and costs used to formulate the bid. As noted in section 999.1.02 "Bids on this project shall reflect designing and constructing the project as shown in the Scope (999.1.03) and applicable portions of the Plans Package. No exceptions shall be assumed by the Contractor. However, alternative proposals on portions of the work will be entertained once the project is awarded." Therefore, no deviations shall be included in the bid or technical proposal.

In the case of Alternate items, Unit Prices shall be entered for only one alternate.

The Non-Collusion Certificate on the Department's standard form included in the Proposal shall be executed.

The Certificate of Current Capacity shall be executed under oath and substantiated by the report of Status of Contracts on Hand.

The Bidder shall purchase from the GADOT Office of Contract Administration, a Proposal Form for each Letting Call Order Number in which the Bidder intends to submit a bid.

If the Proposal is made by an individual, its name and post office address shall be shown; if by a partnership, the name and post office address of one member of the partnership shall be shown; if by a corporation, the Proposal shall show the name, title and business address of the officer signing the Proposal. The Bidder's Proposal shall be signed in ink or by Digital Signature by the individual, by one or more members of a partnership, or by one or more of the officers of a corporation, whichever is applicable. In the event of a joint venture, the Proposal shall be signed in ink or by Digital Signature by each individual involved, by each partnership through one or more of its members, or by each corporation through one or more officers of the corporation, whichever is applicable. Proposals not properly signed may be disqualified and rejected.

All bids in excess of $500,000 shall be submitted using the GADOT/AASHTO (American Association of State Highway and Transportation Officials) Electronic Bidding System (Expedite). When submitting a bid electronically, the Bidder's Proposal shall consist of the Bid pages generated by the Expedite software including the Cover page, Bid Item pages, Disadvantaged Business Enterprise (DBE) pages (if applicable), Miscellaneous Data pages and the Signature page. By submitting a bid electronically, the Bidder acknowledges that all requirements included in the hard copy proposal, amendments, plans, Standard Specifications, and Supplemental Specifications are a part of the Bid and Contract.

The electronic bid shall be submitted by one of the following methods:

A. Hand delivery of the electronic bid to the Department at the place specified in the Notice To Contractors.

The bid shall include the 3 ½ inch (90 mm) electronic diskette and the Bid pages described in paragraph eight, above.

B. Electronic Bid Submission via the Internet and Bid Express™.

(Note: The Bidder shall secure an account and a valid Digital Signature from Bid Express™ (www.bidx.com) in order to use this method.

Instructions for preparing and submitting bids by these two methods are as follows:

A. Hand Delivery of Bid to the Department

1. Access to the electronic bidding information is available on Bid Express™ at www.bidx.com and the GADOT Contract Administration Internet Web Site at www.dot.state.ga.us/dot/construction/contractsadm/index.shtml.
2. Electronic bids shall be prepared through the use of a computer controlled printer.
3. The Bidder shall sign the electronic bid in the appropriate areas.
4. When installing the Bid program the Bidder shall enter the vendor code in the following format: 2DO900. Before running the electronic bidding programs, the Bidder shall read the on-line help documentation for the Expedite software.
5. **Zero (0) is considered to be a valid bid. The Bidder shall not enter 0 in any Unit Price field unless zero is the intended bid for that item.**
6. All addenda shall be included in the electronic bid submitted.
7. For "Joint Bids" the Bidder shall select **tools** from the Windows Expedite menu and mark the electronic bid as **"Joint Bid".**
8. The Bidder shall select **tools** and then **check bid** to check the bid and assure there are no errors prior to printing the electronic bid. After final printing, the Bidder may make changes to the electronic bid by indicating the changes in ink and initialing prior to submitting the bid.
9. Once the Bidder has completed the bid and made all desired changes, the diskette, a printout of the Cover sheet, Bid Item pages, DBE pages (if applicable), Miscellaneous Data pages, and Signature page shall be submitted to the Department. In case of a discrepancy between the diskette and the hard copy of the Bid Item pages, the hard copy will govern.
10. Electronic Bid pages shall be 8 ½ inch (216 mm) horizontal by 11 inches (279 mm) vertical. Bid information shall be placed across the horizontal width on each page.
11. The paper used for an electronic bid shall be of sufficient quality and durability to maintain clear and concise images and to withstand frequent handling.
12. If originally printed on continuous roll paper, electronic bids shall be separated before submitting the Bid to the Department.
13. All computer printed characters shall be legible. The Electronic Bid pages shall be submitted in the bid envelope provided.
14. The diskette shall be submitted in a separate sealed envelope from the Bid pages. The Bidder shall submit all electronic bids on one diskette. The envelope containing the diskette shall include the Bidders name and the Letting Call Order Numbers for which electronic bids are submitted.

B. Electronic Bid Submission Via The Internet And Bid Express™

1. Access to the electronic bidding information is available on Bid Express™ at www.bidx.com and the GADOT Contract Administration Internet Web Site at www.dot.state.ga.us/dot/construction/contractsadm/index.shtml.
2. When installing the Bid program the Bidder shall enter the vendor code in the following format: 2DO900. Before running the electronic bidding programs, the Bidder shall read the on-line help documentation for the Expedite software.
3. **Zero (0) is considered to be a valid bid. The Bidder shall not enter 0 in any Unit Price field unless zero is the intended bid for that item.**
4. All addenda shall be included in the electronic bid submitted.
5. **"Joint Bids" are allowed with Electronic Bid Submission via the Internet and Bid Express™**
6. The Bidder shall select **tools** and then **check bid** from the Windows Expedite menu to check the bid and assure there are no errors prior to submitting the electronic bid. The electronic bid may be changed and resubmitted electronically to Bid Express™ as many times as desired prior to the advertised cutoff time specified in the Notice To Contractors. The last bid submitted for a given Letting Call Order Number prior to the cutoff time will be the Bid.

7. The Bidder shall make no claim against the Department in the event it is unable to submit its bid to Bid Express™ and/or Bid Express™ is unable to submit the bid(s) to the Department. The Department reserves the right to postpone the public reading of bids in the event of technical difficulties.
8. A fully executed Proposal Guaranty and Power of Attorney for each Letting Call Order Number bid shall be submitted by one of the following methods:
   A. Delivery to the GADOT Office of Contract Administration, Room 223, in a sealed envelope by 12:00 noon on the day prior to the Bid Opening. Each Proposal Guaranty shall be clearly and legibly marked with the Letting Call Order Number.
   B. Electronic submission via the Internet and Bid Express™ by the time and date set in the Notice To Contractors for submission of Proposals.

   The Proposal Guaranty for a "Joint Bid" shall include the names of all Joint Venture parties involved in the bid.

Delete Subsection 102.07 and Substitute the following:

102.07 Rejection of Proposals

Proposals may be rejected as irregular if their consideration is conditioned upon the acceptance or rejection of other Proposals submitted by the same Bidder, if the Certificate of Current Capacity is not executed under Oath and substantiated, if a Unit Price is not shown for each Pay Item, or if they fail to comply with the EBS bidding requirements. In the case of alternate items, Unit Prices shall be entered for only one alternate. The Department reserves the right to disqualify and reject any Proposal that is not properly signed in accordance with the requisite of Subsection 102.06.

A. Collusion

Any and all Proposals will be rejected if the Department believes that collusion exists among the Bidders and no participant in such collusion may submit future Proposals for the same work. The Department reserves the right to review and to refuse to consider any Proposal if the Bidder fails to execute the Non-Collusion Certificate.

B. Single Proposals

Only one Proposal from any person, partnership, or corporation under the same or different names shall be submitted on any Project.

C. Unbalanced Bids

Proposals may be rejected if any of the Unit Prices are obviously unbalanced. The Department will decide whether any Unit Prices are unbalanced either excessively above or below a reasonable cost analysis value determined by the Engineer, particularly if these unbalanced amounts are substantial and contrary to the interest of the Department.

D. Omissions and Alterations

Proposals may be rejected as irregular if they show any omissions, alterations of form, additions or conditions not called for, unauthorized alternate bids, erasures or changes not initialed, or other irregularities.

E. Debts

The Department reserves the right to reject Proposals from Bidders who have not paid or satisfactorily settled all legal debts due on other Contracts at the time Proposals are received.

F. Technicalities

The Department reserves the right to reject any and all Proposals and to waive technicalities at any time before the Contract has been signed by the Department.

G. Non-Prequalified Bidders

Proposals submitted in excess of $2,000,000 by non-prequalified contractors under Rule 672-5 of the Department's Rules and Regulations Governing the Prequalification of Prospective Bidders will be disqualified and rejected.

H. Failure to List Disadvantaged Business Enterprise (DBE) Participants

If the contract has an established DBE goal, the Department reserves the right to reject and disqualify any proposal if the bidder has failed to list bona fide DBE participants with sufficient participation to achieve at least the established goal. The Department may consider for award a proposal with less participation than the established goal if both:

- The bidder can demonstrate that no greater participation could be obtained and;
- The participation proposed by the low bidder is not substantially less than the participation proposed by the other bidders on the same contract.

I. Pavement Alternate Selection Declaration

The Proposal will be rejected if the Bidder fails to submit or properly complete the Pavement Alternate Selection Declaration.

J. Non-responsive technical proposal

A proposal will only be considered non-responsive if it does not contain the information noted in paragraph 2 of section 102.06, and any other information necessary to clearly demonstrate those assumptions used to form the basis of the bid.

The technical proposal may be considered non-responsive if the bid or technical proposal contains any deviations from those items shown in the Scope (999.1.03) and applicable portions of the Plans Package.

Delete Subsection 102.09 and Substitute the following:

102.09 Delivery of Proposals

The Bidder's Proposal and the Proposal Guaranty, unless submitted electronically, shall be submitted in a sealed envelope so marked as to identify its contents without being opened. Six (6) copies of the Bidder's technical proposal shall be submitted in a sealed envelope so marked as to identify its contents without being opened. Proposal forms are not transferable. Proposals will be received until the time and date set in the Notice To Contractors and shall be in the hands of the officials indicated by that time. Proposals received after the advertised cutoff time established for submission of Proposals will be returned unopened to the Bidder.

Delete Subsection 102.10 and Substitute the following:

102.10 Withdrawal or Revision of Proposals

Any Bidder may withdraw his Proposal by submitting, by telegram, letter, or facsimile transmission received prior to the advertised cutoff time specified in the Notice To Contractors and verified by the Department, a DEPARTMENT OF TRANSPORTATION BID PROPOSAL WITHDRAWAL FORM, completed by an authorized officer of the company, whose signature is legally binding upon said company.

Any Bidder may submit a Bid change, by telegram, letter, or facsimile transmission received prior to the advertised cutoff time specified in the Notice To Contractors and verified by the Department, completed by an authorized officer of the company, whose signature is legally binding upon said company. In which case, the Department will change the Bid at the time of opening and at such time will announce that a change was received.

Add the following:

102.15 Submittal of "Certificate of Current Capacity" and "Status of Contracts on Hand"

The apparent low Bidder for each Letting Call Number shall submit the executed "Certificate of Current Capacity" and the "Status of Contracts on Hand" to the GADOT Office of Contract Administration, Room 223, in a sealed envelope by 12:00 noon on the first working day after the Bid Opening.

If the “Certificate of Current Capacity” and the „Status of Contracts on Hand” are not delivered to the GADOT Office of Contract Administration, Room 223, in a sealed envelope by 12:00 noon on the first working day after the Bid Opening, the Bid may be subject to disqualification.

First Use Date: January 14, 2005
Revised February 28, 2007

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

SECTION 102-Bidding Requirements and Conditions

The use of the Electronic Bid Bond Form in Expedite will be accepted by the Department for compliance with the Notice To Contractors requirement to utilize the "Bid Bond Form DOT 564-Rev. Dec. 13, 2004".

Office of Contract Administration

Georgia Department of Transportation

State of Georgia

Supplemental Specification

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 107—Legal Regulations and Responsibility to the Public

Delete Subsection 107.23 and Substitute the following:

107.23 Environmental Considerations

A. Construction

Erosion control measures shall be installed, to the greatest practical extent, prior to clearing and grubbing. Particular care shall be exercised along stream banks, wetlands and other sensitive areas to insure that these areas are not adversely affected.

Construction equipment shall not cross streams, rivers, or other waterways except at temporary stream crossing structures approved by the Engineer.

Construction activities within wetland areas are prohibited except for those within the construction limits as shown on the Plans and as specified in Subsection 107.23.E.

All sediment control devices (except sediment basins) installed on a project shall, as a minimum, be cleaned of sediment when one half the capacity, by height, depth or volume, has been reached. Sediment basins shall be cleaned of sediment when one-third the capacity by volume has been reached.

B. Bridge Construction Over Waterways

Construction waste or debris, from bridge construction or demolition, shall be prevented from being allowed to fall or be placed into wetlands, streams, rivers or lakes.

Excavation, dewatering, and cleaning of cofferdams shall be performed in such a manner as to prevent siltation. Pumping from cofferdams to a settling basin or a containment unit will be required if deemed necessary by the Engineer.

Operations required within rivers or streams, i.e. jetting or spudding, shall be performed within silt containment areas, cofferdams, silt fence, sediment barriers or other devices to minimize migration of silt off the project.

C. Borrow and Excess Material Pits

Specific written environmental clearance from the Engineer will be required for any sites not included in the Plans as excess material or borrow areas. No work other than testing shall be started at any potential excess material or borrow site not shown on the plans prior to receiving said environmental clearance from the Engineer.

The Engineer will require a written notice from the Contractor requesting environmental clearance studies and written permission from the property owner at least six weeks prior to intended use of the site. The Department will not begin studies on such sites before a Notice to Proceed is issued.

The Engineer will inform the Contractor in writing as to the granting or denial of environmental clearance. If denied, the Contractor may, at no expense to the Department, seek to obtain permits or pursue other remedies that might otherwise render the site(s) acceptable.

Sites included in the Plans have environmental clearance and shall be used only for the purpose(s) specified in the Plans or other contract documents. Should the Contractor wish to expand or utilize said sites for any purpose other than that provided for in the Plans or other contract documents, specific written environmental clearance as noted above shall be obtained.

D. Control of Pollutants

Pollutants or potentially hazardous materials, such as fuels, lubricants, lead paint, chemicals or batteries, shall be transported, stored, and used in a manner to prevent leakage or spillage into the environment. The Contractor shall also be responsible for proper and legal disposal of all such materials.

Equipment, especially concrete or asphalt trucks, shall not be washed or cleaned-out on the Project except in areas where unused product contaminants can be prevented from entering waterways.

E. Temporary Work in Wetlands Outside of the Construction Limits within the Right-of-Way and Easement Areas

Temporary work in wetlands (that are not Environmentally Sensitive Areas) in order to facilitate construction will be subject to the following requirements:

1. Temporary work in wetlands shall be accomplished by using temporary structures, timber, concrete, soil with geotextile fabric, or other suitable matting. The area shall not be grubbed.
2. Soil matting shall be protected from erosion in accordance with the Specifications.
3. Whenever temporary work is required in Saltwater Marsh Wetlands, all temporary structures and/or matting shall be removed in their entirety prior to Final Acceptance of the Project. Matted and compressed soils shall be backfilled to their original ground elevation with material meeting the requirements of Section 212 – Granular Embankment.
4. Whenever temporary work is required in Freshwater Wetlands, all temporary structures and/or matting (exclusive of soil matting to be retained in the final roadway section) shall be removed in their entirety prior to Final Acceptance of the Project.

   Once the temporary materials have been removed, the area shall be covered by Excelsior or Straw blankets according to Section 713 of the Specifications. The grassing and ground preparation referenced in Subsection 713.3.03, "Preparation", will not be applicable to this Work.
5. The Engineer shall be notified so that a field inspection may be conducted to certify that the temporary materials were properly removed and that the area was properly restored. The Contractor shall be responsible for any corrective action required to complete this Work.
6. There will be no separate measurement or payment for this Work. The cost associated with this work shall be included in the overall Bid submitted.

F. Environmentally Sensitive Areas

Some archaeological sites, historic sites, wetlands, streams, and protected animal and plant species habitats may be specially designated as ENVIRONMENTALLY SENSITIVE AREAs (ESAs). These areas are shown on the Plan sheets and labeled "ESA". Also, all archaeological sites, historic sites, wetlands, and streams beyond the Right-of-Way and easement areas are ENVIRONMENTALLY SENSITIVE AREAS.

The Contractor shall not perform any construction related activities, including but not limited to, borrowing, wasting, grading, filling, staging, parking, sediment basins, equipment storage within ENVIRONMENTALLY SENSITIVE AREAS unless specifically stated in the Plans (e.g., landscaping within a historic boundary).

All ESAs within the Project Right-of-Way and easement areas shall be marked with orange plastic barrier fence placed around the perimeter of the areas as directed by the Engineer.

As part of the Programmatic Agreement between the USACE, SHPO, and GDED, the following items will be completed for Site 9TP990 ESA:
-No clearing, grubbing, or other earth-disturbing activities shall be permitted within the boundaries of the site.
-No construction staging or other construction related activities shall be allowed on the site.
-Orange plastic barrier fencing along with signs noting "off limits" shall be placed outside of the site (a minimum of 25-feet from the surveyed boundary of the site), and silt fencing shall be installed at the limits of all proposed construction which

would be adjacent to the construction fencing in order to prevent soil from adjacent construction activities from migrating onto the site. The placement of the orange fencing shall be supervised by a professional archaeologist.
-Fencing will be inspected twice weekly (once at the beginning of the work week and once at the end of the work week) to insure protection of the site. These inspections can be completed by a construction inspector.
-If any damage or encroachment to the site is identified by the construction inspector, the professional archaeologist shall assess the situation to determine any damage and define the needs for any corrective action.

As per the 25-foot Vegetative Buffer variance granted by the Georgia Department of Natural Resources on September 26, the following requirements shall be met at all stream crossings:
:
- All graded slopes 3:1 or greater must be hydroseeded and covered with DOT approved wheat straw, wood fiber matting or coconut fiber matting. If not hydroseeded, the DOT approved matting. All slopes must be properly protected until a permanent vegetative stand is established;
- The amount of land cleared during construction must be kept to a minimum;
- All disturbed areas must be seeded, fertilized, and mulched as soon as the final grade is achieved. Also, these disturbed areas must be protected until permanent vegetation is established;
- DOT type "C" silt fencing must be installed where silt fencing is required on the entire site and a double row must be installed between the land disturbing activities and State waters;
- Buffer variance conditions must be incorporated into any Land Disturbing Activity Permit which may be issued by Troup County for this project: and,
- This project must be conducted in strict adherence to the approved erosion and sedimentation control plan and any other Land Disturbing Activity Permit that may be issued by Troup County for this project.

Any stream crossing that does not meet the standard GDOT exemption of 50-feet on either side of a culvert or 100-feet on either side of a bridge would be required to place orange plastic barrier fencing a minimum of 25-feet from the point that the natural vegetation is wrested by the stream to ensure that no construction or clearing is completed within that 25-foot buffer area.

All barrier fence shall remain in place until such time that the Engineer directs that it shall be removed. The cost of this work shall be included in the overall Bid.

First Use Date: August 18, 2006
Revised February 28, 2007

Georgia Department of Transportation

State of Georgia

Supplemental Specification

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 107—Legal Regulations and Responsibility to the Public

Delete Subsection 107.12 and substitute the following:

107.12 Use of Explosives

When the use of explosives is necessary for the prosecution of The Work, the Contractor shall exercise the utmost care not to endanger life or property, and shall obey all State, Federal and other Governmental regulations applying to transportation, storage, use, and control of such explosives. The Contractor shall be completely responsible for any and all damage resulting from the transportation, storage, use, and control of explosives in the prosecution of The Work by the Contractor, the Contractor's agents, or employees; and shall hold the Department harmless from all claims of damages resulting in any manner therefrom.

The Contractor shall notify each public utility owner having structures or other installations, above or below ground, near the site of The Work of his intention to use explosives. Such notice shall be given sufficiently in advance to enable the utility owners to take such steps as they may deem necessary to protect their property from injury. Such notice shall not relieve the Contractor of responsibility for all damages resulting from his blasting operations.

All explosives shall be stored securely in compliance with all laws and ordinances, and all such storage places shall be clearly marked DANGEROUS EXPLOSIVES. Explosives and detonators shall be stored in separate storage facilities in separate areas. Where no laws or ordinances apply, locked storage shall be provided satisfactory to the Engineer, never closer than 1,000 ft (300 m) from any travel-road, building, or camping area.

In all cases where the transport, storage, or use of explosives is undertaken, such activities shall be controlled and directed by fully qualified representatives of the Contractor.

Whenever electric detonators are used, all radio transmitters shall be turned off within a radius of 500 ft (150 m). No blasting supplies shall be transported in vehicles with two-way radio unless the transmitter is turned off, or extra shielding precautions are taken. Appropriate signs shall be placed so as to give ample warning to anyone driving a vehicle equipped with two-way radio. Electrical detonators will not be used within 500 ft (150 m) of a railroad.

Submit a blasting plan to the Engineer a minimum of five working days prior to the use of explosives, that provides details of the proposed blasting plan, including, but not limited to, the type and amount of explosives, the shot sequence, the description of and distance to the closest inhabitable structure, and other information as requested by the Engineer. Do not begin blasting until the blasting plan has been reviewed and approved in writing by the Engineer. Such approval does not relieve the contractor of the responsibility for the adequate and safe performance of the blasting.

First Use Date: October 20, 2006
Revision Date: July 20, 2007

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

Supplemental Specification
Project Number: CSNHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 149 – Construction Layout

Delete Section 149 and substitute the following:

149.1 General Description

Perform construction layout to guide and control performance of items of the work according to this Specification.

This work includes:

- Placing, replacing (if necessary), and maintaining construction layout points.
- Preparing construction layout drawings, sketches, and computations.
- Recording data in field books such as alignment, slope stake, blue top, drainage layout, bridge, and other books used for layout for this Project.

149.1.01 Definitions

General Provisions 101 through 150

149.1.02 Related References

A. Standard Specifications

General Provisions 101 through 150

B. Referenced Documents

General Provisions 101 through 150

149.1.03 Submittals

Submit the following documentation to the Department:

A. Project Construction Records

These records detail information that the Department uses to determine the template line for the as-built cross sections, which defines the computation line for unclassified excavation. These records include:

- Survey records
- Bound field notebooks
- Computer printouts that record the Project's construction

Prepare the records as directed by the Engineer.

B. Survey Documents

Furnish the Engineer with a copy of survey documents that relate to construction layout. Provide these documents when the Engineer requests or as they are completed. The Engineer may check the documents for accuracy and may require revisions where necessary. The documents become Department property and will be included in the permanent Project records.

C. Drainage Structure Sketches

Profile both inlet and outlet ends of proposed drainage structures for at least 100 ft (30 m) in the existing ditch line or stream bed. Adjust flowline elevations, if necessary, to enhance the hydraulics and to reduce silting, scouring, or backwater.

Calculate the length of each structure and provide sketches of the structure to the Engineer for review and approval at least 24 hours before beginning the work.

D. Bridge Layout Sketch

Furnish a layout sketch before staking on bridges. After staking, submit a revised sketch for the Engineer's review and approval before beginning construction. Include in the layout sketch relevant stations, angles, dimensions, and redundant checks including exterior beam dimensions in each span. Also include all horizontal and vertical clearances with calculations that verify the clearances shown.

Submit for the Engineer's review and approval survey data and calculations with the layout sketch and information required for bent construction.

Verify the Plan elevations for all bridge bearing seats on the substructure.

E. Wall Layout Sketches

Submit sketches and other data verifying either that the wall will fit the final field conditions, or indicate where revisions are necessary. Submit these sketches well before the wall construction begins so the Engineer can make any necessary structural design changes.

149.2 Materials

General Provisions 101 through 150

149.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150

149.3 Construction Requirements

General Provisions 101 through 150

149.3.01 Personnel

Furnish personnel capable of establishing line and grade points necessary to complete the work. Establish these points within the generally accepted surveying tolerances, and ensure that they are acceptable for the work being performed.

149.3.02 Equipment

Furnish surveying equipment, stakes, and all materials necessary to perform the work, subject to the Engineer's approval.

149.3.03 Preparation

A. General Pre-Construction

Before beginning construction:

1. Ensure that plan dimensions, alignment, and elevations are compatible with existing field conditions. Make adjustments where necessary.
2. Ensure alignment tie-ins by coordinating construction layout with that of other Contractors whose work abuts any portion of the work. All adjustments are subject to the Engineer's approval.

B. Widening and Reconstruction

Before beginning construction where existing pavement is to be retained either for widening or for reconstruction:

1. Take three-point levels of the pavement throughout the length to be retained.

   Normally, the three-point levels will be required at 50 ft (15 m) intervals. However, the Engineer may adjust these intervals according to existing field conditions. Three-point levels are not required on asphalt shoulder widening projects and earth shoulder reconstruction projects.
2. From the three-point levels, prepare a graphic grade plot that "best fits" the existing pavement to minimize the leveling requirements (if any) of the existing roadway. Cross slopes may be varied within the ranges shown on the Plans or adjusted by the Engineer to produce the "best fit."
3. On passing lane or widening Projects where existing pavement is not to be overlaid:
   a. Profile and plot the outside edge of the existing pavement to obtain a smooth profile grade.
   b. Transfer this grade to the new edge of paving using the proper cross slope.
4. Furnish data to the Engineer for approval before beginning widening and reconstruction.
5. On widening, reconstruction, or passing lane projects, obtain the Engineer's approval of the "best fit" profile. Ensure that grade stakes are set to control the construction of any required widening based upon the "best fit" profile and cross slope. Construct proposed widening flush with the existing edge of paving. Provide positive drainage in all cases.

C. Existing Bridge Widening or Modification

To widen or modify existing bridges, do the following before ordering materials or beginning construction:

1. Verify existing elevations and dimensions as well as confirm or determine required new cap elevations.
2. Profile the removal line and cross section the existing deck.
3. Use this profile information to determine a "best fit" finished grade for the widened portion.
4. Compute the new cap elevations based on this "best fit" information.
5. Furnish survey data, layout sketch, and calculations to the Engineer for approval.

D. Retaining Wall Construction Layout

Set stakes, take necessary cross sections, and perform necessary calculations at each wall before beginning wall construction to ensure that the geometric design of the retaining wall conforms to actual conditions.

149.3.04 Fabrication

General Provisions 101 through 150

149.3.05 Construction

A. Verify Plan Elevations

Verify plan elevations for all bridge bearing seats on the substructure.

B. Verify Bent Layout

After bent construction has begun, verify bent layout at each major phase of the construction to ensure that the bent is properly positioned in relation to adjacent bents.

C. Establish the Centerline

Establish the centerline as follows:

1. Establish or reestablish the centerline from the monuments and/or reference points the Department will provide.
2. On widening or reconstruction Projects, establish the horizontal and vertical alignment of the existing roadway and bridges.
3. Modify the Plan horizontal and vertical alignment to conform to the existing alignment as necessary.

D. Verify the Accuracy of the Bench Mark(s)

The Department will furnish at least one bench mark that the Contractor shall preserve, and if necessary, relocate as follows:

1. Verify the accuracy of the bench mark(s) and report discrepancies to the Engineer.
2. Establish additional benchmarks needed for construction.
3. Maintain the bench marks for necessary Department checks.

E. Flag In-Place Survey Control Monuments

Flag and protect in-place survey control monuments and reference points, including Right-of-Way/property line intersections, as follows:

1. Pay for and replace destroyed or disturbed stakes or monuments.
2. When included as Pay Items, stake Right-of-Way markers.

F. Line, Grades, and Stakes

Set other line and grade stakes needed to construct the job, including stakes needed to relocate utilities. Stake the Right – of-Way and maintain throughout the life of the project. Restake flattened slopes, minor grade or alignment changes, and other incidentals.

G. Stake Centerline Control Alignments

Stake centerline control alignments shown on the Plans or adjusted as described above when the Department needs accurate measurement of quantities for payment. Stake these control alignments as follows:

1. Stake the alignments to an accuracy of 1:5000.
2. Stake the alignments just before the Department takes aerial photography or field cross sections for both original and final cross sections.
3. Provide the Department with elevations of positions staked for the Department's quantity measurements. Ensure that these elevations are of third order accuracy, or better. Determine them using the differential leveling method.
4. Take intermediate cross sections required because of stage construction, detours, or other reasons.

H. Provide Graphic Sketches

Prepare and use graphic sketches of superelevation runout on curves on multi-lane roadways and of tie-ins of ramps to mainline on freeways and expressways to help provide positive drainage, adequate superelevation, and a pleasing appearance. Prepare and use similar sketches for street or roadway intersections.

I. Maintain the Stakes

After construction has begun in any segment of the Project, maintain the stakes that identify construction station numbers and locations as follows:

1. Ensure that stakes are placed at intervals not to exceed 200 ft (60 m) and use even, 100 ft (30 m) stations. On asphalt shoulder widening and earth shoulder reconstruction projects use mile post numbers when stations are not used.

   Mark and flag stakes so that they are visible to DOT Project personnel in that segment of the Project until construction is complete.
2. During grading activities in fills or cuts over 20 ft (6 m), extend slope stakes up or down the slopes in intervals of 10 ft (3 m) or less to achieve an accurate cross section.
3. Denote the offset distance to the construction centerline on the station number stakes, when the station number is maintained in a location other than on the construction centerline. On asphalt shoulder widening and earth shoulder reconstruction projects use the offset to the edge of pavement on the stakes.

J. Traffic Markings

When traffic markings are to be placed by either the Contractor or others, furnish the layout and clean and preline the surface to allow the placement of permanent pavement markings on the Project.

When traffic markings are not included in the Project plans, the Department will provide striping plans and/or standard drawings for the Contractor's use.

K. Provide Bridge Construction Layout

Provide alignment control, grade control, and calculations to set these controls for bridge construction.

For new bridges, the Department will furnish the necessary input data forms for the Department's "Bridge Geometry" computer program upon the Contractor's request. The Department will process the data to help the Contractor obtain finished deck elevations.

Data processing is available only as an alternate service to determine elevations. If this service is elected for use, prepare the input data and the Department will furnish the output data. The following limitations apply:

- The Department will not assume liability for the accuracy of either input or output data.
- The Department will limit this service to two programs per bridge.
- This service is not available for existing bridges that are to be widened. Finished deck elevations for bridges that are to be widened will not be furnished.

149.3.06 Quality Acceptance

The Engineer's acceptance of all or any part of the Contractor's layout shall not relieve the Contractor of responsibility to secure proper dimensions for the completed work. Correct at the Contractor's expense work incorrectly located due to layout error.

149.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150

149.4 Measurement

This item is not measured for payment.

149.4.01 Limits

General Provisions 101 through 150

149.5 Payment

This work is not paid for separately. The costs for performing layout work as described in this Specification are included in the bid for the items of work to which the layout is incidental.

Any unnecessary work, overruns, costs, etc., resulting from inaccurate data submitted by the Contractor will be deducted from Contractor payments.

149.5.01 Adjustments

General Provisions 101 through 150

Rev. July 1, 2003
April 15, 2004
October 11, 2005
October 25, 2005
February 10, 2006
April 20, 2006
March 1, 2007

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Section 150—Traffic Control

Add the following:

150.01 GENERAL

This section as supplemented by the Plans Package (or Contractor Plans accepted during construction), Specifications, and Manual on Uniform Traffic Control Devices (MUTCD) shall be considered the Traffic Control Plan. Activities shall consist of furnishing, installing, maintaining, and removing necessary traffic signs, barricades, lights, signals, cones, pavement markings and other traffic control devices and shall include flagging and other means for guidance and protection of and vehicular pedestrian traffic through the Work Zone. This Work shall include both maintaining existing devices and installing additional devices as necessary in construction work zones.

When any provisions of this Specification or the Plans do not meet the minimum requirements of the MUTCD, the MUTCD shall control. The 2003 Edition of the MUTCD shall be in effect for the duration of the project.

The Worksite Traffic Control Supervisor (WTCS) shall have a copy of Part VI of the MUTCD on the job site. Copies of the current MUTCD may be obtained from the FHWA web page at http://mutcd.fhwa.dot.gov.

A. WORKSITE TRAFFIC CONTROL SUPERVISOR

ALL HIGHWAYS (ADDITIONAL REQUIREMENTS BELOW FOR INTERSTATES): The Contractor shall designate a qualified individual as the Worksite Traffic Control Supervisor (WTCS) who shall be responsible for selecting, installing and maintaining all traffic control devices in accordance with the Plans, Specifications, Special Provisions and the MUTCD. A written resume documenting the experience and credentials of the WTCS shall be submitted and accepted by the Engineer prior to beginning any work that involves traffic control. The WTCS shall be available on a twenty-four (24) hour basis to perform his duties. If the work requires traffic control activities to be performed during the daylight and nighttime hours it may be necessary for the Contractor to designate an alternate WTCS. An alternate WTCS must meet the same requirements and qualifications as the primary WTCS and be accepted by the Engineer prior to beginning any traffic control

duties. The Worksite Traffic Control Supervisor's traffic control responsibilities shall have priority over all other assigned duties.

As the representative of the Contractor, the WTCS shall have full authority to act on behalf of the Contractor in administering the Traffic Control Plan. The WTCS shall have appropriate training in safe traffic control practices in accordance with Part VI of the MUTCD. In addition to the WTCS all other individuals making decisions regarding traffic control shall meet the training requirements of the Part VI of the MUTCD.
The WTCS shall supervise the initial installation of traffic control devices. The Engineer prior to the beginning of construction will review the initial installation. Modifications to traffic control devices as required by sequence of operations or staged construction shall be reviewed by the WTCS.

The WTCS shall be available on a full-time basis to maintain traffic control devices with access to all personnel, materials, and equipment necessary to respond effectively to an emergency situation within forty-five (45) minutes of notification of the emergency.

The WTCS shall regularly perform inspections to ensure that traffic control is maintained. Unless modified by the special conditions or by the Engineer, routine deficiencies shall be corrected within a twenty-four (24) hour period. Failure to comply with these provisions shall be grounds for dismissal from the duties of WTCS and/or removal of the WTCS from the project. Failure of the WTCS to execute his duties shall be considered as non-performance under Subsection 150.08.

The Engineer will periodically review the work for compliance with the requirements of the traffic control plan.

On projects where traffic control duties will not require full time supervision, the Engineer may allow the Contractor's Project Superintendent to serve as the WTCS as long as satisfactory results are obtained.

CERTIFIED WORKSITE TRAFFIC CONTROL SUPERVISOR
ADDITIONAL REQUIREMENTS FOR INTERSTATE AND LIMITED ACCESS HIGHWAYS: In addition to the requirements above, the WTCS shall have a minimum of one year's experience directly related to work site traffic control in a supervisory or responsible capacity. The WTCS shall be currently certified by the American Traffic Safety Services Association (ATSSA) Work Site Traffic Supervisor Certification program, the National Safety Council Certification program or an equal approved by the Department.

Any work performed on the interstate or limited access highway right-of-way that requires traffic control shall be supervised by the Certified Worksite Traffic Control Supervisor. No work requiring traffic control shall be performed unless the certified WTCS is on the worksite. Failure to maintain a Certified Worksite Traffic Control Supervisor on the work will be considered as non-performance under Subsection 150.08.

The WTCS shall perform, as a minimum, weekly traffic control inspections on all interstate and limited access highways. The inspection shall be reported to the Engineer on a TC-1 report. The Engineer will furnish a blank copy of the TC-1 report to the Contractor prior to the beginning of any work on the interstate or limited access right-of-way.

B. TRAFFIC CONTROL DEVICES

All traffic control devices used during the construction of a project shall meet the Standards utilized in the MUTCD, and shall comply with the requirements of these Specifications, Project Plans, and Special Provisions. All devices shall be tested at NCHRP Test Level III. Reference is made to Subsections 104.05, 107.07, and 107.09.

C. REFLECTORIZATION REQUIREMENTS

All rigid fluorescent orange construction warning signs (black on fluorescent orange) shall meet the reflectorization and color requirements of ASTM Type VII, VIII, IX or X regardless of the mounting height.

Portable signs which have flexible sign blanks shall meet the reflectorization and color requirements of ASTM Type VI.

Warning signs (W3-1a) for stop conditions that have rumble strips located in the travelway shall be reflectorized with ASTM Type IX fluorescent yellow sheeting.

All other signs shall meet the requirements of ASTM Type III or IV except for "Pass With Care" and "Do Not Pass" signs which may be ASTM Type I unless otherwise specified.

CHANNELIZATION DEVICES: Channelization devices shall meet the requirements of ASTM Type III or IV high intensity sheeting.

D. IMPLEMENTATION REQUIREMENTS

No work shall be started on any project phase until the appropriate traffic control devices have been placed in accordance with the Project requirements. Changes to traffic flow shall not commence unless all labor, materials, and equipment necessary to make the changes are available on the Project.

When any shift or change is made to the location of traffic or to the flow patterns of traffic, the permanent safety features shall be installed and fully operational before making the change. If staging or site conditions prevent the installation of permanent features then the equivalent interim devices shall be utilized.

Any section of the work that is on new location shall have all permanent safety features installed and fully operational before the work is opened to traffic. Safety features shall include but are not limited to the following items:

1. Guardrail including anchors and delineation
2. Impact attenuators
3. Traffic signals
4. Warning devices
5. Pavement markings including words, symbols, stop bars, and crosswalks
6. Roadway signs including regulatory, warning, and guide

Outdoor lighting shall be considered as a safety feature for welcome centers, rest areas, and weigh station projects. For typical roadway type projects new street lighting is not considered a safety feature unless specifically noted in the plans or in the special conditions.

E. MAINTENANCE OF TRAFFIC CONTROL DEVICES

Traffic control devices shall be in acceptable condition when first erected on the project and shall be maintained in accordance with Subsection 104.05 throughout the construction period. All unacceptable traffic control devices shall be replaced within 24 hours. When not in use, all traffic control devices shall be removed, placed or covered so as not to be visible to traffic. All construction warning signs shall be removed within seven calendar days after time charges are stopped or pay items are complete. If traffic control devices are left in place for more than ten days after completion of the Work, the Department shall have the right to remove such devices, claim possession thereof, and deduct the cost of such removal from any monies due, or which may become due, the Contractor.

F. TRAFFIC INTERRUPTION RESTRICTIONS:

The Department reserves the right to restrict construction operations when, in the opinion of the Engineer, the continuance of the Work would seriously hinder traffic flow, be needlessly disruptive or unnecessarily inconvenience the traveling public. The Contractor shall suspend and/or reschedule any work when the Engineer deems that conditions are unfavorable for continuing the Work.

Advanced notification requirements to the Contractor to suspend work will be according to the events and the time restrictions outlined below:

Incident management	No advanced notice required
Threatening/Inclement weather	24 hours
Holidays. sporting events, unfavorable conditions	Three (3) calendar days

If the work is suspended, the Contractor may submit a request for additional contract time as allowed under Section 108. The Department will review the request and may grant additional contract time as justified by the impact to the Contractor's schedule. Compensation for loss of productivity, rescheduling of crews, rental of equipment or delays to the Contractor's schedule will not be considered for payment. Additional contract time will be the only consideration granted to the Contractor.

G. SEQUENCE OF OPERATIONS

Any Sequence of Operations provided in this Contract in conjunction with any staging details which may be shown in the plans, is a suggested sequence for performing the Work. It is intended as a general staging plan for the orderly execution of the work while minimizing the impact on the mainline, cross-streets and side streets. The Contractor shall develop detailed staging and traffic control plans for performing specific areas of the Work including but not limited to all traffic shifts, detours, bridge widenings, paces, or other activities that disrupt traffic flow. The Engineer may require detailed staging and traffic

control plans for lane closures. These plans shall be submitted for approval at least two weeks prior to the scheduled date of the activity. Activities that have not been approved at least seven (7) days prior to the scheduled date shall be rescheduled.

Where traffic is permitted through the work area under stage construction, the Contractor may choose to construct, at no additional expense to the Department, temporary on-site bypasses or detours in order to expedite the work. Plans for such temporary bypasses or detours shall be submitted to the Engineer for review and approval 30 calendar days prior to the proposed construction. Such bypasses or detours shall be removed promptly when in the opinion of the Engineer, they are not longer necessary for the satisfactory progress of the Work. Bypasses and detours shall meet the minimum requirements of Subsection 150.02.B.4.

As an option to the Sequence of Operations in the Contract, the Contractor may submit an alternative Sequence of Operations for review and approval. A twenty calendar day lead time for the Department's review shall be given to this submission so that a decision on its acceptability can be made and presented at the Preconstruction Conference. Insufficient lead time or no submission by the Contractor shall be construed as acceptance of the Sequence of Operations outlined in the Contract and the willingness of the Contractor to execute this as-bid plan.

The Department will not pay, or in any way reimburse the Contractor for claims arising from the Contractor's inability to perform the Work in accordance with the Sequence of Operations provided in the Contract or from an approved Contractor alternate.

The Contractor shall secure the Engineer's approval of the Contractor's proposed plan of operation, sequence of work and methods of providing for the safe passage of vehicular and pedestrian traffic before it is placed in operation. The proposed plan of operation shall supplement the approved traffic control plan. Any major changes to the approved traffic control plan, proposed by the Contractor, shall be submitted to the Department for approval.

Some additional traffic control details will be required prior to any major shifts or changes in traffic. The traffic control details shall include, but not be limited to, the following:

1. A detailed drawing showing traffic locations and laneage for each step of the change.

2. The location, size, and message of all signs required by the MUTCD, Plan, Special Provisions, and other signs as required to fit conditions. Any portable changeable message signs used shall be included in the details.

3. The method to be used in, and the limits of, the obliteration of conflicting lines and markings.

4. Type, location, and extent of new lines and markings.

5. Horizontal and vertical alignment and superelevation rates for detours, including cross-section and profile grades along each edge of existing pavement.

6. Drainage details for temporary and permanent alignments.

7. Location, length, and/or spacing of channelization and protective devices (temporary barrier, guardrail, barricades, etc.)

8. Starting time, duration and date of planned change.

9. For each traffic shift, a paving plan, erection plan, or work site plan, as appropriate, detailing workforce, materials, and equipment necessary to accomplish the proposed work. This will be the minimum resource allocation required in order to start the work.

   A minimum of three copies of the above details shall be submitted to the Engineer for approval at least 14 days prior to the anticipated traffic shift. The Contractor shall have traffic control details for a traffic shift which has been approved by the Engineer prior to commencement of the physical shift. All preparatory work relative to the traffic shift, which does not interfere with traffic, shall be accomplished prior to the designated starting time. The Engineer and the Contractor's representative will verify that all conditions have been met prior to the Contractor obtaining materials for the actual traffic shift.

H. COMPLIANCE DATES FOR PROVISIONS OF THE MUTCD:

Federal law requires that traffic control devices (temporary or permanent) installed on new highway or bikeway construction or reconstruction shall be compliant with the latest version of the MUTCD before the road is opened to the public for unrestricted travel. The latest version of the MUTCD is the 2003 Edition, which the Georgia Department of Transportation has adopted. However, the FHWA, in the introduction to the MUTCD has established alternate compliance dates for some of the new provisions of the 2003 MUTCD. Below is a list of those compliance dates. The Department may decide to require contractors to implement some or all of these provisions at an earlier date than the compliance dates noted below. However notice will be given in advance of the letting date if these provisions are to be implemented prior to the compliance dates. The contractor may also decide to implement the new provisions in the 2003 MUTCD earlier than required by the compliance dates below.

The target dates established by the FHWA shall be as follows:

Section 6D.01 Pedestrian Considerations – all new provisions for pedestrian accessibility – 5 years from the effective date of the Final Rule for the 2003 MUTCD.
Section 6D.02 Accessibility Considerations – 5 years from the effective date of the Final Rule for the 2003 MUTCD.
Section 6D.03 Worker Safety Considerations – high-visibility apparel requirements – 3 years from the effective date of the Final Rule for the 2003 MUTCD.
Section 6E.02 High-Visibility Safety Apparel – high-visibility apparel requirements for flaggers – 3 years from the effective date of the Final Rule for the 2003 MUTCD.

The effective date of the Final Rule for the 2003 MUTCD is December 22, 2003.

150.02 TEMPORARY TRAFFIC CONTROL ZONES:

A. DEVICES AND MATERIALS:

In addition to the other provisions contained herein, work zone traffic control shall be accomplished using the following means and materials:

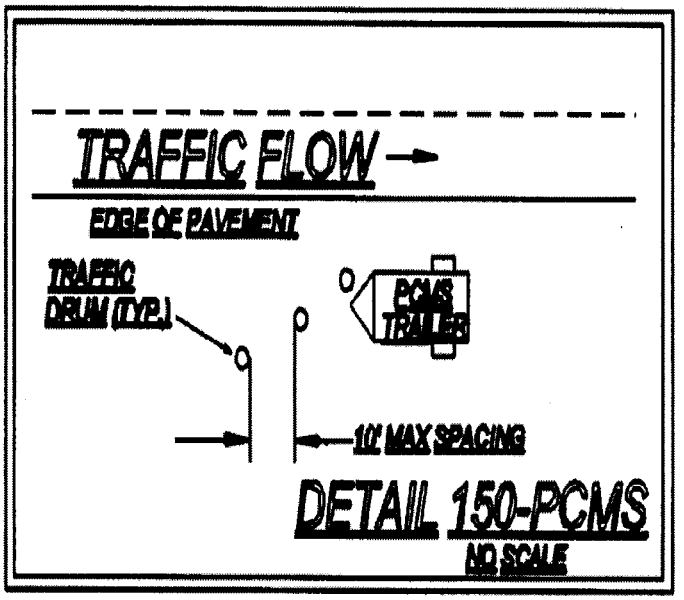
1. **Portable Advance Warning Signs**
   Portable advance warning signs shall be utilized as per the requirements of the traffic control plans. All signs shall meet the requirements of the MUTCD and shall be NCHRP 350 crashworthy compliant.

2. **Arrow Panels**
   Portable sequential or flashing arrow panels as shown in the Plans or Specifications for use on Interstate or multi-lane highway lane closure only, shall be a minimum size of 48" high by 96" wide with not less than 15 lamps used for the arrow. The arrow shall occupy virtually the entire size of the arrow panel and shall have a minimum legibility distance of one mile. The minimum legibility distance is that distance at which the arrow panel can be comprehended by an observer on a sunny day, or clear night. Arrow panels shall be equipped with automatic dimming features for use during hours of darkness. The arrow panels shall also meet the requirements for a Type C panel as shown in the MUTCD. The sequential or flashing arrow panels shall not be used for lane closure on two-lane, two-way highways when traffic is restricted to one-lane operations in which case, appropriate signing, flaggers and when required, pilot vehicles will be deemed sufficient.

   The sequential or flashing arrow panels shall be placed on the shoulder at or near the point where the lane closing transition begins. The panels shall be mounted on a vehicle, trailer, or other suitable support. Vehicle mounted panels shall be provided with remote controls. Minimum mounting height shall be seven feet above the roadway to the bottom of the panel, except on vehicle mounted panels which should be as high as practical.

   For emergency situations, arrow display panels that meet the MUTCD requirements for Type A or Type B panels may be used until Type C panels can be located and placed at the site. The use of Type A and Type B panels shall be held to the minimum length of time possible before having the Type C panel(s) in operation. The Engineer shall determine when conditions and circumstances are considered to be emergencies. The Contractor shall notify the Engineer, in writing, when any non-specification arrow display panel(s) is being used in the work.

3. **Portable Changeable Message Signs**
   Portable changeable message signs meeting the requirements of Section 632 and the MUTCD. Any PCMS in use that is not protected by positive barrier protection shall be delineated by a minimum of three drums that meet the requirement of Subsection 150.05.A.1. The drum spacing shall not exceed a maximum of ten (10') feet as shown in Detail 150-PCMS. When the PCMS is within twenty (20') feet of the opposing traffic flow, the trailing end of the PCMS shall be delineated with a minimum of three drums spaced in the same manner as the approach side of the PCMS.



When not in use the PCMS shall be removed from the roadway unless protected by positive barrier protection. If the PCMS is protected by positive barrier protection the sign panel shall be turned away from traffic when not in use.

4. **Channelization Devices**
   Channelization devices shall meet the standards of the MUTCD and Subsection 150.05.

5. **Temporary Barrier**
   Temporary barrier shall meet the requirements of Sections 620.

6. **Temporary Traffic Signals**
   Temporary traffic signals shall meet the requirements of Section 647 and the MUTCD.

7. **Pavement Marking**
   Pavement marking incorporated into the work shall comply with Subsections 150.04.A and 150.04.B.

8. **Portable Temporary Traffic Control Signals**
   The use off Portable Temporary Traffic Control Signals shall meet the following minimum requirements:

   Only two-lane two-way roadways will be allowed to utilize Portable Temporary Traffic Control Signals.

   All portable traffic control signals shall meet the physical display and operational requirements of conventional traffic signals described in the MUTCD.

   Each signal face shall have at least three lenses. The lenses shall be red, yellow, or green in color and shall give a circular type of indication. All lenses shall be twelve (12") inches nominal in diameter.

A minimum of two signal faces shall face each direction of traffic. A minimum of one signal head shall be suspended over the roadway travel lane in a manner that will allow the bottom of the signal head housing to be not less than seventeen (17') feet above and not more than nineteen (19') feet above the pavement grade at the center of the travel lane. The second signal head may be located over the travel lane with the same height requirements or the second signal head may be located on the shoulder. When the signal head is located on the shoulder the bottom of the signal head housing shall be at least eight (8') feet but not more than (15') feet above the pavement grade at the center of highway.

Advance warning signage and appropriate pavement markings shall be installed as part of the temporary signal operation.

The signals shall be operated in a manner consistent with traffic requirements. The signals may be operated in timed-mode or in a vehicle-actuated mode. The signals shall be interconnected in a manner to ensure that conflicting movements can not occur. To assure that the appropriate operating pattern including timing is displayed to the traveling public, regular inspections including the use of accurate timing devices shall be made by the Worksite Traffic Control Supervisor. If at any time any part of the system fails to operate within these requirements then the use of the signal shall be suspended and the appropriate flagging operation shall begin immediately.

The Worksite Traffic Control Supervisor (WTCS) shall continuously monitor the portable traffic control signal to insure compliance with the requirements for maintenance under the MUTCD. The signal shall be maintained in a manner consistent with the intention of the MUTCD, with emphasis on cleaning of the optical system. Timing changes shall be made only by the WTCS. The WTCS shall keep a written record of all timing changes.

The portable temporary signal shall have two power sources and shall be capable of running for seven calendar days continuously.

The Contractor shall have an alternate traffic control plan in the event of failure of the signal.

9. RUMBLE STRIPS

Rumble strips incorporated into the work shall meet the requirements of Section 429 and the MUTCD. Existing rumble strips that are positioned in the traveled way to warn traffic of a stop condition shall be reinstalled based on the following requirements:

INTERMEDIATE SURFACES: Intermediate surfaces that will be in use for more than forty-five (45) calendar days shall have rumble strips reinstalled on the traveled way in the area of a stop condition. Non-refundable deductions in accordance with Subsection 150.08 will be assessed for any intermediate surface in place for greater than 45 days without rumble strips.

FINAL SURFACES: Rumble strips shall be installed on the final surface within fourteen (14) calendar days of the placement of the final surface in the area of the stop condition. Failure to install within fourteen (14) calendar days will result in assessment of non-refundable deductions in accordance with Subsection 150.08.

Prior to the removal of any rumble strips located in the travelway, stop ahead (W3-1a) warning signs shall be double indicated ahead of the stop condition. These warning signs shall be a minimum of 48 inches by 48 inches. The reflectorization of the warning signs shall be as required by Subsection 150.01.C. These warning signs shall remain in place until the rumble strips have been reinstalled on the traveled way. Any existing warning signs for the stop ahead condition shall be removed or covered while the 48" X 48" (W3-1a) signs are in place. When the rumble strips have been reinstalled these warning signs should be promptly removed and any existing signage placed back in service.

10. **GUARDRAIL**: When the removal and installation of guardrail is required as a part of the work the following time restrictions shall apply unless modified by the special conditions:

    MULTI-LANE HIGHWAYS: From the time that the existing guardrail or temporary positive barrier protection is removed the Contractor has fourteen (14) calendar days to install the new guardrail and anchors. During the interim, the location without guardrail shall be protected with drums spaced at a maximum spacing of twenty (20') feet. The maximum length of rail that can be removed at any time without being replaced with positive barrier protection is a total of 2000 linear feet of existing rail or the total length of one run of existing rail, whichever is greater.

    ALL OTHER HIGHWAYS: From the time that the existing guardrail is removed or from the time that temporary positive barrier protection is removed the Contractor has thirty (30) calendar days to install the new guardrail and anchors. During the interim, the location without guardrail shall be protected with drums spaced at a maximum spacing of twenty (20') feet. The maximum length of rail that can be removed at any time without being replaced with positive barrier protection is a total of 1000 linear feet of existing rail or the total length of one run of existing rail, whichever is greater.

    Based on existing field conditions, the Engineer may review the work and require that the guardrail be installed earlier than the maximum time allowed above by giving written notification to the Contractor via the TC-1 traffic control report.

    Failure to comply with the above time and quantity restrictions shall be considered as non-compliance under Subsection 150.08.

11. **STOP SIGN REGULATED INTERSECTIONS:** For intersections that utilize stop sign(s) to control the flow of traffic and to restrict the movement of vehicles, the stop sign(s) shall be maintained for the duration of the work or until such time that the stop condition is eliminated or until an interim or permanent traffic signal can be installed to provide proper traffic control. The traffic signal shall be installed and properly functioning before the removal of the existing stop sign(s) is permitted. If the existing intersection is enhanced traffic control features such as stop bars, double indicated stop signs, oversized signs, advanced warning stop ahead signs, rumble strips on the approaches or flashing beacons located overhead or on the shoulders then these features shall be maintained for the duration of the project or until the permanent traffic control plan has been implemented.

    Whenever the staging of the work requires that the traveled-way be relocated or realigned the Contractor shall reinstall all enhanced traffic control features noted above

on the newly constructed sections of the work. The cost of relocating the stop bars, stop signs, advanced warning signs, the rumble strips and the flashing beacons shall be included in the price bid for Lump-Sum-Traffic Control unless individual pay items are included in the contract for rumble strips and/or flashing beacons. When pay items are included in the contract for rumble strips or flashing beacons then these items will be paid per each.

When staging requires the relocation or realignment of an existing stop condition it may be necessary to consider the addition of enhanced traffic control features even though none existed at the original location. As a guide for enhanced traffic control features that may be considered, the Engineer or the WTCS may refer to the Department's guidelines for "Opening of New Roadways to Traffic" (Document #6635-2). Horizontal and vertical alignment changes at a new location may have decreased or restricted sight distance or the stop condition may occur sooner than in the previous alignment. If these conditions occur then the Engineer and/or the WTCS should consider additional measures to enhance the motorist's awareness of the changes even though the staging plans may not address enhanced features. Stop signs should be a minimum of 36 inches for interim situations. The use of 48 inch stop signs may be warranted under project specific conditions. Flags may be used on interim/permanent stop signs that are mounted at seven (7') feet in height for a short duration in order to direct additional attention to a new or relocated stop sign(s). Flags should not be used for durations exceeding two weeks unless unusual or site specify conditions warrant a longer period of time. The use of Type "A" flashing red light(s) attached to the stop sign(s) may be appropriate during the same period that the flags are in use to increase attention.

The use of rumble strips and/or portable changeable message signs may be considered. The use of new rumble strips, where none previously existed, shall have the prior approval of District Traffic Operations before being included as part of the traffic control plan. The message(s) displayed on any PCMS shall have the prior approval of the Engineer and the message(s) shall be included as part of the traffic control plan for the interim staging.

The placement of any additional interim ground-mounted signs and posts or stop bars shall be considered as incidental to the price bid for Lump Sum-Traffic Control. The installation of rumble strips, flashing beacons or the use of Portable Changeable Message Signs (PCMS) shall be considered as Extra Work unless pay items are included in the contract.

B. WORK ZONE RESTRICTIONS:

1. Interstate

The Contractor shall not simultaneously perform work on both the inside shoulder and outside shoulder on either direction of traffic flow when the Work is within 12 feet of the travel-way, unless such areas are separated by at least one-half mile of distance.

2. Non-Interstate Divided Highways

The Contractor shall not simultaneously perform work on both the inside shoulder and outside shoulder on either direction of traffic flow when the Work is within 12 feet of

the travel-way, unless such areas are separated by at least one-half mile distance in rural areas or at least 500 feet of distance in urban areas.

3. Non-Divided Highways

a. The Contractor shall not simultaneously perform work on opposite sides of the roadway when the work is within 12 feet of the travel-way, unless such areas are separated by at least one-half mile of distance in rural areas or at least 500 feet of distance in urban areas.

b. On two-lane projects where full width sections of the existing subgrade, base or surfacing are to be removed, and new base, subgrade, or surfacing are to be constructed, the Contractor shall maintain one-lane traffic through the construction area by removing and replacing the undesirable material for half the width of the existing roadway at a time. Replacement shall be made such that paving is completed to the level of the existing pavement in the adjacent lane by the end of the workday or before opening all the roadway to traffic.

4. All Highways:

a. There shall be no reduction in the total number of available traffic lanes that existed prior to construction except as specifically allowed by the Contract and as approved by the Engineer.

b. Travelway Clearances: All portions of the work shall maintain the following minimum requirements:

Horizontal: The combined dimensions of the paved shoulder and the roadway surface remaining outside the Work Zone shall be no less than sixteen (16) feet in width at any location.

Vertical: The overhead clearance shall not be reduced to less than fifteen (15) feet at any location.

The restrictions above apply to all shifts, lane closures, on-site detours and off site detours whether shown in the contract or proposed by the Contractor. It shall be the responsibility of the Contractor to verify that these minimum requirements have been met before proceeding with any phase of the Work.

Two-lane two-way roadways may have temporary horizontal restrictions of less than sixteen (16) feet provided a flagger operation for one-way traffic is utilized to restrict access to the work area by over-width loads. The minimum horizontal clearance shall be restored before the flagging operation is removed.

c. Highway Work Zone: All sections or segments of the roadway under construction or reconstruction shall be signed as a Highway Work Zone except non-state highway two-lane two-way resurfacing projects. Two conditions can be applied to a Highway Work Zone. Condition 1 is when no reduction in the existing speed limit is required. Condition 2 is when worksite conditions require a reduction of the speed limit through the designated Work Zone. Properly marking a Highway Work Zone shall include the following minimum requirements:

1. NO REDUCTION IN THE EXISTING POSTED SPEED LIMIT IN HIGHWAY WORK ZONE:

   a) Signage (Detail 150-HWZ-2) shall be posted at the beginning point of the Highway Work Zone warning the traveling public that increased penalties for speeding violations are in effect. The HWZ-2 sign shall be placed a minimum of six hundred (600') feet in advance of the Highway Work Zone and shall not be placed more than one thousand (1000') feet in advance of the Work Zone. If no speed reduction is required it is recommended that the HWZ-2 be placed at 750 feet from the work area between the ROAD WORK 500 FT. and the ROAD WORK 1000 FT. signs.

      HWZ-2 signs shall be placed at intervals not to exceed one mile for the length of the project. HWZ-2 signs should be placed on the mainline after all major intersections except State Routes. State Routes shall be signed as per the requirements for intersecting roadways below.

   b) The existing speed limit shall be posted at the beginning of the Work Zone. Existing Speed Limit signs (R2-1) shall be maintained.

   c) INTERSECTING ROADWAYS: Intersecting state routes shall be signed in advance of each intersection with the Work Zone with a HWZ-2 sign to warn motorists that increased fines are in effect. All other intersecting roadways that enter into a designated Highway Work Zone may be signed in advance of each intersection with the Work Zone. When construction equipment and personnel are present in the intersection on the mainline of a multi-lane roadway, the intersecting side roads shall be signed in advance with HWZ-2 signs. As soon as the work operation clears the intersection the signage may be removed.

   d) Signage (Detail 150-HWZ-3) shall be posted at the end of the Highway Work Zone indicating the end of the zone and indicating that increased penalties for speeding violations are no longer in effect.

   e) When a designated Highway Work Zone is no longer necessary all signs shall be removed immediately.

2. REDUCING THE SPEED LIMIT IN A HIGHWAY WORK ZONE:

   Highway Work Zone signs shall be posted as required in Condition 1 above.

   For limited access (interstate) highways and controlled access multi-lane divided highways the posted speed limit shall be reduced as required below.

   Speed Limit signage (R2-1) for the reduced speed limit shall be erected at the beginning of the work zone. Additional signs shall be placed to ensure that the maximum spacing of the reduced speed limit signs shall be no greater than one (1) mile apart. Existing speed limit signs shall be covered or removed. On multi-lane divided highways the speed limit signs shall be double indicated when the reduced speed is in use.

When any one or more of the following conditions exist and the existing speed limit is 65 mph or 70 mph, the speed limit shall be reduced by 10 mph. If the existing speed limit is 60 mph, the speed limit should be reduced by 5 mph. If the existing speed limit is 55 mph or less, the Contractor can only reduce the speed limit with the prior approval of the Engineer. The reduction in the speed limit shall be no greater than 10 mph:

a) Lane closure(s) of any type and any duration.
b) The difference in elevation exceeds two inches adjacent to a travel lane as shown in Subsection 150.06, Detail 150-B, 150-C.
c) Any areas where equipment or workers are within ten feet of a travel lane.
d) Temporary portable concrete barriers located less than two (2') feet from the traveled way.
e) As directed by the Engineer for conditions distinctive to this project.

When the above conditions are not present the speed limit shall be immediately returned to the existing posted speed limit. A speed reduction shall not be put in place for the entire length of the project unless conditions warranting the speed reduction are present for the entire project length. All existing speed limit signs within the temporary speed reduction zone shall be covered or removed while the temporary reduction in the speed limit is in effect. All signs shall be erected to comply with the minimum requirements of the MUTCD.

As a minimum the following records shall be kept by the WTCS:

a) Identify the need for the reduction.
b) Record the time of the installation and removal of the temporary reduction.
c) Fully describe the location and limits of the reduced speed zone.
d) Document any accident that occurs during the time of the reduction.

A copy of the weekly records for reduced speed zones shall be submitted to the Engineer.

Reduced speed zones shall, as a minimum, be signed as per Detail 150-HWZ-1. Interim signs shall meet the requirements of Subsection 150.03.D. Additional signs may be necessary to adjust for actual field conditions.

When a pilot vehicle is used on a two-lane two-way roadway the speed limit should not be reduced. For special conditions specific to the work, on two-lane two-way roadways or multi-lane highways, the contractor may reduce the posted speed limit with the prior approval of the Engineer.

5. MILLED SURFACE RESTRICTIONS:
Unless modified by the special conditions, a milled surface on any asphaltic concrete surface shall not be allowed to remain open to traffic for a period of time that exceeds thirty (30) calendar days.

6. INSTALLATION/REMOVAL OF WORK AREA SIGNAGE:
No payment will be made for Traffic Control-Lump Sum until the Work has actually started on the project. The installation of traffic control signage does not qualify as

the start of work. Advanced warning signs shall not be installed until the actual beginning of work activities. Any permanent mount height signs installed as the work is preparing to start shall be covered until all signs are installed unless all signs are installed within seven (7) calendar days after beginning installation.

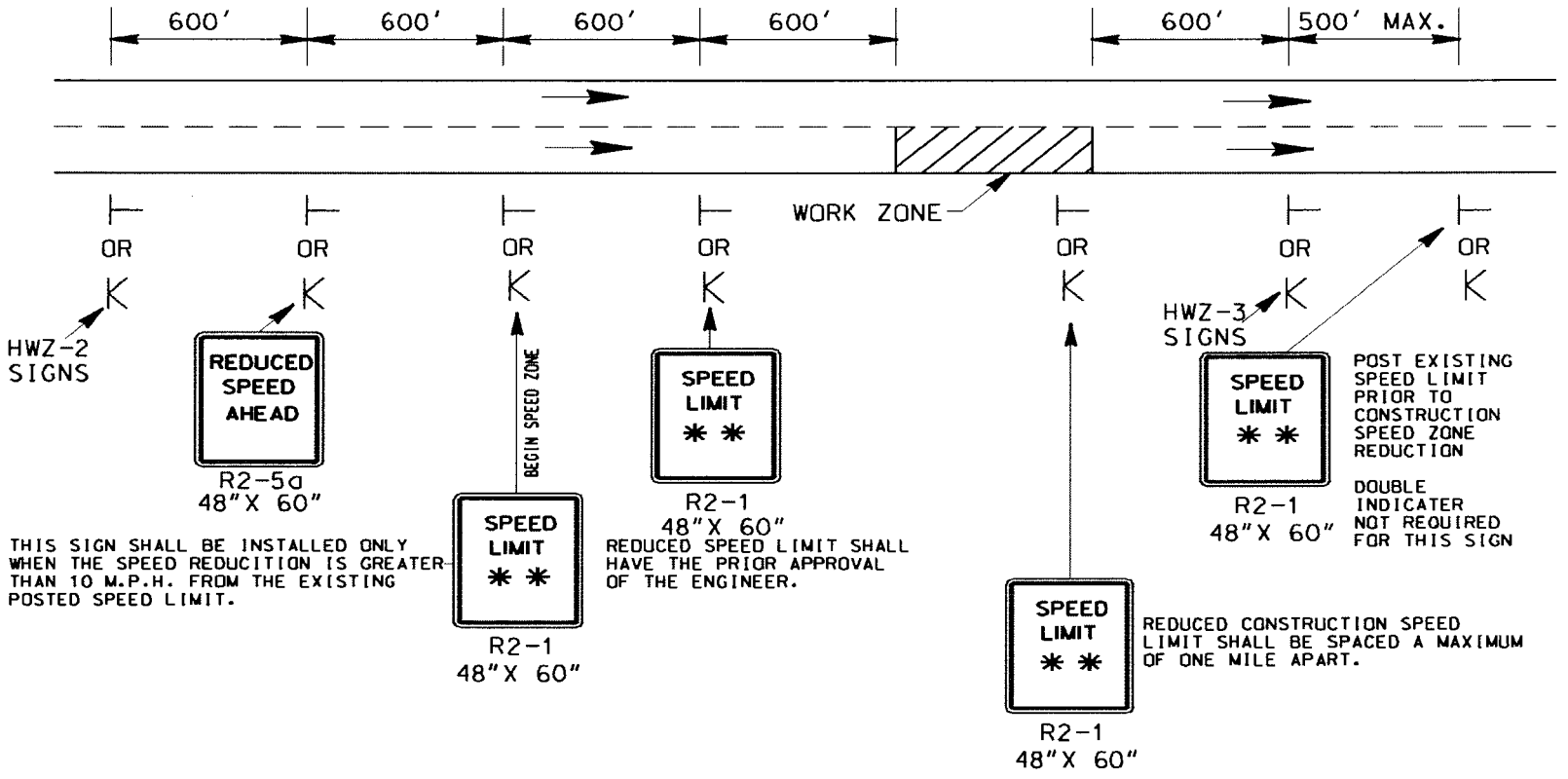
All temporary traffic control devices shall be removed as soon as practical when these devices are no longer needed. When work is suspended for short periods of time, temporary traffic control devices that are no longer appropriate shall be removed or covered.

All construction warning signs shall be removed within seven (7) calendar days after time charges are stopped or pay items are complete. If traffic control devices are left in place for more than ten (10) calendar days after completion of the Work, the Department shall have the right to remove such devices, claim possession thereof, and deduct the cost of such removal from any monies due, or which may become due, the Contractor.

PUNCHLIST WORK: Portable signs shall be utilized to accomplish the completion of all punchlist items. The portable signs shall be removed daily. All permanent mount height signs shall be removed prior to the beginning of the punchlist work except "Low/Soft Shoulder" signs and any signs that have the prior written approval of the Engineer to remain in place while the punchlist work is in progress.

Failure to promptly remove the construction warning signs within the seven (7) calendar days after the completion of the Work or failure to remove or cover signs when work is suspended for short periods of time shall be considered as non-performance under Subsection 150.08.

SPEED LIMIT REDUCTION FOR HIGHWAY WORK ZONE
INTERSTATE AND MULTI-LANE DIVIDED HIGHWAY SIGNING SHALL BE DOUBLE INCICATED (RIGHT SHOULDER AND MEDIAN SHOULDER)

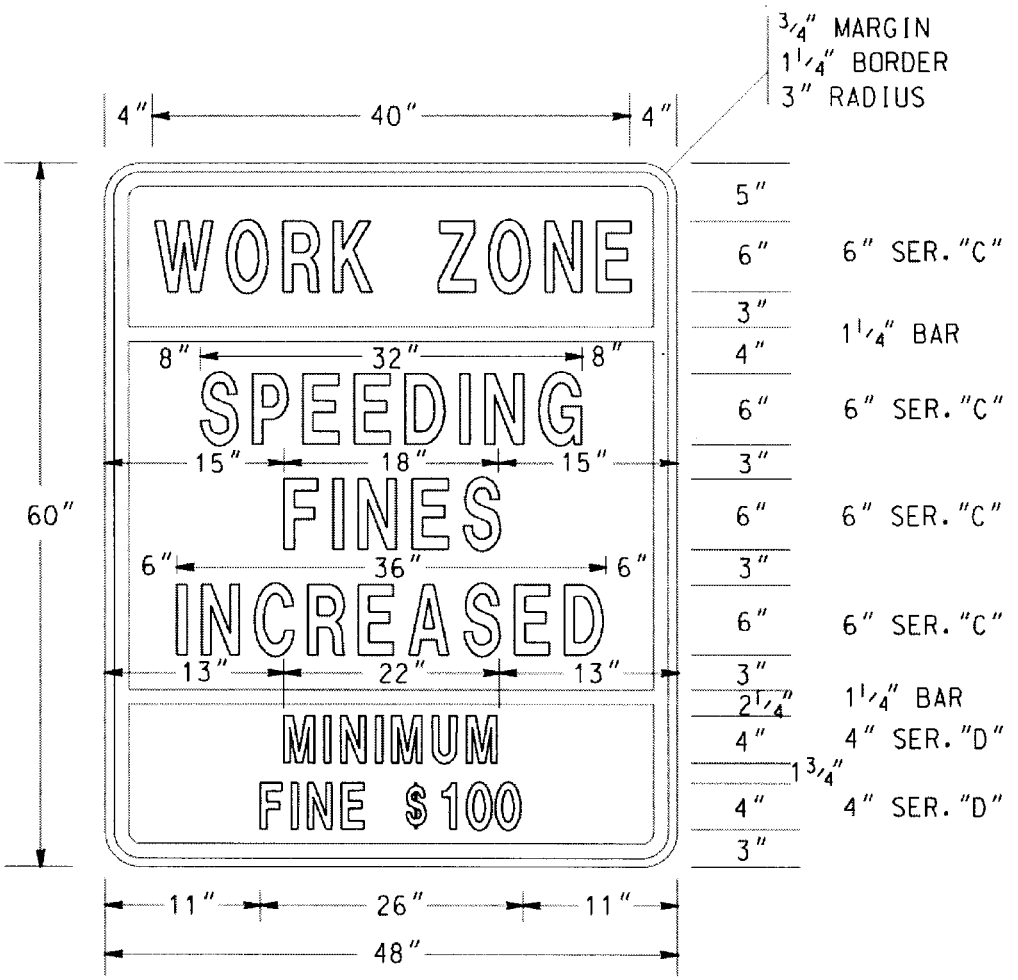


ALL INTERSECTING ROADWAYS SHALL BE SIGNED WITH A HWZ-2 SIGN TO WARN MOTORIST ENTERING THE HIGHWAY WORK ZONE.

INTERSTATE AND MULTI-LANE HIGHWAY SIGNING SHALL BE DOUBLE INDICATED (RIGHT SHOULDER AND MEDIAN SHOULDER).

SIGN SIZES SHOWN ARE FOR INTERSTATE AND MULTI-LANE DIVIDED HIGHWAY. FOR OTHER HIGHWAYS USE STANDARD SIZE SIGNS AS PER THE M.U.T.C.D. EXCEPT HWZ-2 AND HWZ-3 SIGNS.

DETAIL 150-HWZ-1



HWZ-2

COLORS

TOP PANEL

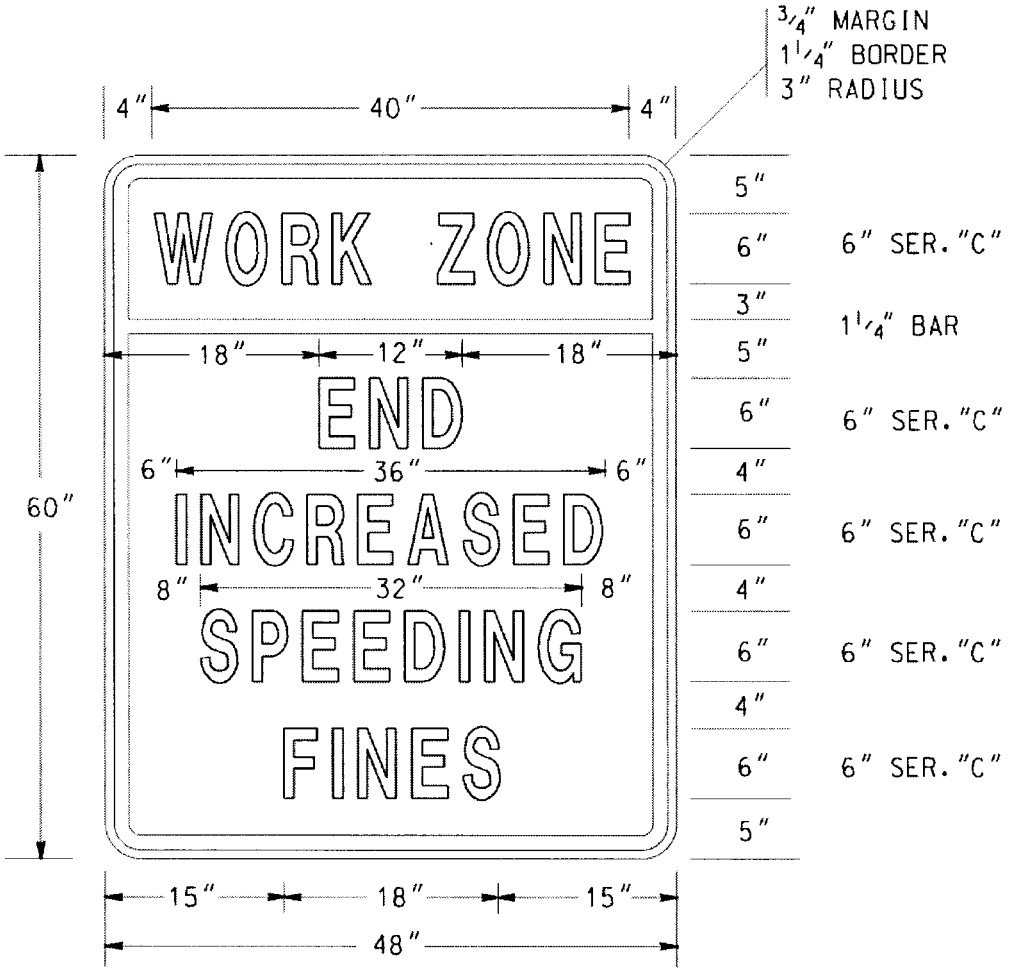
LEGEND & BORDER - BLACK (NON-REFL)
BACKGROUND - FLUORESENT ORANGE
(ASTM TYPE VII, VIII, IX or X)

MIDDLE & BOTTOM PANELS

LEGEND & BORDER - BLACK (NON-REFL)
BACKGROUND - WHITE (ASTM TYPE III OR IV REFL SHEETING)

NOTES:

1. ALL HWZ-2 SIGN PANELS SHALL BE RIGID.
2. THE SIZE OF THE HWZ-2 SIGN SHALL NOT BE REDUCED FOR USE ON TWO-LANE ROADWAYS.



HWZ-3

COLORS

TOP PANEL

LEGEND & BORDER - BLACK (NON-REFL)
BACKGROUND - FLUORESENT ORANGE
(ASTM TYPE VII, VIII, IX or X)

BOTTOM PANEL

LEGEND & BORDER - BLACK (NON-REFL)
BACKGROUND - WHITE (ASTM TYPE III OR IV REFL SHEETING)

NOTES:

1. ALL HWZ-3 SIGN PANELS SHALL BE RIGID.
2. THE SIZE OF THE HWZ-3 SIGN SHALL NOT BE REDUCED FOR USE ON TWO-LANE ROADWAYS.

C. LANE CLOSURES:

1. Approval/Restrictions

All lane closures of any type or duration shall have the prior approval of the Engineer.

a. The length of a lane closure shall not exceed two (2) miles in length excluding the length of the tapers unless the prior approval of the Engineer has been obtained. The Engineer may extend the length of a lane closure based upon field conditions however the length of a workzone should be held to the minimum length required to accomplish the Work. Lane closures shall not be spaced closer than one mile. The advanced warning signs for the project should not overlap with the advanced warning signs for lane shifts, lane closures, etc.

b. Lane closures that require same direction traffic to be split around the Work Area will not be approved for roadways with posted speeds of 35 mph or greater, excluding turn lanes.

2. Removal Of Lane Closures

To provide the greatest possible convenience to the public in accordance with Subsection 107.07, the Contractor shall remove all signs, lane closure markings, and devices immediately when lane closure work is completed or temporarily suspended for any length of time or as directed by the Engineer. All portable signs and portable sign mounting devices shall be removed from the roadway to an area which will not allow the sign to be visible and will not allow the sign or sign mounting device to be impacted by traffic.

3. Exit And Entrance Ramps

On multilane highways where traffic has been shifted to the inside lanes, the exit and entrance ramps shall have channelization devices placed on both sides of the ramp. The temporary ramp taper length shall be greater than, or equal to, the existing taper length. Interim EXIT gore signs shall be placed at the ramp divergence. The "EXIT OPEN" sign shown in Figure TA-42 of the MUTCD shall be utilized. Channelization device spacing shall be 10 feet for 200 feet in advance of the temporary gore, and 10 feet for the first 100 feet of the temporary gore.

4. Lane Drop/Lane Closure

The first seven (7) calendar days of any lane closure shall be signed and marked as per Standard 9106 or 9107. However, lane closures that exist for a duration longer than seven (7) calendar days may be signed and marked as per the details in Standard 9121, provided the prior approval of the Engineer is obtained. The approved lane drop shall utilize only the signs and markings shown for the termination end of the lane drop in Standard 9121. All warning signs in the lane drop sequence shall be used. Drums may be substituted for the Type I Crystal Delineators at the same spacing.

5. Termination Area

The transition to normal or full width highway at the end of a lane closure shall be a maximum of 150 feet.

D. TRAFFIC PACING METHOD:

1. Pacing Of Traffic

With prior approval from the Engineer, traffic may be paced allowing the Contractor up to ten (10) minutes maximum to work in or above all lanes of traffic for the following purposes:

a. Placing bridge members or other bridge work.

b. Placing overhead sign structures.

c. Other work items requiring interruption of traffic.

The Contractor shall provide a uniformed police officer with patrol vehicle and blue flashing light for each direction of pacing. The police officer, Engineer, and flaggers at ramps shall be provided with a radio which will provide continuous contact with the Contractor.

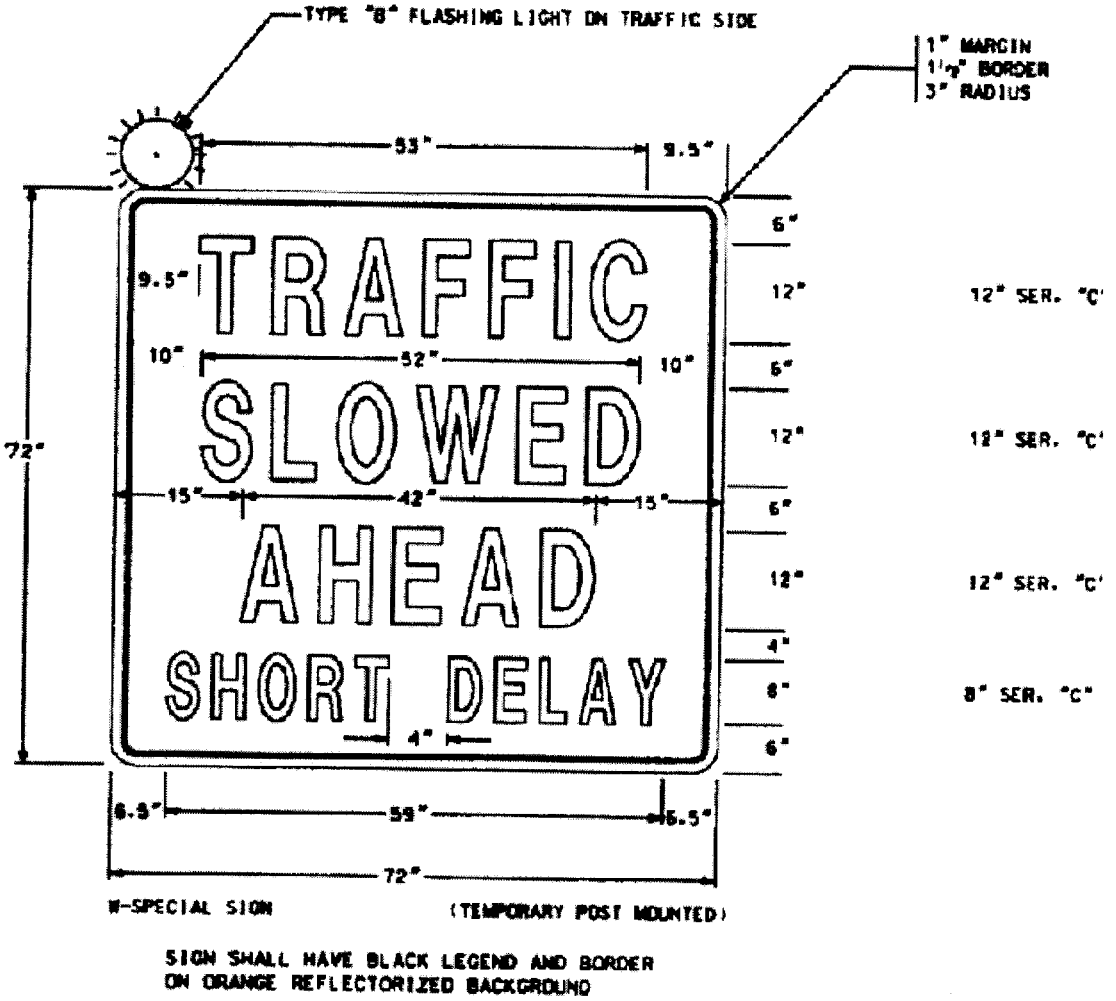
When ready to start the work activity, the police vehicle will act as a pilot vehicle slowing the traffic thereby providing a gap in traffic allowing the Contractor to perform the Work. Any on-ramps between the pace and the work area shall be blocked during pacing of traffic, with a flagger properly dressed and equipped with a Stop/Slow paddle. Each ramp should be opened after the police vehicle has passed.

Pilot vehicles shall travel at a safe pace speed, desirably not less than 20 mph interstate and 10 mph non-interstate. The Contractor shall provide a vehicle to proceed in front of the police vehicle and behind the other traffic in order to inform the Contractor's work force when all vehicles have cleared the area.

Traffic will not be permitted to stop during pacing except in extreme cases as approved by the Engineer.

2. Methods Of Signing For Traffic Pacing

At a point not less than 1,000 feet in advance of the beginning point of the pace, the Contractor shall erect and cover a W-special sign (72 inch x 72 inch) with a Type "B" flashing light, with the legend "TRAFFIC SLOWED AHEAD SHORT DELAY" (See Detail 150-A). A portable changeable message sign may be used in lieu of the W-special sign. On divided highways this sign shall be double indicated. A worker with a two-way radio shall be posted at the sign, and upon notice that the traffic is to be paced shall turn on the flashing light and reveal the sign. When traffic is not being paced, the flashing light shall be turned off and the sign covered or removed. W-special signs are reflectorized black on orange, Series "C" letter and border of the size specified.



DETAIL 150-A

E. CONSTRUCTION VEHICLE TRAFFIC

The Contractor's vehicles shall travel in the direction of normal roadway traffic and shall not reverse direction except at intersections, interchanges, or approved temporary crossings. The Contractor may submit a plan requesting that construction traffic be allowed to travel in the opposite direction of normal traffic when it would be desirable to modify traffic patterns to accommodate specific construction activities.

Prior approval of the Engineer shall be obtained before any construction traffic is allowed to travel in a reverse direction. If the Contractor's submittal is approved the construction traffic shall be separated from normal traffic by appropriate traffic control devices.

F. ENVIRONMENTAL IMPACTS TO THE TRAFFIC CONTROL PLAN

The Contractor shall ensure that dust, mud, and other debris from construction activities do not interfere with normal traffic operations or adjacent properties. All outfall ditches, special ditches, critical storm drain structures, erosion control structures, retention basins,

etc. shall be constructed, where possible, prior to the beginning of grading operations so that the best possible drainage and erosion control will be in effect during the grading operations, thereby keeping the roadway areas as dry as possible.

Areas within the limits of the project which are determined by the Engineer to be disturbed or damaged due either directly or indirectly from the progress or the lack of progress of the work shall be cleaned up, redressed, and regrassed. All surplus materials shall be removed and disposed of as required. Surplus materials shall be disposed of in accordance with Subsection 201.02.E.3 of the Specifications.

G. EXISTING STREET LIGHTS

Existing street lighting shall remain lighted as long as practical and until removal is approved by the Engineer.

H. NIGHTWORK

Adequate temporary lighting shall be provided at all nighttime work sites where workers will be immediately adjacent to traffic. For their own protection, workers in or adjacent to traffic during nighttime operation shall wear reflectorized vests that meet the requirements of the MUTCD.

I. CONSTRUCTION VEHICLES IN THE WORKZONE

The parking of Contractor's and/or workers personal vehicles within the work area or adjacent to traffic is prohibited. It shall be the responsibility of the Worksite Traffic Control Supervisor to ensure that any vehicle present at the worksite is necessary for the completion of the work.

J. ENCROACHMENTS ON THE TRAVELED-WAY

The Worksite Traffic Control Supervisor (WTCS) shall monitor the work to ensure that all the rocks, boulders, construction debris, stockpiled materials, equipment, tools and other potential hazards are kept clear of the travelway. These items shall be stored in a location, in so far as practical, where they will not be subject to a vehicle running off the road and striking them.

K. PEDESTRIAN ACCESS TO THE WORK

All existing pedestrian walkways shall be maintained. Whenever changes to the worksite necessitate changes to existing walkways, temporary walkways shall be provided and maintained, with appropriate signs as necessary, to allow safe passage of pedestrian traffic.

L. TRAFFIC SIGNALS

If the sequence of operations, staging, or the traffic control plan requires the relocation or shifting of any components of an existing traffic signal system then any work on these traffic signals will be considered as part of Lump Sum- Traffic Control. The contractor becomes responsible for the maintenance of these traffic signals from the time that the system is modified until final acceptance. The maintenance of traffic signals that are not a

part of the work and are not in conflict with any portion of the work shall not be the responsibility of the contractor.

When construction operations necessitate an existing traffic signal to be out of service, the Contractor shall furnish off-duty police officers to regulate and maintain traffic control at the site.

M. REMOVAL/REINSTALLATION OF MISCELLANEOUS ITEMS

In the prosecution of the Work, if it becomes necessary to remove any existing signs, markers, guardrail, etc. not covered by specific pay item, they shall be removed, stored and reinstalled, when directed by the Engineer, to line and grade, and in the same condition as when removed.

150.03 SIGNS:

A. SIGNING REQUIREMENTS OF THE TRAFFIC CONTROL PLAN

When existing regulatory, warning or guide signs are required for proper traffic control the Contractor shall maintain these signs in accordance with the traffic control plan. The Contractor shall review the status of all existing signs, interim signs added to the work, and permanent sign installations that are part of the work to eliminate any conflicting or non-applicable signage in the Traffic Control Plan. The Contractor's review of all signs in the Traffic Control Plan shall establish compliance with the requirements of the MUTCD and Section 150. Any conflicts shall be reported to the Engineer immediately and the WTCS shall take the necessary measures to eliminate the conflict.

The Contractor shall make every effort to eliminate the use of interim signs as soon as the Work allows for the installation of permanent signs.

All existing illuminated signs shall remain lighted and be maintained by the Contractor.

Existing street name signs shall be maintained at street intersections.

B. CONFLICTING OR NON-APPLICABLE SIGNS

Any sign(s) or portions of a sign(s) that are not applicable to the traffic control plan shall be covered so as not to be visible to traffic or shall be removed from the roadway when not in use. The WTCS shall review all traffic shifts and changes in the traffic patterns to ensure that all conflicting signs have been removed. The review shall confirm that the highest priority signs have been installed and that signs of lesser significance are not interfering with the visibility of the high priority signs. High priority signs include signs for road closures, shifts, detours, lane closures and curves. Any signs, such as speed zones and speed limits, passing zones, littering fines and litter pick up, that reference activities that are not applicable due to the presence of the Work shall be removed, stored and reinstalled when the Work is completed.

Failure to promptly eliminate conflicting or non-applicable signs shall be considered as non-performance under Subsection 150.08.

C. REMOVAL OF EXISTING SIGNS AND SUPPORTS

The Contractor shall not remove any existing signs and supports without prior approval from the Engineer. All existing signs and supports which are to be removed shall be stored and protected if this material will be required later in the work as part of the traffic control plan. If the signs are not to be utilized in the work then the signs will become the property of the Contractor unless otherwise specified in the contract documents.

D. INTERIM GUIDE, WARNING AND REGULATORY SIGNS

Interim guide, warning, or regulatory signs required to direct traffic shall be furnished, installed, reused, and maintained by the Contractor in accordance with the MUTCD, the Plans, Special Provisions, Special Conditions, or as directed by the Engineer. These signs shall remain the property of the Contractor. The bottom of all interim signs shall be mounted at least seven (7') feet above the level of the pavement edge when the signs are used for long-term stationary operations as defined by Section 6G.02 of the MUTCD. Special Conditions under Subsection 150.11 may modify this requirement.

Portable signs may be used when the duration of the work is less than three (3) days or as allowed by the special conditions in Subsection 150.11. Portable signs shall be used for all punchlist work. All portable signs and sign mounting devices utilized in work shall be NCHRP 350 compliant. Portable interim signs shall be mounted a minimum of one (1') foot above the level of the pavement edge for directional traffic of two (2) lanes or less and a minimum of seven (7') feet for directional traffic of three (3) or more lanes. Signs shall be mounted at the height recommended by the manufacturer's crashworthy testing requirements. Portable interim signs which are mounted at less than seven (7') feet in height may have two 18 inch x 18 inch fluorescent red-orange or orange-red warning flags mounted on each sign.

All regulatory sign blanks shall be rigid whether the sign is mounted as a portable sign, on a Type III barricade or as a permanent mount height sign.

Any permanent mount height interim sign that is designed to fold in half to cover a non-applicable message on the sign shall have reflectorized material on the folded over portion of the sign. The reflectorized material shall be orange in color with a minimum of ASTM Type I engineering grade sheeting with a minimum area of six inches by six inches (6" x 6") facing the direction of traffic at all times when the sign is folded.

Interim signs may be either English or metric dimensions.

E. EXISTING SPECIAL GUIDE SIGNS

Existing special guide signs on the Project shall be maintained until conditions require a change in location or legend content. When change is required, existing signs shall be modified and continued in use if the required modification can be made within existing sign borders using design requirements (legend, letter size, spacing, border, etc.) equal to that of the existing signs, or of Sub-Section 150.03.E.2. Differing legend designs shall not be mixed in the same sign.

1. Special Guide Signs

Special guide signs are those expressway or freeway guide signs that are designed with a message content (legend) that applies to a particular roadway location. When

an existing special guide sign is in conflict with work to be performed, the Contractor shall remove the conflicting sign and reset it in a new, non-conflicting location which has been approved by the Engineer.

2. Interim Special Guide Signs

When it is not possible to utilize existing signs, either in place or relocated, the Contractor shall furnish, erect, maintain, modify, relocate, and remove new interim special guide signs in accordance with the Plans or as directed by the Engineer. Interim special guide signs that may be required in addition to, or a replacement for, existing expressway and freeway (interstate) signs shall be designed and fabricated in compliance with the minimum requirements for guide signing contained in Part 2E "Guide Signs Expressway" and Part 2F "Guide Signs Freeways" of the MUTCD, except that the minimum size of all letters and numerals in the names and places, streets and highways on all signs shall be 16 inches Series "E" initial upper-case and 12 inches lower-case. All interstate shields on these signs shall be 48 inches and 60 inches for two-numeral and three-numeral routes, respectively.

The road name of the exit or route shield shall be placed on the exit gore sign.

3. Interim Overhead Guide Sign Structures

Interim overhead special guide sign structures are not required to be lighted unless specifically required by the Plans. If lighting is required the sign shall be lighted as soon as erected and shall remain lighted, during the hours of darkness, until the interim sign is no longer required. The Contractor shall notify the Power Company at least thirty (30) days prior to desired connection to the power source.

4. Permanent Special Guide Signs

The installation of new permanent special guide signs and the permanent modification or resetting of existing special guide signs, when included in the contract, shall be accomplished as soon as practical to minimize the use of interim special guide signs. If lighting is required by the Plans, all new permanent overhead special guide signs shall be lighted as soon as erected.

F. MATERIALS- INTERIM SIGNS:

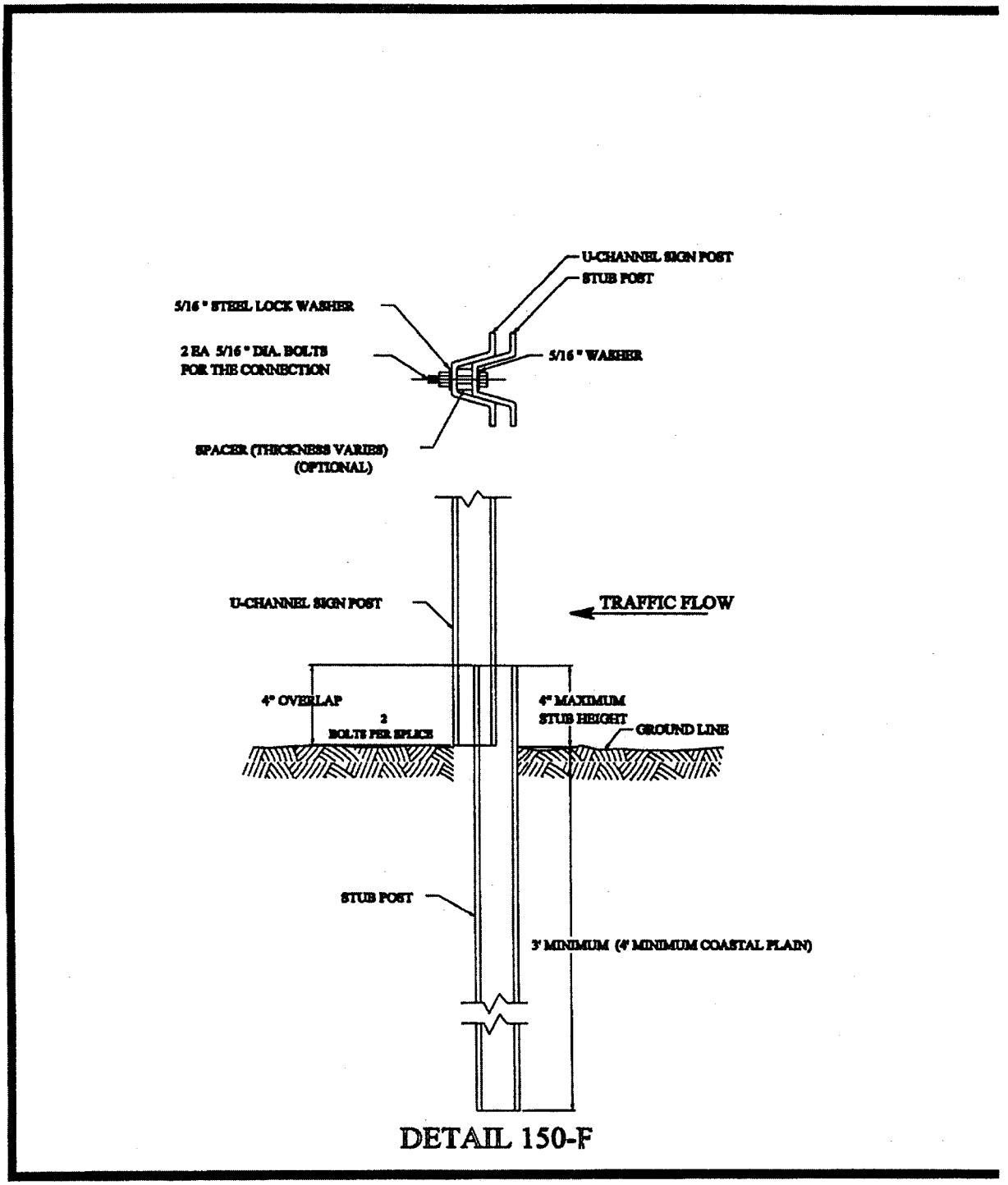
1. Posts

Permanent mounting height of seven (7') feet- Posts for all interim signs shall meet the requirements of Section 911 except that green or silver paint may be used in lieu of galvanization for steel posts or structural shape posts. Within the limits of a single project, all metal posts shall be the same color. Wood posts are not required to be pressure treated.

Interim posts may be either metric or English in dimensions.

Posts for all interim signs shall be constructed to yield upon impact unless the posts are protected by guardrail, portable barrier, impact attenuator or other type of positive barrier protection. Unprotected posts shall meet the breakaway requirements of the "1994 AASHTO Standard Specifications for Structural Support for Highway Signs, Luminaries and Traffic Signals". Unprotected interim posts shall be spliced as shown in Detail 150-F unless full length unspliced posts are used.

Unprotected post splices will not be permitted any higher than four inches above the ground line to lessen the possibility of affecting the undercarriage of a vehicle. Installation of posts may require establishment of openings in existing pavements, islands, shoulders etc.



DETAIL 150-F

2. Sign Blanks And Panels- Permanent mounting height of seven (7') feet-

All sign blanks and panels shall conform to Section 912 of the Specifications except that blanks and panels may be ferrous based or other metal alloys. Type 1 and Type 2 sign blanks shall have a minimum thickness of 0.08 inches regardless of the sign type used. Alternative sign blank materials (composites, poly carbonates, fiberglass reinforced plastics, recycled plastics, etc.) shall have a letter of approval from the Office of Materials and Research for use as interim construction signs before these materials are allowed to be incorporated into the work unless these rigid sign blanks are currently approved as a crashworthy sign blank material under QPL 34. The back side of sign panels shall be painted orange to prevent rust if other metals are used in lieu of aluminum. Plywood blanks or panels will not be permitted. The use of flexible signs will not be permitted for permanent mount height signs.

Interim blanks and panels may be either metric or English in dimensions.

3. **Portable Sign Mounting Devices, Portable Sign Blanks**-
All portable sign mounting devices and sign blanks utilized in the work shall be NCHRP 350 Test Level III compliant. All portable sign mounting devices and sign blanks shall be from the Qualified Products List. Any sign or sign mounting device shall have an identifying decal, logo, or manufacturer's stamping that clearly identifies the device as NCHRP 350 compliant. The Contractor may be required to provide certification from the Manufacturer as proof of NCHRP 350 compliance. All portable signs shall be mounted according to height requirements of Subsection 150.03.D.

G. SIGN VISIBILITY AND OFFSETS

All existing, interim and new permanent signs shall be installed so as to be completely visible for an advance distance in compliance with the MUTCD. Any clearing required for maintaining the line of sight to existing, interim or permanent signs shall be done as part of the requirements of the traffic control plan. The clearing shall include any advance warning signs, both interim and permanent, that are installed as a part of the work including advance warning signs that are installed outside the limits of the project. Any sign installed behind W-beam or T-beam guardrail with non-breakaway posts shall be installed with the leading edge of the sign a minimum of four feet and three inches (4'3") behind the face of the guardrail with five feet (5') of clearance being desirable. Limbs, brush, construction equipment and materials shall be kept clear of the driver's line of sight to all signs that are part of the traffic control plan.

H. ADVANCE WARNING SIGNS:

1. **All Type Of Highways**
Advance warning signs shall be placed ahead of the work area in accordance with Part VI of the MUTCD and shall include a series of at least three advance road work (W20-1) signs placed at the termini of the project. The series shall have the legend ROAD WORK (1500 FEET, 1000 FEET, AND 500 FEET).

At grade intersecting roadways and on-ramps shall be signed with a minimum of one ROAD WORK AHEAD sign.

When work terminates at a "T" intersection, a minimum of one "ROAD WORK AHEAD" sign shall be placed in advance of the intersection and one "END ROAD WORK" sign shall be placed at the termination end of the intersection. Field conditions may require the use of additional warning signage.

Advanced Warning Signs on State Routes shall be a minimum dimension of 48 inches x 48 inches. When a State Route intersects a project which consists of adding travel lanes, reconstructing an existing roadway or new location work, the State Route approaches shall have a minimum of three (W20-1) advanced warning signs (1500 ft., 1000 ft., 500 ft.). The termination end of an intersecting State Route shall have END ROAD WORK signage.

The W20-1 signs shall be placed at the termini of the project or sufficiently in advance of the termini to allow for lane shifts, lane closures and other activities which may also require advanced warning signs. The advanced warning signs for the project should not overlap with the advanced warning signs for lane shifts, lane closures, etc.

The length of a workzone should be held to the minimum length required to accomplish the work. If a project has multiple individual worksites within the overall limits of the project, each site should be signed individually if the advance warning signs for each site can be installed without overlapping an adjacent worksite. As soon as the work is completed at any individual site the warning signs shall be removed from that site. Clean-up work and punchlist work shall be performed with portable signage.

Project mileage indicated on the G20-1 sign shall be the actual project mileage rounded up to the nearest whole mile. Projects less than two (2) miles in length or individual worksites that are part of a multiple worksite project may delete this sign. The G20-1 sign shall be 60" X 36" and the G20-2 sign shall be 48" X 24".

2. Interstate, Limited Access And Multilane Divided Highways

In addition to the W20-1 signs required at 500 ft., 1000 ft. and 1500 ft., multi-lane divided highways shall also have additional advanced warning signs installed with the legend "ROAD WORK (2 MILES, 1 MILE and 1/2 MILE). All construction warning signs on divided highways shall be double indicated (i.e., on the left and right sides of the roadway.) If the use of the ½ mile, 1 mile and 2 mile advanced warning signs cause an overlap with other work or do not benefit field conditions then the Engineer may review the use of these signs and eliminate their installation. When the posted speed limit is 50 MPH or less, the ½ mile, 1 mile and 2 mile signs should be eliminated especially in urban areas.

The W20-1 advance warning signs for ROAD WORK 500 FEET; 1000 FEET; and 1500 FEET shall be temporarily covered when work involving the advanced warning signs for lane shifts and lane closures overlap these signs. The ROAD WORK ½ MILE, ROAD WORK 1 MILE, and ROAD WORK 2 MILES shall be in place when the 500, 1000 and 1500 feet signs are temporarily covered.

When the temporary traffic control zone already has advanced warning (W20-1) signs installed the W20-1 signs required for lane closures under Standard 9106 should be eliminated.

RAMP WORK ON LIMITED ACCESS HIGHWAYS: The workzone shall not be signed for the entire length of the mainline of a limited access highway when only short individual worksites, interchange or ramp work is being performed.

When work is restricted to ramp reconstruction or widening activities, the advance warning signs on the mainline section of the limited access highway shall be limited to

the use of portable advance warning signs. These portable advance warning signs shall only be utilized when work activity is within the gore point of the ramp and the mainline traveled way or work is active in the accel/decel lane adjacent to the mainline traveled way. Portable advance warning signs (W20-1; 1500ft./1000 ft./500ft.) shall be installed on the traveled way of the limited access highway when the above conditions are present. The advance warning signs shall be installed only in one direction where work is active. All portable signs shall be double indicated. When work is not active, the ramp work shall be advanced warned by the use of a single 48 inch X 48 inch "RAMP WORK AHEAD" sign along the right shoulder of the mainline traveled way prior to the beginning of the taper for the decel lane. The "RAMP WORK AHEAD" sign shall be mounted at seven (7') feet in height. Differences in elevation shall be in compliance with the requirements of Subsection 150.06 prior to the removal of the portable (W20-1) advanced warning signs from the mainline.

The G20-1 sign shall be eliminated on limited access highways when the work involves only ramp work, bridge reconstruction, bridge painting, bridge joint repairs, guardrail and anchor replacement or other site specific work which is confined to a short section of limited access highway.

I. PORTABLE CHANGEABLE MESSAGE SIGN

Unless specified as a paid item in the contract the use of a portable changeable message sign will not be required. When specified, a portable changeable message sign (PCMS) shall meet the minimum requirements of Section 632 and the MUTCD. The maximum amount of messages allowed to be flashed on one PCMS is two phases (flashes). The language and the timing of the messages shall comply with the MUTCD and Section 632. When used as an advanced device the PCMS should typically be placed ahead of the construction activities. If the PCMS is used as a substitute for another device then the requirements for the other device apply.

J. FLASHING BEACON

The flashing beacon assembly, when specified, shall be used in conjunction with construction warning signs, regulatory, or guide signs to inform traffic of special road conditions which require additional driver attention. The flashing beacon assembly shall be installed in accordance with the requirements of Section 647.

K. RUMBLE STRIP SIGNAGE

Signage for rumble strips located in the travelway shall be as required in Subsection 150.01.C and Subsection 150.02.A.9.

L. LOW/SOFT SHOULDER SIGNAGE

Low or soft shoulder signs shall be utilized in accordance with the following conditions:

CONSTRUCTION/RECONSTRUCTION PROJECTS:

"LOW/SOFT SHOULDER" signs shall be erected when a difference in elevation exceeds one (1") inch but does not exceed three (3") inches between the travelway and any type of shoulder unless the difference in elevation is four (4') feet or greater from the edge of the traveled way.

The spacing of the signs shall not exceed one (1) mile and the signs shall be placed immediately past each crossroad intersection. The "Low/Soft" signs shall remain in place until the difference in elevation is eliminated and the shoulder has been dressed and permanently grassed for a minimum of thirty (30) calendar days. These signs shall be furnished, installed, maintained and removed by the Contractor as part of Traffic Control- Lump Sum. These signs shall be orange with black borders and meet the reflectorization requirements of Subsection 150.01.C.

"SHOULDER DROP-OFF" (W8-9a) signs shall be used when a difference in elevation, less than four (4') feet from the traveled way, exceeds three (3") inches and is not protected by positive barrier protection. These warning signs shall be placed in advance of the drop-off. For a continuous drop-off condition, the W8-9a) signs shall, as a minimum, be spaced in accordance with the above requirements for "Low/soft shoulder" signs.

PROJECTS CONSISTING PRIMARILY OF ASPHALTIC CONCRETE RESURFACING ITEMS:

"LOW/SOFT SHOULDER" signs shall be erected when a difference in elevation exceeds one (1") inch but does not exceed three (3") inches between the travelway and any type of shoulder unless the difference in elevation is four (4') feet or greater from the edge of the traveled way.

SHOULDER BUILDING INCLUDED IN THE CONTRACT: "Low/Soft Shoulder" signs shall be erected as per the requirement of Standards 9102, 9106, and 9107. "Shoulder Drop-off" signs (W8-9a) shall be erected as per the requirements of the MUTCD. These signs shall be maintained until the conditions requiring their installation have been eliminated. The Contractor shall remove all interim warning signs before final acceptance.

SHOULDER BUILDING NOT INCLUDED IN THE CONTRACT: The Department will furnish the "Low/Soft Shoulder" signs, "Shoulder Drop-off" signs and the posts. The signs shall be erected to meet the minimum requirements of Subsection 150.03. The Contractor shall include the cost of furnishing installation hardware (bolts, nuts, and washers), erection and maintenance of the signs in the bid price for Traffic Control- Lump Sum. The Contractor shall maintain the signs until final acceptance. The Department will remove the signs.

LAU/LAR PROJECTS SHOULDER BUILDING NOT INCLUDED IN THE CONTRACT: The Contractor will furnish, install and maintain LOW/SOFT SHOULDER signs (yellow with black borders, ASTM Type III or IV) at the appropriate spacing, until Final Acceptance of the project by the Department. After Final Acceptance by the Department the signs will become the property and responsibility of the local government.

M. BUMP SIGNAGE:

MULTI-LANE DIVIDED HIGHWAYS: A bump sign (W8-1) shall be utilized when a transverse joint in the pavement structure has a vertical difference in elevation of three quarters (3/4") of an inch or greater in depth with no horizontal taper to ramp the traffic from one elevation to the other. This condition typically occurs at approach slabs during pavement milling operations and at transverse joints in asphaltic pavement lifts.

TWO-LANE TWO-WAY HIGHWAYS: A bump sign (W8-1) shall be utilized when a transverse joint in the pavement structure has a vertical difference in elevation that

exceeds one and three quarters (1-3/4") inches in depth with no horizontal taper to ramp the traffic from one elevation to the other. This includes utility and storm drainage repairs that require concrete placement for patching and/or steel plating.

The (W8-1) sign shall be placed sufficiently in advance to warn the motorist of the condition.

150.04 PAVEMENT MARKINGS

A. GENERAL

Full pattern pavement markings in accordance with Section 652 and in conformance with Section 3A and 3B, except 3B.02, of the MUTCD are required on all courses before the roadway is opened to traffic. No passing zones shall be marked to conform to Subsection 150.04.E. During construction and maintenance activities on all highways open to traffic, both existing markings and markings applied under this Section shall be fully maintained until Final Acceptance. If the pavement markings are, or become, unsatisfactory in the judgement of the Engineer due to wear, weathering, or construction activities, they shall be restored immediately.

1. **Resurfacing Projects**
   Pavement markings shall be provided on all surfaces that are placed over existing markings. Interim and final markings shall conform in type and location to the markings that existed prior to resurfacing unless changes or additions are noted in the Contract. The replacement of parking spaces will not be required unless a specific item or note has been included in the Contract. Any work to make additions to the markings that existed prior to resurfacing is to be considered as extra work.

2. **Widening And Reconstruction Projects**
   If the lane configuration is altered from the preconstruction layout then pavement markings will be as required by the plans or the Engineer.

3. **New Location Construction Projects**
   Pavement marking plans will be provided.

B. MATERIALS

All traffic striping applied under this Section shall be a minimum four inches in width or as shown in plans and shall conform to the requirements of Section 652, except as modified herein. Raised pavement markers (RPMs) shall meet the requirements of Section 654. Markings on the final surface course, which must be removed, shall be a removable type. The Contractor will be permitted to use paint, thermoplastic, or tape on pavement which is to be overlaid as part of the project, unless otherwise directed by the Engineer. Partial (skip) reflectorization (i.e. reflectorizing only a portion of a stripe) will not be allowed.

C. INSTALLATION AND REMOVAL OF PAVEMENT MARKINGS:

INSTALLATION: All pavement markings, both interim and permanent, shall be applied to a clean surface. The Contractor shall furnish the layout and preline the roadway surface for the placement of pavement markings applied as part of the traffic control plan. All interim

marking tape and RPM's on the final surface shall be removed prior to the placement of the final markings.

The Contractor shall sequence the work in such a manner as to allow the installation of markings in the final lane configuration at the earliest possible stage of the work.

REMOVAL: Markings no longer applicable shall be removed in accordance with Subsection 656.2.

THE ELIMINATION OF CONFLICTING PAVEMENT MARKINGS BY OVERPAINTING WITH PAINT OR LIQUID ASPHALT IS NOT ACCEPTABLE.

INTERMEDIATE SURFACE: Interim markings shall be removed by methods that will cause minimal damage to the pavement surface while also ensuring that traveling public will not be confused or misdirected by any residual markings remaining on the intermediate surface. The use of approved black-out tape and black-out paint may be permitted on some interim surfaces, provided the results are satisfactory to the Engineer.

FINAL SURFACE: No interim paint or thermoplastic markings will be permitted on any final surface unless the interim markings are in alignment with the location of the permanent markings and the interim marking will not interfere or adversely affect placement of the permanent markings. The proposed method of removal for layout errors that require markings to be removed from the final surface shall have the prior approval of the Engineer. Any damage to the final pavement surface caused by the pavement marking removal process shall be repaired at the Contractor's expense by methods acceptable and approved by the Engineer. Subsection 400.3.06.C shall apply when corrective measures are required. The use of black-out tape or black-out paint will not be permitted to correct layout errors on any final surface.

Traffic shifts that are done on the final surface shall be accomplished using interim traffic marking tape that can be removed without any blemishing of the final surface. Interim traffic marking tape shall be used on any of the following final surfaces; asphaltic concrete, Portland cement concrete, and bridge deck surfaces. Exceptions to the requirements for interim traffic marking tape shall have the written prior approval of the Engineer before the application of any other method is permitted.

PAY FACTOR REDUCTION FOR ASPHALTIC CONCRETE FINAL SURFACES: When the correction of an error in the layout of the final pavement markings requires the final surface to be grounded, blemished, scarred, or polished the pay factor shall be reduced to 0.95 for the entire surface area of the final topping that has a blemish, polished or a scarred surface. The reduced pay factor shall not be confined to only the width and length of the stripe or the dimensions of the blemished areas, the whole roadway surface shall have the reduced pay factor applied. The area of the reduced pay factor shall be determined by the total length and the total width of the roadway affected. If the affected area is not corrected, the reduction in pay shall be deducted from the final payment for the topping layer of asphaltic concrete. The Engineer shall make the final determination whether correction or a reduced pay factor is acceptable.

The eradication of pavement markings on intermediate and final concrete surfaces shall be accomplished by a method that does not grind, polish, or blemish the surface of the concrete. The method used for the removal of the interim markings shall not spall chip the joints in the concrete and shall not damage the sealant in the joints. Any joint or sealant

repairs shall be included in the bid price for Traffic Control-Lump Sum. The proposed method of removal shall have the prior approval of the Engineer.

Failure to promptly remove conflicting or non-applicable pavement markings shall be considered as non-performance under Subsection 150.08.

PREPARATION AND PLANNING FOR TRAFFIC SHIFTS: When shifting of traffic necessitates removal of centerline, lane lines, or edge lines, all such lines shall be removed prior to, during, or immediately after any change so as to present the least interference with traffic. Interim traffic marking tape shall be used as a temporary substitute for the traffic markings being removed.

Before any change in traffic lane(s) alignment, marking removal equipment shall be present on the project for immediate use. If marking removal equipment failures occur, the equipment shall be repaired or replaced (including leasing equipment if necessary), so that the removal can be accomplished without delay.

Except for the final surface, markings on asphaltic concrete may be obliterated by an overlay course, when approved by the Engineer. When an asphaltic concrete overlay is placed for the sole purpose of eliminating conflicting markings and the in place asphaltic concrete section will allow, said overlay will be eligible for payment only if designated in the Plans. Overlays to obliterate lines will be paid for only once and further traffic shifts in the same area shall be accomplished with removable markings. Only the minimum asphaltic concrete thickness required to cover lines will be allowed. Excessive build-up will not be permitted. When an overlay for the sole purpose of eliminating conflicting markings is not allowed, the markings no longer applicable shall be removed in accordance with Subsection 656.2.

D. RAISED PAVEMENT MARKERS

Raised pavement markers (RPMs) are required as listed below for all asphaltic concrete pavements before the roadway is open to traffic. On the final surface, RPM's shall be placed according to the timeframes specified in Subsection150.04 E. for full pattern pavement markings except Interstate Highways where RPM's shall be placed and/or maintained when the roadway is open to traffic. When Portland Cement Concrete is an intermediate or final surface and is open to traffic, one calendar day is allowed for cleaning and drying before the installation of RPMs is required.

Raised pavement markers are not allowed on the right edge lines under any situation.

1. Interstate Highways

Retro-reflective raised pavement markers (RPM's) shall be placed and/or maintained on intermediate pavements surfaces on all interstate highways that are open to traffic. This includes all resurfacing projects along with widening and reconstruction projects. The spacing and placement shall be as required for MULTI-LANE DIVIDED HIGHWAYS.

2. Multi-Lane Divided Highways

Retro-reflective raised pavement markers (RPMs) shall be placed and/or maintained on intermediate pavement surfaces on all multi-lane divided highways that are opened to traffic when these roadways are being widened or reconstructed. Two lane-two way roadways that are being widened to a multi-lane facility, whether divided or undivided, are included in this provision. Projects consisting primarily of asphalt resurfacing items

or shoulder widening items are excluded from this requirement. The RPMs shall be placed as follows:

a. SUPPLEMENTING LANE LINES

80 foot center on skip lines with curvature less than three degrees. (Includes tangents)

40 foot centers on solid lines and all lines with curvature between three degrees and six degrees.

20 foot centers on curves over six degrees.

20 foot centers on lane transitions or shifts.

b. SUPPLEMENTING RAMP GORE LINES

20 foot centers, two each, placed side by side.

c. OTHER LINES

As shown on the plans or directed by the Engineer.

3. Other Highways

On other highways under construction RPMs shall be used and/or maintained on intermediate pavement surfaces as follows:

a. SUPPLEMENTING LANE LINES AND SOLID LINES

40 foot centers except on lane shifts. (When required in the Plans or Contract.)

20 foot centers on lane shifts. (Required in all cases.)

b. SUPPLEMENTING DOUBLE SOLID LINES

40 foot centers (one each beside each line) except on lane shifts. (When required in the Plans or Contract.)

20 foot centers on lane shifts. (Required in all cases.)

E. EXCEPTIONS FOR INTERIM MARKINGS

Some exceptions to the time of placement and pattern of markings are permitted as noted below, however, full pattern pavement markings are required for the completed project.

1. Two-Lane, Two-Way Roadways

a. SKIP LINES

All interim skip (broken) stripe shall conform to Section 652 except that stripes shall be at least two feet long with a maximum gap of 38 feet. On curves greater than six degrees, a one-foot stripe with a maximum gap of 19 feet shall be used. In lane shift areas solid lines will be required. Interim skip lines shall be replaced with markings in full compliance with Section 652 prior to expiration of the 14 calendar day period.

Interim raised pavement markers may be substituted for the interim skip (broken) stripes. If raised pavement markers are substituted for the two foot interim skip stripe, three markers spaced at equal intervals over a two feet distance will be required. No separate payment will be made if the interim raised pavement markers are substituted for interim skip lines.

Interim raised pavement markers shall be retro-reflective, shall be the same color as the pavement markers for which they are substituted, and shall be visible during daytime.

The type of interim marker and method of attachment to the pavement shall be approved by the Office of Materials and Research but in no case will the markers be attached by the use of nails. Flexible reflective markers, Type 14 or Type 15, may be used for a maximum of fourteen (14) calendar days as an interim marker. Any flexible reflective markers in use shall be from the qualified products list (QPL).

The interim raised pavement markers shall be maintained until the full pattern pavement markings are applied. At the time full pattern markings are applied the interim raised markers shall be removed in a manner that will not interfere with application of the full pattern pavement markings.

b. NO PASSING ZONES-TWO-LANE, TWO-WAY ROADWAYS
Passing zones shall be re-established in the locations existing prior to resurfacing. No changes to the location of passing zones shall be done without the written approval of the Engineer. For periods not to exceed three calendar days where interim skip centerlines are in place, no-passing zones shall be identified by using post or portable mounted DO NOT PASS regulatory signs (R4-1 24" x 30") at the beginning and at intervals not to exceed ½ mile within each no-passing zone. A post or portable mounted PASS WITH CARE regulatory sign (R4-1 24" x 30") shall be placed at the end of each no-passing zone. Post mounted signs shall be placed in accordance with the MUTCD. Portable signs shall conform to the requirements of the MUTCD and shall be NCHRP 350 compliant. Portable signs shall be secured in such a manner to prevent misalignment and minimize the possibility of being blown over by weather conditions or traffic.

On new location projects and on projects where either horizontal or vertical alignments has been modified, the location of No-Passing Zones will be identified by the Engineer.

c. EDGELINES

1) Bituminous Surface Treatment Paving
Edgelines will not be required on intermediate surfaces (including asphaltic concrete leveling for bituminous surface treatment paving) that are in use for a period of less than 60 calendar days except at bridge approaches, on lane

transitions, lane shifts, and in such other areas as determined by the Engineer. On the final surface, edgelines shall be placed within 30 calendar days of the time that the final surface was placed.

2) All Other Types of Pavement
Edgelines will not be required on intermediate surfaces that are in use for a period of less than 30 calendar days except at bridge approaches, on lane transitions, lane shifts, and in such other areas as determined by the Engineer. On the final surface, edgelines shall be placed within 14 calendar days of the time that the surface was placed.

2. Multi-Lane Highways – With No Paved Shoulder(S) Or Paved Shoulder(S) Four Feet Or Less

a. UNDIVIDED HIGHWAYS (INCLUDES PAVED CENTER TURN LANE)

1) Centerlines and No-Passing Barrier-Full Pattern centerlines and no-passing barriers shall be restored before opening to traffic.

2) Lanelines- Interim skip (broken) stripe as described in Subsection 150.04E.1.a. may be used for periods not to exceed three calendar days. Skiplines are not permitted in lane shift areas. Solid lines shall be used.

3) Edgelines- Edgelines shall be placed on intermediate and final surfaces within three calendar days of obliteration.

b. DIVIDED HIGHWAYS (GRASS OR RAISED MEDIAN)

1) Lanelines- Full pattern skip stripe shall be restored before opening to traffic. Skip lines are not permitted in lane shift areas. Solid lines shall be required.

2) Centerline/Edgeline- Solid lines shall be placed on intermediate and final surfaces within three calendar days of obliteration.

3. Limited Access Roadways And Roadways With Paved Shoulders Greater Than Four Feet

a. Same as Subsection 150.04.E.2 except as noted in (b) below.

b. EDGELINES-
1) Asphaltic Concrete Pavement- Edgelines shall be placed on intermediate and final surfaces prior to opening to traffic.

2) Portland Cement Concrete Pavement- Edgelines shall be placed on any surface open to traffic no later than one calendar day after work is completed on a section of roadway. All water and residue shall be removed prior to daily striping.

4. Ramps For Multi-Lane Divided Highways
A minimum of one solid line edge stripe shall be placed on any intermediate surface of a ramp prior to opening the ramp to traffic. The other edge stripe may be omitted for a maximum period of three (3) calendar days on an intermediate surface.

Appropriate channelization devices shall be spaced at a maximum of twenty-five (25') feet intervals until the other stripe has been installed.

The final surface shall have both stripes placed prior to opening the ramp to traffic.

5. MISCELLANEOUS PAVEMENT MARKINGS:

FINAL SURFACE: School zones, railroads, stop bars, symbols, words and other similar markings shall be placed on final surfaces conforming to Section 652 within fourteen (14) calendar days of completion of the final surface. Final markings shall conform to the type of pay item in the plans. When no pay item exists in the plans the final markings shall conform to Section 652 for painted markings.

INTERMEDIATE SURFACE: Intermediate surfaces that will be in use for more than forty-five (45) calendar days shall have the miscellaneous pavement markings installed to conform to the requirement of Section 652. Under Subsection 150.11, Special Conditions, or as directed by the Engineer these markings may be eliminated.

F. MOBILE OPERATIONS

When pavement markings (centerlines, lane lines, and edgelines) are applied in a continuous operation by moving vehicles and equipment, the following minimum equipment and warning devices shall be required. These devices and equipment are in addition to the minimum requirements of the MUTCD.

1. All Roadways

All vehicles shall be equipped with the official slow moving vehicle symbol sign. All vehicles shall have a minimum of two flashing or rotating beacons visible in all directions. All protection vehicles shall have an arrow panel mounted on the rear. All vehicles requiring an arrow panel shall have, as a minimum, a Type B panel. All vehicle mounted signs shall be mounted with the bottom of the sign a minimum height of forty-eight inches (48") above the pavement. All sign legends shall be covered or removed from view when work is not in progress.

2. Two-Lane Two-Way Roadways

a. Lead Vehicles
The lead vehicle may be a separate vehicle or the work vehicle applying the pavement markings may be used as the lead vehicle. The lead vehicle shall have an arrow panel mounted so that the panel is easily visible to oncoming (approaching) traffic. The arrow panel should typically operate in the caution mode.

b. Work Vehicles
The work vehicle(s) applying markings shall have an arrow panel mounted on the rear. The arrow panel should typically operate in the caution mode. The work vehicle placing cones shall follow directly behind the work vehicle applying the markings.

c. Protection Vehicles
A protection vehicle may follow the cone work vehicle when the cones are being placed and may follow when the cones are being removed.

3. MULTI-LANE ROADWAYS

A lead vehicle may be used but is not required. The work vehicle placing cones shall follow directly behind the work vehicle applying the markings. A protection vehicle that does not function as a work vehicle should follow the cone work vehicle when traffic cones are being placed. A protection vehicle should follow the cone work vehicle when the cones are being removed from the roadway. Protection vehicles shall display a sign on the rear of the vehicle with the legend PASS ON LEFT(RIGHT).

INTERSTATES AND LIMITED ACCESS ROADWAYS: A protection vehicle shall follow the last work vehicle at all times and shall be equipped with a truck mounted attenuator (TMA) that is certified for impacts not less than 62 mph in accordance with NCHRP350 Test Level Three (3).

150.05 CHANNELIZATION

A. GENERAL

Channelization shall clearly delineate the travelway through the work zone and alert drivers and pedestrians to conditions created by work activities in or near the travelway. Channelization shall be done in accordance with the plans and specifications, the MUTCD, and the following requirements.

All Channelization Devices utilized on any project shall be NCHRP 350 compliant. Any device used on the Work shall be from the Qualified Products List. All devices utilized on the work shall have a decal, logo, or manufacturer's stamping that clearly identifies the device as NCHRP 350 compliant. The Contractor may be required to furnish certification from the Manufacturer for any device to prove NCHRP 350 compliance.

1. Types of Devices Permitted for Channelization in Construction Work Zones:

a. DRUMS:

1) DESIGN: Drums shall meet the minimum requirement of the MUTCD and shall be reflectorized as required in Subsection 150.01.C. The upper edge of the top reflectorized stripe on the drum shall be located a minimum of 33 inches above the surface of the roadway. A minimum drum diameter of 18 inches shall be maintained for a minimum of 34 inches above the roadway.

2) APPLICATION: Drums shall be used as the required channelizing device to delineate the full length of a lane closure, shift, or encroachment, except as modified by this Subsection.

3) TRANSITION TAPERS FOR LANE CLOSURES: Drums shall be used on all transition tapers. The minimum length for a merging taper for a lane closure on the travelway shall be as shown in Table 150-1:

TABLE 150-1

Posted Speed Limit, MPH	Lane Width 9 Feet	Lane Width 10 Feet	Lane Width 11 Feet	Lane Width 12 Feet	Maximum Drum Spacing in Tapers, (Feet)
	Minimum Taper Length (L) in Feet				
20	60	70	75	80	20
25	95	105	115	125	25
30	135	150	165	180	30
35	185	205	225	245	35
40	240	270	295	320	40
45	405	450	495	540	45
50	450	500	550	600	50
55	495	550	605	660	55
60	540	600	660	720	60
65	585	650	715	780	65
70	630	700	770	840	70
75	675	750	825	900	75

If site conditions require a longer taper then the taper shall be lengthened to fit particular individual situations.

The length of shifting tapers should be at least ½ L.

The length of a closed lane or lanes, excluding the transition taper(s), shall be limited to a total of two (2) miles. Prior approval must be obtained from the Engineer before this length can be increased.

Night time conditions: When a merge taper exists into the night all drums located in the taper shall have, for the length of the taper only, a six (6") inch fluorescent orange (ASTM Type VII, VIII, IX or X) reflectorized top stripe on each drum. The top six-inch stripe may be temporarily attached to the drum while in use in a taper. All drums that have the six-inch top stripe permanently attached shall not be used for any other conditions.

Multiple Lane Closures:

(a) A maximum of one lane at a time shall be closed with each merge taper.

(b) A minimum tangent length of 2 L shall be installed between each individual lane closure taper.

4) LONGITUDINAL CHANNELIZATION: Drums shall be spaced as listed below for various roadside work conditions except as modified by Subsection 150.06. Spacing shall be used for situations meeting any of the conditions listed as follows:

(a) 40 FOOT SPACING MAXIMUM

(1) For difference in elevation exceeding two inches.

(2) For healed sections no steeper than 4:1 as shown in Subsection 150.06, Detail 150-E.

(b) 80 FOOT SPACING MAXIMUM

(1) For difference in elevation of two inches or less.

(2) Flush areas where equipment or workers are within ten feet of the travel lane.

(c) 200 FOOT SPACING MAXIMUM: Where equipment or workers are more than ten feet from travel lane. Lateral offset clearance to be four feet from the travel lane.

(1) For paved areas eight feet or greater in width that are paved flush with a standard width travel lane.

(2) For disturbed shoulder areas not completed to typical section that are flush to the travel lane and considered a usable shoulder.

REMOVAL OF DRUMS: Drums may be removed after shoulders are completed to typical section and grassed. Guardrail and other safety devices shall be installed and appropriate signs advising of conditions such as soft or low shoulder shall be posted before the drums are removed.

b. VERTICAL PANELS

1) DESGN: All vertical panels shall meet the minimum requirements of the MUTCD. All vertical panels shall have a minimum of 270 square inches of retro-reflective area facing the traffic and shall be mounted with the top of the reflective panel a minimum of 36" above the roadway.

2) APPLICATION: Lane encroachment by the drum on the travelway should permit a remaining lane width of ten feet. When encroachment reduces the travelway to less than ten feet, vertical panels shall be used to restore the travelway to ten feet or greater. No other application of vertical panels will be permitted.

c. CONES

1) DESIGN: All cones shall be a minimum of 28 inches in height regardless of application and shall meet the requirement of the MUTCD. Reflectorization may be deleted from all cones.

2) APPLICATION: For longitudinal channelizing only, cones will be permitted for daylight closures or minor shifts. (Drums are required for all tapers.) The use of cones for nighttime work will not be permitted. Cones shall not be stored or allowed to be visible on the worksite during nighttime hours.

d. BARRICADES

DESIGN: Type III barricades shall meet the minimum requirements of the MUTCD and shall be reflectorized as required in Subsection 150.01.C.

The Contractor has the option of choosing Type III barricades from the Qualified Products List or the Contractor may utilize generic barricades that are approved by the Federal Highway Administration (FHWA). When barricades have been specifically crash tested with signs attached, the contractor has the responsibility to attach the signs as per the manufacturer's recommendations to ensure crashworthiness. If signs are attached to generic barricades or to barricades from the Qualified Products List (QPL) that have not been crash tested with signs attached then the responsibility for crashworthiness and the liability for mounting these signs to the barricades are assumed by the Contractor and the Contractor shall certify that the barricades are crashworthy under FHWA workzone guidelines for NCHRP 350 crashworthy compliance. Any generic barricades used in the work shall be stamped or stenciled to show compliance with NCHRP 350. The use of Type I and Type II barricades will not be permitted.

1) APPLICATION: Type III barricades shall be placed as required by the plans, the Standards, and as directed by the Engineer. All signs mounted on barricades shall be mounted to comply with the requirements of the MUTCD and NCHRP 350 Test Level III. NCHRP 350 crashworthy compliance may require that rigid signs be mounted separate from the Type III barricade.

   When a barricade is placed so that it is subject to side impact from a vehicle, a drum shall be placed at the side of the barricade to add target value to the barricade.

e. WARNING LIGHTS:

   1) DESIGN: All warning lights shall meet the requirements of the MUTCD.

   2) APPLICATION

      (a) Type A low-intensity flashing lights shall be used as shown in the Plans, the Standards, and as directed by the Engineer. Flashing lights are not required for advance warning signs in Subsection 150.03.H.

      (b) Type C Steady-Burn lights shall be used as shown in the Plans, the Standards, and as directed by the Engineer. Steady-burn lights are not required on drums for merging tapers that exist into the night.

f. TEMPORARY BARRIERS

   1) DESIGN: Temporary barriers shall meet the requirements of Sections 620.

   2) APPLICATION: Temporary barriers shall be placed as required by the plans, standards, and as directed by the Engineer. When Temporary barrier is located 20 feet or less from a travel lane, yellow reflectors shall be fixed to the top of the barrier at intervals not greater than 40 feet in the longitudinal section and 20 feet in the taper section and shall be mounted approximately two inches above the barrier. If both lanes of a two-lane two-way roadway are within 20 feet or less of the barrier then the reflectors shall be installed for both directions of traffic.

The reflectors shall be 100 square inches (ASTM Type VII or VIII) reflective sheeting mounted on flat-sheet blanks. The reflectors shall be mounted approximately two inches above the top of the barrier. The reflectors shall be attached to the barrier with adhesive or by a drilled-in anchor type device. The reflectors shall not be attached to a post or board that is placed between the gap in the barrier sections.

Approach end of Temporary barrier shall be flared or protected by an impact attenuator (crash cushion) or other approved treatment in accordance with Georgia Standard 4960, Construction Details and Standard Specifications.

On interstate or other controlled access highways where lane shifts or crossovers cause opposing traffic to be separated by less than 40 ft., portable barrier shall be used as a separator.

B. PORTABLE IMPACT ATTENUATORS:

1. DESCRIPTION

This work consists of the furnishing (including spare parts), installation, maintenance, relocation, reuse as required, and removal of Portable Impact Attenuator Unit/Arrays.

2. MATERIALS

Materials used in the Attenuator/Array shall meet the requirements of Section 648 for Portable Impact Attenuators.

3. CONSTRUCTION

Portable Impact Attenuator Unit/Array installation shall conform to the requirements of Section 648, Manufacturer's recommendations, and/or Georgia Standards 4960 & 4962 and shall be installed at locations designated by the Engineer, and/or as shown on the plans.

C. TEMPORARY GUARDRAIL ANCHORAGE- Type 12:

1. DESCRIPTION

This work consists of the furnishing, installation, maintenance and removal or Temporary Guardrail Anchorage- Type 12 used for Portable Barrier or temporary guardrail end treatment.

2. MATERIALS

Materials used in the Temporary Guardrail Anchorage- Type 12 shall meet the requirements of Subsection 641.2 of the Specifications and current Georgia Standards and may be new or used. Materials salvaged from the Project which meet the requirements of Standards may be utilized if available. The use of any salvaged materials will require prior approval of the Engineer.

3. CONSTRUCTION

Installation of the Temporary Guardrail Anchorage- Type 12 shall conform to the requirements of the Plans, current Georgia Standards and Subsection 641.3 of the Specifications. Installation shall also include sufficient additional guardrail and appurtenances to effect the transition and connection to Temporary Concrete Barrier as required by the details in Georgia Standard 4960.

150.06 DIFFERENCES IN ELEVATION BETWEEN TRAVEL LANES AND SHOULDERS (SEE SUBSECTION 150.06.G FOR PROJECTS CONSISTING PRIMARILY OF ASPHALTIC CONCRETE RESURFACING ITEMS)

Any type of work such as paving, grinding, trenching, or excavation that creates a difference in elevation between travel lanes or between the travelway and the shoulder shall not begin until the Contractor is prepared and able to continuously place the required typical section to within two inches (2") of the existing pavement elevation. For any areas that the two inches minimum difference in elevation cannot be accomplished the section shall be healed as shown in Detail 150-E. If crushed stone materials are used to provide a healed section no separate payment will be made for the material used to heal any section. The Contractor may submit a plan to utilize existing pay items for crushed stone provided the plan clearly demonstrates that the materials used to heal an area will be incorporated into the work with minimal waste. Handling and hauling of any crushed stone used to heal shall be kept to a minimum. The Engineer shall determine if the crushed stone used to heal meets the specifications for gradation and quality when the material is placed in the final location.

A maximum of sixty (60) calendar days shall be allowed for conditions to exist that require any section or segment of the roadway or ramp to continue to require a healed section as described by Detail 150-E. Failure to meet this requirement shall be considered as non-performance of Work under Subsection 150.08.

When trenching or excavation for minor roadway or shoulder widening is required, all operations at one site shall be completed to the level of the existing pavement in the same work day.

Any channelization devices utilized in the work shall conform to the requirements of Subsection 150.05 and to the placement and spacing requirements in Details 150-B, 150-C, 150-D, and 150-E shown in this section.

Any construction activity that reduces the width of a travel lane shall require the use of a W-20 sign with the legend "LEFT/RIGHT LANE NARROWS". Two 24" x 24" red or red/orange flags may be mounted above the W-20 sign. The W-20 sign shall be located on the side of the travelway that has been reduced in width just off the travelway edge of pavement. The W-20 sign shall be a minimum of 500 feet in advance of any channelization devices that encroach on the surface of travelway. A portable changeable message sign may be used in lieu of the W-20 sign.

GENERAL/TIME RESTRICTIONS:

A. STONE BASES, SOIL AGGREGATE BASE AND SOIL BASES

1. All Highways

Differences in elevation of more than two inches between surfaces carrying or adjacent to traffic will not be allowed for more than a 24-hour period. A single length of excavated area that does not exceed 1000 feet in total length may be left open as a start up area for periods not to exceed 48 hours provided the Contractor can demonstrate the ability to continuously excavate and backfill in a proficient manner. Prior approval of the Engineer shall be obtained before any startup area may be allowed.

2. LIMITED ACCESS HIGHWAY RAMPS (INTERSTATES):

On projects that include ramp rehabilitation work, one ramp at a time may be excavated for the entire length of the ramp from the gore point of the ramp with the interstate

mainline to the intersection with the crossing highway. This single ramp may remain excavated with a vertical difference in elevation greater than two (2") inches for a maximum of fourteen (14) calendar days with drums spaced at twenty (20') feet intervals as shown in Detail 150-B and a buffer space accepted under Section 150.06.F. After fourteen (14) calendar days the section shall be healed as required for all other highways. This area will be allowed in addition to the 1000 feet allowed for all other highways.

B. ASPHALT BASES, BINDERS AND TOPPINGS

1. DIFFERENCES IN ELEVATION BETWEEN THE SURFACES OF ADJACENT TRAVELWAYS

Travel lanes shall be paved with a plan that minimizes any difference in elevation between adjacent travel lanes. The following limitations will be required on all work:

a. Differences of two inches (2") or less may remain for a maximum period of fourteen (14) calendar days.

b. Differences of greater than two inches (2") shall be permitted for continuous operations only.

EMERGENCY SITUATIONS: Inclement weather, traffic accidents, and other events beyond the control of the Contractor may prevent the work from being completed as required above. The Contractor shall notify the Engineer in writing stating the conditions and reasons that have prevented the Contractor from complying with the time limitations. The Contractor shall also outline a plan detailing immediate steps to complete the work. Failure to correct these conditions on the first calendar day that conditions will allow corrective work shall be considered as non-performance of Work under Subsection 150.08.

2. Differences in Elevation Between Asphalt Travelway and Paved Shoulders

Differences in elevation between the asphalt travelway and asphalt paved shoulders shall not be allowed to exist beyond the maximum durations outlined below for the conditions shown in Details 150-B, 150-C, 150-D, and 150-E:

Detail 150-B conditions shall not be allowed for more than 24 hours. A single length that does not exceed 1000 feet in total length may be left open for periods not to exceed 48 hours provided the Contractor can demonstrate the ability to continuously pave in a proficient manner. Prior approval of the Engineer shall be obtained before any section is allowed to exceed 24 hours. Any other disturbed shoulder areas shall be healed as in Detail 150-E.

Detail 150-C conditions will not be allowed for more than 48 hours.

Detail 150-D conditions will not be allowed for more than 30 calendar days.

Detail 150-E conditions will not be allowed for more than 60 calendar days.

Failure to meet these requirements shall be considered as non-performance of Work under Subsection 150.08.

C. PORTLAND CEMENT CONCRETE

Work adjacent to a Portland Cement Concrete traveled way which involves the following types of base and shoulders shall be accomplished according to the time restrictions outlined for each type of base or shoulder. Traffic control devices shall be in accordance with Subsection 150.05.

1. **Cement Stabilized Base**
   Work adjacent to the traveled way shall be healed as per Detail 150-E within forty-eight (48) hours after the seven (7) calendar day curing period is complete for each section placed. During the placement and curing period, traffic control shall be in accordance Detail 150-B.

3. **Asphaltic Concrete Base**
   When an asphaltic concrete base is utilized in lieu of a cement stabilized base the asphaltic concrete base shall be healed as per Detail 150-E within forty-eight (48) hours after the placement of each section of asphaltic concrete base. For the first forty eight hours traffic control shall be in compliance with Detail 150-B.

3. **Concrete Paved Shoulders**
   Concrete paved shoulders shall be placed within sixty (60) calendar days after the removal of each section of existing shoulder regardless of the type of base materials being placed on the shoulders. During the placement period, traffic control devices shall be in accordance with the appropriate detail based on the depth of the change in elevation.

4. **Asphaltic Concrete Shoulders**
   A difference in elevation that meets the requirements of Detail 150-B shall not be allowed to exist for a period greater than forty-eight (48) hours. After the removal of the existing shoulder the section or segment of travelway may be healed with stone as per Detail 150-E for a maximum of fourteen (14) calendar days. Asphaltic concrete shoulders shall be placed within two (2") inches or less of the traveled way surface within fourteen (14) calendar days after the removal of the stone healed section or the removal of each section of the existing shoulder. The two (2") inches or less difference in elevation shall not remain in existence for a period that exceeds thirty (30) calendar days unless the paved shoulder is utilized as a detour for the traveled way. During the placement period, traffic control shall be in accordance with the appropriate detail based on the depth of the change in elevation.

   The Contractor may propose an alternate plan based on Subsection 150.06.F. Failure to meet the above requirements and time restrictions shall be considered as non-performance of Work under Subsection 150.08.

D. MISCELLANEOUS ELEVATION DIFFERENTIALS FOR EXCAVATIONS ADJACENT TO THE TRAVELWAY

Drainage structures, utility facilities, or any other work which results in a difference in elevation adjacent to the travelway shall be planned and coordinated to be performed in such a manner to minimize the time traffic is exposed to this condition. The excavation should be back filled to the minimum requirements of Detail 150-E as soon as practical. Stage construction such as plating or backfilling the incomplete work may be required. The difference in elevation shall not be allowed to exist for more than

five (5) calendar days under any circumstances. Failure to correct this condition shall be considered as non-performance of Work under Subsection 150.08.

E. CONDUIT INSTALLATION IN PAVED AND DIRT SHOULDERS

The installation of conduit and conduit systems along the shoulders of a traveled way shall be planned and installed in a manner to minimize the length of time that traffic is exposed to a difference in elevation condition. The following restrictions and limitations shall apply:

1. **Differences in Elevation of Two (2") Inches or Less**
   The shoulder may remain open when workers are not present. When workers are present the shoulder shall be closed and the channelization devices shall meet the requirements of Subsection 150.05. The difference in elevation on the shoulder shall remain for a maximum period of fourteen (14) calendar days.

2. **Differences in Elevation Greater Than Two (2") Inches**
   The shoulder shall be closed. The shoulder closure shall not exceed twenty-four (24) hours in duration unless the Special Conditions in Subsection 150.11 modifies this restriction or the Engineer allows the work to be considered as a continuous operation.

   Failure to meet these requirements shall be considered as non-performance of Work under Subsection 150.08.

F. MODIFICATIONS TO DETAILS 150-B, 150-C, 150-D AND 150-E

The Contractor may propose any alternate traffic control plan that utilizes a portion of the travel lane as a "buffer space". This buffer space may allow for an enhanced work area that will allow for the placement of materials to proceed at a pace that could not be achieved with the time restriction requirements outlined in Section 150.06.A, 150.06.B, and 150.06.C. The Contractor may propose modified time restrictions based on the use of the buffer space. Any proposed modifications in the time duration allowed for the differences in elevations to exist shall be reviewed by the Engineer as a component of the overall traffic control plan. No modifications shall be made until the proposed plan is accepted by the Engineer. The Engineer shall have no obligation to consider any proposal which results in an increase in cost to the Department.

For the travel lane described in each of the details 150-B, 150-C, 150-D and 150-E it is presumed that the pavement marking edgeline (yellow or white solid stripe) is located at the very edge of the travel lane surface. A buffer space (temporary paved shoulder) that utilizes a portion of the travel lane should be six (6') feet in width desirable but shall not be less than four (4') feet in width. Any remaining travel lane(s) shall not be less than ten (10') feet in width.

If the proposed shifting of the traffic to obtain a buffer space and maintain a minimum travel lane(s) of ten (10') feet requires the use of any existing paved shoulders then the cost of maintenance and repair of the existing paved shoulder(s) shall be the responsibility of the Contractor. The Contractor is responsible for the costs of maintenance and repairs even if the existing paved shoulder(s) is to be removed in a later stage of the work. Existing shoulders that have rumble strips shall have the rumble strips removed before the shoulder can be utilized as part of the travel lane. The cost of the removal of the rumble

strips shall be done at no cost to the Department even if the shoulder is to be removed in a later stage of the work.

Any modifications to the staging and time restrictions that are approved as part of the traffic control plan shall be agreed to in writing. Failure to meet these modifications shall be considered as non-performance of the Work under Subsection 150.08.

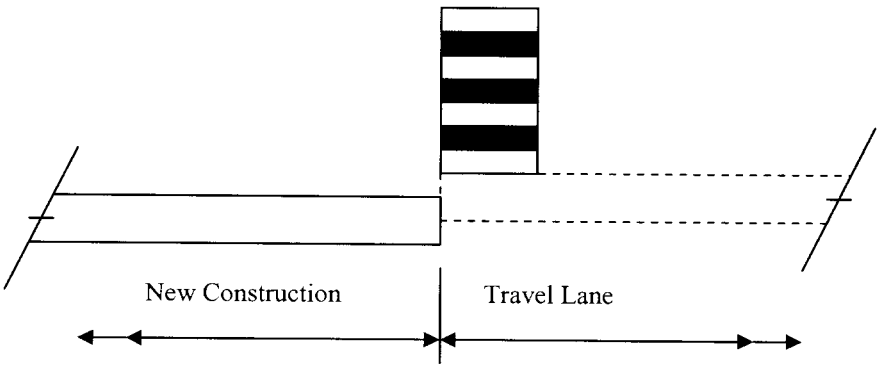
G. ASPHALTIC CONCRETE RESURFACING PROJECTS

SHOULDER CONSTRUCTION INCLUDED AS A PART OF THE CONTRACT: When the placement of asphaltic concrete materials creates a difference in elevation greater than two (2") inches between the earth shoulder (grassed or un-grassed) and the edge of travelway or between the earth shoulder and a paved shoulder that is less than four (4') feet in width, the Contractor shall place and maintain drums in accordance with the requirements of Subsection 150.05A.1.a.4). When the edge of the paved surface is tapered with a 30-45 degree wedge, drums may be spaced at 2.0 times the speed limit in MPH. Drums shall remain in place and be maintained until the difference in elevation has been eliminated by the placement of the appropriate shoulder materials.

SHOULDER CONSTRUCTION NOT INCLUDED AS A PART OF THE CONTRACT: When the placement of asphaltic concrete materials creates a difference in elevation greater than two (2") inches between the earth shoulder (grassed or un-grassed) and the edge of travelway or between the earth shoulder and a paved shoulder that is less than four (4') feet in width, the Contractor shall notify the Engineer, in writing, when the resurfacing work including all punchlist items has been completed.

See Subsection 150.03.L for the requirements for "LOW/SOFT SHOULDERS" and "SHOULDER DROP-OFF" signage.

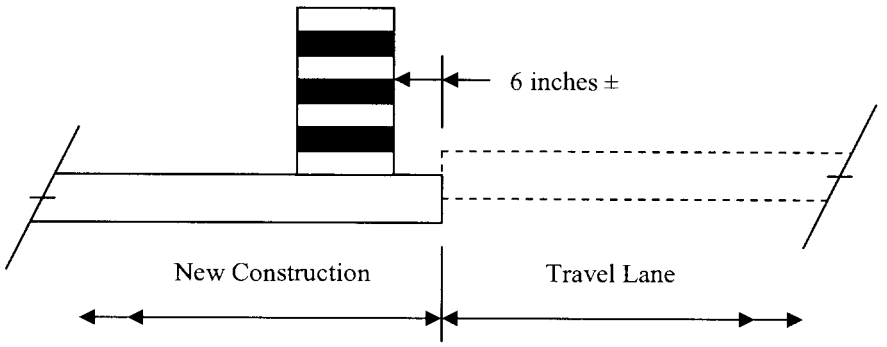
Location of drums when Elevation Difference exceeds 4 inches. Drums spaced at 20 foot intervals.
Note: If the travel way width is reduced to less than 10 feet by the use of drums, vertical panels shall be used in lieu of drums.



ELEVATION DIFFERENCE GREATER THAN 4 INCHES

DETAIL 150-B

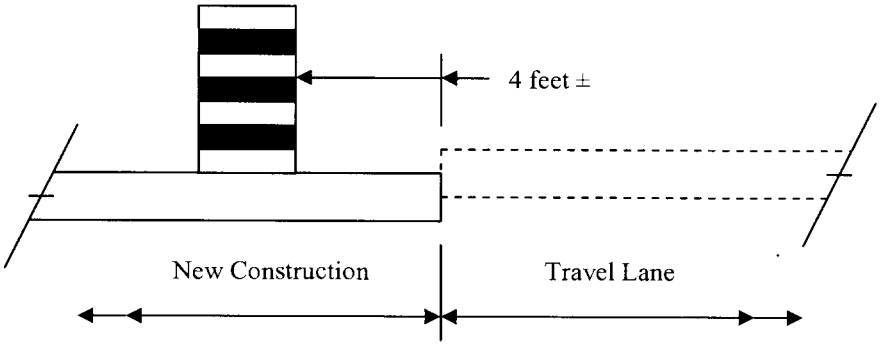
Drums spaced at 40 foot intervals.	Location of drums when Elevation Difference is 2+ inches to 4 inches.



ELEVATION DIFFERENCE 2+ to 4 inches

DETAIL 150-C

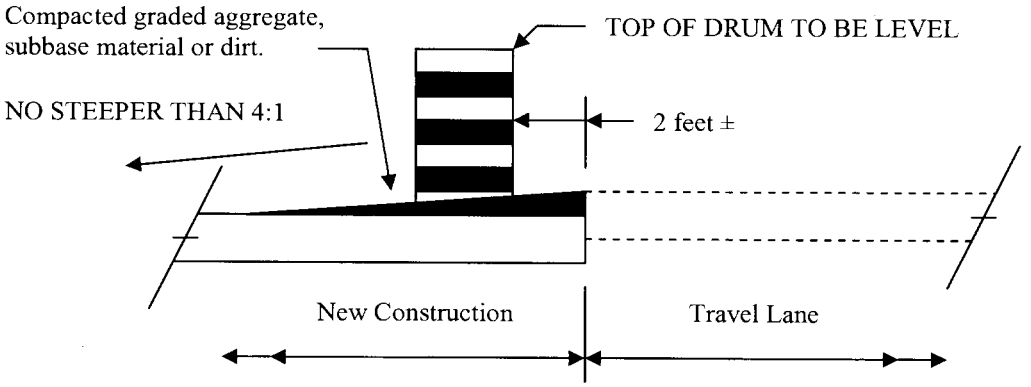
Drums spaced at 80 foot intervals.	Location of drums when Elevation Difference is 2 inches or less.



ELEVATION DIFFERENCE OF 2 INCHES OR LESS

DETAIL 150-D

	Location of drums immediately after completion of healed sections spaced at 40 foot intervals.



HEALED SECTION

DETAIL 150-E

150.07 FLAGGING AND PILOT CARS:

A. FLAGGERS

Flaggers shall be provided as required to handle traffic, as specified in the Plans or Special Provisions, and as required by the Engineer.

B. FLAGGER CERTIFICATION

All flaggers shall meet the requirements of the MUTCD and shall have received training and a certificate upon completion of the training from a Department approved training program. Failure to provide certified flaggers as required above shall be reason for the Engineer suspending work involving the flagger(s) until the Contractor provides the certified flagger(s). Flaggers shall have proof of certification and valid identification (photo I.D.) available any time they are performing flagger duties.

C. FLAGGER APPEARANCE AND EQUIPMENT

Flaggers shall wear high-visibility clothing in compliance with the MUTCD and shall use a Stop/Slow paddle meeting the requirements of the MUTCD for controlling traffic. The Stop/Slow paddles shall have a shaft length of seven (7) feet minimum. The Stop/Slow paddle shall be retro-reflectorized for both day and night usage. In addition to the Stop/Slow paddle, a flagger may use a flag as an additional device to attract attention. This flag shall meet the minimum requirements of the MUTCD. The flag shall, as a minimum, be 24" inches square and red or red/orange in color. For night work, the vest shall have reflectorized stripes which meet the requirements of the MUTCD.

D. FLAGGER WARNING SIGNS

Signs for flagger traffic control shall be placed in advance of the flagging operation in accordance with the MUTCD. In addition to the signs required by the MUTCD, signs at regular intervals, warning of the presence of the flagger shall be placed beyond the point where traffic can reasonably be expected to stop under the most severe conditions for that day's work.

E. PILOT VEHICLE REQUIREMENTS

Pilot vehicles will be required during placement of bituminous surface treatment or asphaltic concrete on two-lane roadways unless otherwise specified. Pilot vehicles shall meet the requirements of the MUTCD.

F. PORTABLE TEMPORARY TRAFFIC CONTROL SIGNALS

The Contractor may request, in writing, the substitution of portable temporary traffic control signals for flaggers on two-lane two-way roadways provided the temporary signals meets the requirements of the MUTCD, Section 647, and Subsection 150.02.A.8. As a part of this request, the Contractor shall also submit an alternate traffic control plan in the event of a failure of the signals. Any alternate plan that requires the use of flaggers shall include the use of certified flaggers. The Contractor shall obtain the approval of the Engineer before the use of any portable temporary traffic control signals will be permitted.

150.08 ENFORCEMENT

The safe passage of pedestrians and traffic through and around the temporary traffic control zone, while minimizing confusion and disruption to traffic flow, shall have priority over all other Contractor activities. Continued failure of the Contractor to comply with the requirements of Section 150 (TRAFFIC CONTROL) will result in non-refundable deductions of monies from the Contract as shown in this Subsection for non-performance of Work.

Failure of the Contractor to comply with this Specification shall be reason for the Engineer suspending all other work on the Project, except erosion control and traffic control, taking corrective action as specified in Subsection 105.15, and/or withholding payment of monies due to the Contractor for any work on the Project until traffic control deficiencies are corrected. These other actions shall be in addition to the deductions for non-performance of traffic control.

SCHEDULE OF DEDUCTIONS FOR EACH CALENDAR DAY OF DEFICIENCIES OF TRAFFIC CONTROL INSTALLATION AND/OR MAINTENANCE		
ORIGINAL TOTAL CONTRACT AMOUNT		
From More Than	To and Including	Daily Charge
$0	$100,000	$200
$100,000	$1,000,000	$500
$1,000,000	$5,000,000	$1,000
$5,000,000	$20,000,000	$1,500
$20,000,000	$40,000,000	$2,000
$40,000,000	$----------	$3,000

150.09 MEASUREMENT

A. TRAFFIC CONTROL

When listed as a pay item in the Proposal, payment will be made at the Lump Sum price bid, which will include all traffic control not paid for separately, and will be paid as follows:

The Contractor's Schedule of Payment shall include no more than 25 (twenty-five) percent of the assigned value for Traffic Control with the first Construction Report. For each progress payment thereafter, the total of the Project percent complete shown on the last pay statement plus 25 (twenty-five) percent will be paid (less previous payments), not to exceed one hundred (100) percent.

All of the requirements of Section 150 and the Traffic Control Plan shall be in full force and effect for the life of this project. The cost of complying with these requirements will not be paid for separately, but shall be included in the overall bid submittal.

B. SIGNS

All other Interim special guide signs, regulatory, warning, and guide signs, as required by the Contract, shall be included in the overall bid submitted. Included will be:

1. Interim ground mounted or interim overhead special guide signs include furnishing the signs, including supports as required, erecting, illuminating overhead signs, maintaining, removing, re-erecting, and final removal from the Project. Payment will be made only one time regardless of the number of moves required.

2. Removal and resetting of existing special guide signs, ground mount or overhead, complete, in place, shall not be measured separately. Payment will be made only one time regardless of the number of moves required.

3. Modification of special guide signs, ground mount or overhead, shall not be measured separately. Payment shall include materials, removal from posts or supports when necessary, and remounting as required.

C. TEMPORARY BARRIER

Temporary Barrier shall not be measured separately.

D. CHANGEABLE MESSAGE SIGN, PORTABLE

Changeable Message Sign, Portable shall not be measured separately.

E. TEMPORARY GUARDRAIL ANCHORAGE, Type 12

Temporary Guardrail Anchorage- Type 12 shall not be measured separately. Included shall be all assembly, complete in place and accepted according to the details shown in the Contractor's accepted plans, which shall also include the additional guardrail and appurtenances necessary for transition and connection to Temporary Concrete Barrier. Materials, equipment, labor, site preparation, maintenance and removal is included.

F. TRAFFIC SIGNAL INSTALLATION- TEMPORARY

Traffic Signal Installation- Temporary shall not be measured separately.

G. FLASHING BEACON ASSEMBLY

Flashing Beacon Assemblies shall not be measured separately.

H. PORTABLE IMPACT ATTENUATORS

Each Portable Impact Attenuator shall not be measured separately. Each unit/array shall include all material components, hardware, incidentals, labor, site preparation, and maintenance, including spare parts recommended by the manufacturer for repairing accident damage. Each unit will be measured only once in the Schedule of Payment regardless of the number of locations installed, moves required, or number of repairs necessary because of traffic damage. Upon completion of the project, the units shall be removed and retained by the Contractor.

I. PAVEMENT MARKINGS

Pavement markings shall not be measured separately.

150.10 PAYMENT:

All items described in the specification shall be paid for under CONSTRUCTION COMPLETE with the exception of Work Zone Law Enforcement. This will be paid for under:

Item No. 150. Traffic Control, Workzone Law Enforcement .....per hour.

The Contractor shall include 2500 hours in the estimate and a rate of $50/hour shall be used.

First Use Date: August 1, 2003
June 10, 2005
May 5, 2006
February 28, 2007

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION
Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County
Section 153 – Field Engineer's Office

Delete Subsection 153.3.05 B.7 and substitute the following:

7. Worktable: Provide a minimum of three (3) standard dimension desks. They shall be provided with a minimum of 1 1/8" (28mm) wood grain laminated tops with 23" (575mm) deep files and heavy-duty steel ball bearing drawers and locking center drawer. Provide one (1) 5' X 3' (1500mmX900mm) adjustable from 0 to 45 degree and 38" (950mm) high drafting table.

Delete Subsection 153.3.05 B.8 and substitute the following:

8. Stools: Provide one (2) posture stool with supportive backrest, waterfall edge seat and instant height lever (26" to 30")(650mm to 750mm). Provide a minimum of five (5) fully braced stackable full 2" (50mm) thick 16"X15" (400mmX375mm) seats with armrests and chrome frames. Provide a minimum of four (6) swivel chairs with arms and a 19"X19" (475mmX475mm) foam cushion and upholstered seat adjustable from 16 ½" to 20" (415mm to 500mm) high.

Retain Subsection 153.3.05 B.11 and add the following:

Process and pay the monthly bills for all utility services.

Delete Subsection 153.3.05 B.12 and substitute the following:

12. Electric Service: Provide 120/240 volt electric service that meets code.

Delete Subsection 153.3.05 B.15 and substitute the following:

15. Telephone: Provide in each Type 3 building, four telephones. Provide two voice lines, with rollover capabilities, connected to two handsets (located on either end of the office). Provide separate telephone lines for the computer and the fax machine, as directed by the Engineer. Install and maintain these lines for the life of the Project. Provide telephone access to Local and Long Distance Telephone Service for incoming and outgoing calls and fax.

Provide with the telephone, an automatic answering system that can give a greeting message, record incoming messages, and activate remotely.

Delete Subsection 153.3.05 C.6 and substitute the following:

6. Outside Electrical Receptacle – Provide a weather-proof, exterior 220-volt electrical receptacle attached to a power source.

Delete Subsection 153.3.05 C.7 and substitute the following:

7. Chain Link Fence – Provide a minimum of 500 feet (150m) of 6 ft. (1.8 m) high chain link fence with an extension arm and barbed wire as specified in Section 643. Equip the fence with matching gates and meeting the requirements of Section 643 and consisting of a double 7 ft. (2.1m) by 6 ft. (1.8 m) and a single 4 ft.(1.2 m) by 6 ft. (1.8 m) gate. Include a positive-type locking devices, padlock and a minimum of two keys for each gate. Ensure the fence encompasses the entire compound.

Delete Subsection 153.3.05 C.8 and substitute the following:

8. Security Light – Provide two 150-watt high-pressure sodium security lights with photoelectric controls. Place as directed by the Engineer.

Delete Subsection 153.3.05 C.9 and substitute the following:

9. Copying Machine – The Contractor shall furnish the Field Office with one copying machine installed and maintained for the life of the Project. The copying machine shall have the capability of making letter-size copies (8 ½" x 11"), legal-size copies (8 ½"x 14"), two-sided copies, at least thirty copies per minute, and possess an auto-feed feature. Furnish all consumable and non-consumable supplies for the life of the Project. The copying machine shall also have the capability to scan documents to an adobe .pdf format, and then automatically email the file to specific email accounts.

Add the following to Subsection 153.3.05 C:

10. Place and spread 200 tons (181 Mg) of aggregate surface course on the Office grounds where indicated by the Engineer to facilitate parking. Remove aggregate and grass the area upon completion of the Project.

11. Ensure that the Office is supported with concrete blocks with mortar joints and anchored with ten storm-tie-down anchors. Enclose the area between the ground and the bottom of the Office with a vinyl skirting that matches the Office's siding.

12. Install an alarm system that includes the following items and maintain in good operating condition:

    - SRN-2000 Enforced Bisonic with NAPCO Magnum Alert 850 – control box or Honeywell Vista-10P Master Control Panel with Honeywell 6150RF keypad or equivalent.
    - All doors and windows with wired contacts.
    - Outside sirens with wired contacts.
    - Tamper-proof box with wired contacts.
    - Inside sirens with wired contacts.
    - Two smoke and heat detectors.

Tie all of the above equipment to a 24 hour control monitoring system (BRK –2812TH or equivalent). Use a wired keyboard system. Do not use a remote system.

Process and pay the monthly bills for the alarm system and monitoring.

13. Furnish the fax machine in good operating condition and maintain it throughout the life of the Contract. Furnish all consumable and non-consumable supplies for the life of the Project.
14. Provide two (2) additional 4 drawer locking fireproof file cabinets.
15. Provide one Desktop Computer and Accessories meeting the following minimum requirements

A. Hardware:

- 1.7 GHz Processor or better
- 512 MB RAM
- 80 GB Hard Drive or larger
- 40X Max, CD-RW
- 3.5" (90 mm)Floppy Drive
- 64 MB Video memory
- V.90 PCI DataFax Modem w/Voice
- 17" (431 mm) Color Monitor
- Human Input Device (Mouse)
- Standard Windows Keyboard

B. Software:

- MS Windows XP **Professional**
- MS Office XP **Professional**
- MS Outlook (Most Recent Version)
- WinZip
- WS-FTP
- A restore CD

C. Printers:

- Hewlett-Packard Laser Jet 1020 or Brother HL-5140 or Approved Equal

D. Uninterruptible Power Supply:

- American Power Conversion Corporation Back-UPS ES 650 or Newpoint 750 VA Battery Backup or Equal (minimum 5 Receptacles)

E. DSL or Cable Broadband Internet Service

- Provide DSL Internet Service with static IP address or provide Cable Broadband Internet Service as directed by the Engineer.

16. Concrete Cylinder Curing Box – The Contractor shall furnish a Concrete Curing Box for any project that requires the placement of concrete. The curing box and its components shall be constructed of non-corroding materials and shall be capable of storing a minimum of 22 test cylinders, 6 inch x 12 inch (150 mm x 300 mm) stored vertically with the lid closed. Additional capacity may be required on large projects at the direction of the Engineer. The curing box shall be equipped with heating/cooling capabilities, automatic temperature control, and a maximum/minimum (high/low) temperature readout.

The curing box shall be capable of meeting the moisture and temperature requirements of AASHTO T 23.

17. For the life of the project, the Contractor shall provide a digital camera and a video camera. The actual equipment will be determined by the Engineer. Price of equipment, and associated hardware/software necessary to view files, shall not exceed $1000.

Add the following to Subsection 153.3.07:

Retain possession of all items that are required as part of the Field Office when the Engineer determines that these items are no longer needed.

Delete Subsection 153.4 and 153.5:

Add the following Subsection 153.4:

Measurement and Payment:

No separate measurement will be made for the Field Engineer's Office. The Contractor shall provide a Type 3 Field Engineer's Office. All costs associated with the Field Engineer's Office Type 3 shall be included in the price bid for CONSTRUCTION COMPLETE. Costs included, but not limited to, are the following: providing a location, all materials, design, construction, furnishings, maintenance, fuel, water, sewage disposal, electricity and telephone service, movements, moving from the project, transformers, and any costs incurred for carrying electricity to the Field Engineer's Office.

Office of Construction

December 12, 2006
February 28, 2007

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 163—Miscellaneous Erosion Control Items

163.1 General Description

This work includes constructing and removing:

- Silt control gates
- Temporary erosion control slope drains shown on the Plans or as directed
- Sediment basins
- Baled straw erosion checks
- Other temporary erosion control structures shown on the Plans or directed by the Engineer

This work also includes applying mulch (straw or hay, erosion control compost), and temporary grass.

Note: Any reference to "Plan" shall mean the current plan proposed in the Plans Package, or accepted Contractor's plans as specified in Special Provision 999 Design-Build.

163.1.01 Related References

A. Standard Specifications

Section 109—Measurement and Payment

Section 161—Control of Soil Erosion and Sedimentation

Section 171—Temporary Silt Fence

Section 500—Concrete Structures

Section 603—Rip Rap

Section 700—Grassing

Section 715—Bituminous Treated Roving

Section 720 – Triangular Silt Barrier

Section 822—Emulsified Asphalt

Section 860—Lumber and Timber

Section 863—Preservative Treatment of Timber Products

Section 890—Seed and Sod

Section 893—Miscellaneous Planting Materials

B. Referenced Documents

AASHTO M252

AASHTO M294

163.1.02 Submittals

Provide written documentation to the Engineer as to the average weight of the bales of mulch.

163.2 Materials

Provide materials shown on the Plans, such as pipe, spillways, wood baffles, and other accessories including an anti-seep collar, when necessary. The materials shall remain the Contractor's property after removal, unless otherwise shown on the Plans.

Materials may be new or used; however, the Engineer shall approve previously used materials before use.

Materials shall meet the requirements of the following Specifications:

Material	Section
Mulch	893.2.02
Temporary Silt Fence	171
Concrete Aprons and Footings shall be Class A	500
Rip Rap	603
Temporary Grass	700
Bituminous Treated Roving	715
Triangular Silt Barrier	720
Lumber and Timber	860.2.01
Preservative Treatment of Timber Products	863.1
Corrugated Polyethylene Temporary Slope Drain Pipe	AASHTO M252 or M294

163.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

163.3 Construction Requirements

163.3.01 Personnel

General Provisions 101 through 150.

163.3.02 Equipment

General Provisions 101 through 150.

163.3.03 Preparation

General Provisions 101 through 150.

163.3.04 Fabrication

General Provisions 101 through 150.

163.3.05 Construction

A. Silt Control Gates

If silt control gates are required or are directed by the Engineer, follow these guidelines to construct them:

1. Clear and grade only that portion of the roadway within the affected drainage area where the drainage structure will be constructed.
2. Construct or install the drainage structure and backfill as required for stability.
3. Install the silt control gate at the inlet of the structure. Use the type indicated on the Plans.
4. Vary the height of the gate as required or as shown on the Plans.
5. Finish grading the roadway in the affected drainage area. Grass and mulch slopes and ditches that will not be paved. Construct the ditch paving required in the affected area.
6. Keep the gate in place until the work in the affected drainage area is complete and the erodible earth is stabilized.
7. Remove the silt gate assembly by sawing off the wood posts flush with the concrete apron. Leave the concrete apron between the gate and the structure inlet in place. The gate shall remain the property of the Contractor.

B. Temporary Slope Drains

If temporary slope drains are required, conduct the roadway grading operation according to Section 161 and follow these guidelines:

1. Place temporary pipe slope drains with inlets and velocity dissipaters (straw bales, silt fence, or aprons) according to the Plans.
2. Securely anchor the inlet into the slope to provide a watertight connection to the earth berm. Ensure that all connections in the pipe are leak proof.
3. Place temporary slope drains at a spacing of 350 ft (105 m) maximum on a 0% to 2% grade and at a spacing of 200 ft (60m) maximum on steeper grades, or more frequently as directed by the Engineer. Keep the slope drains in place until the permanent grass has grown enough to control erosion.
4. Remove the slope drains and grass the disturbed area with permanent grass. However, the temporary slope drains may remain in place to help establish permanent grass if approved by the Engineer.

C. Sediment Basins

Construct sediment basins according to the Plans at the required location, or as modified by the Engineer.

1. Construct the unit complete as shown, including:
    - Grading
    - Drainage
    - Rip rap
    - Spillways
    - Anti-seep collar
    - Temporary mulching and grassing on external slopes
    - Accessories to complete the basin
2. When the sediment basin is no longer needed, remove and dispose of the remaining sediment.
3. Remove the sediment basin. Grade to drain and restore the area to blend with the adjacent landscape.
4. Mulch and permanently grass the disturbed areas according to Section 700.

D. Baled Straw Erosion Checks

Construct baled straw erosion checks according to the Plan details. Use rectangular, standard size baled straw in mechanically produced bales.

The following items may be substituted for baled straw erosion checks at the Contractor's option with the Engineer's approval:

1. Type B Silt Fence.
2. Triangular Silt Barrier.
3. Synthetic Fiber: Use synthetic fiber bales of circular cross section at least 18 in (450 mm) in diameter. Use synthetic bales of 3 ft or 6 ft (0.9 m or 1.8 m) in length that are capable of being linked together to form a continuous roll of the desired total length. Use bales that are enclosed in a geotextile fabric and that contain a pre-made stake hole for anchoring.
4. Coir: Use coir fiber bales of circular cross section at least 16" (400mm) in diameter. Use coir bales of 10 ft, 15 ft, or 20 ft (3 m, 4.5 m, or 6 m) in length. Use coir baled with coir twine netting with 2 in X 2 in (50 mm X 50 mm) openings. Use coir bales with a dry density of at least 7 lb/ft^3 (112 kg/m^3). Anchor in place with 2 in X 4 in (50 mm X 100 mm) wooden wedges with a 6 in (150 mm) nail at the top. Place wedges no more than 36 in (900 mm) apart.
5. Excelsior: Use curled aspen excelsior fiber with barbed edges in circular bales of at least 18 in (450 mm) in diameter and nominally 10 ft (3 m) in length. Use excelsior baled with polyester netting with 1 in X 1 in (25 mm by 25 mm) triangular openings. Use excelsior bales with a dry density of at least 1.4 lb/ft^3 (22 kg/m^3). Anchor in place with 1 in (25 mm) diameter wooden stakes driven through the netting at intervals of no more than 2 ft (600 mm).
6. Compost Filter Sock: Use general use compost (see Subsection 893.2.02.A.5.b) in circular bales at least 18 in in diameter. Use compost baled with photo-degradable plastic mesh 3 mils thick with a maximum 0.25 in X 0.25 in (6 mm X 6 mm) openings. Anchor in place with 1 in (25 mm) diameter wooden stakes driven through the netting at intervals of no more than 2 ft (600 mm). The sock shall be dispersed on site when no longer required, as determined by the Engineer. Do not use Compost Filter Socks in areas where the use of fertilizer is restricted.
7. Compost Filter Berm: Use erosion control compost (see Subsection 893.2.02) to construct an uncompacted 1.5 ft to 2 ft (450 mm to 600 mm) high trapezoidal berm which is approximately 2 ft to 3 ft (600 mm to 1 m) wide at the top and minimum 4 ft (1.2 m) wide at the base. Do not use Compost Filter Berms in areas where the use of fertilizer is restricted.

   The construction of the compost filter berm includes the following:

   a. Keeping the berm in a functional condition.
   b. Installing additional berm material when necessary.
   c. Removing the berm when no longer required, as determined by the Engineer. At the Engineer's discretion, berm material may be left to decompose naturally, or distributed over the adjacent area.

E. Other Temporary Structures

When special conditions occur during the design stage, the Plans may show other temporary structures for erosion control with required materials and construction methods.

F. Temporary Grass

Use a quick growing species of temporary grass such as rye grass, millet, or a cereal grass suitable to the area and season.

Use temporary grass in the following situations:

- When required by the Specifications or directed by the Engineer to control erosion where permanent grassing cannot be planted.

- To protect an area for longer than mulch is expected to last (60 calendar days).

Plant temporary grass as follows:

1. Use seeds that conform to Subsection 890.2.01, "Seed." Perform seeding according to Section 700; except use the minimum ground preparation necessary to provide a seed bed if further grading is required.
2. Prepare areas that require no further grading according to Subsection 700.3.05.A, "Ground Preparation." Omit the lime unless the area will be planted with permanent grass without further grading. In this case, apply the lime according to Section 700.
3. Apply mixed grade fertilizer at 400 lbs/acre (450 kg/ha). Omit the nitrogen. Mulch (with straw or hay) temporary grass according to Section 700. (Erosion control compost Mulch will not be allowed with grassing.)
4. Before planting permanent grass, thoroughly plow and prepare areas where temporary grass has been planted according to Subsection 700.3.05.A, "Ground Preparation".
5. Apply Polyacrylamide (PAM) to all areas that receive temporary grassing.
6. Apply Pam (powder) before grassing or PAM (emulsion) to the hydroseeding operation.
7. Apply PAM according to manufacturer specifications.
8. Use only anionic PAM.

For projects that consist of shoulder reconstruction and/or shoulder widening refer to Section 161.3.05H for Wood Fiber Blanket requirements.

G. Mulch

When stage construction or other conditions prevent completing a roadway section continuously, apply mulch (straw or hay or erosion control compost) to control erosion. Mulch may be used without temporary grassing for 60 calendar days or less. Areas stabilized with only mulch (straw/hay) shall be planted with temporary grass after 60 calendar days.

Apply mulch as follows:

1. Mulch (Hay or Straw)
   a. Uniformly spread the mulch over the designated areas from 2 in to 4 in (50 mm to 100 mm) thick.
   b. After spreading the mulch, walk in the mulch by using a tracked vehicle (preferred method), empty sheep foot roller, light discing, or other means that preserves the finished cross section of the prepared areas. The Engineer will approve of the method.
   c. Place temporary mulch on slopes as steep as 2:1 by using a tracked vehicle to imbed the mulch into the slope. Where specified, use bituminous treated mulch (straw or hay) according to Subsection 700.3.05.G.1, "Mulch with Binder".
   d. When grassing operations begin, leave the mulch inplace and plow the mulch into the soil during seed bed preparation. The mulch will become beneficial plant food for the newly planted grass.
2. Apply mulch (erosion control compost) as follows:
   a. Uniformly spread the mulch (erosion control compost) over the designated areas 2 in (50 mm) thick.
   b. When rolling is necessary, or directed by the Engineer, use a light corrugated drum roller.
   c. When grassing operations begin, leave the mulch in place and plow the mulch into the soil during seed bed preparation. The mulch will become beneficial plant food for the newly planted grass.
   d. Plant temporary grass on area stabilized with mulch (erosion control compost) after 60 calendar days.

e. Do not use Erosion Control Compost in areas where the use of fertilizer is restricted.

H. Miscellaneous Erosion Control Not Shown on the Plans

When conditions develop during construction that were unforeseen in the design stage, the Engineer may direct the Contractor to construct temporary devices such as but not limited to:

- Bulkheads
- Wooden ditch checks
- Sump holes
- Half round pipe for use as ditch liners
- U-V resistant plastic sheets to cover critical cut slopes

The Engineer and the Contractor will determine the placement to ensure erosion control in the affected area.

I. Diversion Channels

When constructing a culvert or other drainage structure in a live stream requires diverting a stream, construct a diversion channel. Protect the bottom and sides of the channel with plastic sheeting, rip rap (either stone or sandbag), geotextile fabric, or other materials approved by the Engineer. Cement may be omitted in sandbag rip rap used to line diversion channels.

J. Temporary Ditch Checks

Temporary ditch checks shall be constructed of the material selected as shown on the approved erosion and sediment control plan. Item installation shall be constructed and placed according to approved Plan details. Temporary ditch checks may be constructed of stone plain rip rap according to Section 603 or of sand bags as in Section 603 without Portland cement, Type A or Type C silt fence.

Place plastic filter fabric on ditch section before placing rip rap.

Temporary ditch checks shall remain in place until the permanent ditch protection is in place or being installed and the removal is approved by the Engineer.

K. Construction Exits

Locate construction exits at any point where vehicles will be leaving the project onto a public roadway. Install construction exits at the locations shown in the plans and in accordance with plan details.

L. Retrofit

Add any required retrofit device to existing permanent outlet structures as shown on the Plan details or as required in the Contractor's accepted design. Detention ponds exist at along the Frontage Road (KIA Pkwy) at the north and south end.

When all land disturbing activities that would contribute sediment-laden runoff to the basin are complete, clean the basin of sediment and stabilize the basin area with vegetation.

When the basin is stabilized, remove the retrofit device from the permanent outlet structure of the detention pond as approved by the Engineer.

M. Inlet Sediment Trap

Inlet sediment traps consist of a temporary device placed around a storm drain inlet to trap sediment. An excavated area adjacent to the sediment trap will provide additional sediment storage.

Inlet sediment traps may be constructed of Type C silt fence, plastic frame and filter, hay bales, baffle box, or other filtering materials approved by the Engineer.

Construct inlet sediment traps according to the appropriate specification for the material selected for the trap.

Place inlet sediment traps as shown on the Plans or as directed by the Engineer.

163.3.06 Quality Acceptance

General Provisions 101 through 150.

163.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

163.4 Measurement

A. **Silt Control Gates** – No separate measurement will be made.

B. **Temporary Slope Drains** – No separate measurement will be made.

When required, the inlet spillway and outlet apron and/or other dissipation devices are incidental and not measured separately.

C. **Sediment Basins** – No separate measurement will be made.

Schedule of Payment shall consider the entire structure complete, including construction, maintenance, and removal. Included shall be:

- Earthwork
- Drainage
- Spillways
- Baffles
- Rip rap
- Final cleaning to remove the basin
- Permanent and temporary grassing

D. **Diversion Channels** – No separate measurement will be made.

Costs for the entire structure complete, including materials, construction (including earthwork), and removal is included in the price bid for the project.

E. **Temporary Grass** – No separate measurement will be made.

Temporary grass includes lime, mulch and fertilizer.

F. **Mulch** – No separate measurement will be made.

Mulch includes straw or hay, or erosion control compost.

G. **Baled Straw Erosion Checks** – No separate measurement will be made.

H. **Temporary Ditch Checks** – No separate measurement will be made.

I. **Construction Exits** – No separate measurement will be made.

Construction exits include all work necessary to construct the exit including the required geotextile fabric placed beneath the aggregate.

J. **Retrofit** – No separate measurement will be made.

The construction or reconstruction of any detention pond(s) and permanent outlet structure will not be measured separately under the appropriate items.

K. **Inlet Sediment Trap** – No separate measurement will be made.

Inlet sediment traps includes all work necessary to construct the trap including any incidentals and providing the excavated area for sediment storage.

163.4.01 Limits

General Provisions 101 through 150.

163.5 Payment

A. Silt Control Gates – To be paid for under CONSTRUCTION COMPLETE.

Includes:

- Furnishing the material and labor
- Constructing the concrete apron as shown on the Plans
- Excavating and backfilling to place the apron
- Removing the gate

B. Temporary Slope Drains – To be paid for under CONSTRUCTION COMPLETE.

Includes materials, construction, removal (if required), inlet spillways, velocity dissipaters, and outlet aprons.

Removed temporary drain inlets and pipe slope drains remain the Contractor's property and may be reused or removed from the Project as the Contractor desires.

C. Sediment Basin – To be paid for under CONSTRUCTION COMPLETE.

Includes supervision to construct, and remove the sediment basin, including final clean-up.

D. Diversion Channel – To be paid for under CONSTRUCTION COMPLETE.

E. Temporary Grass – To be paid for under CONSTRUCTION COMPLETE.

Includes all equipment, labor, ground preparation, materials, wood fiber mulch, polyacrylamide, and other incidentals, lime, mulch and fertilizer.

F. Mulch – To be paid for under CONSTRUCTION COMPLETE.

Includes all materials, labor, maintenance, equipment and other incidentals.

G. Baled Straw Erosion Checks – To be paid for under CONSTRUCTION COMPLETE.

Includes constructing, and removing (when directed) the straw checks.

H. Temporary Ditch Checks – To be paid for under CONSTRUCTION COMPLETE.

Includes all materials, construction, and removal and any required filter fabric under rip rap ditch checks.

I. Construction Exits – To be paid for under CONSTRUCTION COMPLETE.

Includes all materials including the required geotextile, construction, and removal.

J. Retrofit – To be paid for under CONSTRUCTION COMPLETE.

Includes all work, supervision, materials (including the stone filter), labor and equipment necessary to construct, reconstruct, and/or remove the retrofit device from an existing or proposed detention pond outlet structure.

K. Inlet Sediment Trap – To be paid for under CONSTRUCTION COMPLETE.

Includes all materials, construction, and removal

Temporary devices may be left in place at the Engineer's discretion at no change in cost

163.5.01 Adjustments

General Provisions 101 through 150.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 165—Maintenance of Temporary Erosion and Sedimentation Control Devices

Addition to the Standard Specifications:

165.1 General Description

This work consists of providing maintenance on temporary erosion and sediment control devices, including but not limited to the following:

- Silt fence
- Sediment basins
- Silt control gates
- Check dams
- Silt retention barriers

It also consists of removing sediment that has accumulated at the temporary erosion and sediment control devices.

165.1.01 Definitions

General Provisions 101 through 150.

165.1.02 Related References

A. Standard Specifications

General Provisions 101 through 150.

B. Referenced Documents

General Provisions 101 through 150.

165.1.03 Submittals

General Provisions 101 through 150

165.2 Materials

General Provisions 101 through 150.

165.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

165.3 Construction Requirements

165.3.01 Personnel

General Provisions 101 through 150.

165.3.02 Equipment

General Provisions 101 through 150.

165.3.03 Preparation

General Provisions 101 through 150.

165.3.04 Fabrication

General Provisions 101 through 150.

165.3.05 Construction

A. General

As a minimum, clean the sediment from all temporary erosion control devices (except sediment basins) installed on the project when one half the capacity, by height, depth or volume has been reached. Clean the sediment from all temporary sediment basins installed on a project when one third the capacity of the storage volume has been filled.

Handle sediment excavated from any erosion or sediment control device in one of the following ways:

- Remove sediment from the immediate area and immediately stabilize it to prevent the material from refilling any erosion or sediment control device
- Place and mix it in the roadway embankment, or
- Waste it in an area approved by the Engineer.

Repair or replace at no cost to the Department, any erosion or sediment control devices that are not functioning properly or are damaged due to negligence or abuse.

B. Temporary Silt Fence

Maintenance of Temporary Silt Fence consists of furnishing all labor, tools, materials, equipment and necessary incidentals to remove and dispose of accumulated sediment down to the original ground line (0 % filled). Also included is the removal of sediment accumulations on the fabric by tapping the fabric on the downstream side.

C. Silt Control Gates

Maintenance of Temporary Silt Control Gates consists of all labor, tools, materials, equipment and necessary incidentals to remove and dispose of accumulated sediment down to the original ground line (0% filled). When applicable, this item will include the removal of sediment accumulations on the fabric by tapping the fabric on the downstream side.

D. Erosion Control Checkdams

Maintenance of Temporary Erosion Control Checkdams or Ditch Checks shall consist of all labor, tools, materials, equipment and necessary incidentals to remove and dispose of accumulated sediment down to the original ground line (0% filled). This item also includes the removal of any material deposited in sump holes. When applicable, this item will include the removal of sediment accumulations on the fabric by tapping the fabric on the downstream side.

E. Silt Retention Barrier

Maintenance of Temporary Silt Retention Barrier consists of all labor, tools, materials, equipment and necessary incidentals to remove and dispose of accumulated sediment down to the original ground line (0% filled).

F. Temporary Sediment Basins

Maintenance of Temporary Sediment Basins consists of all labor, tools, materials, equipment and necessary incidentals to remove and dispose of accumulated sediment down to the original bottom of the basin. This also includes removing accumulated sediment from the rock filter and restoring the rock filter to its original specified condition and any work necessary to restore all other components to the pre-maintenance conditions.

G. Baled Straw Erosion Check

Maintenance of Temporary Baled Straw Erosion Check consists of all labor, tools, materials, equipment and necessary incidentals to remove and dispose of accumulated sediment down to the original ground line (0% filled).

H. Triangular Silt Barrier

Maintenance of Triangular Silt Barrier consists of all labor, tools, materials, equipment and necessary incidentals to remove and dispose of accumulated sediment down to the original ground line (0% filled).

I. Retrofit:

Maintenance of the retrofit device consists of all labor, tools, materials, equipment and necessary incidentals to remove and properly dispose of accumulated sediment in the permanent detention pond being utilized as a temporary sediment basin. This item also includes any maintenance that is required to ensure the retrofit device is maintained per Plan details and any maintenance of the stone filter to maintain its filtering ability, including cleaning and replacement.

J. Construction Exit:

Maintenance of the construction exit consists of all labor, tools, materials, equipment and incidentals, including additional stone and geotextile fabric as required to prevent the tracking or flow of soil onto public roadways. This includes, scarifying existing stone, cleaning existing stone, or placement of additional stone.

Cleaning of the construction exit by scraping and/or brooming only will not be measured for payment.

K. Inlet Sediment Trap

Maintenance of inlet sediment traps consists of all labor, tools, materials, equipment and necessary incidentals to remove and properly dispose of accumulated sediment in the trap and/or the excavated area adjacent to the trap. It also includes any maintenance that is required on the material selected to construct the inlet sediment trap.

165.3.06 Quality Acceptance

General Provisions 101 through 150.

165.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

165.4 Measurement

These items will not be measured separately.

A. Temporary Silt Fence:

B. Silt Control Gates:

C. Erosion Control Checkdams:

D. Silt Retention Barrier:

E. Temporary Sediment Basins:

F. Baled Straw Erosion Check:

G. Triangular Silt Barrier:

H. Retrofit:

I. Construction Exit:

J. Inlet Sediment Trap

165.4.01 Limits

General Provisions 101 through 150.

165.5 Payment

These items will be paid for under CONSTRUCTION COMPLETE

A. Temporary Silt Fence:

B. Silt Control Gates:

C. Erosion Control Checkdams:

D. Silt Retention Barrier:

E. Temporary Sediment Basins:

F. Baled Straw Erosion Check:

G. Triangular Silt Barrier:

H. Retrofit:

I. Construction Exit:

J. Inlet Sediment Trap

165.5.01 Adjustments

General Provisions 101 through 150.

Date: August 26, 2002
First Use Date 2001 Specifications: November 1, 2002
Revised: January 16, 2003
Revised: August 1, 2003
Revised: February 1, 2004
Revised October 15, 2005
Revised February 28, 2007

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 167—Water Quality Monitoring

Add the following:

167.1 General Description

This Specification establishes the Contractor's responsibility to meet the requirements of the National Pollutant Discharge Elimination System (NPDES) Infrastructure Permit No. GAR 100002 as it pertains to Part IV. Erosion, Sedimentation and Pollution Control Plan.

167.1.01 Definitions

Certified Personnel— certified personnel are defined as persons who have successfully completed the Georgia Soil and Water Conservation Commission Course Level IA, possess a current certification card from the Commission, and have attended the Department's WECS seminar.

167.1.02 Related References

A. Standard Specifications

Section 161—Control of Soil Erosion and Sedimentation

B. Referenced Documents

NPDES Infrastructure Permit No. GAR 100002, Part IV

GDOT WECS seminar.

Environmental Protection Divisions Rules and Regulations (Chapter 391-3-26)

Georgia Soil and Water Conservation Commission Certification Level IA course.

OCGA 12-7

167.1.03 Submittals

General Provisions 101 through 150

167.2 Materials

General Provisions 101 through 150.

167.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

167.3 Construction Requirements

167.3.01 Personnel

Use certified personnel to perform all monitoring, sampling, inspections, and rainfall data collection.

Use the Contractor designated WECS or select a prequalified consultant from the Qualified Consultant List (QCL) to perform water quality monitoring.

Ensure that monitoring consultants' employees who perform monitoring, sampling, inspections, and rainfall data collection are GASWCC Certified.

167.3.02 Equipment

Provide equipment necessary to complete the Work or as directed.

167.3.03 Preparation

General Provisions 101 through 150.

167.3.04 Fabrication

General Provisions 101 through 150.

167.3.05 Construction

A. General

Perform inspections, rainfall data collection, testing of samples, and reporting the test results on the project according to the requirements in Part IV of the NPDES Infrastructure permit and this Specification.

Take samples manually or with the use of automatic samplers, according to the permit. Analyze all according to the permit, regardless of the method used to collect the samples.

If samples are analyzed in the field using portable turbidemeters, the monitoring results shall state that they are being used and a digital readout of NTUs is what is provided.

Submit bench sheets, work sheets, etc., when using portable turbidemeters. There are no exceptions to this requirement.

Perform required inspections and submit all reports required by this Specification within the time frames specified. Failure to perform the inspections or submit the required reports within the time specified will result in the cessation of all construction activities with the exception of traffic control and erosion control. Continued failure to perform inspections or submit the required reports within the times specified will result in non-refundable deductions as specified in Subsection 161.5.01.B.

B. Inspections

Have the Engineer inspect the installation and condition of each erosion control device required by the erosion control plan within seven days after initial installation. Have this inspection performed for each stage of construction when new devices are installed. Correct all deficiencies reported by the Engineer within two business days.

Ensure inspections are conducted by certified personnel on the areas and at the frequencies listed below. Document all inspections on form DOT-EC-1.

1. Daily:
   a. Petroleum product storage, usage and handling areas
   b. All locations where vehicles enter/exit the site
2. Weekly and after Rainfall Events:

   Conduct inspections on these areas every seven calendar days and within twenty-four hours after the end of a rainfall event that is 0.5 in (13 mm) or greater:

a. Disturbed areas not permanently stabilized

b. Material storage areas

c. Structural control measures, Best Management Practices (BMPs)

d. Water quality monitoring locations and equipment

3. Monthly:

Once per month, inspect all areas where final stabilization has been completed. Look for evidence of sediments or pollutants entering the drainage system and or receiving waters. Inspect all erosion control devices that remain in place to verify the maintenance status and that the devices are functioning properly.

Continue these inspections until the Notice of Termination is submitted.

C. Reports:

1. Inspection Reports:

Summarize the results of inspections noted above in writing on form DOT-EC-1. Include the following information:

- Date(s) of inspection
- Name of personnel making inspection
- Status of devices
- Observations
- Action taken
- Signature of personnel making the inspection
- Any incidents of non-compliance

The EC-1 form shall be signed by the project WECS.

Submit all inspection reports to the Engineer within twenty-four hours of the inspection.

The Engineer will review the reports, inspect the project for compliance, and issue concurrence with the submitted reports provided the inspection reports are satisfactory.

The Engineer will notify the certified personnel of any additional items that should be added to the inspection report.

Correct any items listed in the inspection report requiring routine maintenance or correction within twenty-four hours of notification.

Assume responsibility for all costs associated with additional sampling as specified in Part IV.D.5.d.3.(c) and Part IV.D.5.d.3.(c), of the NPDES GAR 100002 permit if either of these conditions arise:

- BMPs shown in the Plans are not properly installed and maintained, or
- BMPs designed by the Contractor are not properly designed, installed and maintained.

2. Monitoring Reports

a. Report Requirements

Include in all reports, the following certification statement, signed by the WECS or consultant providing monitoring on the project:

> "I certify under penalty of law that this document and all attachments were prepared under my direct supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 170—Silt Retention Barrier

Delete Subsection 170.3 and substitute the following:

170.3 Construction Requirements

170.3.01 Personnel

General Provisions 101 through 150.

170.3.02 Equipment

General Provisions 101 through 150.

170.3.03 Preparation

General Provisions 101 through 150.

170.3.04 Fabrication

General Provisions 101 through 150.

170.3.05 Construction

Install a silt retention barrier as follows: Barriers shall be either staked or floating depending upon current, tides, water depth, and other variables, or as shown in the plans and contract.

A. Floating Silt Retention Barrier

1. Confine dredged materials to ponding areas or settlement basins using standpipes or weirs.
2. Place the barrier approximately 25 ft (7.5 m) outside the affected construction area, and at a depth within 5 ft (1.5 m) of the bottom.
3. If the body of water has a significant current, place the barrier parallel to the water flow. Ensure that the fabric is permeable or impermeable.
4. Vary the dimensions and methods to suit the conditions and to meet the requirements of other local and State water control agencies to ensure that silt dispersion is effectively controlled.
5. Provide a fabric that is weighted to prevent the bottom of the barrier from floating.

B. Staked Silt Retention Barrier

1. Where a staked barrier is used to protect a stream or inundated area, ensure the fabric:
    a. Extends to the bottom of the stream or inundated area and is weighted to prevent it from floating
    b. Is permeable or impermeable and not trenched in at the bottom

c. Extends 1 foot (300 mm) above normal water elevation

2. Posts:

a. Options: 2 inch (50 mm) x 4 inch (100 mm) wood; or 2 ½ inch (62.5 mm) min. diameter wood; or steel at a minimum of 1.33 pounds per foot (1.980 kg/m)

b. Space posts at a minimum spacing of 4 feet (1.2 m)

c. Ensure posts are a minimum of 5 feet (1.5 m) in length

d. Extend post a minimum of 18 inches (450 mm) into the soil

170.3.06 Quality Acceptance

General Provisions 101 through 150.

170.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

Delete Subsection 170.4 and 170.5.

Add Subsection 170.4

Measurement and Payment:

No separate measurement or payment will be made for this item. This item will be included in price bid for CONSTRUCTION COMPLETE. Includes furnishing materials, erecting the barrier, removing, and disposing of the barrier when no longer required.

Adjustments will be as shown in General Provisions 101 to 150.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

Supplemental Specification

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 171—Silt Fence

Delete Section 171 and substitute the following:

171.1 General Description

This work includes furnishing, installing, and removing a water permeable filter fabric fence to remove suspended particles from drainage water.

171.1.01 Definitions

General Provisions 101 through 150.

171.1.02 Related References

A. Standard Specifications

Section 163—Miscellaneous Erosion Control Items

Section 700—Grassing

Section 862—Wood Posts and Bracing

Section 881—Fabrics

Section 894—Fencing

B. Referenced Documents

ASTM D 3786

ASTM D 4355

ASTM D 4632

ASTM D 4751

GDT 87

QPL 36

171.1.03 Submittals

General Provisions 101 through 150.

171.2 Materials

Materials shall meet the requirements of the following Specifications:

Material	Section
Filter Fabrics	881
Fencing	894

Wood Posts and Bracing	862

Conditions during Project construction will affect the quantity of the silt fence to be installed.

The Engineer may increase, decrease, or eliminate the quantity at his or her direction. Variations in quantity are not changes in details of construction or in the character of the work.

For Type A, B, and C fences, use fabric as specified in Subsection 881.2.07, "Silt Fence Filter Fabric."

171.2.01 Delivery, Storage, and Handling

During shipment and storage, wrap the fabric in a heavy-duty covering that will protect the cloth from sunlight, mud, dust, dirt, and debris. Do not expose the fabric to temperatures greater than 140 °F (60 °C).

When installed, the Engineer will reject the fabric if it has defects, rips, holes, flaws, deterioration, or damage incurred during manufacture, transportation, or storage.

171.3 Construction Requirements

171.3.01 Personnel

General Provisions 101 through 150.

171.3.02 Equipment

General Provisions 101 through 150.

171.3.03 Preparation

General Provisions 101 through 150.

171.3.04 Fabrication

General Provisions 101 through 150.

171.3.05 Construction

Install the silt fence according to this Specification, as shown on the Plans, or as directed by the Engineer.

A. Install Silt Fence

1. Install silt fence by either of the following methods:
   a. Excavated Trench Method

      Excavate a trench 4 to 6 in (100 to 150 mm) deep using equipment such as a trenching machine or motor grader. If equipment cannot be operated on the site, excavate the trench by hand.
   b. Soil Slicing Method

      Create a mechanical slice in the soil 8 to 12 in (200 to 300 mm) deep to receive the silt fence. Ensure that the width of the slice is not more than 3 in (75 mm). Mechanically insert the silt fence fabric into the slice in a simultaneous operation with the slicing that ensures consistent depth and placement.
2. Install the first post at the center of the low point (if applicable). Space the remaining posts a maximum of 6 ft (1.8 m) apart for Types A and B fence and 4 ft (1.2 m) apart for Type C fence.
3. Bury the posts at least 18 in (450 mm) into the ground. If this depth cannot be attained, secure the posts enough to prevent the fence from overturning from sediment loading.
4. Attach the filter fabric to the post using wire, cord, staples, nails, pockets, or other acceptable means.
   a. **Staples and Nails (Wood Posts):** Evenly space staples or nails with at least five per post for Type A fence and four per post for Type B fence. Staple fabric to the smallest side of post.
   b. **Pockets:** If using pockets, and they are not closed at the top, attach the fabric to a wood post using at least one additional staple or nail, or to a steel post using wire.

      Ensure that the additional attachment is within the top 6 in (150 mm) of the fabric.
   c. Install the filter fabric so that 6 to 8 in (150 to 200 mm) of fabric is left at the bottom to be buried. Provide a minimum overlap of 18 in (450 mm) at all splice joints.

d. For Type C fences, attach the filter fabric to the top of a woven wire support fence at the midpoint between posts.

5. Install the fabric in the trench so that 4 to 6 in (100 to 150 mm) of fabric is against the side of the trench with 2 to 4 in (50 to 100 mm) of fabric across the bottom in the upstream direction.
6. Backfill and compact the trench to ensure that flow cannot pass under the barrier. When the slice method is used, compact the soil disturbed by the slice on the upstream side of the silt fence first, and then compact the downstream side.

B. Remove the Silt Fence

1. Keep the silt fence in place unless the Engineer directs. A removed silt fence may be used at other locations if the Engineer approves of its condition.
2. After removing the silt fence, return the area to a pleasing appearance. Seed and mulch the area according to Section 700.
3. When installing a silt fence across a waterway that produces significant runoff, place a settling basin in front of the fence to handle the sediment load, if required. Construct a suitable sump hole or storage area according to Section 163.

171.3.06 Quality Acceptance

Approved silt fence is listed in QPL 36. Approved fabrics must consistently exceed the minimum requirements of this Specification as verified by the Office of Materials and Research. The Office of Materials and Research will remove fabric that fails to meet the minimum requirements of this specification from the QPL until the products' acceptability has been reestablished to the Department's satisfaction.

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

171.3.07 Contractor Warranty and Maintenance

Maintain the silt fence until the Project is accepted or until the fence is removed. Also, remove and dispose of the silt accumulations at the silt fence.

Remove and replace any deteriorated filter fabric that reduces the effectiveness of the silt fence.

Repair or replace any undermined silt fence at no additional cost to the Department.

First Use Date: February 1, 2004
Revised February 28, 2007

GEORGIA DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 201—Clearing and Grubbing Right of Way

Delete Section 201 and Substitute the following:

201.1 General Description

This work includes clearing, grubbing, removing and disposing of vegetation, buildings and debris within the entire Right-of-Way and easement areas adjacent to the Right-of-Way or as designated by the Engineer. Except, do not remove objects designated to remain or removed according to other sections of these Specifications. This work also includes preserving (from injury and defacement) vegetation and objects designated to remain in place.

201.1.01 Definitions

Clearing: Removing and disposing trees, brush, stumps, logs, grass, weeds, roots, decayed vegetable matter, poles, stubs, rubbish, refuse dumps, sawdust piles, and loose boulders of 1 yd^3 (1 m^3) or less existing outside of the construction limits, debris resting on or protruding through the ground surface, or appearing on the Right-of-Way before final acceptance of the work.

Clearing also includes removing and disposing of obstructions, such as fences, bridges, buildings, and other incidental structures within the Right-of-Way unless the work or a portion of the work is:

- Removed as excavation
- Shown in the Proposal as a separate Pay Item
- Performed by others

Grubbing: Removal from the Right-of-Way and proper disposal of all objectionable matter defined above under clearing, which is embedded in the underlying soil.

Grubbing also includes removing and properly disposing of parking lots, abandoned pavements, sidewalks, driveways, catch basins, drop inlets, pipes, manholes, curbing, retaining walls, utilities, foundations, paved floors, underground tanks (for removal of underground tanks see Section 217), and other structures within the Right-of-Way unless the work or portions of the work are:

- Obstructions removed as one of the excavation items
- Shown in the Proposal as separate Pay Items
- Removed by others
- To be incorporated in the project.

Objectionable Roots: Any of the following types of roots:

- Matted trees and brush roots (regardless of the size of the roots)
- Individual roots more than 0.75 in (20 mm) diameter
- Individual roots more than 3 ft (1 m) long regardless of size
- Large quantities of smaller roots present in the top 1 ft (300 mm) of the finished subgrade or road surface when detrimental to the work as determined by the Engineer.

Stumps: The butt of a tree with a diameter of 4 in (100 mm) or more. Measure the stump 6 in (150 mm) above the ground line.

201.1.02 Related References

A. Standard Specifications

Section 107—Legal Regulations and Responsibility to the Public

Section 109—Measurement and Payment

Section 160—Reclamation of Material Pits and Waste Areas

Section 161—Control of Erosion and Sedimentation

Section 208—Embankments

Section 215 – Removal of Solid Waste

Section 217—Removal of Underground Storage Tanks

B. Referenced Documents

General Provisions 101 through 150.

201.1.03 Submittals

General Provisions 101 through 150.

201.2 Materials

General Provisions 101 through 150.

201.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

201.3 Construction Requirements

201.3.01 Personnel

General Provisions 101 through 150.

201.3.02 Equipment

General Provisions 101 through 150.

201.3.03 Preparation

General Provisions 101 through 150.

201.3.04 Fabrication

General Provisions 101 through 150.

201.3.05 Construction

A. General

Establish Right-of-Way and construction lines. The Engineer will designate which trees, shrubs, and plants will remain in the ground. Preserve things designated to remain.

Apply the requirements of Subsection 107.22, Subsection 107.23, and Section 161 to clearing and grubbing operations.

Strip grass immediately ahead of grading.

To prevent the spread of "Introduced Invasive Pest Species", do the following:

1. Adhere to the restrictions of Section 155.3.05.A for moving soil, mulch, sod or plants, stump wood or timber with soil attached.
2. Adhere to the requirements of Section 155.3.05.B for cleaning of equipment, except that the USDA inspection will not be required for vegetative matter.
3. Dispose of vegetative parts of plants that may reproduce (roots and aboveground parts that bear fruit) by burning on site (where permitted) or bury with a minimum cover of 3 feet (1 meter) at an approved site. Obtain the Engineer's approval for any other methods of disposal.

B. Clearing

Clear objects within the Right-of-Way and easement areas as follows:

1. Choose a method of clearing that prevents damage to property, trees, or retained shrubbery in or outside of the Right-of-Way.
2. Remove stumps that are part of the clearing operations as specified under Subsection 201.3.05.C, "Grubbing" .
3. Cut the stumps not grubbed as specified in this section.
4. Dispose of cleared materials as specified in Subsection 201.3.05.E.

C. Grubbing

Grubbing consists of removing and disposing objectionable matter embedded in the underlying soil (defined in Subsection 201.3.05.B, "Clearing") from the Right-of-Way and easement areas.

1. Grubbing Operations

   When grubbing, remove abandoned obstructions referenced in Subsection 201.1.01 "Definitions" to the following depths:

   a. Under Pavements: Remove to a depth of at least 3 ft (1 m) below the finished subgrade.
   b. Underneath Other Structures: Remove to at least 3 ft (1 m) below the foundations of any proposed structure, including installations such as guard rail posts and utility poles.
   c. Elsewhere in the Right-of-Way and easement areas: Remove as follows:
      1) Remove to at least 3 ft (1 m) below the finished surface of slopes and shoulders and 1 ft (300 mm) below natural ground outside construction lines.
      2) Thoroughly crack or break abandoned structures that may impound water. These structures include concrete floors, basements, and catch basins within 10 ft (3 m) of finished grade.
      3) Break floors so that no section greater than 10 ft^2 (1 m^2) remains intact.
2. Except as modified under Subsection 201.3.05.D, use the following procedure to perform grubbing:
   a. Remove stumps and other matter that cannot be removed by a root rake. Remove stumps to a minimum depth of 2 ft (600 mm) below the ground line.
   b. Rake areas containing objectionable roots to a depth of at least 6 in (150 mm) below the surface.
   c. Remove remaining objectionable matter by hand or other suitable means. When necessary, remove small roots (see Subsection 201.1.01 "Objectionable Roots") detrimental to the work.
   d. Backfill stump holes and compact backfill to the approximate density of the surrounding soil.
   e. Harrow the area with a heavy-duty disc harrow that penetrates and turns the ground to at least 6 in (150 m) deep.
   f. Remove objectionable matter exposed by the harrowing.
   g. Level the harrowed areas with blading equipment. Leave the grubbed areas smooth enough for a power mower.

D. Modifications of Clearing and Grubbing

Modify clearing and grubbing as follows:

1. In Excavation Areas

   Modify clearing and grubbing in excavation areas as follows:

   a. Harrowing and leveling may be omitted.

   b. Do not fill stump holes except when the bottom of any stump hole extends below the elevation of the finished subgrade. In this case, fill the portion of each hole below subgrade elevation with suitable material compacted to at least the density of the surrounding soil.

2. In Embankment Areas

   Modify clearing and grubbing in embankment areas as follows:

   a. Under 4.5 ft (1.4 m)

      Clear and grub areas without modification where the original ground and finished grade differ in elevation 4.5 ft (1.4 m) or less.

   b. Over 4.5 ft (1.4 m)

      Clear, but do not grub areas covered by embankments exceeding the 4.5 ft (1.4 m) elevation difference specified in step (a) above. Except the removal of unsound or decayed stumps.

      Remove and backfill stumps according to Subsection 201.3.05.C.2. When leaving sound stumps in place, cut them off to no more than 6 in (150 mm) above the original ground line.

   c. Embankment Areas Over Old Roads

      Clear and grub without modification ditches and slopes of old roads to a depth that removes all objectionable matter to provide a firm foundation.

3. Areas Outside of Roadway

   Except as specified in this section, clear and grub the entire Right-of-Way and easement areas outside construction limits and leave it smooth and free from loose boulders and debris that would interfere with power mowers. Exceptions to the above requirements are as follows:

   a. Selective Clearing

      When the Engineer directs to preserve certain trees and plants, protect them from injury. Trees to be removed shall be felled to prevent injury to standing trees, plants, and improvements to be preserved.

      Cut off tree branches overhanging the roadway within 20 ft (6 m) of the finished grade close to the boles. Also, remove other branches to create a balanced appearance. Treat scars from branch removal with a heavy coat of asphaltic tree paint. Grub areas adjacent to selected trees and shrubs without damage to living roots of the selected trees or shrubs.

   b. Special Treatment Areas

      Clear special treatment areas according to the Plan notes.

   c. Steep Slopes

      Clear or selectively clear slopes that are too steep for power mowers (slopes steeper than 3 horizontal to 1 vertical) and clear or selectively clear slopes that are subject to excessive erosion. Do not grub in these areas.

   d. Grassed Areas

      Do not grub (if the Engineer approves) reasonably large areas outside construction limits covered with grasses and smooth enough for power mowers. Remove stumps, trees, and other objectionable matter.

4. Bridge Sites

   Modify clearing and grubbing at bridge sites as follows:

   a. Stream Bridges

      Clear the Right-of-Way for stream bridges for the full length of the proposed structure. Cut stumps and brush flush with the ground line.

      The Engineer will require a second cutting if high water prevents cutting stumps flush with the ground. If the Engineer requires more than two cuttings, see Subsection 201.5 for payment.

Remove drift and stumps where necessary to permit installation of rip rap, piling, piers, abutments, wing walls, and bents. Properly backfill the holes.

Preserve stump and brush root systems at river and stream banks when they have been cut flush with the ground line.

b. Other Bridges

Clear and grub bridges (other than stream bridges) as specified within this specification for roadway areas and areas outside of the roadway.

E. Removal and Disposal of Materials

1. Merchantable Timber and Buildings

The Department may dispose of merchantable timber and buildings, or may allow a property owner to remove them from the land granted for Right-of-Way before the Contractor begins operation. Therefore, the Department does not guarantee that merchantable timber or buildings will be on the Right-of-Way when the work begins.

Material salvaged from removing timber or buildings becomes the property of the Contractor.

Demolish, remove, and dispose of all building structures within the right of way and easement areas including concrete slabs, footings, foundations, etc. except building structures designated to remain in place. Grade to drain all disturbed ground to a reasonably smooth and pleasing appearance, free from loose boulders and other debris that would interfere with the use of power mowers. Grass all disturbed areas.

Prior to demolition or removal:

a. Inspect all building structures for the presence of asbestos. The inspection shall be done by an EPA Asbestos Hazard Emergency Response Act (AHERA) accredited inspector whose certification is current.

b. Provide a copy of all inspection reports including the inspector's credentials to the Engineer.

c. Provide written notice of intent to demolish to the Georgia Environmental Protection Division (EPD) of the Georgia Department of Natural Resources in accordance with EPD regulations with a copy to the engineer. This notice is required even if there is no asbestos present.

If there is asbestos present, its removal shall be done by a contractor licensed with the EPD in accordance with the Rules of Georgia Department of Natural Resource Environmental Protection Division chapter 391-3-14-04. All asbestos removal and disposal shall be done in accordance with EPD regulations. All asbestos removal shall be considered as Extra Work and payment will be made in accordance with Subsection 109.05.

2. Combustible Material

Abide by Federal, State, and local codes when the Right-of-Way (or any portion of the Right-of-Way) lies within an area where burning is restricted. All combustible material except sawdust piles may be burned on the Right-of-Way except where prohibited by Federal, State, or local air pollution control regulations.

a. Prevent fire from spreading to adjacent areas and damaging living trees and shrubs designated to remain on the Right-of-Way and easement areas.

b. Prevent damage to public and private installations either within or adjacent to the Right-of-Way and prevent damage to traveling public.

c. Obtain suitable areas for burning the combustible material when necessary (at the Contractor's expense). Burning area are subject to the approval of the Engineer.

d. Dispose of unburned combustible material according to Subsection 201.3.05.E.3. If the disposal area is located on private property, present written authority to the Engineer (signed by the property owner) granting the Contractor and the Department permission to use the area for the purpose intended. Reclaim the disposal area according to Section 160 except that the reclamation is at the Contractor's expense.

e. Completely remove sawdust within the construction limits. Haul the sawdust to approved disposal areas, or deposit it on the Right-of-Way in a layer less than 3 in (75 mm) deep. Immediately mix the sawdust with the underlying soil by discing and harrowing. Leave the harrowed surface smooth.

3. Solid Waste Material

Place solid waste material either in the embankment (provided the material is satisfactory for embankment construction) or in a Department-approved solid waste disposal site.

The classification of non-regulated and regulated solid waste materials are defined by the Environmental Protection Division (EPD) of the Georgia Department of Natural Resources (GDNR) rules and regulations. Dispose of these materials using the following procedures.

a. Non-regulated Solid Waste Material

1) Excess material such as soil, rock, brick, concrete (with and without reinforcement), and cured asphalt may be placed within the Right-of-Way, provided there is available room. Place these materials according to Section 208 and as directed by the Engineer.

2) Common fill such as soil, rock, brick, and concrete (with and without reinforcement) may be placed outside the Right-of-Way. Place the material in uniform layers 3 ft (1 m) thick or less and distributed to avoid pockets. Fill voids with finer material. Cover the last layer of fill with at least 2 ft (600 mm) of soil. Construct the fill according to Section 208, except compact it to at least 90 percent of the maximum laboratory dry density.

3) Materials that may be recycled or reused such as asphaltic concrete, Portland cement concrete, plastic, metal, and materials that qualify under EPD regulations for sale or use may be reclaimed by the Contractor.

b. Regulated Material

1) Obtain an inert landfill permit according to GDNR/EPD rules for the following material deposed of off the R/W: Inert waste items listed in Subsection 201.3.05.E.3.a if not properly layered and compacted, and organic debris such as stumps, limbs and leaves, cured asphalt. Or, take the material to a permitted solid waste landfill.

2) Take other regulated construction/demolition and non-hazardous solid waste, such as forms, barrels, plastic, and other by-products of construction to a construction/demolition landfill or to a municipal solid waste landfill.

3) Dispose of oils, solvents, fuels, untreated lead paint residue, and other solid hazardous waste through a properly licensed hazardous waste disposal facility.

Remove municipal solid waste discovered during construction or shown on the Plans according to Section 215.

201.3.06 Quality Acceptance

General Provisions 101 through 150.

201.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

201.4 Measurement

The Department does not measure clearing and grubbing separately for payment. The area is considered the full Right-of-Way width for the length of the Project including slope and construction easement areas shown on the Plans.

201.4.01 Limits

General Provisions 101 through 150.

201.5 Payment

Payment for this Item, completed and accepted, will be made under CONSTRUCTION COMPLETE. Includes all work specified in this Section including final cleanup as required.

The Contractor is responsible for all cuttings to clear the Right-of-Way for stream bridges (according to Subsection 201.3.05.D.4.a).

201.5.01 Adjustments

General Provisions 101 through 150.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 206—Borrow Excavation

Delete Subsection 206.4 and substitute the following:

206.4 Measurement

No separate measurement to be included for this item.

206.4.01 Limits

General Provisions 101 through 150.

Delete Subsection 206.5 and substitute the following:

206.5 Payment

Payment will be made under CONSTRUCTION COMPLETE.

206.5.01 Adjustments

General Provisions 101 through 150.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 207—Excavation and Backfill for Minor Structures

Delete Subsection 207.4 and substitute the following:

207.4 Measurement

No separate measurement will be included for this item.

A. Excavation

The following considerations are not measured for payment:

- Excavation for minor structures, including undercut for backfill materials as shown on the Plans
- Excavation for an imperfect trench which is required at locations specified in the Plans but which is not measured for payment
- Removal of water
- Removal of material from any area required to be reexcavated
- Excavation and backfill of temporary drainage ditches

B. Extra Depth Excavation

The following extra depth excavations are not measured for payment:

1. Extra depth excavation because of Contractor negligence
2. Extra depth excavation (required by the Engineer) below the original Plan elevation of the bottom of the footing or the flow line of a culvert pipe that does not exceed 3 ft (1 m)

Delete Subsection 207.5 and substitute the following:

207.5 Payment

Payment will be made under CONSTRUCTION COMPLETE. Includes excavation for Minor Structures, Sheeting and Bracing, Backfill Materials, Normal Backfill.

First Use Date: October 20, 2006
Revised February 28, 2007

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 208—Embankments

Delete Section 208 and substitute the following:

208.1 General Description

This work includes placing embankments, backfilling structures, and constructing earth berms and surcharges with suitable material excavated under Section 204, Section 205, Section 206, and Section 207.

Complete the work according to the lines, grades, and typical cross- sections shown on the Plans or established by the Engineer.

The work also includes preparing areas by backfilling stump holes and correcting surface irregularities where the embankment is to be constructed. This includes forming, compacting, and maintaining the embankment and placing and compacting approved material where unsuitable material has been removed.

Payment for this work is included in other appropriate Pay Items unless a specific Pay Item is set up in the Contract.

Apply all provisions of Section 161 to the work in this Section.

Perform Shoulder Construction according to Section 216.

208.1.01 Definitions

General Provisions 101 through 150.

208.1.02 Related References

A. Standard Specifications

Section 161—Control of Soil Erosion and Sedimentation

Section 201—Clearing and Grubbing Right-of-Way

Section 204—Channel Excavation

Section 205—Roadway Excavation

Section 206—Borrow Excavation

Section 207—Excavation and Backfill for Minor Structures

Section 209—Subgrade Construction

Section 216—Unpaved Shoulders

Section 810—Roadway Materials

Section 811—Rock Embankment

Section 813—Pond Sand

B. Referenced Documents

GDT 7

GDT 20

GDT 21

GDT 24a

GDT 24b

GDT 59

GDT 67

208.1.03 Submittals

General Provisions 101 through 150.

208.2 Materials

Embankment material classes are defined in Section 810, Section 811, and Section 813. The material incorporated into the roadway will be subject to the following limitations:

A. Embankment Material

Use embankment material classified as Class I, II, III, V, or VI except as noted below:

1. Inundated Embankments

   A Special Provision in the Proposal will contain required gradation and other characteristics of materials for constructing embankments through reservoirs.

2. Intermittently Inundated Embankments

   Build intermittently inundated embankments using any material suitable for embankment.

3. Embankments at Structures

   Embankment materials placed within 10 ft (3 m) of any bridge structure shall be classified as Class I or II. Ensure that materials do not contain rock larger than 3 in (75 mm) for any dimensions.

B. Rock Embankment

Ensure that rock embankment placed as indicated on the Plans meets the requirements of Section 811 unless specified otherwise in the Plans or in the Special Provisions.

C. In-Place Embankment

Construct in-place embankment with Class I, II, III, V, or VI material.

D. Backfill Material

Backfill material furnished and stockpiled shall be Class I or Class II as defined in Subsection 810.2.01.A.

E. Pond Sand Embankment

Use pond sand that meets the requirements of Section 813 as embankment material. Material is subject to the following approval limitations:

1. Pond sand will be approved on a stockpile basis only.
2. Pond Sand will not be approved for Type I or normal backfill materials or for backfill for mechanically stabilized walls.
3. Pond sand shall be encapsulated, when used as fill, with 2 ft (600 mm) of soil on the slopes and 3 ft (1 m) of soil on top.
4. Pond sand shall not be used on sidehill fills or fill widenings where any of the following conditions exist:

a. The proposed fill slope is steeper than 2:1.

b. The thickness of the proposed fill at its thinnest point, as measured perpendicularly from the new fill line to the existing ground slope/fill slope, is less than 7 ft (2.1 m), including 2 ft (600 mm) of soil cover.

c. The fill height exceeds 30 ft (9 m).

208.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

208.3 Construction Requirements

208.3.01 Personnel

General Provisions 101 through 150.

208.3.02 Equipment

General Provisions 101 through 150.

208.3.03 Preparation

General Provisions 101 through 150.

208.3.04 Fabrication

General Provisions 101 through 150.

208.3.05 Construction

A. Benching Excavation for Embankment

This work includes excavating material forming benches in the existing ground beneath proposed embankments. Form benches to increase the bond between the existing ground and the proposed embankment.

This work is required where embankments are placed on hillsides or against existing embankments, which will be indicated on the Plans.

Construct the benches approximately 12 ft (3.7 m) wide unless otherwise shown on the Plans. Use material removed in the excavation in the embankments. The Department will make no additional payment for this work.

B. Embankments

Follow these requirements when constructing embankments:

1. Preparation for Embankments

   Before starting embankment construction, clear and grub the embankment area according to Section 201 and install Drainage Structures according to Section 550.

   a. Depressions and Undercut Areas

      Fill depressions below the ground surface and undercut areas with suitable material. Remove unsuitable or unstable material and compact according to Subsection 208.3.05.B.1.c before beginning embankment construction.

   b. Scarification and Other Preparation

      Plow and scarify the entire area upon which the embankment is to be placed (except inundated areas) at least 6 in (150 mm) deep.

      Before placing the embankment, recompact loosened soil to the approximate density of the underlying soil. Cut benches as specified in Subsection 208.3.05.A.

   c. Compaction Under Shallow Fills

      When the depth of fill and surfacing is 3 ft (1 m) or less, compact the original ground compact at least 1 ft (300 mm) deep to at least 95 percent of the maximum laboratory dry density as determined from representative samples of the compacted material using, GDT 7, GDT 24a, GDT 24b, or GDT 67whichever applies.

The in-place density of the compacted fill will be determined according to GDT 20, GDT 21, or GDT 59, whichever applies.

d. Embankments Over Existing Roads, Parking Areas, and Floors

Thoroughly plow or scarify all portions of existing unpaved roads and flexible pavements. Destroy cleavage planes before placing the embankment.

1) Remove the old pavement with rigid surfaces if the new embankment is not more than 3 ft (1 m) high.

2) Break remaining rigid pavements that are within 10 ft (3 m) of the finished grade so that no section larger than 10 ft² (1 m²) remains intact.

2. Embankment Formation

Use the following requirements when constructing the embankment formation:

a. Layer Construction

Except as noted in Subsection 208.3.05.B.2.d, construct the embankments in parallel layers. Deposit the material and spread in horizontal layers not more than 8 in (200 mm) thick, loose measurement, for the full width of the cross-section. Use motor graders, bulldozers, or other approved equipment to keep layers uniform. Compact the layers using a sheepsfoot roller. The Engineer may permit the use of vibratory rollers whenever the embankment soils consist of Class IA1, IA2, or IA3 materials.

b. Moisture Content

Compact each layer within the range of optimum moisture content to achieve the compaction specified below.

Do not construct successive layers on previous layers that exhibit excessive pumping under construction equipment regardless of compaction.

Dry material if it contains too much moisture. Ensure the moisture content is sufficient for stability and compaction.

Add water if the material is too dry and uniformly mix it with the soil for stability and compaction. The Department will not measure water added to the material under this requirement for payment. It is considered incidental to the satisfactory completion of the work.

c. Degree of Compaction

Compact the embankment at bridge structures to at least 100 percent of the maximum laboratory dry density. Compact for the full depth of the embankment, beginning at the toe of the slope and extending 100 ft (30 m) from the end of the bridge.

Compact embankment other than at bridge structures to at least 95 percent of the maximum laboratory dry density to within 1 ft (300 mm) of the top of the embankment. Compact the top 1 ft (300 mm) of the embankment to at least 100 percent of the maximum laboratory dry density.

If grading and paving are let in separate contracts, the paving Contractor shall recompact the top 6 in (150 mm) to at least 100 percent of the maximum laboratory density.

The maximum laboratory dry density will be determined from representative samples of the compacted material using GDT 7, GDT 24a, GDT 24b, or GDT 67, whichever applies. The in-place density of the compacted fill will be determined according to GDT 20, GDT 21, or GDT 59, whichever is applicable.

d. Special Conditions

Follow these special requirements:

1) Build layers as parallel as possible. In certain cases the Engineer may permit steeper slopes at ends of the embankments.

2) In swamp or inundated areas that will not support the equipment, build the lower part of the fill by dumping successive loads in layers no thicker than necessary to support the hauling equipment.

3) Build and compact the remainder of fills in layers as specified above.

e. Embankments at Structures

Use Class I or II material when constructing embankments over and around pipes, culverts, arches, and bridges according to Subsection 810.2.01.A.1.

1) Compact the material as specified in Subsection 208.3.05.B.2.c.

2) Place the specified material on both sides of bridge structures for a distance of at least 10 ft (3 m).

NOTE: Do not place rock larger than 4 in (100 mm) diameter within 2 ft (600 mm) of any drainage structure.

Before any traffic is allowed over any structure, provide a sufficient depth of material over and around the structure to protect it from damage or displacement.

f. Method of Handling Classes of Soils

Handle the different classes of soils using the following methods:

1) Class IIB3and Better Soils

Distribute and compact these soils in 8 in (200 mm) uniform layers over the entire width of the embankment. Use these soils (when available in sufficient quantities) in the top 1 ft (300 mm) of the roadbed. Reserve these soils for this purpose when directed by the Engineer.

2) Class IIB4 Soils

Distribute and compact these soils in 8 in (200 mm) layers over the entire width of the embankment.

3) Class III Soils

Do not use these soils in embankments except when directed in the Plans or ordered by the Engineer. If directed, place them in the same manner as Class IIB4 soils.

Class IIIC4, chert clay soils in District 6 with less than 55 percent passing the No. 10 (2 mm) sieve may be used for subgrade.

4) Class IV Soils

Do not use these soils in embankments. Waste these soils or (when designated in the Plans or directed by the Engineer) stockpile them and use them for blanketing fill slopes.

5) Class V Soils

Place these soils in the same manner as Class IIB4 soils. Pulverize large particles to obtain the proper compaction.

6) Class VI Rock

Place rock in uniform layers not over 3 ft (1 m) thick and distribute it over the embankments to avoid pockets. Fill voids with finer material.

Do not place rock larger than 6 in (150 mm) in diameter within 3 ft (1 m) of the finished surface of the embankment.

Do not place rock larger than 6 in (150 mm) in diameter within 2 ft (600 mm) of the outer limits of proposed posts or utility poles.

Do not place rock at bridge end bents within 10 ft (3 m) of pile locations.

7) All Classes

Place mixtures of the above classes together with random material such as rock, gravel, sand, cinders, slag, and broken-up pavement so that coarse particles are dumped near the outer slopes and finer particles near the center of the roadway.

Produce a gradual transition from the center to the outside. If material is too large to place in 8 in (200 mm) layers, treat it as rock or break it down and place it in 8 in (200 mm) layers.

3. Embankment Consolidation at Bridge Ends

When consolidating embankments at bridge ends, use the following specifications:

a. When a waiting period is required in the Plans or by Special Provision, place end fills at bridges in time for consolidation readings to indicate that both the fill and the natural ground have reached the desired degree of stability.

b. Delay constructing bridge portions during the period of consolidation as shown on the Plans or as required by a Special Provision.

The Plans or the Special Provisions will indicate the estimated time required to reach consolidation.

The Engineer may extend or shorten this waiting period based on settlement readings taken on points placed in the fills. The longer or shorter waiting period will not constitute a valid claim for additional compensation.

Follow these specifications when extending a waiting period:

1) Extending an estimated waiting period may lead to increasing the Contract time. If the Contract is on a calendar day or completion date basis, the Department may increase the calendar days equal to the maximum number of calendar days involved in the extension.

2) When a time extension causes additional delay due to seasonal changes, the Engineer may recompute the time extension on an available day basis.

   When the Contract is on an available day basis, the time increase will be equal to the greatest number of available days involved in the extension.

3) When time charges on separate Bridge Contracts are controlled by Special Provisions that set forth the availability of bridge sites, extending an estimated waiting period controls the availability of that bridge site only; time charges will be adjusted according to the Special Provision.

c. Construct the embankment at bridge ends full-depth to the subgrade template (except for the stage construction providing a bench for the end bent) unless otherwise stated in the Plans and compact thoroughly before driving a piling at bridge ends.

   The minimum acceptable length of completed full-depth embankment is equal to the maximum width of fill between slope stakes at the end of the bridge. The Department will measure the minimum length of full-depth embankment along the roadway centerline away from the end-of-bridge Station.

C. In-Place Embankment

Construct embankments designated on the Plans and in the Proposal as "In-Place Embankment" using either a hydraulic or conventional dry land construction method and using materials obtained from within the construction limits of the Right-of -Way or from borrow pits, whichever is appropriate.

Regardless of the method of construction, the Department will measure the entire embankment for payment as in-place embankment.

1. Construction

- Build embankments according to this Section when hydraulic or conventional dry land construction methods are used.
- Furnish equipment suitable for the method chosen to complete the work. Equipment is subject to the Engineer's approval.
- When using a hydraulic method is used, conform to these additional requirements:
  a. Using baffles for construction is permitted as long as the embankment slopes are not steeper than indicated on the Plans.
  b. Use of excess material placed outside the prescribed slopes to raise the fill is permitted.
  c. Leave openings in the embankments at the bridge site as indicated on the Plans.

     Dredge material that invades the openings or existing channels at no additional expense to the Department. Provide the same depth of channel at mean low water as existed before the construction of the embankment.
  d. Do not excavate or dredge material within 500 ft (150 m) of the toe of the embankment or existing structures, unless otherwise shown on the Plans.
  e. Place in-place embankment in areas previously excavated below the ground line in a uniform mass beginning at one end of the excavated area and continuing to the other end of the operation. Avoid forming of muck cores in the embankment.
  f. Construct the embankment at the farthest points along the roadway from the bridge ends and progress to the end of the excavation area beyond the toe of the slope of endrolls at bridge ends.
  g. Remove timber used for temporary bulkheads or baffles from the embankment.
  h. Fill and thoroughly compact the holes.

2. Maintenance
   a. Maintain the embankment at grade until it has been completed and accepted. Assume responsibility for slides, washouts, settlement, subsidence, or mishaps to the work while under construction.
   b. Keep constructed embankment stable and replace displaced portions before Final Acceptance of the entire Contract.

c. Remove and dispose of excess materials, including fill, detours, and erosion deposits placed outside the prescribed slopes in wetland areas.

3. Permits

   Obtain (at no additional expense to the Department) necessary permits or licenses from the appropriate authorities to operate dredges and other floating equipment in waters under their jurisdiction, unless otherwise provided for in the Contract.

4. Erosion Control

   In addition to the provisions of Section 161, follow additional erosion, siltation, and pollution control measures specified in the Plans or Special Provisions.

D. Rock Embankment

This work includes furnishing materials either from the roadway excavation or other sources and hauling and the placing of rock embankment. Use materials that meet the requirements of Subsection 208.2.B, as shown on the Plans or directed by the Engineer.

1. Place the rock in uniform layers not over 3 ft (1 m) thick. Distribute rock over the embankment to avoid pockets.
2. Fill voids with rock fines. Do not use rock larger than 6 in (150 mm) for any diameter within 3 ft (1 m) of the finished grade of the embankment, or within 2 ft (600 m) of any structure.
3. Do not place rock at bridge end bents within 10 ft (3 m) of pile locations. Construct rock embankment and adjoining earth embankment concurrently. Ensure that neither is larger than 4 ft (1.2 m) higher than the other at any time.

E. Final Finishing

After constructing the entire embankment, shape the surface of the roadbed and the slopes to reasonably true grade and cross-sections as shown on the Plans or established by the Engineer.

Open ditches, channels, and drainage structures (both existing and those constructed or extended) to effectively drain the roadway. Maintain the embankment areas until Final Acceptance of the Project.

208.3.06 Quality Acceptance

General Provisions 101 through 150.

208.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

208.4 Measurement

This item shall not be measured separately.

Includes any in-place embankment necessary for the construction of temporary detours and any excavating of unstable materials below the ground line.

208.4.01 Limits

General Provisions 101 through 150.

208.5 Payment

This item included under CONSTRUCTION COMPLETE.

Includes placing embankments, backfilling structures, and constructing earth berms, including surcharges, furnishing suitable material, hauling, placing, compacting, finishing, and dressing according to these Specifications or as directed by the Engineer.

208.5.01 Adjustments

General Provisions 101 through 150.

First Use Date: September 16, 2005
Revised February 28, 2007

Department of Transportation

State of Georgia

Supplemental Specification

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 209—Subgrade Construction

Delete Subsection 209.3.05.A and substitute the following:

A. Subgrade Construction

Construct subgrade as follows:

1. Plow, harrow, and mix the entire surface of the in-place subgrade to a depth of at least 6 in (150 mm).
2. After thoroughly mixing the material, bring the subgrade to Plan line and grade and compact it to 100 percent of the maximum laboratory dry density.
3. If the subgrade needs to be stabilized, or if a subsequent contract provides for base construction, do not apply density requirement at this stage.

   If a subsequent Contract provides for base construction, eliminate mixing and compact the in-place subgrade to 95 percent of the laboratory maximum dry density.
4. Ensure that the subgrade can firmly support construction equipment before placing subsequent layers of base and paving materials. The subgrade must support construction equipment without excessive movement regardless of compaction.
5. Rework unstable areas of subgrade to a moisture content that will provide stability and compaction. The Engineer may direct the Contractor to proof roll the subgrade with a loaded dump truck.
6. Compact the subgrade using a sheepsfoot roller.

   The Engineer may permit the use of vibratory rollers whenever the subgrade soils consist of Class IA1, IA2, or IA3 materials.
7. Ensure that subgrade material used underneath soil-cement base meets the requirements of Subsection 301.3.03.A.

Delete Subsection 209.4 and substitute the following:

209.4 Measurement

These items will not be measured separately.

A. Subgrade Construction and Finishing Subgrade

B. Subgrade Stabilization

C. Select Material Subgrade

D. Shoulder Stabilization

209.4.01 Limits

General Provisions 101 through 150.

Delete Subsection 209.5 and substitute the following:

209.5 Payment

These items will be paid under CONSTRUCTION COMPLETE.

A. Subgrade Construction

B. Subgrade Stabilization

Includes for furnishing the materials, hauling, placing, mixing, compacting, and finishing the stabilized subgrade.

C. Select Material Subgrade

Includes furnishing the material where required, hauling, placing, mixing, compacting and finishing the select material subgrade.

D. Shoulder Stabilization

Includes furnishing and applying bituminous prime.

209.5.01 Adjustments

General Provisions 101 through 150.

First Use Date: December 15, 2006
Revised February 28, 2007

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 210—Grading Complete

Delete Subsection 210.4 and substitute the following:

210.4 Measurement

This item will not be measured separately.

A. Grading Complete

The Work under this Item is not measured separately for payment.

B. Undercut Excavation

Replacement material for undercut excavation is not measured for payment. There will be no separate payment for undercut excavation.

210.4.01 Limits

General Provisions 101 through 150.

Delete Subsection 210.5 and substitute the following:

210.5 Payment

This item paid under CONSTRUCTION COMPLETE.

Includes:

A. Grading Complete

Included work and materials.

B. Grading Per Mile (Kilometer)

Includes furnishing the materials and performing the work specified in this Section.

C. Undercut Excavation

Includes excavating and disposing of undesirable material and supplying, placing, and compacting replacement material.

210.5.01 Adjustments

General Provisions 101 through 150.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 310—Graded Aggregate Construction

Delete Subsection 310.4 and substitute the following:

310.4 Measurement

No measurement to be included for this item.

Bituminous prime is not measured for separate payment.

310.4.01 Limits

General Provisions 101 through 150.

Delete Subsection 310.5 and substitute the following:

310.5 Payment

A. Graded Aggregate

Payment will be made under CONSTRUCTION COMPLETE.

This shall be full compensation for:

- Materials
- Shaping and compacting the existing roadbed
- Loading, hauling, and unloading
- Crushing and processing
- Mixing
- Spreading
- Watering
- Compacting and shaping
- Maintenance
- Priming, when required
- All incidentals necessary to complete The Work

310.5.01 Adjustments

General Provisions 101 through 150.

First Use: February 3, 2006
Revised: February 6, 2006
Revised: July 17, 2006
Revised September 27, 2006
Revised: December 7, 2006
Revised: February 22, 2007
Revised: March 1, 2007

Georgia Department of Transportation

State of Georgia

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Special Provision

Section 400—Hot Mix Asphaltic Concrete Construction

Delete Section 400 and Substitute the following:

400.1 General Description

This work includes constructing one or more courses of bituminous plant mixture on the prepared foundation or existing roadway surface. The mixture shall conform with lines, grades, thicknesses, and typical cross sections shown on the Plans or established by the Engineer.

This section includes the requirements for all bituminous plant mixtures regardless of the gradation of the aggregates, type and amount of bituminous material, or pavement use.

Acceptance of work is on a lot-to-lot basis according to the requirements of this Section and Section 106.

400.1.01 Definitions

Segregated Mixture: Mixture lacking homogeneity in HMA constituents of such a magnitude that there is a reasonable expectation of accelerated pavement distress or performance problems. May be quantified by measurable changes in temperature, gradation, asphalt content, air voids, or surface texture.

New Construction: A roadway section more than 0.5 mile (800 m) long that is not longitudinally adjacent to the existing roadway. If more than one lane is added, and if any of the lanes are longitudinally adjacent to the existing lane, the lanes shall be tested under the criteria for a resurfacing project.

Trench Widening: Widening no more than 4 ft. (1.2 m) in width.

Comparison sample: Opposite quarter of material sampled by the Contractor.

Quality assurance sample: Independent sample taken by the Department.

Referee sample: A sample of the material remaining after quartering which is used for evaluation if a comparison of Contractor and Departmental test results is outside allowable tolerances.

400.1.02 Related References

A. Standard Specifications

Section 106—Control of Materials

Section 109—Measurement and Payment

Section 152—Field Laboratory Building

Section 413—Bituminous Tack Coat

Section 424—Bituminous Surface Treatment

Section 802—Coarse Aggregate for Asphaltic Concrete

Section 828—Hot Mix Asphaltic Concrete Mixtures

B. Referenced Documents

AASHTO T 209

AASHTO T 202

AASHTO T 49

Laboratory Standard Operating Procedure (SOP) 27, "Quality Assurance for Hot Mix Asphaltic Concrete Plants in Georgia"

Department of Transportation Standard Operating Procedure (SOP) 15

GDT 38

GDT 73

GDT 78

GDT 83

GDT 93

GDT 119

GDT 125

GDT 134

GSP 15

GSP 21

QPL 1

QPL 2

QPL 7

QPL 26

QPL 30

QPL 39

QPL 41

QPL 45

QPL 65

QPL 67

QPL 70

QPL 77

400.1.03 Submittals

A. Invoices

When the Department requests, furnish formal written invoices from a supplier for all materials used in production of HMA. Show the following on the Bill of Lading:

- Date shipped
- Quantity in tons (megagrams)
- Included with or without additives (for asphalt cement)

Purchase asphaltic cement from a supplier who will provide copies of Bill of Lading upon the Department's request.

B. Paving Plan

Before starting asphaltic concrete construction, submit a written paving plan to the Engineer for approval. Include the following on the paving plan:

- Proposed starting date
- Location of plant(s)
- Rate of production
- Average haul distance(s)
- Number of haul trucks
- Paver speed feet (meter)/minute for each placement operation
- Mat width for each placement operation
- Number and type of rollers for each placement operation
- Sketch of the typical section showing the paving sequence for each placement operation
- Electronic controls used for each placement operation
- Temporary pavement marking plan

If staged construction is designated in the Plans or contract, provide a paving plan for each construction stage.

If segregation is detected, submit a written plan of measures and actions to prevent segregation. Work will not continue until the plan is submitted to and approved by the Department.

C. Job Mix Formula

After the Contract has been awarded, submit to the Engineer a written job mix formula proposed for each mixture type to be used based on an approved mix design. Furnish the following information for each mix:

- Specific project for which the mixture will be used
- Source and description of the materials to be used
- Mixture I.D. Number
- Proportions of the raw materials to be combined in the paving mixture
- Single percentage of the combined mineral aggregates passing each specified sieve
- Single percentage of asphalt by weight of the total mix to be incorporated in the completed mixture
- Single temperature at which to discharge the mixture from the plant
- Theoretical specific gravity of the mixture at the designated asphalt content
- Name of the person or agency responsible for quality control of the mixture during production

Do the following to have the formulas approved and to ensure their quality:

1. Submit proposed job mix formulas for review at least two weeks before beginning the mixing operations.
2. Do not start hot mix asphaltic concrete work until the Engineer has approved a job mix formula for the mixture to be used. No mixture will be accepted until the Engineer has given approval.
3. Provide mix designs for all Superpave and 4.75 mm mixes to be used. The Department will provide mix design results for other mixes to be used.

4. After a job mix formula has been approved, assume responsibility for the quality control of the mixtures supplied to the Department according to Subsection 106.01, "Source of Supply and Quantity of Materials."

D. Quality Control Program

Submit a Quality Control Plan to the Office of Materials and Research for approval. The Quality Control Program will be included as part of the certification in the annual plant inspection report.

400.2 Materials

Ensure that materials comply with the specifications listed in Table 1.

Table 1—Materials Specifications

Material	Subsection
Asphalt Cement, Grade Specified	820.2
Coarse Aggregates for Asphaltic Concrete	802.2.02
Fine Aggregates for Asphaltic Concrete	802.2.01
Mineral Filler	883.1
Heat Stable Anti-Stripping Additive	831.2.04
Hydrated Lime	882.2.03
Silicone Fluid	831.2.05
Bituminous Tack Coat: PG 58-22, PG 64-22, PG 67-22	820.2
Hot Mix Asphaltic Concrete Mixtures	828
Fiber Stabilizing Additives	819

When required, provide Uintaite material, hereafter referred to by the common trade name Gilsonite, as a reinforcing agent for bituminous mixtures. Supply a manufacturer's certification that the Gilsonite is a granular solid which meets the following requirements:

Softening Point (AASHTO: T-53)	300-350 °F (150-175 °C)
Specific Gravity, 77 °F (25 °C) (AASHTO: T-228)	1.04 ± 0.02
Flash Point, COC (AASHTO: T-48)	550 °F (290 °C) Min.
Ash Content (AASHTO: T-111)	1.0% Max.
Penetration, 77 °F (25 °C), 100 gm., 5 sec. (AASHTO: T-49)	0

400.2.01 Delivery, Storage, and Handling

Storage of material is allowed in a properly sealed and insulated system for up to 24 hours except that Stone Matrix Asphalt (SMA), Open-Graded Friction Course (OGFC), or Porous European Mix (PEM) mixtures shall not be stored more than 12 hours. Mixtures other than SMA, OGFC, or PEM may be stored up to 72 hours in a sealed and insulated system, equipped with an auxiliary inert gas system, with the Engineer's approval. Segregation, lumpiness, drain-down, or stiffness of stored mixture is cause for rejection of the mixture. The Engineer will not approve using a storage or surge bin if the mixture segregates, loses excessive heat, or oxidizes during storage.

The Engineer may obtain mixture samples or recover asphalt cement according to GDT 119. AASHTO T 202 and T 49 will be used to perform viscosity and penetration tests to determine how much asphalt hardening has occurred.

A. Vehicles for Transporting and Delivering Mixtures

Ensure that trucks used for hauling bituminous mixtures have tight, clean, smooth beds.

Follow these guidelines when preparing vehicles to transport bituminous mixtures:

1. Use an approved releasing agent from QPL 39 in the transporting vehicle beds, if necessary, to prevent the mixture from sticking to the bed. Ensure that the releasing agent is not detrimental to the mixture. When applying the agent, drain the excess agent from the bed before loading. Remove from the project any transporting vehicles determined to contain unapproved releasing agents.
2. Protect the mixture with a waterproof cover large enough to extend over the sides and ends of the bed. Securely fasten the waterproof cover before the vehicle begins moving.
3. Insulate the front end and sides of each bed with an insulating material with the following specifications:
   - Consists of builders insulating board or equivalent
   - Has a minimum "R" value of 4.0
   - Can withstand approximately 400 °F (200 °C) temperatures

   Install the insulating material so it is protected from loss and contamination. A "Heat Dump Body" may be used in lieu of insulation of the bed. "Heat Dump Body" refers to any approved transport vehicle that is capable of diverting engine exhaust and transmitting heat evenly throughout the dump body to keep asphalt at required temperature. Mark the "Heat Dump Body" clearly with "OPEN" and "CLOSE" position at the exhaust diverter. Install a padlock and lock it in the "OPEN" position when the "Heat Dump Body" is used to transport bituminous mixtures.
4. Mark each transporting vehicle with a clearly visible identification number.
5. Create a hole in each side of the bed so that the temperature of the loaded mixture can be checked. The placement of these holes shall be located to assure that the thermometer is being placed in the hot mix asphaltic concrete.

Ensure that the mixture is delivered to the roadway at a temperature within ± 20 °F (± 11 °C) of the temperature on the job mix formula.

If the Engineer determines that a truck may be hazardous to the Project or adversely affect the quality of the work, remove the truck from the project.

B. Containers for Transporting, Conveying, and Storing Bituminous Material

To transport, convey, and store bituminous material, use containers free of foreign material and equipped with sample valves. Bituminous material will not be accepted from conveying vehicles if material has leaked or spilled from the containers.

400.3 Construction Requirements

400.3. 01 Personnel

General Provisions 101 through 150.

400.3.02 Equipment

Hot mix asphaltic concrete plants that produce mix for Department use are governed by Quality Assurance for Hot Mix Asphaltic Concrete Plants in Georgia, Laboratory Standard Operating Procedure No. 27.

The Engineer will approve the equipment used to transport and construct hot mix asphaltic concrete. Ensure that the equipment is in satisfactory mechanical condition and can function properly during production and placement operations. Place the following equipment at the plant or project site:

A. Field Laboratory

Provide a field laboratory according to Section 152.

B. Plant Equipment

1. Scales

   Provide scales as follows:

   a. Furnish (at the Contractor's expense) scales to weigh bituminous plant mixtures, regardless of the measurement method for payment.

b. Ensure that the weight measuring devices that provide documentation comply with Subsection 109.01, "Measurement and Quantities."

c. When not using platform scales, provide weight devices that record the mixture net weights delivered to the truck. A net weight system will include, but is not limited to:

- Hopper or batcher-type weight systems that deliver asphaltic mixture directly to the truck
- Fully automatic batching equipment with a digital recording device

d. Use a net weight printing system only with automatic batching and mixing systems approved by the Engineer.

e. Ensure that the net weight scale mechanism or device manufacturer, installation, performance, and operation meets the requirements in Subsection 109.01, "Measurement and Quantities"

f. Provide information on the Project tickets according to Department of Transportation SOP-15.

2. Time-Locking Devices

Furnish batch type asphalt plants with automatic time-locking devices that control the mixing time automatically. Construct these devices so that the operator cannot shorten or eliminate any portion of the mixing cycle.

3. Surge- and Storage-Systems

Provide surge and storage bins as follows:

a. Ensure that bins for mixture storage are insulated and have a working seal, top and bottom, to prevent outside air infiltration and to maintain an inert atmosphere during storage. Bins not intended as storage bins may be used as surge bins to hold hot mixtures for part of the working day. However, empty these surge bins completely at the end of the working day.

b. Ensure that surge and storage bins can retain a predetermined minimum level of mixture in the bin when the trucks are loaded.

c. Ensure that surge and storage systems do not contribute to mix segregation, lumpiness, drain-down, or stiffness.

4. Controls for Dust Collector Fines

Control dust collection as follows:

a. When collecting airborne aggregate particles and returning them to the mixture, have the return system meter all or part of the collected dust uniformly into the aggregate mixture and waste the excess. The collected dust percentage returned to the mixture is subject to the Engineer's approval.

b. When the collected dust is returned directly to the hot aggregate flow, interlock the dust feeder with the hot aggregate flow and meter the flow to maintain a flow that is constant, proportioned, and uniform.

5. Mineral Filler Supply System

When mineral filler is required as a mixture ingredient:

a. Use a separate bin and feed system to store and proportion the required quantity into the mixture with uniform distribution.

b. Control the feeder system with a proportioning device that meets these specifications:

- Is accurate to within ± 10 percent of the filler required
- Has a convenient and accurate means of calibration
- Interlocks with the aggregate feed or weigh system to maintain the correct proportions for all rates of production and batch sizes

c. Provide flow indicators or sensing devices for the mineral filler system and interlock them with the plant controls to interrupt the mixture production if mineral filler introduction fails to meet the required target value after no longer than 60 seconds.

d. Add mineral filler to the mixture as follows, according to the plant type:

- Batch Type Asphalt Plant. Add mineral filler to the mixture in the weigh hopper.
- Continuous Plant Using Pugmill Mixers. Feed the mineral filler into the hot aggregate before it is introduced into the mixer so that dry mixing is accomplished before the bituminous material is added.

- Continuous Plants Using the Drier-Drum Mixers. Add the mineral filler so that dry mixing is accomplished before the bituminous material is added and ensure that the filler does not become entrained into the air stream of the drier.

6. Hydrated Lime Treatment System

When hydrated lime is required as a mixture ingredient:

a. Use a separate bin and feed system to store and proportion the required quantity into the mixture.

b. Ensure that the aggregate is uniformly coated with hydrated lime aggregate before adding the bituminous material to the mixture. Add the hydrated lime so that it will not become entrained in the exhaust system of the drier or plant.

c. Control the feeder system with a proportioning device that meets these specifications:

- Is accurate to within ± 10 percent of the amount required
- Has a convenient and accurate means of calibration
- Interlocks with the aggregate feed or weigh system to maintain the correct proportions for all rates of production and batch sizes and to ensure that mixture produced is properly treated with lime

d. Provide flow indicators or sensing devices for the hydrated lime system and interlock them with the plant controls to interrupt mixture production if hydrated lime introduction fails to meet the required target value after no longer than 60 seconds.

7. Net Weight Weighing Mechanisms

Certify the accuracy of the net weight weighing mechanisms by an approved registered scale serviceperson at least once every 6 months. Check the accuracy of net weight weighing mechanisms at the beginning of Project production and thereafter as directed by the Engineer. Check mechanism accuracy as follows:

a. Weigh a load on a set of certified commercial truck scales. Ensure that the difference between the printed total net weight and that obtained from the commercial scales is no greater than 4 lbs/1,000 lbs (4 kg/Mg) of load.

Check the accuracy of the bitumen scales as follows:

- Use standard test weights.
- If the checks indicate that printed weights are out of tolerance, have a registered scale serviceperson check the batch scales and certify the accuracy of the printer.
- While the printer system is out of tolerance and before its adjustment, continue production only if using a set of certified truck scales to determine the truck weights.

b. Have plants that use batch scales maintain ten 50 lb (25 kg) standard test weights at the plant site to check batching scale accuracy.

Ensure that plant scales that are used only to proportion mixture ingredients, not to determine pay quantities, are within two percent throughout the range.

8. Fiber Supply System

When stabilizing fiber is required as a mixture ingredient:

a. Use a separate feed system to store and proportion by weight the required quantity into the mixture with uniform distribution.

b. Control the feeder system with a proportioning device that meets these Specifications:

- Is accurate to within ± 10 percent of the amount required. Automatically adjusts the feed rate to maintain the material within this tolerance at all times
- Has a convenient and accurate means of calibration
- Provide in-process monitoring, consisting of either a digital display of output or a printout of feed rate, in pounds (kg) per minute, to verify feed rate
- Interlocks with the aggregate feed or weigh system to maintain the correct proportions for all rates of production and batch sizes

c. Provide flow indicators or sensing devices for the fiber system and interlock them with the plant controls to interrupt the mixture production if fiber introduction fails or if the output rate is not within the tolerances given above.

d. Introduce the fiber as follows:

- When a batch type plant is used, add the fiber to the aggregate in the weigh hopper. Increase the batch dry mixing time by 8 to 12 seconds from the time the aggregate is completely emptied into the mixer to ensure the fibers are uniformly distributed prior to the injection of asphalt cement into the mixer.
- When a continuous or drier-drum type plant is used, add the fiber to the aggregate and uniformly disperse prior to the injection of asphalt cement. Ensure the fibers will not become entrained in the exhaust system of the drier or plant.

C. Equipment at Project Site

1. Cleaning Equipment

Provide sufficient hand tools and power equipment to clean the roadway surface before placing the bituminous tack coat. Use power equipment that complies with Subsection 424.3.02.F, "Power Broom and Power Blower."

2. Pressure Distributor

To apply the bituminous tack coat, use a pressure distributor that complies with Subsection 424.3.02.B, "Pressure Distributor."

3. Bituminous Pavers

To place hot mix asphaltic concrete, use bituminous pavers that can spread and finish courses that are:

- As wide and deep as indicated on the Plans
- True to line, grade, and cross section
- Smooth
- Uniform in density and texture

a. Continuous Line and Grade Reference Control. Furnish, place, and maintain the supports, wires, devices, and materials required to provide continuous line and grade reference control to the automatic paver control system.

b. Automatic Screed Control System. Equip the bituminous pavers with an automatic screed control system actuated from sensor-directed mechanisms or devices that will maintain the paver screed at a pre-determined transverse slope and elevation to obtain the required surface.

c. Transverse Slope Controller. Use a transverse slope controller capable of maintaining the screed at the desired slope within ± 0.1 percent. Do not use continuous paving set-ups that result in unbalanced screed widths or off-center breaks in the main screed cross section unless approved by the Engineer.

d. Screed Control. Equip the paver to permit the following four modes of screed control. The method used shall be approved by the Engineer.

- Automatic grade sensing and slope control
- Automatic dual grade sensing
- Combination automatic and manual control
- Total manual control

Ensure that the controls are referenced with a taut string or wire set to grade, or with a ski-type device or mobile reference at least 30 ft (9 m) long when using a conventional ski. A non-contacting laser or sonar-type ski with at least four referencing mobile stations may be used with a reference at least 24 ft. (7.3 m) long. Under limited conditions, a short ski or shoe may be substituted for a long ski on the second paver operating in tandem, or when the reference plane is a newly placed adjacent lane.

Automatic screed control is required on all Projects; however, when the Engineer determines that Project conditions prohibit the use of such controls, the Engineer may waive the grade control, or slope control requirements, or both.

e. Paver Screed Extension. When the laydown width requires a paver screed extension, use bolt-on screed extensions to extend the screeds, or use an approved mechanical screed extension device. When the screed is extended, add auger extensions to assure a length of no more than 18 inches from the auger to the end gate of the paver. Auger extensions may be omitted when paving variable widths. Ensure the paver is equipped with tunnel extensions when the screed and augers are extended.

f. 30 - 45 Degree Wedge. When shown on/required by the plans, equip the paver to ensure a 30 degree minimum up to a 45 degree maximum wedge along the outside edge of the roadway (measured from the horizontal plane) is in place after final compaction on the final surface course. Use an approved mechanical device that will:

- Apply compactive effort to the asphalt mixture to eliminate objectionable voids as the mixture passes through the wedge device
- Produce a wedge with a uniform texture, shape, and density while automatically adjusting to varying heights encountered along the roadway shoulder.

NOTE: Do not use extendible strike-off devices instead of approved screed extensions. Only use a strike-off device in areas that would normally be luted in by hand labor.

4. Compaction Equipment

Ensure that the compaction equipment is in good mechanical condition and can compact the mixture to the required density. The compaction equipment number, type, size, operation, and condition is subject to the Engineer's approval

5. Materials Transfer Vehicle (MTV)

a. Use a Materials Transfer Vehicle (MTV) when placing asphaltic concrete mixtures on Projects on the state route system with the following conditions. If a project fails to meet any one of the following conditions, the MTV's use is not required.

1) When to use:

- The ADT is equal to or greater than 6000,
- The project length is equal to or greater than 3000 linear feet (915 linear meters),
- The total tonnnage (megagrams) of all asphaltic concrete mixtures is greater than 2000 tons (1815 Mg).

2) Where to use:

- Mainline of the traveled way
- Collector/distributor (C/D) lanes on Interstates and limited access roadways
- Leveling courses at the Engineer's discretion

3) Do not use the MTV for the following conditions:

- A resurfacing project that only 9.5 mm mix is required.
- A project with lane width that is equal or less than 11 feet.
- A passing lane only project.
- When noted on the plans.

b. Ensure the MTV and conventional paving equipment meet the following requirements:

1) MTV

- Has a truck unloading system which receives mixture from the hauling equipment and independently deliver mixtures from the hauling equipment to the paving equipment.
- Has mixture remixing capability by either a storage bin in the MTV with a minimum capacity of 14 tons (13 megagrams) of mixture and a remixing system in the bottom of MTV storage bin, or a dual pugmill system located in the paver hopper insert with two full length transversely mounted paddle mixers to continuously blend the mixture as it discharges to a conveyor system.

- Provides to the paver a homogeneous, non-segregated mixture of uniform temperature with no more than 20 °F(18 °C) difference between the highest and lowest temperatures when measured transversely across the width of the mat in a straight line at a distance of one foot to three feet from the screed while the paver is operating. Ensure that the MTV is capable of providing the paver a consistent material flow that is sufficient to prevent the paver from stopping between truck exchanges.

2) Conventional Paving Equipment

- Has a paver hopper insert with a minimum capacity of 14 tons (13 Mg) installed in the hopper of conventional paving equipment when an MTV is used.

c. If the MTV malfunctions during spreading operations, discontinue placement of hot mix asphaltic concrete after there is sufficient hot mix placed to maintain traffic in a safe manner. However, placement of hot mix asphaltic concrete in a lift not exceeding 2 in. (50 mm) may continue until any additional hot mix in transit at the time of the malfunction has been placed. Cease spreading operations thereafter until the MTV is operational.

d. Ensure the MTV is empty when crossing a bridge and is moved across without any other Contractor vehicles or equipment on the bridge. Move the MTV across a bridge in a travel lane and not on the shoulder. Ensure the speed of the MTV is no greater than 5 mph (8 kph) without any acceleration or deceleration while crossing a bridge.

400.3.03 Preparation

A. Prepare Existing Surface

Prepare the existing surface as follows:

1. Clean the Existing Surface. Before applying hot mix asphaltic concrete pavement, clean the existing surface to the Engineer's satisfaction.
2. Patch and Repair Minor Defects

   Before placing leveling course:

   a. Correct potholes and broken areas that require patching in the existing surface and base as directed by the Engineer.

   b. Cut out, trim to vertical sides, and remove loose material from the areas to be patched.

   c. Prime or tack coat the area after it has been cleaned. Compact patches to the Engineer's satisfaction. Material for patches does not require a job mix formula, but shall meet the gradation range shown in Section 828. The Engineer must approve the asphalt content to be used.
3. Apply Bituminous Tack Coat

   Apply the tack coat according to Section 413. The Engineer will determine the application rate, which must be within the limitations Table 2.

Table 2—Application Rates for Bituminous Tack, gal/yd² (L/m²)

	Minimum	Maximum
Under OGFC and PEM Mixes	0.06 (0.270)	0.08 (0.360)
All Other Mixes	0.04 (0.180)	0.06(0.270)
*On thin leveling courses and freshly placed asphaltic concrete mixes, reduce the application rate to 0.02 to 0.04 gal/yd² (0.09 to 0.18 L/m²).		

B. Place Patching and Leveling Course

1. When the existing surface is irregular, bring it to the proper cross section and grade with a leveling course of hot mix asphaltic concrete materials.
2. Place leveling at the locations and in the amounts directed by the Engineer.
3. Use leveling course mixtures that meet the requirements of the job mix formulas defined in:

- Subsection 400.3.05.A, "Observe Composition of Mixtures"
- Section 828
- Leveling acceptance schedules in Subsection 400.3.06.A, "Acceptance Plans for Gradation and Asphalt Cement Content"

4. If the leveling and patching mix type is undesignated, determine the mix type by the thickness or spread rate according to Table 3, but do not use 4.75 mm mix on interstate projects.

Table 3—Leveling and Patching Mix Types

Thickness	Rate of Spread	Type of Mix
Up to 0.75 in (19 mm)	Up to 85 lbs/yd² (45 kg/m²)	4.75 mm Mix or 9.5 mm Superpave Type 1
0.75 to 1.5 in (19 to 38 mm)	85 to 165 lbs/yd²(45 to 90 kg/m²)	9.5 mm Superpave Type 2
1.5 to 2 in (38 to 50 mm)	165 to 220 lbs/yd² (90 to 120 kg/m²)	12.5 mm Superpave *
2 to 2.5 in (50 to 64 mm)	220 to 275 lbs/yd² (120 to 150 kg/m²)	19 mm Superpave *
Over 2.5 in (64 mm)	Over 275 lbs/yd² (150 kg/m²)	25 mm Superpave

* These mixtures may be used for isolated patches no more than 6 in. (150 mm) deep and no more than 4 ft. (1.2 m) in diameter or length.

400.3.04 Fabrication

General Provisions 101 through 150.

400.3.05 Construction

Provide the Engineer at least one day's notice prior to beginning construction, or prior to resuming production if operations have been temporarily suspended.

A. Observe Composition of Mixtures

1. Calibration of plant equipment

   If the material changes, or if a component affecting the ingredient proportions has been repaired, replaced, or adjusted, check and recalibrate the proportions.

   Calibrate as follows:

   a. Before producing mixture for the Project, calibrate by scale weight the electronic sensors or settings for proportioning mixture ingredients.
   b. Calibrate ingredient proportioning for all rates of production.

2. Mixture control

   Compose hot mix asphaltic concrete from a uniform mixture of aggregates, bituminous material, and if required, hydrated lime, mineral filler, or other approved additive.

   Make the constituents proportional to produce mixtures that meet the requirements in Section 828. The general composition limits prescribed are extreme ranges within which the job mix formula must be established. Base mixtures on a design analysis that meets the requirements of Section 828. Ensure that the field performance of the in-place mixtures meet the requirements of Section 828.2.B

If control test results show that the characteristic tested does not conform to the job mix formula control tolerances given in Section 828, take immediate action to ensure that the quality control methods are effective.

Control the materials to ensure that extreme variations do not occur. Maintain the gradation within the composition limits in Section 828.

B. Prepare Bituminous Material

Uniformly heat the bituminous material to the temperature specified in the job mix formula with a tolerance of ± 20 °F (± 10 °C).

C. Prepare the Aggregate

Prepare the aggregate as follows:

1. Heat the aggregate for the mixture, and ensure a mix temperature within the limits of the job mix formula.
2. Do not contaminate the aggregate with fuel during heating.
3. Reduce the absorbed moisture in the aggregate until the asphalt does not separate from the aggregate in the prepared mixture. If this problem occurs, the Engineer will establish a maximum limit for moisture content in the aggregates. When this limit is established, maintain the moisture content below this limit.

D. Prepare the Mixture

Proportion the mixture ingredients as necessary to meet the required job mix formula. Mix until a homogenous mixture is produced.

1. Add Mineral Filler

   When mineral filler is used, introduce it in the proper proportions and as specified in Subsection 400.3.02.B.5, "Mineral Filler Supply System."

2. Add Hydrated Lime

   When hydrated lime is included in the mixture, add it at a rate specified in Section 828 and the job mix formula. Use methods and equipment for adding hydrated lime according to Subsection 400.3.02.B.6, "Hydrated Lime Treatment System."

   Add hydrated lime to the aggregate by using Method A or B as follows:

   Method A—Dry Form—Add hydrated lime in its dry form to the mixture as follows, according to the type of plant:

   a. Batch Type Asphalt Plant: Add hydrated lime to the mixture in the weigh hopper or as approved and directed by the Engineer.
   b. Continuous Plant Using Pugmill Mixer: Feed hydrated lime into the hot aggregate before it is introduced into the mixer so that dry mixing is complete before the bituminous material is added.
   c. Continuous Plant Using Drier-Drum Mixer: Add hydrated lime so that the lime will not become entrained into the air stream of the drier and so that thorough dry mixing will be complete before the bituminous material is added.

   Method B—Lime/Water Slurry—Add the required quantity of hydrated lime (based on dry weight) in lime/water slurry form to the aggregate. This solution consists of lime and water in concentrations as directed by the Engineer.

   Equip the plant to blend and maintain the hydrated lime in suspension and to mix it with the aggregates uniformly in the proportions specified.

3. Add Stabilizing Fiber

   When stabilizing fiber is included in the mixture, add it at a rate specified in Section 819 and the Job Mix Formula. Introduce it as specified in Subsection 400.3.02.B.8, "Fiber Supply System."

4. Add Gilsonite Modifier

   When required, add the Gilsonite modifier to the mixture at a rate such that eight percent by weight of the asphalt cement is replaced by Gilsonite. Use either PG 64-22 or PG 67-22 asphalt cement as specified in Subsection 820.2.01. Provide suitable means to calibrate and check the rate of Gilsonite being added. Introduce Gilsonite modifier by either of the following methods.

   a. For batch type plants, incorporate Gilsonite into the pugmill at the beginning of the dry mixing cycle. Increase the dry mix cycle by a minimum of 10 seconds after the Gilsonite is added and prior to introduction of the

asphalt cement. For this method, supply Gilsonite in plastic bags to protect the material during shipment and handling and store the modifier in a waterproof environment. The bags shall be capable of being completely melted and uniformly blended into the combined mixture.

Gilsonite may also be added through a mineral filler supply system as described in Subsection 400.3.02.B.5, "Mineral Filler Supply System." The system shall be capable of injecting the modifier into the weigh hopper near the center of the aggregate batching cycle so the material can be accurately weighed.

b. For drum drier plants, add Gilsonite through the recycle ring or through an acceptable means which will introduce the Gilsonite prior to the asphalt cement injection point. The modifier shall be proportionately fed into the drum mixer at the required rate by a proportioning device which shall be accurate within ± 10 percent of the amount required. The entry point shall be away from flames and ensure the Gilsonite will not be caught up in the air stream and exhaust system.

5. Materials from Different Sources

Do not use mixtures prepared from aggregates from different sources intermittently. This will cause the color of the finished pavement to vary.

E. Observe Weather Limitations

Do not mix and place asphaltic concrete if the existing surface is wet or frozen. Do not lay asphaltic concrete OGFC mix or PEM at air temperatures below 60 °F (16 °C). When using a MTV, OGFC mix or PEM may be placed at 55 °F (13 °C) when approved by the Engineer. For other courses, follow the temperature guidelines in the following table:

Table 4—Lift Thickness Table

Lift Thickness	Minimum Temperature
1 in (25 mm) or less	55 °F (13 °C)
1.1 to 2 in (26 mm to 50 mm)	45 °F (8 °C)
2.1 to 3 in (51 mm to 75 mm)	40 °F (4 °C)
3.1 to 4 in (76 mm to 100 mm)	35 °F (2 °C)
4.1 to 8 in (101 mm to 200 mm)	32 °F (0 °C) and rising. Base Material must not be frozen.

F. Perform Spreading and Finishing

Spread and finish the course as follows:

1. Determine the course's maximum compacted layer thickness by the type mix being used according to Table 5.

Table 5—Maximum Layer Thickness

Mix Type	Minimum Layer Thickness	Maximum Layer Thickness	Maximum Total Thickness
25 mm Superpave	2 1/2 in (64 mm)	4 in (100 mm) *	—
19 mm Superpave	1 3/4 in (44 mm)	3 in (75 mm) *	—
12.5 mm Superpave	1 3/8 in (35 mm)	2 1/2 in (64 mm)*	8 in (200 mm)
9.5 mm Superpave Type 2	1 1/8 in.(28 mm)	1 1/2 in (38 mm)	4 in (100 mm)
9.5 mm Superpave Type 1	7/8 in (22 mm)	1 1/4 in (32 mm)	4 in (100 mm)
4.75 mm Mix	3/4 in (19 mm)	1 1/8 in (28 mm)	2 in (50 mm)
9.5 mm OGFC	55 lbs/yd² (30 kg/m²)	65 lbs/yd² (36 kg/m²)	—
12.5 mm OGFC	85 lbs/yd² (47 kg/m²)	95 lbs/yd² (53 kg/m²)	—
12.5 mm PEM	110 lbs/yd² (80 kg/m²)	165 lbs/yd² (90 kg/m²)	—
9.5 mm SMA	1 1/8 in (28 mm)	1 1/2 in (38 mm)	4 in (100 mm)

Mix Type	Minimum Layer Thickness	Maximum Layer Thickness	Maximum Total Thickness
12.5 mm SMA	1 1/4 in (32 mm)	3 in (75 mm)	6 in (150 mm)
19 mm SMA	1 3/4 in (44 mm)	3 in (75 mm)	—
* Allow up to 6 in (150 mm) per lift on trench widening. Place 9.5 mm Superpave and 12.5 mm Superpave up to 4 in (100 mm) thick for driveway and side road transition.			

2. Unload the mixture into the paver hopper or into a device designed to receive the mixture from delivery vehicles.
3. Except for leveling courses, spread the mixture to the loose depth for the compacted thickness or the spread rate. Use a mechanical spreader true to the line, grade, and cross section specified.
4. For leveling courses, use a motor grader equipped with a spreader box and smooth tires to spread the material or use a mechanical spreader meeting the requirements in Subsection 400.3.02.C, "Equipment at Project Site."
5. Obtain the Engineer's approval for the sequence of paving operations, including paving the adjoining lanes. Minimize tracking tack onto surrounding surfaces.
6. Ensure that the outside edges of the pavement being laid are aligned and parallel to the roadway center line.
7. For New Construction or Resurfacing Contracts that contain multiple lifts or courses, arrange the width of the individual lifts so that the longitudinal joints of each successive lift are offset from the previous lift at least 1 ft (300 mm). This requirement does not apply to the lift immediately over thin lift leveling courses.

   Ensure that the longitudinal joint(s) in the surface course and the mix immediately underneath asphaltic concrete OGFC or PEM are at the lane line(s).

NOTE: Perform night work with artificial light provided by the Contractor and approved by the Engineer.

8. Where mechanical equipment cannot be used, spread and rake the mixture by hand. Obtain the Engineer's approval of the operation sequence, including compactive methods, in these areas.
9. Keep small hand raking tools clean and free from asphalt build up. Do not use fuel oil or other harmful solvents to clean tools during the work.
10. Do not use mixture with any of these characteristics:
    - Segregated
    - Nonconforming temperature
    - Deficient or excessive asphalt cement content
    - Otherwise unsuitable to place on the roadway in the work
11. Remove and replace mixture placed on the roadway that the Engineer determines has unacceptable blemish levels from segregation, streaking, pulling and tearing, or other characteristics. Replace with acceptable mixture at the Contractor's expense. Do not continually place mixtures with deficiencies.

    Do not place subsequent course lifts over another lift or courses placed on the same day while the temperature of the previously placed mix is 140 °F (60 °C) or greater.
12. Obtain the Engineer's approval of the material compaction equipment. Perform the rolling as follows:
    a. Begin the rolling as close behind the spreader as possible without causing excessive distortion of the asphaltic concrete surface.
    b. Continue rolling until roller marks are no longer visible.
    c. Use pneumatic-tired rollers with breakdown rollers on all courses except asphaltic concrete OGFC, PEM and SMA or other mixes designated by the Engineer.
13. If applicable, taper or "feather" asphaltic concrete from full depth to a depth no greater than 0.5 in (13 mm) along curbs, gutters, raised pavement edges, and areas where drainage characteristics of the road must be retained. The Engineer will determine the location and extent of tapering.

G. Maintain Continuity of Operations

Coordinate plant production, transportation, and paving operations to maintain a continuous operation. If the spreading operations are interrupted, construct a transverse joint if the mixture immediately behind the paver screed cools to less than 250 °F (120 °C).

H. Construct the Joints

1. Construct Transverse Joints
   a. Construct transverse joints to facilitate full depth exposure of the course before resuming placement of the affected course.
   b. Properly clean and tack the vertical face of the transverse joint before placing additional material.

NOTE: Never burn or heat the joint by applying fuel oil or other volatile materials.

   c. Straightedge transverse joints immediately after forming the joint.
   d. Immediately correct any irregularity that exceeds 3/16 in. in 10 ft (5 mm in 3 m).
2. Construct Longitudinal Joints

   Clean and tack the vertical face of the longitudinal joint before placing adjoining material. Construct longitudinal joints so that the joint is smooth, well sealed, and bonded.
3. Construction Joint Detail for OGFC and PEM Mixtures

   In addition to meeting joint requirements described above, construct joints and transition areas for 12.5 mm OGFC and 12.5 mm PEM mixtures as follows:
   a. For projects which do not have milling included as a pay item:
      1) Place OGFC mixture meeting gradation requirements of 9.5 mm OGFC as specified in Section 828 on entrance and exit ramp gore areas and end of project construction joints.
         - Taper mixture from 3/8 in (10 mm) at end of project to full plan depth within maximum distance of spread for one load of mixture
         - Taper mixture placed on gore areas from thickness of the edge of the mainline to 3/8 in (10 mm) at the point of the ramp transverse joint.
      2) Construct the ramp transverse joint at the point specified in the plans or as directed by the Engineer.
      3) Mixture placed in the transition and gore areas will be paid for at the contract unit price for 12.5 mm OGFC or 12.5 mm PEM as applicable.
   b. For projects which have milling included as a pay item:
      1) Taper milling for a distance of no less than 50 ft (15 m) to a depth of 2 1/4 in (59 mm) at the point of the transverse joint
      2) Taper thickness, if needed, of the dense-graded surface mix within the 50 ft (15 m) distance to 1 1/2 in (40 mm) at the point of the transverse joint
      3) Taper thickness of the 12.5 mm OGFC or 12.5 mm PEM to 3/4 in (19 mm) so that it ties in at grade level with the existing surface at the point of the transverse joint

I. Protect the Pavement

Protect sections of the newly finished pavement from traffic until the traffic will not mar the surface or alter the surface texture. If directed by the Engineer, use artificial methods to cool the newly finished pavement to open the pavement to traffic more quickly.

J. Modify the Job Mix Formula

If the Engineer determines that undesirable mixture or mat characteristics are being obtained, the job mix formula may require immediate adjustment.

400.3.06 Quality Acceptance

A. Acceptance Plans for Gradation and Asphalt Cement Content

The Contractor will randomly sample and test mixtures for acceptance on a lot basis. The Department will monitor the Contractor testing program and perform comparison and quality assurance testing.

1. Determine Lot Amount

   A lot consists of the tons (megagrams) of asphaltic concrete produced and placed each production day. If this production is less than 500 tons (500 Mg), or its square yard (meter) equivalent, production may be incorporated into the next working day. The Engineer may terminate a lot when a pay adjustment is imminent if a plant or materials adjustment resulting in a probable correction has been made. Terminate all open lots at the end of the month, except for materials produced and placed during the adjustment period. The lot will be terminated as described in Subsection 400.5.01,"Adjustments".

   If the final day's production does not constitute a lot, the production may be included in the lot for the previous day's run; or, the Engineer may treat the production as a separate lot with a corresponding lower number of tests.

2. Determine Lot Acceptance

   Determine lot acceptance as found in Subsection 400.5.01, "Adjustments."

   The Department will perform the following task:

   Determine the pay factor by using the mean of the deviations from the job mix formula of the tests in each lot and apply it to Table 9—Mixture Acceptance Schedule for Surface Mixes or Table 10—Mixture Acceptance Schedule for Subsurface Mixes, whichever is appropriate. This mean will be determined by averaging the actual numeric value of the individual deviations from the job mix formula, disregarding whether the deviations are positive or negative amounts. Do not calculate lot acceptance using test results for materials not used in the Work. Determine the pay factor for each lot by multiplying the contract unit price by the appropriate pay factor from the Mixture Acceptance Schedule - Table 9 or Table 10. When two or more pay factors for a specific lot are less than 1.0, determine the adjusted payment by multiplying the contract unit price by the lowest pay factor.

   If the mean of the deviations from the job mix formula of the lot acceptance tests for a control sieve or for asphalt cement content exceeds the tolerances established in the appropriate Mixture Acceptance Schedule, and if the Engineer determines that the material need not be removed and replaced, the lot may be accepted at an adjusted unit price as determined by the Engineer. If the Engineer determines that the material is not acceptable to leave in place, the materials shall be removed and replaced at the Contractor's expense.

3. Provide Quality Control Program

   Provide a Quality Control Program as established in SOP 27 which includes:

   - Assignment of quality control responsibilities to specifically named individuals who have been certified by the Office of Materials and Research
   - Provisions for prompt implementation of control and corrective measures
   - Provisions for communication with Project Manager, Bituminous Technical Services Engineer, and Testing Management Operations Supervisor at all times
   - Provisions for reporting all test results daily through the Office of Materials and Research computerized Field Data Collection System; other checks, calibrations and records will be reported on a form developed by the Contractor and will be included as part of the project records
   - Notification in writing of any change in quality control personnel

   a. Certification Requirements:

      - Use laboratory and testing equipment certified by the Department. (Laboratories which participate in and maintain AASHTO accreditation for testing asphaltic concrete mixtures will be acceptable in lieu of Departmental certification.)
      - Provide certified quality control personnel to perform the sampling and testing. A Quality Control Technician (QCT) may be certified at three levels:

        1) Temporary Certification – must be a technician trainee who shall be given direct oversight by a certified Level 1 or Level 2 QCT while performing acceptance testing duties during the first 5 days of training. The trainee must complete qualification requirements within 30 production days after being granted temporary certification. A trainee who does not become qualified within 30

production days will not be re-eligible for temporary certification. A certified Level 1 or Level 2 QCT shall be at the plant at all times during production and shipment of mixture to monitor work of the temporarily certified technician.

2) Level 1 – must demonstrate they are competent in performing the process control and acceptance tests and procedures related to hot mix asphalt production and successfully pass a written exam.

3) Level 2 – must meet Level 1 requirements and must be capable of and responsible for making process control adjustments, and successfully pass a written exam.

- Technician certification is valid for 3 years from the date on the technician's certificate unless revoked or suspended. Eligible technicians may become certified through special training and testing approved by the Office of Materials and Research. Technicians who lose their certification due to falsification of test data will not be eligible for recertification in the future unless approved by the State Materials and Research Engineer.

b. Quality Control Management

1) Designate at least one Level 2 QCT as manager of the quality control operation. The Quality Control Manager shall meet the following requirements:

- Be accountable for actions of other QCT personnel
- Ensure that all applicable sampling requirements and frequencies, test procedures, and Standard Operating Procedures are adhered to
- Ensure that all reports, charts, and other documentation is completed as required

2) Provide QCT personnel at the plant as follows:

- If daily production for all mix types is to be greater than 250 tons (megagrams), have a QCT person at the plant at all times during production and shipment of mixture until all required acceptance tests have been completed
- If daily production for all mix types will not be greater than 250 tons (megagrams) a QCT may be responsible for conducting tests at up to two plants, subject to random number sample selection
- Have available at the plant or within immediate contact by phone or radio a Level 2 QCT responsible for making prompt process control adjustments as necessary to correct the mix

3) Sampling, Testing, and Inspection Requirements.

Provide all sample containers, extractants, forms, diaries, and other supplies subject to approval of the Engineer.

Perform daily sampling, testing, and inspection of mixture production that meets the following requirements:

(a) Randomly sample mixtures according to GSP 15, and GDT 73 (Method C) and test on a lot basis. In the event less than the specified number of samples are taken, obtain representative 6 in (150 mm) cores from the roadway at a location where the load not sampled was placed. Take enough cores to ensure minimum sample size requirements are met for each sample needed.

(b) Maintain a printed copy of the computer generated random sampling data as a part of the project records.

(c) Perform sampling, testing, and inspection duties of GSP 21.

(d) Perform extraction or ignition test (GDT 83 or GDT 125) and extraction analysis (GDT 38). If the ignition oven is used, a printout of sample data including weights shall become a part of the project records. For asphalt cement content only, digital printouts of liquid asphalt cement weights may be substituted in lieu of an extraction test for plants with digital recorders. Calculate the asphalt content from the ticket representing the mixture tested for gradation.

(e) Save extracted aggregate, opposite quarters, and remaining material (for possible referee testing) of each sample as follows:

- Store in properly labeled, suitable containers
- Secure in a protected environment

- Store for three working days. If not obtained by the Department, within three days they may be discarded.

(f) Add the following information on load tickets from which a sample or temperature check is taken:

- Mixture temperature
- Signature of the QCT person performing the testing

(g) Calibrate the lime system when hydrated lime is included in the mixture:

- Perform a minimum of twice weekly during production
- Post results at the plant for review
- Provide records of materials invoices upon request (including asphalt cement, aggregate, hydrated lime, etc.)

(h) Take action if acceptance test results are outside Mixture Control Tolerances of Section 828.

- One sample out of tolerance
  (1) Contact Level 2 - QCT to determine if a plant adjustment is needed
  (2) Immediately run a process control sample. Make immediate plant adjustments if this sample is also out of tolerance

NOTE: Determine mixture temperature at least once per hour of production for OGFC and PEM mixes.

  (3) Test additional process control samples as needed to ensure corrective action taken appropriately controls the mixture

- Two consecutive acceptance samples of the same mix type out of tolerance regardless of Lot or mix design level, or three consecutive acceptance samples out of tolerance regardless of mix type
  (1) Stop plant production immediately
  (2) Reject any mixture already in storage that:
    - Deviates more than 10 percent in gradation from the job mix formula based on the acceptance sample
    - Deviates more than 0.7 percent in asphalt content from the job mix formula based on the acceptance sample
  (3) Make a plant correction to any mix type out of tolerance prior to resuming production
    - Do not send any mixture to the project before test results of a process control sample meets Mixture Control Tolerances
    - Reject any mixture produced at initial restarting that does not meet Mixture Control Tolerances

4) Comparison Testing and Quality Assurance Program

Periodic comparison testing by the Department will be required of each QCT to monitor consistency of equipment and test procedures. The Department will take independent samples to monitor the Contractor's quality control program.

a) Comparison Sampling and Testing

Retain samples for comparison testing and referee testing if needed as described in Subsection 400.3.06.A.3.b.3. Discard these samples only if the Contractor's acceptance test results meet a 1.00 pay factor and the Department does not procure the samples within three working days.

The Department will test comparison samples on a random basis. Results will be compared to the respective contractor acceptance tests and the maximum difference shall be as follows:

Table 6—Allowable Percent Difference Between Department and Contractor Acceptance Tests

SIEVE SIZE	SURFACE	SUB-SURFACE
1/2 in. (12.5 mm)		4.0%
3/8 in. (9.5 mm)	3.5%	4.0%
No. 4 (4.75 mm)	3.5%	3.5%
No. 8 (2.36 mm)	2.5%	3.0%
No. 200 (75 μm)	2.0%	2.0%
A.C.	0.4%	0.5%

NOTE: Pavement courses to be overlaid with OGFC or PEM mixes are considered surface mixes.

(1) If test comparisons are within these tolerances:

- Continue production
- Use the Contractor's tests for acceptance of the lot

(2) If test comparisons are not within these tolerances:

- Another Departmental technician will test the corresponding referee sample
- Results of the referee sample will be compared to the respective contractor and Departmental tests using the tolerance for comparison samples given above.
  - (a) If referee test results are within the above tolerances when compared to the Contractor acceptance test, use the Contractor's test for acceptance of the effected lot.
  - (b) If referee test results are not within the above tolerances when compared to the Contractor acceptance test, the Department will review the Contractor's quality control methods and determine if a thorough investigation is needed.

b) Quality Assurance Sampling and Testing

(1) Randomly take a minimum of two quality assurance samples from the lesser of five days or five lots of production regardless of mix type or number of projects.

(2) Compare test deviation from job mix formula to Mixture Control Tolerances in Section 828. If results are outside these tolerances, another sample from the respective mix may be taken.

NOTE: For leveling courses less than 110 lb/yd² (60 kg/m²) that have quality assurance test results outside the Mixture Control Tolerances of Section 828, use the Department's test results only and applicable pay factors will apply.

If test results of the additional sample are not within Mixture Control Tolerances, the Department will take the following action:

- Take random samples from throughout the lot as in Subsection 400.3.06.A.3.b.3 and use these test results for acceptance and in calculations for the monthly plant rating. Applicable pay factors will apply and the contractor QCT test results will not be included in pay factor calculations nor in the monthly plant rating.
- Determine if the Contractor's quality control program is satisfactory and require prompt corrective action by the Contractor if specification requirements are not being met.

- Determine if the QCT has not followed Departmental procedures or has provided erroneous information.
- Take samples of any in-place mixture represented by unacceptable QCT tests and use the additional sample results for acceptance and in calculations for the monthly plant rating and apply applicable pay factors. The Contractor QCT tests will not be included in the pay factor calculations nor in the monthly plant rating.

B. Compaction

Determine the mixture compaction using either GDT 39 or GDT 59. The compaction is accepted in lots defined in Subsection 400.3.06. A "Acceptance Plans for Gradation and Asphalt Cement Content" and is within the same lot boundaries as the mixture acceptance.

1. Calculate Pavement Mean Air Voids

   The Department will calculate the pavement air voids placed within each lot as follows:

   a. One test per sub-lot.

   b. Average the results of all tests run on randomly selected sites in that lot.

   c. Select the random sites using GDT 73.

   Density tests are not required for asphaltic concrete placed at 90 lbs/yd^2 (50 kg/m^2) or less, 4.75 mm mix, and asphaltic concrete OGFC, PEM and mixes placed as variable depth or width leveling. Compact these courses to the Engineer's satisfaction. Density tests will not be performed on turn-outs and driveways.

   The targeted maximum Pavement Mean Air Void content for all Superpave and Stone Matrix Asphalt mixtures is 5.0 percent. Ensure that the maximum Pavement Mean Air Voids for all Superpave and Stone Matrix Asphalt mixtures does not exceed 7.0 percent. The maximum Pavement Mean Air Voids for 2 foot shoulder widening is 9.0 percent. The adjustment period for density shall be four lots or four production days, whichever is less, in order for the contractor to ensure maximum compactive effort has been achieved which will yield no more than the specified maximum allowed Mean Air Voids. If the contractor needs to adjust the mixture to improve density results, a change in the job mix formula may be requested for approval during the adjustment period so long as the following values are not exceeded:

   - Coarse pay sieve ± 4%
   - No. 8 (2.36 mm) sieve ± 2%
   - No. 200 (75 µm) sieve ± 1%
   - Asphalt Content ± 0.2%
   - All value changes must still be within specification limits

   If the Office of Materials and Research is satisfied that the contractor has exerted the maximum compactive effort and is not able to maintain Pavement Mean Air Voids at no more than 7.0%, the Engineer may establish a maximum target for Pavement Mean Air Voids.

   Mixture placed during the adjustment period for density shall meet the requirements for a 0.90 pay factor in Table 12 of Subsection 400.5.01.C, "Calculate Mean Pavement Air Voids." Mixture which does not meet these density requirements shall be paid for using the applicable pay factor.

   If the mean air voids of the pavement placed within a lot exceeds 100% of the maximum target air voids, if established and the Engineer determines that the material need not be removed and replaced, the lot may be accepted at an adjusted unit price as determined by the Engineer.

2. Obtain Uniform Compaction

   For a lot to receive a pay factor of 1.00 for compaction acceptance, the air void range cannot exceed 4 percent for new construction or 5 percent for resurfacing projects. The range is the difference between the highest and lowest acceptance test results within the affected lot. If the air void range exceeds these tolerances, apply a Pay Factor of 95%.

   The 5% reduced pay factor for the compaction range does not apply in these instances:

   - The mixture is placed during the adjustment period as defined in Subsection 400.5.01.A, "Materials Produced and Placed During the Adjustment Period."
   - All air void results within a given lot are less than 7.0%.

- A lot containing two sublot or less.
- On two foot trench widening.

C. Surface Tolerance

In this Specification, pavement courses to be overlaid with an Open-Graded Friction Course or PEM are considered surface courses. All Open-Graded Friction Courses or PEM are to be evaluated after the roadway has been opened to traffic for a minimum of 5 days and a maximum of 15 days. Other asphalt paving is subject to straightedge and visual inspection and irregularity correction as shown below:

1. Visual and Straightedge Inspection

   Paving is subject to visual and straightedge inspection during and after construction operations until Final Acceptance. Locate surface irregularities as follows:

   a. Keep a 10 ft (3 m) straightedge near the paving operation to measure surface irregularities on courses. Provide the straightedge and the labor for its use.
   b. Inspect the base, intermediate, and surface course surfaces with the straightedge to detect irregularities.
   c. Correct irregularities that exceed 3/16 in. in 10 ft (5 mm in 3 m) for base and intermediate courses, and 1/8 in. in 10 ft (3 mm in 3 m) for surface courses.

   Mixture or operating techniques will be stopped if irregularities such as rippling, tearing, or pulling occur and the Engineer suspects a continuing equipment problem. Stop the paving operation and correct the problem. Correct surface course evaluations on individual Laser Road Profiler test sections, normally 1mile (1 km) long.

2. Target Surface Smoothness

   The Department will use the Laser Road Profiler method to conduct acceptance testing for surface course tolerance according to GDT 126. This testing will be performed only on:

   - Surface courses on Projects with mainline traveled way measuring a minimum distance of 1 mile
   - Ramps more than 0.5 mile (800 m) long

   Achieve the smoothest possible ride during construction. Do not exceed the target Laser Road Profiler smoothness index as shown below:

Table 7—Pavement Smoothness Requirements—New Construction

Construction Description	Smoothness Index
Asphaltic concrete OGFC and PEM on interstates and asphaltic concrete OGFC and PEM on new construction on state routes	750
Asphaltic Concrete SMA and other resurfacing on interstates, asphaltic concrete OGFC and PEM resurfacing on state routes, and new construction	825
All other resurfacing on state routes (excluding LARP, PR, airports, etc.)	900

If the target values are not achieved, immediately adjust the operations to meet the target values.

Corrective work is required if the surface smoothness exceeds the Laser Road Profiler smoothness index shown below:

Table 8—Pavement Smoothness Requirements—Corrective Work

Construction Description	Smoothness Index
Asphaltic concrete OGFC and PEM on interstates and asphaltic concrete OGFC and PEM on new construction on state routes	825
Asphaltic Concrete SMA and other resurfacing on interstates, asphaltic concrete	900

OGFC and PEM resurfacing on state routes, and new construction	
All other resurfacing on state routes (excluding LARP, PR, airports, etc.)	1025

If surface tolerance deficiencies need correction, obtain the Engineer's approval of the methods and type mix used.

3. Bridge Approach Ride Quality

The following are subject to a ride quality test by the Department for 100 ft. (30 m) of roadway approaching each end of a bridge using the Lightweight Profiler:

- A state road with 4 lanes or more
- A 2-lane state road with a current traffic count of 2,000 vpd or more
- Locations designated on the Plans

All other bridge approaches shall meet the 1/8 in. in 10 ft (3 mm in 3 m) straightedge requirement. Test ride quality as follows:

a. The Department will determine a profile index value according to test method GDT 134.

b. The Department will average the profile index value from the right and left wheelpath for each 100 ft (30 m) section for each lane. Keep the profile index value under 30 in/mile (475 mm/km).

c. Meet the profile index value for the 100 ft (30 m) section of roadway up to the joint with the approach slab.

d. Schedule the ride quality testing 5 days before needed by contacting the Office of Materials and Research. Clean and clear obstructions from the test area.

e. Correct the sections that do not meet the ride quality criteria of this Specification. After correction, these sections are subject to retesting with the Lightweight Profiler. The Engineer shall direct the type of correction method, which may include:

- Milling
- Grinding
- Removing and replacing the roadway

No additional compensation will be made.

The Department will perform ride quality testing up to two times on the bridge approaches at no cost to the Contractor. Additional profilograph testing will cost the Contractor $500 per test.

D. Reevaluation of Lots

When lots are reevaluated as shown in Subsection 106.03, "Samples, Tests, Cited Specifications," sampling and testing is according to GDT 73. Request for reevaluation shall be made within 5 working days of notification of the lot results. The following procedures apply:

1. Mixture Acceptance

The Department will take the same number of new tests on cores taken at a location where the load sampled was placed and will use only those core results for acceptance.

The Department will use the mean of the deviations from the job mix formula for these tests to determine acceptance based on the appropriate column in the Asphalt Cement Content and Aggregate Gradation of Asphalt Concrete Mixture Acceptance Schedule—Table 9 or 10.

2. Compaction Acceptance

The Department will reevaluate the lot through additional testing by cutting the same number of cores originally obtained and averaging these results with the results from the original density tests. The Department will use the average to determine acceptance according to the Compaction Acceptance Schedule in Subsection 400.5.01.C, "Calculate Pavement Mean Air Voids".

Table 9—Mixture Acceptance Schedule—Surface Mixes

Mixture Characteristics	Pay Factor	Mean of the Deviations from the Job Mix Formula							
		1 Test	2 Tests	3 Tests	4 Tests	5 Tests	6 Tests	7 Tests	8 Tests
Asphalt Cement Content (Extraction, Ignition)	1.00	0.00 - 0.70	0.00 - 0.54	0.00 - 0.46	0.00 - 0.41	0.00 - 0.38	0.00 - 0.35	0.00 - 0.32	0.00 - 0.30
	0.95	0.71 - 0.80	0.55 - 0.61	0.47 - 0.52	0.42 - 0.46	0.39 - 0.43	0.36 - 0.39	0.33 - 0.36	0.31 - 0.34
	0.90	0.81 - 0.90	0.62 - 0.68	0.53 - 0.58	0.47 - 0.51	0.44 - 0.47	0.40 - 0.45	0.37 - 0.40	0.35 - 0.37
	0.80	0.91 - 1.00	0.69 - 0.75	0.59 - 0.64	0.52 - 0.56	0.48 - 0.52	0.44 - 0.47	0.41 - 0.44	0.38 - 0.41
	0.70	1.01 - 1.19	0.76 - 0.82	0.65 - 0.69	0.57 - 0.61	0.53 - 0.56	0.48 - 0.51	0.45 - 0.47	0.42 - 0.44
	0.50	1.20 - 1.40	0.83 - 0.85	0.70 - 0.72	0.62 - 0.64	0.57 - 0.59	0.52 - 0.55	0.48 - 0.51	0.45 - 0.48
3/8 in. (9.5 mm) Sieve (12.5 mm OGFC, 12.5 mm PEM, 12.5 mm Superpave)	1.00	0.00 - 0.9	0.00 - 6.6	0.00 - 5.6	0.00 - 5.0	0.00 - 4.6	0.00 - 4.2	0.00 - 3.9	0.00 - 3.6
	0.98	9.1 - 10.0	6.7 - 7.5	5.7 - 6.3	5.1 - 5.6	4.7 - 5.2	4.3 - 4.7	4.0 - 4.4	3.7 - 4.1
	0.95	10.1 - 11.9	7.6 - 8.4	6.4 - 7.0	5.7 - 6.3	5.3 - 5.8	4.8 - 5.3	4.5 - 5.0	4.2 - 4.6
	0.90	12.0 - 13.0	8.5 - 9.3	7.1 - 7.7	6.4 - 6.9	5.9 - 6.3	5.4 - 5.8	5.1 - 5.4	4.7 - 5.0
	0.85	13.1 - 14.0	9.4 - 10.2	7.8 - 8.6	7.0 - 7.6	6.4 - 6.9	5.9 - 6.3	5.5 - 5.9	5.1 - 5.5
	0.80	14.1 - 14.5	10.3 - 10.5	8.7 - 8.9	7.7 - 8.0	7.0 - 7.5	6.4 - 6.8	6.0 - 6.4	5.6 - 6.0
3/8 in. (9.5 mm) Sieve (12.5 mm SMA)	1.00	0.0 - 6.8	0.00 - 5.0	0.00 - 4.2	0.00 - 3.8	0.00 - 3.4	0.00 - 3.2	0.00 - 2.9	0.00 - 2.7
	0.98	6.9 - 7.5	5.1 - 5.6	4.6 - 4.7	3.9 - 4.2	3.5 - 3.9	3.3 - 3.5	3.0 - 3.3	2.8 - 3.1
	0.95	7.6 - 8.9	5.7 - 6.3	4.8 - 5.2	4.3 - 4.7	4.0 - 4.4	3.6 - 4.0	3.4 - 3.8	3.2 - 3.4
	0.90	9.0 - 9.8	6.4 - 7.0	5.3 - 5.8	4.8 - 5.2	4.5 - 4.8	4.1 - 4.4	3.9 - 4.1	3.5 - 3.8
	0.85	9.9 - 10.5	7.1 - 7.6	5.9 - 6.4	5.3 - 5.7	4.9 - 5.2	4.5 - 4.7	4.2 - 4.4	3.9 - 4.1
	0.80	10.6 - 10.9	7.7 - 7.9	6.5 - 6.7	5.8 - 6.0	5.3 - 5.6	4.8 - 5.1	4.5 - 4.8	4.2 - 4.5
No. 4 (4.75 mm) Sieve (9.5 mm OGFC, 9.5 mm Superpave)	1.00	0.00 - 9.0	0.00 - 6.7	0.00 - 5.7	0.00 - 5.2	0.00 - 4.8	0.00 - 4.4	0.00 - 4.1	0.00 - 3.8
	0.98	9.1 - 10.0	6.8 - 7.6	5.8 - 6.3	5.3 - 5.8	4.9 - 5.4	4.5 - 4.9	4.2 - 4.6	3.9 - 4.3
	0.95	10.1 - 11.9	7.7 - 8.5	6.4 - 6.9	5.9 - 6.4	5.5 - 5.9	5.0 - 5.4	4.7 - 5.0	4.4 - 4.7
	0.90	12.0 - 13.0	8.6 - 9.4	7.0 - 7.5	6.5 - 7.0	6.0 - 6.5	5.5 - 5.9	5.1 - 5.5	4.8 - 5.1
	0.85	13.1 - 14.0	9.5 - 10.2	7.6 - 8.0	7.1 - 7.6	6.6 - 7.0	6.0 - 6.4	5.6 - 5.9	5.2 - 5.5
	0.80	14.1 - 14.5	10.3 - 10.5	8.1 - 8.3	7.7 - 8.0	7.1 - 7.5	6.5 - 6.9	6.0 - 6.4	5.6 - 5.9
No. 4 (4.75 mm) Sieve	1.00	0.00 - 6.8	0.00 - 5.0	0.00 - 4.3	0.00 - 3.9	0.00 - 3.6	0.00 - 3.3	0.00 - 3.1	0.00 - 2.8

Mixture Characteristics	Pay Factor	Mean of the Deviations from the Job Mix Formula							
		1 Test	2 Tests	3 Tests	4 Tests	5 Tests	6 Tests	7 Tests	8 Tests
(9.5 mm SMA)	0.98	6.9 - 7.5	5.1 - 5.7	4.4 - 4.7	4.0 - 4.4	3.7 - 4.0	3.4 - 3.7	3.2 - 3.4	2.9 - 3.2
	0.95	7.6 - 8.9	5.8 - 6.4	4.8 - 5.2	4.5 - 4.8	4.1 - 4.4	3.8 - 4.0	3.5 - 3.8	3.3 - 3.5
	0.90	9.0 - 9.8	6.5 - 7.0	5.3 - 5.6	4.9 - 5.2	4.5 - 4.9	4.1 - 4.4	3.9 - 4.1	3.6 - 3.8
	0.85	9.9 - 10.5	7.1 - 7.7	5.7 - 6.0	5.3 - 5.7	5.0 - 5.2	4.3 - 4.8	4.2 - 4.4	3.9 - 4.1
	0.80	10.6 - 10.9	7.8 - 7.9	6.1 - 6.2	5.8 - 6.0	5.3 - 5.6	4.9 - 5.2	4.5 - 4.8	4.2 - 4.4
No. 8 (2.36 mm) Sieve (OGFC, PEM, Superpave and 4.75 mm mixes)	1.00	0.00 - 7.0	0.00 - 5.6	0.00 - 4.8	0.00 - 4.3	0.00 - 4.0	0.00 - 3.6	0.00 - 3.4	0.00 - 3.2
	0.98	7.1 - 8.0	5.7 - 6.3	4.9 - 5.4	4.4 - 4.8	4.1 - 4.5	3.7 - 4.1	3.5 - 3.8	3.3 - 3.6
	0.95	8.1 - 9.0	6.4 - 7.0	5.5 - 6.0	4.9 - 5.3	4.6 - 4.9	4.2 - 4.5	3.9 - 4.2	3.7 - 3.9
	0.90	9.1 - 10.9	7.1 - 7.7	6.1 - 6.6	5.4 - 5.8	5.0 - 5.4	4.6 - 4.9	4.3 - 4.6	4.0 - 4.3
	0.85	11.0 - 12.0	7.8 - 8.5	6.7 - 7.2	5.9 - 6.4	5.5 - 5.8	5.0 - 5.3	4.7 - 5.0	4.4 - 4.6
	0.75	12.1 - 12.5	8.6 - 8.8	7.3 - 7.5	6.5 - 6.8	5.9 - 6.3	5.4 - 5.7	5.1 - 5.3	4.7 - 4.9
No. 8 (2.36 mm) Sieve (12.5 mm SMA, 9.5 mm SMA)	1.00	0.00 - 5.3	0.00 - 4.2	0.00 - 3.6	0.00 - 3.2	0.00 - 3.0	0.00 - 2.7	0.00 - 2.6	0.00 - 2.4
	0.98	5.4 - 6.0	4.3 - 4.7	3.7 - 4.0	3.3 - 3.6	3.1 - 3.4	2.8 - 3.1	2.7 - 2.9	2.5 - 2.7
	0.95	6.1 - 6.8	4.8 - 5.3	4.1 - 4.5	3.7 - 4.0	3.5 - 3.7	3.2 - 3.4	3.0 - 3.2	2.8 - 2.9
	0.90	6.9 - 8.2	5.4 - 5.8	5.6 - 5.0	4.1 - 4.5	3.8 - 4.0	3.5 - 3.7	3.3 - 3.5	3.0 - 3.2
	0.85	8.3 - 9.0	5.9 - 6.4	5.1 - 5.4	4.6 - 4.8	4.1 - 4.4	3.8 - 4.0	3.6 - 3.8	3.3 - 3.4
	0.75	9.1 - 9.4	6.5 - 6.6	5.5 - 5.0	4.9 - 5.1	4.5 - 4.7	4.1 - 4.3	3.9 - 4.0	3.5 - 3.7

No. 8 (2.36 mm) Sieve for OGFC and PEM mixes: When the mean of the deviations from the Job Mix Formula for a particular lot exceeds the tolerance for a 1.00 pay factor in the appropriate column, the lot will be paid for at 0.50 of the Contract Price.

Table 10—Mixture Acceptance Schedule—Subsurface Mixes

Mixture Characteristics	Pay Factor	Mean of the Deviations from the Job Mix Formula							
		1 Test	2 Tests	3 Tests	4 Tests	5 Tests	6 Tests	7 Tests	8 Tests
Asphalt Cement Content (Extraction, Ignition)	1.00	0.00 - 0.80	0.00 - 0.61	0.00 - 0.52	0.00 - 0.46	0.00 - 0.43	0.00 - 0.39	0.00 - 0.36	0.00 - 0.34
	0.95	0.81 - 0.90	0.62 - 0.68	0.53 - 0.58	0.47 - 0.51	0.44 - 0.47	0.40 - 0.43	0.37 - 0.40	0.35 - 0.37
	0.90	0.91 - 1.00	0.69 - 0.75	0.59 - 0.64	0.52 - 0.56	0.48 - 0.52	0.44 - 0.47	0.41 - 0.44	0.38 - 0.41
	0.80	1.01 - 1.19	0.76 - 0.82	0.65 - 0.69	0.57 - 0.61	0.53 - 0.56	0.48 - 0.51	0.45 - 0.47	0.42 - 0.44
	0.70	1.20 - 1.40	0.83 - 0.85	0.70 - 0.72	0.62 - 0.64	0.57 - 0.59	0.52 - 0.55	0.48 - 0.51	0.45 - 0.48
	0.50	1.41 - 1.60	0.86 - 0.88	0.73 - 0.75	0.65 - 0.67	0.60 - 0.63	0.56 - 0.60	0.52 - 0.56	0.49 - 0.52
1/2 in. (12.5 mm) Sieve (25 mm Superpave)	1.00	0.00 - 12.9	0.00 - 8.1	0.00 - 6.9	0.00 - 6.1	0.00 - 5.5	0.00 - 5.0	0.00 - 4.7	0.00 - 4.4
	0.98	13.0 - 14.0	8.2 - 9.1	7.0 - 7.7	6.2 - 6.8	5.6 - 6.1	5.1 - 5.6	4.8 - 5.2	4.5 - 4.9
	0.95	14.1 - 15.0	9.2 - 10.1	7.8 - 8.5	6.9 - 7.5	6.2 - 6.7	5.7 - 6.1	5.3 - 5.7	5.0 - 5.4
	0.90	15.1 - 16.0	10.2 - 11.1	8.6 - 9.3	7.6 - 8.2	6.8 - 7.4	6.2 - 6.7	5.8 - 6.3	5.5 - 5.9
	0.85	16.1 - 17.0	11.2 - 11.5	9.4 - 9.6	8.3 - 8.6	7.5 - 7.8	6.8 - 7.0	6.4 - 6.5	6.0 - 6.1
	0.80	17.1 - 18.0	11.6 - 11.9	9.7 - 9.9	8.7 - 9.0	7.9 - 8.1	7.1 - 7.3	6.6 - 6.8	6.2 - 6.4
1/2 in. (12.5 mm) Sieve (19 mm SMA)	1.00	0.00 - 9.7	0.00 - 6.0	0.00 - 5.2	0.00 - 4.6	0.00 - 4.1	0.00 - 3.8	0.00 - 3.5	0.00 - 3.3
	0.98	9.8 - 10.5	6.2 - 6.8	5.3 - 5.8	4.7 - 5.1	4.2 - 4.6	3.9 - 4.2	3.6 - 3.9	3.4 - 3.7
	0.95	10.6 - 11.2	6.9 - 7.8	5.9 - 6.4	5.2 - 5.6	4.7 - 5.0	4.3 - 4.6	4.0 - 4.3	3.8 - 4.0
	0.90	11.3 - 12.0	7.9 - 8.3	6.5 - 7.0	5.7 - 6.1	5.1 - 5.6	4.7 - 5.0	4.4 - 4.7	4.1 - 4.4
	0.85	12.1 - 12.8	8.4 - 8.6	7.1 - 7.2	6.2 - 6.5	5.7 - 5.9	5.1 - 5.3	4.8 - 4.9	4.5 - 5.6
	0.80	12.9 - 13.5	8.7 - 8.9	7.3 - 7.4	6.6 - 6.8	6.0 - 6.1	5.4 - 5.5	5.0 - 5.1	4.7 - 4.8
3/8 in. (9.5 mm) Sieve (19 mm Superpave, 12.5 mm Superpave)	1.00	0.00 - 10.0	0.00 - 7.5	0.00 - 6.3	0.00 - 5.6	0.00 - 5.2	0.00 - 4.7	0.00 - 4.4	0.00 - 4.1
	0.98	10.1 - 11.9	7.6 - 8.4	6.4 - 7.0	5.7 - 6.3	5.3 - 5.8	4.8 - 5.3	4.5 - 5.0	4.2 - 4.6
	0.95	12.0 - 13.0	8.5 - 9.3	7.1 - 7.7	6.4 - 6.9	5.9 - 6.3	5.4 - 5.8	5.1 - 5.4	4.7 - 5.0
	0.90	13.1 - 14.0	9.4 - 10.2	7.8 - 8.6	7.0 - 7.6	6.4 - 6.9	5.9 - 6.3	5.5 - 5.9	5.1 - 5.5
	0.85	14.1 - 14.5	10.3 - 10.5	8.7 - 8.9	7.7 - 8.0	7.0 - 7.5	6.4 - 6.8	6.0 - 6.4	5.6 - 6.0
	0.80	14.6 - 15.0	10.6 - 10.8	9.0 - 9.2	8.1 - 8.4	7.6 - 7.8	6.9 - 7.3	6.5 - 6.8	6.1 - 6.5
No. 4 (4.75 mm) Sieve	1.00	0.00 - 10.0	0.00 - 7.6	0.00 - 6.3	0.00 - 5.8	0.00 - 5.4	0.00 - 4.9	0.00 - 4.6	0.00 - 4.3

Mixture Characteristics	Pay Factor	Mean of the Deviations from the Job Mix Formula							
		1 Test	2 Tests	3 Tests	4 Tests	5 Tests	6 Tests	7 Tests	8 Tests
(9.5 mm Superpave)	0.98	10.1 - 11.9	7.7 - 8.5	6.4 - 6.9	5.9 - 6.4	5.5 - 5.9	5.0 - 5.4	4.7 - 5.0	4.4 - 4.7
	0.95	12.0 - 13.0	8.6 - 9.4	7.0 - 7.5	6.5 - 7.0	6.0 - 6.5	5.5 - 5.9	5.1 - 5.5	4.8 - 5.1
	0.90	13.1 - 14.0	9.5 - 10.2	7.6 - 8.0	7.1 - 7.6	6.6 - 7.0	6.0 - 6.4	5.6 - 5.9	5.2 - 5.5
	0.85	14.1 - 14.5	10.3 - 10.5	8.1 - 8.3	7.7 - 8.0	7.1 - 7.5	6.5 - 6.9	6.0 - 6.4	5.6 - 5.9
	0.80	14.6 - 15.0	10.6 - 10.8	8.4 - 8.6	8.1 - 8.4	7.6 - 8.0	7.0 - 7.4	6.5 - 6.8	6.0 - 6.3
No. 8 (2.36 mm) Sieve (All mixes except SMA)	1.00	0.00 - 8.0	0.00 - 6.3	0.00 - 5.4	0.00 - 4.8	0.00 - 4.5	0.00 - 4.1	0.00 - 3.8	0.00 - 3.6
	0.98	8.1 - 9.0	6.4 - 7.0	5.5 - 6.0	4.9 - 5.3	4.6 - 4.9	4.2 - 4.5	3.9 - 4.2	3.7 - 3.9
	0.95	9.1 - 10.0	7.1 - 7.7	6.1 - 6.6	5.4 - 5.8	5.0 - 5.4	4.6 - 4.9	4.3 - 4.6	4.0 - 4.3
	0.90	10.1 - 11.9	7.8 - 8.5	6.7 - 7.2	5.9 - 6.4	5.5 - 5.8	5.0 - 5.3	4.7 - 5.0	4.4 - 4.6
	0.85	12.0 - 13.0	8.6 - 8.8	7.3 - 7.5	6.5 - 6.8	5.9 - 6.3	5.4 - 5.7	5.1 - 5.3	4.7 - 4.9
	0.75	13.1 - 14.0	8.9 - 9.1	7.6 - 7.8	6.9 - 7.2	6.4 - 6.6	5.8 - 6.1	5.4 - 5.7	5.0 - 5.3
No. 8 (2.36 mm) Sieve (19 mm SMA)	1.00	0.00 - 6.0	0.00 - 4.7	0.00 - 4.1	0.00 - 3.6	0.00 - 3.4	0.00 - 3.1	0.00 - 2.9	0.00 - 2.4
	0.98	6.1 - 6.8	4.8 - 5.2	4.2 - 4.5	3.7 - 4.0	3.5 - 3.7	3.2 - 3.4	3.0 - 3.2	2.8 - 2.9
	0.95	6.9 - 7.5	5.3 - 5.8	4.6 - 5.0	4.1 - 4.4	3.8 - 4.0	3.5 - 3.7	3.3 - 3.5	3.0 - 3.2
	0.90	7.6 - 8.9	5.9 - 6.4	5.1 - 5.4	4.5 - 4.8	4.1 - 4.4	3.8 - 4.0	3.6 - 3.8	3.3 - 3.5
	0.85	9.0 - 9.8	6.5 - 6.6	5.5 - 5.6	4.9 - 5.1	4.5 - 4.7	4.1 - 4.3	3.9 - 4.0	3.6 - 3.7
	0.75	9.9 - 10.5	6.7 - 6.8	5.7 - 5.9	5.2 - 5.4	4.8 - 5.0	4.4 - 4.6	4.1 - 4.3	3.8 - 4..0

E. Segregated Mixture

Prevent mixture placement that yields a segregated mat by following production, storage, loading, placing, and handling procedures. Also, make needed plant modifications and provide necessary auxiliary equipment. (See Subsection 400.1.01, "Definitions.")

If the mixture is segregated in the finished mat, the Department will take actions based on the degree of segregation. The actions are described below.

1. Unquestionably Unacceptable Segregation

   When the Engineer determines that the segregation in the finished mat is unquestionably unacceptable, follow these measures:

   a. Suspend Work and require the Contractor to take positive corrective action. The Department will evaluate the segregated areas to determine the extent of the corrective work to the in-place mat as follows:
      - Perform extraction and gradation analysis by taking 6 in (150 mm) cores from typical, visually unacceptable segregated areas.
      - Determine the corrective work according to Subsection 400.3.06.E.3.

   b. Require the Contractor to submit a written plan of measures and actions to prevent further segregation. Work will not continue until the plan is submitted to and approved by the Department.

   c. When work resumes, place a test section not to exceed 500 tons (500 Mg) of the affected mixture for the Department to evaluate. If a few loads show that corrective actions were not adequate, follow the measures above beginning with step 1.a. above. If the problem is solved, Work may continue.

2. Unacceptable Segregation Suspected

   When the Engineer observes segregation in the finished mat and suspects that it may be unacceptable, follow these measures:

   a. Allow work to continue at Contractor's risk.

   b. Require Contractor to immediately and continually adjust operation until the visually apparent segregated areas are eliminated from the finished mat. The Department will immediately investigate to determine the severity of the apparent segregation as follows:
      - Take 6 in (150 mm) cores from typical areas of suspect segregation.
      - Test the cores for compliance with the mixture control tolerances in Section 828.

   When these tolerances are exceeded, suspend work for corrective action as outlined in Subsection 400.3.06.E.3.

3. Corrective Work

   a. Remove and replace (at the Contractor's expense) any segregated area where the gradation on the control sieves is found to vary 10 percent or more from the approved job mix formula, the asphalt cement varies 1.0% or more from the approved job mix formula, or if in-place air voids exceed 13.5% based on GDT 39. The control sieves for each mix type are shown in Subsection 400.5.01.B "Determine Lot Acceptance."

   b. Subsurface mixes. For subsurface mixes, limit removal and replacement to the full lane width and no less than 10 ft. (3 m) long and as approved by the Engineer.

   c. Surface Mixes. For surface mixes, ensure that removal and replacement is not less than the full width of the affected lane and no less than the length of the affected areas as determined by the Engineer.

   Surface tolerance requirements apply to the corrected areas for both subsurface and surface mixes.

400.3.07 Contractor Warranty and Maintenance

A. Contractor's Record

Maintain a dated, written record of the most recent plant calibration. Keep this record available for the Engineer's inspection at all times. Maintain records in the form of:

- Graphs
- Tables
- Charts

- Mechanically prepared data

400.4 Measurement

This item will not be measured separately.

Thickness and spread rate tolerances for the various mixtures are specified in Subsection 400.4.A.2.b, Table 11, Thickness and Spread Rate Tolerance at Any Given Location. These tolerances are applied as outlined below:

A. Hot Mix Asphaltic Concrete

2. Plans Designate a Spread Rate

   d. Thickness Determinations. Thickness determinations are not required when the Plans designate a spread rate per square yard (meter).

   If the spread rate exceeds the upper limits outlined in the Subsection 400.4.A.2.b, Table 11, "Thickness and Spread Rate Tolerance at Any Given Location", the mix in excess will not be paid for.

   If the rate of spread is less than the lower limit, correct the deficient course by overlaying the entire lot.

   The mixture used for correcting deficient areas is paid for at the Contract Unit Price of the course being corrected and is subject to the Mixture Acceptance Schedule—Table 9 or 10.

   e. Recalculate the Total Spread Rate. After the deficient hot mix course has been corrected, the total spread rate for that lot is recalculated, and mix in excess of the upper tolerance limit as outlined in the Subsection 400.4.A.2.b, Table 11, "Thickness and Spread Rate Tolerance at Any Given Location" is not paid for.

   The quantity of material placed on irregular areas such as driveways, turnouts, intersections, feather edge section, etc., is deducted from the final spread determination for each lot.

2. Plans Designate Thickness

   If the average thickness exceeds the tolerances specified in the Subsection 400.4.A.2.b, Table 11, "Thickness and Spread Rate Tolerance at Any Given Location", the Engineer shall take cores to determine the area of excess thickness. Excess quantity will not be paid for.

   If the average thickness is deficient by more than the tolerances specified in the Thickness and Spread Rate Tolerance at Any Given Location table below, the Engineer shall take additional cores to determine the area of deficient thickness. Correct areas with thickness deficiencies as follows:

   f. Overlay the deficient area with the same mixture type being corrected or with an approved surface mixture. The overlay shall extend for a minimum of 300 ft (90 m) for the full width of the course.

   g. Ensure that the corrected surface course complies with Subsection 400.3.06.C.1, "Visual and Straightedge Inspection." The mixture required to correct a deficient area is paid for at the Contract Unit Price of the course being corrected.

   The mixture is subject to the Mixture Acceptance Schedule—Table 9 or 10 . The quantity of the additional mixture shall not exceed the required calculated quantity used to increase the average thickness of the overlaid section to the maximum tolerance allowed under the following table.

Table 11—Thickness and Spread Rate Tolerance at Any Given Location

Course	Thickness Specified	Spread Rate Specified
Asphaltic concrete base course	± 0.5 in (±13 mm)	+40 lbs, -50 lbs (+20 kg, -30 kg)
Intermediate and/or wearing course	± 0.25 in (± 6 mm)	+20 lbs, -25 lbs (+10 kg, -15 kg)
Overall of any combination of 1 and 2	± 0.5 in (±13 mm)	+40 lbs, -50 lbs (+20 kg, -30 kg)

Note 1: For asphaltic concrete 9.5 mm OGFC and 12.5 mm OGFC, control the spread rate per lot within 5 lbs/yd^2 (3 kg/m^2) of the designated spread rate. For asphaltic concrete 12.5 mm PEM, control the spread rate per lot within 10 lbs/yd^2 (6 kg/m^2) of the designated spread rate.

Note 2: Thickness and spread rate tolerances are provided to allow normal variations within a given lot. Do not continuously operate at a thickness of spread rate not specified.

When the Plans specify a thickness, the Engineer may take as many cores as necessary to determine the average thickness of the intermediate or surface course. The Engineer shall take a minimum of one core per 1,000 ft (300 m) per two lanes of roadway. Thickness will be determined by average measurements of each core according to GDT 42.

If the average exceeds the tolerances specified in the Subsection 400.4.A.2.b, Table 11, "Thickness and Spread Rate Tolerance at Any Given Location", additional cores will be taken to determine the area of excess thickness and excess tonnage will not be paid for.

B. Hot Mix Asphaltic Concrete Paid for by Square Yard (Meter)

3. The thickness of the base course or the intermediate or surface course will be determined by the Department by cutting cores and the thickness will be determined by averaging the measurements of each core.
2. If any measurement is deficient in thickness more than the tolerances given in the table above, additional cores will be taken by the Department to determine the area of thickness deficiency. Correct thickness deficiency areas as follows:
   h. Overlay the deficient area with the same type mixtures being corrected or with surface mixture. Extend the overlay at least 300 ft (90 m) for the full width of the course.
   i. Ensure that the corrected surface course complies with Subsection 400.3.06.C.1, Visual and Straightedge Inspection" .
   j. The mixture is subject to the Mixture Acceptance Schedule—Table 9 or 10.
3. No extra payment is made for mixtures used for correction.
4. No extra payment is made for thickness in excess of that specified.

NOTE: Thickness tolerances are provided to allow normal variations within a given lot. Do not continuously operate at a thickness not specified.

C. Asphaltic Concrete

Hot mix asphaltic concrete, complete in place and accepted, is measured in tons (megagrams) or square yards (meters) as indicated in the Proposal. If payment is by the ton (megagram), the actual weight is determined by weighing each loaded vehicle on the required motor truck scale as the material is hauled to the roadway, or by using recorded weights if a digital recording device is used.

The weight measured includes all materials. No deductions are made for the weight of the individual ingredients. The actual weight is the pay weight except when the aggregates used have a combined bulk specific gravity greater than 2.75. In this case the pay weight is determined according to the following formula:

$$T1 = T \times \left\{ \frac{\%\,AC + \left[\frac{\%\ \text{Aggregate} \times 2.75}{\text{combined bulk Specific Gravity}} \right] + \%\,Y}{100} \right\}$$

Where:

T1	Pay weight, tonnage (Mg)
T=	Actual weight
% AC=	Percent asphalt cement by weight of total mixture
% Aggregate =	Percent aggregate by weight of total mixture
Combined Bulk Sp. Gr.=	Calculated combined bulk specific gravity of various mineral aggregates used in the mixture
% Y=	Percent hydrated lime by weight of mineral aggregate

D. Bituminous Material

Bituminous material is not measured for separate payment.

E. Hydrated Lime

When hydrated lime is used as an anti-stripping additive, it is not measured for separate payment.

F. Field Laboratory

The field laboratory required in this Specification is not measured for separate payment.

G. Asphaltic Concrete Leveling

Hot mix asphaltic concrete leveling will not be measured separately, regardless of the type mix. Includes furnishing materials, bituminous materials, and hydrated lime (when required) for patching and repair of minor defects, surface preparation, cleaning, hauling, mixing, spreading, and rolling.

Mixture for leveling courses is subject to the acceptance schedule as stated in Subsection 400.3.06.A and Subsection 400.3.06.B.

H. Asphaltic Concrete Patchinge

Hot mix asphaltic concrete patching will not be measured separately, regardless of the type mix. Includes:

- Furnishing materials such as bituminous material and hydrated lime (when required)
- Preparing surface to be patched
- Cutting areas to be patched, trimmed, and cleaned
- Hauling, mixing, placing, and compacting the materials

400.4.01 Limits

When the asphaltic concrete is paid for by the square yard (meter) and multiple lifts are used, the number and thickness of the lifts are subject to the Engineer's approval and are used to prorate the pay factor for the affected roadway section.

400.5 Payment

This item will be paid for under CONSTRUCTION COMPLETE.

Where "Contract Price" or "Contract Unit Price" are mentioned in this specification, the "Assumed Contract Unit Price" (see below) will be used. When materials or construction are not within the tolerances in this Specification, the "Assumed Contract Unit Price" (see below) will be used and adjustments will be made according to Subsection 106.03, "Samples, Tests, Cited Specifications" and Subsection 400.3.06, "Quality Acceptance."

Includes furnishing and placing materials including asphalt cement, hydrated lime when required, approved additives, and for cleaning and repairing, preparing surfaces, hauling, mixing, spreading, rolling, and performing other operations to complete the Contract Item.

400.5.01 Adjustments

A. Materials Produced and Placed During the Adjustment Period

An adjustment period is allowed at the start of mixing operations for each type of mix placed on the Contract except for Asphaltic Concrete OGFC or PEM. The adjustment period is provided to adjust or correct the mix and to establish the construction procedures and sequence of operations.

The adjustment period consists of the tons (megagrams) of the affected mix produced and placed on the first day of operation. If this quantity is less than 500 tons (500 Mg), the Engineer may combine the tons (megagrams) produced and placed on the first day of operation with the tons (megagrams) produced and placed on the next production day of the affected mix for the adjustment period.

The material produced and placed during the mixture adjustment period is one lot. If the mix is adjusted during this period, a new lot may be necessary, but a new adjustment period will not be permitted.

This material shall be paid for at 100 percent of the Contract Unit Price provided it meets the minimum requirements for a 1.00 pay factor for asphalt cement content and a 0.90 pay factor for gradation in the Mixture Acceptance Schedule—Table 9 or 10 .

If the material placed during the adjustment period fails to meet the above requirements, it will be paid for using the applicable acceptance schedule. However, when mixture used for leveling at a spread rate of 90 lbs/yd² (50 kg/m²) or less is also used for the surface mix at a spread rate greater than 90 lbs/yd² (50 kg/m²), an additional adjustment period will be allowed for compaction only. This material will be paid for at a 1.00 pay factor provided it:

- Meets the minimum requirements for a 1.00 pay factor in the Mixture Acceptance Schedule—Table 9 or 10 for both asphalt content and gradation.
- Meets the minimum requirements for a 0.90 pay factor in Table 12 of Subsection 400.5.01C, "Calculate Mean Pavement Air Voids.

Mixture which does not meet these requirements shall be paid for using the applicable acceptance schedule.

B. Determine Lot Acceptance

Pay factor adjustments are based on control sieves and asphalt cement content. The control sieves used in the mixture acceptance schedule for the various types of mix are indicated below:

Control Sieves Used in the Mixture Acceptance Schedule	
Asphaltic concrete 25 mm Superpave	1/2 in., No. 8 (12.5 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 19 mm SMA	1/2 in., No. 8 (12.5 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 19 mm Superpave	3/8 in., No. 8 (9.5 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 12.5 mm Superpave	3/8 in., No. 8 (9.5 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 12.5 mm SMA	3/8 in., No. 8 (9.5 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 12.5 mm PEM	3/8 in., No. 8 (9.5 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 12.5 mm OGFC	3/8 in., No. 8 (9.5 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 9.5 mm Superpave	No. 4, No. 8 (4.75 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 9.5 mm SMA	No. 4, No. 8 (4.75 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 9.5 mm OGFC	No. 4, No. 8 (4.75 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 4.75 mm Mix	No. 8 (2.36 mm) sieve and asphalt cement

For projects which do not have milling quantities established as a Pay Item, the Department will pay for 12.5 mm OGFC and PEM placed on ramps and end of project transitions under the appropriate mixture pay item, but the mix shall be subject to the same gradation and control sieve requirements as asphaltic concrete 9.5 mm OGFC. Add polymer-modified bituminous material, hydrated lime, and stabilizing fiber to this mix.

The Department will perform the following tasks:

4. Using the Mixture Acceptance Schedule—Table 9 or 10, determine the mean of the deviations from the job mix formula per test results per lot.
2. Determine this mean by averaging the actual numeric value of the individual deviations from the job mix formula; disregard whether the deviations are positive or negative amounts.
3. Use the Asphalt Cement Content and Aggregate Gradation of Asphalt Concrete Mixture Acceptance Schedule—Table 9 to determine acceptance of surface mixes and the Mixture Acceptance Schedule—Table 10 to determine acceptance of subsurface mixes.

On Contracts involving 1,000 tons (1000 Mg) or less of asphaltic concrete, the mixture is accepted for 100 percent payment of the asphaltic concrete Unit Price provided it meets the following:

5. Minimum requirements for a 1.00 pay factor for asphalt cement content and a 0.90 pay factor for gradation in the applicable Mixture Acceptance Schedule—Table 9 or 10.
6. Minimum requirements for a 0.90 pay factor in Table 12 of Subsection 400.5.01C, "Calculate Pavement Mean Air Voids.

If the material placed on Contracts involving 1,000 tons (1000 Mg) or less of asphaltic concrete does not meet the above requirements, the material will be paid for using the applicable acceptance schedule.

C. Calculate Pavement Mean Air Voids

The Department will determine the percent of maximum air voids for each lot by dividing the pavement mean air voids by the maximum pavement mean air voids acceptable.

The Department will determine the payment for each lot by multiplying the Contract Unit Price by the adjusted pay factor shown in the following Air Voids Acceptance schedule:

Table 12 - Air Voids Acceptance Schedule

Pay Factor	Percent of Maximum Air Voids (Lot Average of Tests)	Percent of Maximum Air Voids (Lot Average all Tests) (for Reevaluations)
1.00	≤100	≤100
0.97	100.1 — 105	100.1 — 104
0.95	105.1 — 112	104.1— 109
0.90	112.1 — 124	109.1 — 118
0.80	124.1 — 149	118.1 — 136
0.70	149.1 —172	136.1 — 153
0.50	172.1 — 191	153.1 — 166

When the range tolerance is exceeded, the Department will apply a pay factor of 0.95 as described in Subsection 400.3.06.B.2.

D. Asphaltic Concrete For Temporary Detours

Hot mix asphaltic concrete placed on temporary detours that will not remain in place as part of the permanent pavement does not require hydrated lime. Hot mix used for this purpose is paid for at an adjusted Contract Price.

Where the Contract Price of the asphaltic concrete for permanent pavement is let by the ton (megagram), the Contract Price for the asphaltic concrete placed on temporary detours is adjusted by subtracting $0.75/ton ($0.85/mg) of mix used.

Where the Contract price of the mix in the permanent pavement is based on the square yard (meter), obtain the adjusted price for the same mix used on the temporary detour by subtracting $0.04/yd² ($0.05/ m²) per 1-in (25-mm) plan depth.

Further price adjustments required in Subsection 400.3.06, "Quality Acceptance," are based on the appropriate adjusted Contract Price for mix used in the temporary detour work.

E. Determine Lot Payment

Determine the lot payment as follows:

7. When one of the pay factors for a specific acceptance lot is less than 1.0, determine the payment for the lot by multiplying the Contract Unit Price by the adjusted pay factor.
2. When two or more pay factors for a specific acceptance lot are less than 1.0, determine the adjusted payment by multiplying the Contract Unit Price by the lowest pay factor.

If the mean of the deviations from the job mix formula of the tests for a sieve or asphalt cement content exceeds the tolerances established in the Mixture Acceptance Schedule—Table 9 or 10 and if the Engineer determines that the material need not be removed and replaced, the lot may be accepted at an adjusted unit price as determined by the Engineer. If the pavement mean air voids exceed the tolerances established in the Air Voids Acceptance Schedule – Table 12, remove and replace the materials at the Contractor's expense.

If the Engineer determines that the material is not acceptable to leave in place, remove and replace the materials at the Contractor's expense.

F. Asphalt Cement Price Adjustment

1. **Formula:** The Asphalt Cement Price Adjustment will be computed on a ***monthly*** basis in accordance with the following:

   PA = Price Adjustment.
   APM= the "Monthly Asphalt Cement Price" for the month the hot mix asphalt is placed.
   APL = the "Monthly Asphalt Cement Price" for the month which the project was let.
   TMT = Total Monthly Tonnage of asphalt cement computed by the Engineer based on the Hot Mix Asphaltic Concrete of the various types per ton (megagram) certified for payment.

   a. If the asphalt cement price for the month is *greater* than the asphalt cement price for the month in which the project was let:

      PA = [((APM-APL)/APL) - 0.05] x TMT x APL

   b. If the asphalt cement price for the month is *less* than the asphalt cement price for the month in which the project was let:

      PA = [((APM-APL)/APL) + 0.05] x TMT x APL

2. **Price Adjustment "Triggers":** No price adjustment shall be made on any hot mix asphalt placed on projects with an original Contract Time of less than 366 Calendar Days. A price adjustment shall not be made until the APM is greater than 5% above or below the APL.

3. **"Monthly Asphalt Cement Price":** The Department will determine and publish a "Monthly Asphalt Cement Price" based on the following formulas:

   Monthly Asphalt Cement Price = (50% x NBAP) + (50% x LBAP);

   Where;

   NBAP = "National Base Asphalt Price", (in dollars/ton) is calculated based on arithmetic average of the previous four weeks "Posted Prices Asphalt Cement" for the "East Coast Market – GA/FL" as listed in the "ASPHALT WEEKLY MONITOR®" published by "Poten and Partners" or at www.poten.com .

   LBAP = "Local Base Asphalt Price", (in dollars/ton) is based on the arithmetic average posted price of PG asphalt cement as specified in Section 820, from the Department's monthly survey obtained from approved asphalt cement suppliers of bituminous materials to the Department projects F.O.B. the suppliers terminal. However, the highest price and the lowest price are excluded from the calculation of average price, LBAP.

4. **"Asphalt Cement Quantity Calculation":** The calculation of asphalt cement quantity for each mix type will be based on the asphalt cement content (***AC %***) of the approved Job Mix Formula (JMF) as specified in Subsection 400.1.03.C. The following calculation formula will be used to determine asphalt cement quantity:

   Asphalt Cement Quantity = Hot Mix Asphaltic Concrete monthly total in tons (megagrams) per mix type certified for the payment x ***AC (%)***

   The Total Monthly Tonnage (TMT) of asphalt cement computed by the Engineer will be calculated as follows:

   TMT = Sum of all asphalt cement quantities, including polymer modified asphalt binder and non-modified asphalt cement, based on the Hot Mix Asphaltic Concrete of the various mix types per ton (megagram) certified for payment.

   Asphalt Cement Price for the Month (APM) will be adjusted monthly. Price adjustments (PA) will be made monthly and all calculations for Price Adjustments shall be performed by the Engineer as specified in SOP-39 "Determination of Asphalt Cement Index and Asphalt Cement Price Adjustment".

5. **"Other Restrictions":**
   a. No asphalt cement price adjustment will be made for cut-back, tack-coat or emulsified asphalt.

   b. No asphalt cement price adjustment will be made for asphalt cement for surface-treatment projects.

   c. There is a cap of 75% above the APL for any price adjustment.

   d. Unless specifically provided for by Supplemental Agreement or Contract Amendment, no further asphalt cement price adjustment will be made after ***the original Contract Time has expired.*** Irrespective of any other provision in the contract, for purposes of this specification, "Contract Time" does not include any time extensions or Supplemental Agreements which affect the completion of the Contract. The Asphalt Cement Price Adjustment for any hot mix asphalt placed after the original Contract Time expires will be computed based on the Monthly Asphalt Cement Price at the time the Contract Time has expired, or the Monthly Asphalt Cement Price at the time the Contract was let, *whichever is less.*

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Revised: March 5, 2007

DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

Special Provision

Section 402—Hot Mix Recycled Asphaltic Concrete

Delete Subsection 402.4 and 402.5 and substitute the following:

402.4 Measurement and Payment

The work performed and the materials furnished as described in this Specification will not be measured separately.

Where "Contract Price" or "Contract Unit Price" are mentioned in this specification, the "Assumed Contract Unit Price" (see below) will be used.

Work and materials will be paid for under CONSTRUCTION COMPLETE. Includes providing materials, hauling and necessary crushing, processing, placing, rolling and finishing the recycled mixture, and providing labor, tools, equipment, and incidentals necessary to complete the work, including hauling and stockpiling RAP or RAS material.

Asphalt Cement Price Adjustment payment or deductions will be made under:

Item No. 402	Asphalt Cement Price Adjustment	$ (+/-)

402.5.01 Adjustments

A. Materials Produced and Placed During the Adjustment Period

An adjustment period is allowed at the start of mixing operations for each type of mix placed on the Contract. The adjustment period is provided to adjust or correct the mix and to establish the construction procedures and sequence of operations.

The adjustment period consists of the tons (megagrams) of the affected mix produced and placed on the first day of operation. If this quantity is less than 500 tons (500 Mg), the Engineer may combine the tons (megagrams) produced and placed on the first day of operation with the tons (megagrams) produced and placed on the next production day of the affected mix for the adjustment period.

The material produced and placed during the mixture adjustment period is one lot. If the mix is adjusted during this period, a new lot may be necessary, but a new adjustment period will not be permitted.

This material shall be paid for at 100 percent of the Contract Unit Price provided it meets the minimum requirements for a 1.00 pay factor for asphalt cement content and a 0.90 pay factor for gradation in the Mixture Acceptance Schedule—Table 9 or 10 of Subsection 400.3.06.

If the material placed during the adjustment period fails to meet the above requirements, it will be paid for using the applicable acceptance schedule. However, when mixture used for leveling at a spread rate of 90 lbs/yd^2 (50 kg/m^2) or less is also used for the surface mix at a spread rate greater than 90 lbs/yd^2 (50 kg/m^2), an additional adjustment period will be allowed for compaction only. This material will be paid for at a 1.00 pay factor provided it:

- Meets the minimum requirements for a 1.00 pay factor in the Mixture Acceptance Schedule—Table 9 or 10 of Subsection 400.3.06 for both asphalt content and gradation.
- Meets the minimum requirements for a 0.90 pay factor in Table 12 of Subsection 402.5.01.C, "Calculate Mean Pavement Air Voids.

Mixture which does not meet these requirements shall be paid for using the applicable acceptance schedule.

B. Determine Lot Acceptance

Pay factor adjustments are based on control sieves and asphalt cement content. The control sieves used in the mixture acceptance schedule for the various types of mix are indicated below:

Control Sieves Used in the Mixture Acceptance Schedule	
Asphaltic concrete 25 mm Superpave	1/2 in., No. 8 (12.5 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 19 mm Superpave	3/8 in., No. 8 (9.5 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 12.5 mm Superpave	3/8 in., No. 8 (9.5 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 9.5 mm Superpave	No. 4, No. 8 (4.75 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 4.75 mm Mix	No. 8 (2.36 mm) sieve and asphalt cement

The Department will perform the following tasks:

1. Using the Mixture Acceptance Schedule—Table 9 or 10, of Subsection 400.3.06 to determine the mean of the deviations from the job mix formula per test results per lot.
2. Determine this mean by averaging the actual numeric value of the individual deviations from the job mix formula; disregard whether the deviations are positive or negative amounts.
3. Use the Asphalt Cement Content and Aggregate Gradation of Asphalt Concrete Mixture Acceptance Schedule—Table 9 of Subsection 400.3.06 to determine acceptance of surface mixes and the Mixture Acceptance Schedule—Table 10 of Subsection 400.3.06 to determine acceptance of subsurface mixes.

On Contracts involving 1,000 tons (1000 Mg) or less of asphaltic concrete, the mixture is accepted for 100 percent payment of the asphaltic concrete Unit Price provided it meets the following:

1. Minimum requirements for a 1.00 pay factor for asphalt cement content and a 0.90 pay factor for gradation in the applicable Mixture Acceptance Schedule—Table 9 or 10 of Subsection 400.3.06.
2. Minimum requirements for a 0.90 pay factor in Table 12 of Subsection 402.5.01.C, "Calculate Pavement Mean Air Voids".

If the material placed on Contracts involving 1,000 tons (1000 Mg) or less of asphaltic concrete does not meet the above requirements, the material will be paid for using the applicable acceptance schedule.

C. Calculate Pavement Mean Air Voids

The Department will determine the percent of maximum air voids for each lot by dividing the pavement mean air voids by the maximum pavement mean air voids acceptable.

The Department will determine the payment for each lot by multiplying the Contract Unit Price by the adjusted pay factor shown in the following Air Voids Acceptance schedule:

Table 12 - Air Voids Acceptance Schedule

Pay Factor	Percent of Maximum Air Voids (Lot Average of Tests)	Percent of Maximum Air Voids (Lot Average all Tests) (for Reevaluations)
1.00	≤100	≤100
0.97	100.1 — 105	100.1 — 104
0.95	105.1 — 112	104.1— 109
0.90	112.1 — 124	109.1 — 118
0.80	124.1 — 149	118.1 — 136
0.70	149.1 —172	136.1 — 153
0.50	172.1 — 191	153.1 — 166

When the range tolerance is exceeded, the Department will apply a pay factor of 0.95 as described in Subsection 400.3.06.B.2.

D. Asphaltic Concrete For Temporary Detours

Hot mix asphaltic concrete placed on temporary detours that will not remain in place as part of the permanent pavement does not require hydrated lime. Hot mix used for this purpose is paid for at an adjusted Contract Price.

Where the Contract Price of the asphaltic concrete for permanent pavement is let by the ton (megagram), the Contract Price for the asphaltic concrete placed on temporary detours is adjusted by subtracting $0.75/ton ($0.85/mg) of mix used.

Where the Contract price of the mix in the permanent pavement is based on the square yard (meter), obtain the adjusted price for the same mix used on the temporary detour by subtracting $0.04/yd^2 ($0.05/ m^2) per 1-in (25-mm) plan depth.

Further price adjustments required in Subsection 400.3.06, "Quality Acceptance," are based on the appropriate adjusted Contract Price for mix used in the temporary detour work.

E. Determine Lot Payment

Determine the lot payment as follows:

1. When one of the pay factors for a specific acceptance lot is less than 1.0, determine the payment for the lot by multiplying the Contract Unit Price by the adjusted pay factor.
2. When two or more pay factors for a specific acceptance lot are less than 1.0, determine the adjusted payment by multiplying the Contract Unit Price by the lowest pay factor.

If the mean of the deviations from the job mix formula of the tests for a sieve or asphalt cement content exceeds the tolerances established in the Mixture Acceptance Schedule—Table 9 or 10 of Subsection 400.3.06 and if the Engineer determines that the material need not be removed and replaced, the lot may be accepted at an adjusted unit price as determined by the Engineer. If the pavement mean air voids exceed the tolerances established in the Air Voids Acceptance Schedule – Table 12 Subsection 402.5.01.C, remove and replace the materials at the Contractor's expense.

If the Engineer determines that the material is not acceptable to leave in place, remove and replace the materials at the Contractor's expense.

F. Asphalt Cement Price Adjustment

1. **Formula:** The Asphalt Cement Price Adjustment will be computed on a ***monthly*** basis in accordance with the following:

   PA = Price Adjustment.
   APM= the "Monthly Asphalt Cement Price" for the month the hot mix asphalt is placed.
   APL = the "Monthly Asphalt Cement Price" for the month which the project was let.
   TMT = Total Monthly Tonnage of asphalt cement computed by the Engineer based on the Hot Mix Asphaltic Concrete of the various types per ton (megagram) certified for payment.

   a. If the asphalt cement price for the month is *greater* than the asphalt cement price for the month in which the project was let:

      PA = [((APM-APL)/APL) - 0.05] x TMT x APL

   b. If the asphalt cement price for the month is *less* than the asphalt cement price for the month in which the project was let:

      PA = [((APM-APL)/APL) + 0.05] x TMT x APL

2. **Price Adjustment Triggers**: No price adjustment shall be made on any hot mix asphalt placed on projects with less than 366 calendar days from the Contract Letting Date to the specified Completion Date. If the Original Contract contains 366 calendar days or more the Price Adjustment Trigger shall be made for any hot mix asphalt placed from the Contract Letting Date to the specified Completion Date. A price adjustment shall not be made until the APM is greater than 5% above or below the APL.

3. **"Monthly Asphalt Cement Price":** The Department will determine and publish a "Monthly Asphalt Cement Price" based on the following formulas:

   Monthly Asphalt Cement Price = (50% x NBAP) + (50% x LBAP);

   Where;

   NBAP = "National Base Asphalt Price", (in dollars/ton) is calculated based on arithmetic average of the previous four weeks "Posted Prices Asphalt Cement" for the "East Coast Market – GA/FL" as listed in the "ASPHALT WEEKLY MONITOR®" published by "Poten and Partners" or at www.poten.com .

   LBAP = "Local Base Asphalt Price", (in dollars/ton) is based on the arithmetic average posted price of PG asphalt cement as specified in Section 820, from the Department's monthly survey obtained from approved asphalt cement suppliers of bituminous materials to the Department projects F.O.B. the suppliers terminal. However, the highest price and the lowest price are excluded from the calculation of average price, LBAP.

4. **"Asphalt Cement Quantity Calculation":** The calculation of asphalt cement quantity for each mix type will be based on the asphalt cement content (***AC %***) of the approved Job Mix Formula (JMF) as specified in Subsection 400.1.03.C. The following calculation formula will be used to determine asphalt cement quantity:

   Asphalt Cement Quantity = Hot Mix Asphaltic Concrete monthly total in tons (megagrams) per mix type certified for the payment x ***AC (%)***

   The Total Monthly Tonnage (TMT) of asphalt cement computed by the Engineer will be calculated as follows:

TMT = Sum of all asphalt cement quantities, including polymer modified asphalt binder and non-modified asphalt cement, based on the Hot Mix Asphaltic Concrete of the various mix types per ton (megagram) certified for payment.

Asphalt Cement Price for the Month (APM) will be adjusted monthly. Price adjustments (PA) will be made monthly and all calculations for Price Adjustments shall be performed by the Engineer as specified in SOP-39 "Determination of Asphalt Cement Index and Asphalt Cement Price Adjustment".

5. **"Other Restrictions":**

a. No asphalt cement price adjustment will be made for cut-back, tack-coat or emulsified asphalt.

b. No asphalt cement price adjustment will be made for asphalt cement contained in surface-treatment (Pay Item-424).

c. There is a cap of 125% above the APL for any price adjustment.

d. Unless specifically provided for by Supplemental Agreement or Contract Amendment, no further asphalt cement price adjustment will be made after ***the original Contract Time has expired.*** Irrespective of any other provision in the contract, for purposes of this specification, "Contract Time" does not include any time extensions or Supplemental Agreements which affect the completion of the Contract. The Asphalt Cement Price Adjustment for any hot mix asphalt placed after the original Contract Time expires will be computed based on the Monthly Asphalt Cement Price at the time the Contract Time has expired, or the Monthly Asphalt Cement Price at the time the Contract was let, *whichever is less.*

G. Assumed Contract Unit Price.

The following prices shall be used in adjustment calculations where a Contract Unit Price is referenced.

Material	Assumed Unit Price/Ton
Asphaltic Concrete Leveling	$75.00
OGFC	$86.00
Asphaltic Concrete 12.5 mm Superpave	$71.00
Asphaltic Concrete 19 mm Superpave	$80.00
Asphaltic Concrete 25 mm Superpave	$83.00

GEORGIA DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County
Special Provision

Section 413—Bituminous Tack Coat

413.1 General Description

This work includes furnishing and applying a bituminous tack coat on a prepared road surface including cleaning the road surface.

413.1.01 Definitions

General Provisions 101 through 150.

413.1.02 Related References

A. Standard Specifications

Section 109—Measurement and Payment

Section 400—Hot Mix Asphaltic Concrete Construction

Section 424—Bituminous Surface Treatment

Section 427—Emulsified Asphalt Slurry Seal

Section 820—Asphalt Cement

Section 824—Cationic Asphalt Emulsion

B. Referenced Documents

General Provisions 101 through 150.

413.1.03 Submittals

General Provisions 101 through 150.

413.2 Materials

Ensure that materials meet the following Specifications:

Material	Section
Asphalt cement, performance grade PG 58-22, PG 64-22, or PG 67-22	820.2.01
Cationic emulsified asphalt CRS-2h or CRS-3	824.2.01

Asphalt cement of performance grade PG 58-22, PG 64-22 or PG 67-22 is used for bituminous tack coat in work performed in Section 400. Use cationic emulsified asphalt as a special application material only if directed by the Engineer.

The Department may change the grade or type of bituminous materials without a change in the Contract Unit Price if the Engineer determines that the grade or type selected is not performing satisfactorily.

413.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

413.3 Construction Requirements

413.3.01 Personnel

General Provisions 101 through 150.

413.3.02 Equipment

Provide equipment in good repair, including the following units that meet the requirements of Subsection 424.3.02, Equipment."

- Power broom and blower
- Pressure distributor

413.3.03 Preparation

General Provisions 101 through 150.

413.3.04 Fabrication

General Provisions 101 through 150.

413.3.05 Construction

A. Seasonal and Weather Limitation

Do not apply tack coat if the existing surface is wet or frozen. Do not place emulsified asphalt if the air temperature in the shade is less than 40 °F (4 °C).

B. Application

Coat the entire areas to be paved with the tack coat unless directed otherwise by the Engineer. Apply tack coat with distributor spray bars instead of hand hoses, except in small areas that are inaccessible to spray bars.

C. Temperature of Material

Apply bituminous materials within the temperature ranges specified below.

Bituminous Materials	Temperature of Application °F (°C)
Asphalt cement	350 - 400 (175 - 205)
CRS-2h	140 - 180 (60 - 80)
CRS-3	140 - 180 (60 - 80)

D. Cleaning

Immediately before applying the tack coat, clean the entire area free of loose dirt, clay, and other foreign materials.

E. Application Rate

The Engineer will determine the application rate of the bituminous tack coat.

F. Limitations and Areas Coated

Apply only enough tack coat to the prepared road surface that can be covered with the new pavement course the same working day the tack coat is applied.

G. Maintenance and Protection

After applying the tack coat material, allow it to break until it is tacky enough to receive the surface course. Do not allow traffic on the tack.

413.3.06 Quality Acceptance

General Provisions 101 through 150.

413.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

413.4 Measurement

This item will not be measured separately.

Diluting emulsified tack coat is not ordinarily allowed except when used underneath slurry seal. If allowed, this item will not be measure separately.

413.4.01 Limits

General Provisions 101 through 150.

413.5 Payment

This item will be paid for under CONSTRUCTION COMPLETE.

Includes preparing, cleaning, furnishing, hauling, applying material, and providing incidentals to complete the work.

Asphalt Cement Price Adjustment payment or deductions will be made under:

413.5.01 Adjustments

A. Asphalt Cement Price Adjustment

1. **Formula:** The Asphalt Cement Price Adjustment will be computed on a ***monthly*** basis in accordance with the following:

   PA = Price Adjustment.
   APM= the "Monthly Asphalt Cement Price" for the month the bituminous tack coat is placed.
   APL = the "Monthly Asphalt Cement Price" for the month which the project was let.
   TMT = Total Monthly Tonnage of asphalt cement used for bituminous tack coat (asphalt cement tack coat only, emulsified bituminous materials for tack coat are excluded) converted from gallons to tons (megagrams) by the Engineer and certified for payment.

   a. If the asphalt cement price for the month is *greater* than the asphalt cement price for the month in which the project was let:

      PA = [((APM-APL)/APL) - 0.05] x TMT x APL

   b. If the asphalt cement price for the month is *less* than the asphalt cement price for the month in which the project was let:

      PA = [((APM-APL)/APL) + 0.05] x TMT x APL

2. **Price Adjustment Triggers**: No price adjustment shall be made on any bituminous tack coat placed on projects with less than 366 calendar days from the Contract Letting Date to the specified Completion Date. If the Original Contract contains 366 calendar days or more the Price Adjustment Trigger shall be made for any bituminous tack coat placed from the Contract Letting Date to the specified Completion Date. A price adjustment shall not be made until the APM is greater than 5% above or below the APL.

3. **"Monthly Asphalt Cement Price":** The Department will determine and publish a "Monthly Asphalt Cement Price" based on the following formulas:

   Monthly Asphalt Cement Price = (50% x NBAP) + (50% x LBAP);

   Where;

   NBAP = "National Base Asphalt Price", (in dollars/ton) is calculated based on arithmetic average of the previous four weeks "Posted Prices Asphalt Cement" for the "East Coast Market – GA/FL" as listed in the "ASPHALT WEEKLY MONITOR®" published by "Poten and Partners" or at www.poten.com .

   LBAP = "Local Base Asphalt Price", (in dollars/ton) is based on the arithmetic average posted price of PG asphalt cement as specified in Section 820, from the Department's monthly survey obtained from approved asphalt cement suppliers of bituminous materials to the Department projects F.O.B. the suppliers terminal. However, the highest price and the lowest price are excluded from the calculation of average price, LBAP.

4. **"Asphalt Cement Quantity Calculation":** The Total Monthly Tonnage (TMT) of asphalt cement computed by the Engineer will be calculated as follows:

   TMT = Sum of all asphalt cement quantities used as bituminous tack coat converted from gallons to tons (megagrams) certified by the Engineer. It is the responsibility of the Contractor to provide information containing adequate detail (as determined by the Engineer) as to placed tonnage.

   Asphalt Cement Price for the Month (APM) will be adjusted monthly. Price adjustments (PA) will be made monthly and all calculations for Price Adjustments shall be performed by the Engineer as specified in SOP-39 "Determination of Asphalt Cement Index and Asphalt Cement Price Adjustment".

5. **"Other Restrictions":**
   a. There is a cap of 125% above the APL for any price adjustment.

   b. Unless specifically provided for by Supplemental Agreement or Contract Amendment, no further asphalt cement price adjustment will be made after ***the original Contract Time has expired.*** Irrespective of any other provision in the contract, for purposes of this specification, "Contract Time" does not include any time extensions or Supplemental Agreements which affect the completion of the Contract. The Asphalt Cement Price Adjustment for asphalt cement used as bituminous tack coat placed after the original Contract Time expires will be computed based on the Monthly Asphalt Cement Price at the time the Contract Time has expired, or the Monthly Asphalt Cement Price at the time the Contract was let, *whichever is less.*

6. Assumed Contract Unit Price.

The following price shall be used in adjustment calculations where a Contract Unit Price is referenced.

Material	Assumed Unit Price/Ton
Bituminous Tack Coat	$2.00

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 430—Portland Cement Concrete Pavement

Delete Subsection 430.4 and substitute the following:

430.4 Measurement

No separate measurement will be included for this item.

430.4.01 Limits

General Provisions 101 through 150.

Delete Subsection 430.5 and substitute the following:

430.5 Payment

Payment will be made under CONSTRUCTION COMPLETE. Includes full compensation for furnishing and placing materials, reinforcements, dowel and joint materials, supplies, and incidentals to complete the work.

No additional payment will be made for pavement with an average thickness greater than on the Plans. No additional payment will be made for a lot of concrete that develops more strength at 28 days than the compressive strength established in Subsection 430.3.06.F, "Concrete Strength Acceptance."

If, based on the Department's profilograph tests, the Engineer determines that the Contractor profilograph test results are inaccurate, the Contractor will be charged for profilograph testing at $500 for each trace mile ($250 for each trace kilometer), with a minimum charge of $500.

First Use Date 2001 Specification: November 18, 2005
Revised February 28, 2007

Georgia Department of Transportation

State of Georgia

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 432—Mill Asphaltic Concrete Pavement

Delete Subsection 432.4 and Substitute the following:

432.4 Measurement

This item will not be measured separately. Terms and definitions described in Subsection 109.01 "Measurement and Quantities" will be used.

432.4.01 Limits

General Provisions 101 through 150.

Delete Subsection 432.5 and Substitute the following:

432.5 Payment

This item will be paid under CONSTRUCTION COMPLETE. Included is any credit value of all Reclaimed Asphalt Pavement (RAP) recovered, and no adjustment will be considered for variations in the amount of RAP actually recovered.

Includes furnishing equipment, milling, hauling, stockpiling milled material, and satisfactorily performing the work.

432.5.01 Adjustments

General Provisions 101 through 150.

First Use Date 2001 Specification: November 18, 2005
Revised February 28, 2007

GEORGIA DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 433—Reinforced Concrete Approach Slabs

Delete Subsection 433.3 and substitute the following:

433.3 Construction Requirements

433.3.01 Personnel

General Provisions 101 through 150.

433.3.02 Equipment

General Provisions 101 through 150.

433.3.03 Preparation

General Provisions 101 through 150.

433.3.04 Fabrication

General Provisions 101 through 150.

433.3.05 Construction

Construct the approach slab before placing the adjacent roadway paving, unless otherwise specified in the Plans.

A. Approach Slabs

Finish, cure, and protect the approach slabs as specified in Subsection 500.3.05.Q, "Place Concrete" and Subsection 500.3.05.Z.3, "Bridge Deck Curing."

B. Curbs

Construct curbs of the dimensions required monolithic with the approach slab, when specified on the Plans. Place, finish, and cure the curb as specified in Section 441.

C. Barriers

Construct and finish the barriers according to Section 500, Section 621 and Plan details. Use concrete that is Class A or better and proportioned and mixed according to Section 500.

D. Final Finish

When the concrete has hardened and standing water and moisture sheen have disappeared, give the concrete a final finish, manually or mechanically, according to requirements in Section 500 for bridge decks.

433.3.06 Quality Acceptance

The riding quality of approach slabs will be tested with the Lightweight Profiler as part of the bridge deck according to Subsection 500.3.06.E, "Ride Quality Test".

433.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

Delete Subsection 433.4 and substitute the following:

433.4 Measurement

This item will not be measured separately. No deductions for areas with end posts and expansion joints.

433.4.01 Limits

Curbs, barriers, and reinforcing steel are not measured for payment, but their cost is included in the price bid for the CONSTRUCTION COMPLETE.

Delete Subsection 433.5 and substitute the following:

433.5 Payment

This item will be paid for under CONSTUCTION COMPLETE.

433.5.01 Adjustments

General Provisions 101 through 150.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 436—Asphaltic Concrete Curb

Delete Subsection 436.4 and substitute the following:

436.4 Measurement

No separate measurement will be included for this item.

436.4.01 Limits

General Provisions 101 through 150.

Delete Subsection 436.5 and substitute the following:

436.5 Payment

Payment will be made under CONSTRUCTION COMPLETE. Includes full compensation for furnishing materials, including bituminous material, preparing the subgrade or pavement surfaces, cleaning, hauling, mixing, placing and replacing if required, and maintaining the curb to complete the Item.

436.5.01 Adjustments

General Provisions 101 through 150.

Date: February 6, 2006
February 28, 2007

GEORGIA DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 439—Portland Cement Concrete Pavement (Special)

Add the following to Subsection 439.1.02.A:

Section 511—Reinforcement Steel

Add the following to Subsection 439.1.02.B:

SOP 10

Add the following to Subsection 439.1.03:

D. Paving Plan

Submit a paving plan for approval before beginning construction operations. Include details of all operations in the concrete paving process, including transverse and longitudinal construction joint layout, sequencing, curing, lighting, early opening, leave-outs, sawing, construction methods and description of all equipment. Transmit the paving plan to the Engineer for approval, 30 days prior to concrete placement.

Delete Subsection 439.2.C and substitute the following:

C. Composition of Concrete

Design the concrete mix to confirm to the following requirements:

1. Coarse Aggregate

Use coarse aggregate size No. 467, 67 or 57 for plain Portland cement concrete pavement.

Use size No. 67 or 57 coarse aggregate for continuous reinforced concrete pavement.

Separate size No. 467 in individual stockpiles of size No. 4 and size No. 67. Blend according to approved mix design proportions.

2. Fine Aggregate

Use fine aggregate that meets the requirements for size No. 10.

When using two sizes or sources of fine aggregate to produce the proper gradation, blend according to the approved design proportions.

Add the following to Subsection 439.2:

D. Reinforcing Steel

Provide deformed steel for bar reinforcement in accordance with Section 853 of the Specifications or as shown on the plan details. Provide approved positioning and supporting devices (baskets and chairs) capable of securing and holding the reinforcing steel in proper position before and during paving. Store supporting devices in a manner to prevent corrosion and distortion.

1. Dowels

   Provide smooth, straight dowels of the size shown on the plan details, free of burrs and conforming to the requirements of Subsection 853.2.08.

   For expansion joint construction, provide dowel caps on the lubricated end of each dowel bar. Provide dowel caps filled with a soft compressible material with enough range of movement to allow complete closure of the expansion joint.

2. Tie Bars

   Provide straight deformed steel tie bars of the size shown on the plan details and conforming to the requirements of Subsection 853.2.09. Provide either multiple-piece tie bars or single-piece tie bars as shown on the plan details. Provide multiple-piece tie bars composed of 2 pieces of deformed reinforcing steel with a coupling capable of developing a minimum tensile strength of 125% of the design yield strength of the deformed steel when tensile-tested in the assembled configuration.

3. Support Chairs

   Provide bar supports capable of securing and holding the reinforcing steel in the proper position and conforming to the requirements of Subsection 511.2, "Materials". Except the use of mortar blocks are restricted to concrete lug anchor construction.

Add the following to Subsection 439.3.01:

B. Certified Concrete Plant Operator

If using onsite batch plant, have the Office of Materials and Research certify the concrete plant batcher and technician in accordance with SOP 10, "Quality Assurance of Concrete Plants in Georgia" before paving.

Delete Subsection 439.3.02 and substitute the following:

439.3.02 Equipment

A. Equipment Requirements

Provide equipment and tools to perform the work. Provide equipment that allows the paver to operate at a constant production rate and minimizes starting and stopping. The Engineer may limit the production rate or batch size if equipment does not keep pace with the other operations or causes poor workmanship.

B. Ramp Screeds and Hand Finishing Tools

Ramp screeds and hand finishing tools may be used instead of conventional mainline paving equipment.

C. Mixing Plant

If using onsite batch plant, have the Office of Materials and Research inspect and certify the mixing plant before paving. Approval and compliance of the plant will be in accordance with SOP 10, "Quality Assurance of Concrete Plants in Georgia" and Section 500 of the Specifications.

Scales used to weigh concrete materials and the devices to measure water will meet the requirements of Subsection 500.3.02.C.3.

D. Spreading Equipment

Provide self-propelled mechanical spreader(s) capable of placing the concrete on the base material over the full width and depth of the pavement. Equip the spreader with a hopper or other type of spreading equipment that will distribute the concrete over the base material without segregation.

E. Hauling Equipment

Provide sufficient number of trucks to ensure adequate and continuous supply of concrete to the paver. Equip trucks hauling concrete from the plant to the paver with covers to protect the material from inclement weather and to reduce evaporation loss.

F. Paving Equipment

Ensure that equipment operating on the pavement has rubber-tired wheels or flat steel wheels. Wait to operate concrete or shoulder paving equipment on the pavement until the concrete is 14 days old or has 2,500 psi (15 MPa) compressive strength.

Paving equipment may be either slip-form or fixed form.

G. Surface Finish Equipment

Provide a self-propelled machine to produce the surface finish of the mainline and transverse plastic concrete grooving. Ensure that the equipment uses rectangular-shaped steel tines of the same size and uniform length. Use tines with a width between 0.08 in. (2 mm) and 0.130 in. (3.5 mm). Space the tines 3/8 in. (10 mm) apart, not to exceed 1/2 in. (13 mm). Hand-operated tining equipment that produces an equivalent texture may be used only on small or irregularly shaped areas or, when permitted, in emergencies due to equipment breakdown.

H. Curing Equipment

Provide a self-propelled machine for applying membrane curing compound using mechanically pressurized spraying equipment with atomizing nozzles. Provide equipment and controls that maintain the required uniform rate of application over the entire paving area. Provide a machine capable of containing drift of curing compound to outlying areas. Hand-operated pressurized spraying equipment with atomizing nozzles may only be used on small or irregular areas or, when permitted, in emergencies due to equipment breakdown.

I. Protective Equipment

Provide materials to protect the concrete edges and surface against rain, including:

- Standard metal forms or wood planks to protect the pavement edges
- Covering materials such as burlap or cotton mats, curing paper, or plastic sheeting material to protect the pavement surface

J. Reinforcing Steel Inserting Equipment (Tie Bars)

Provide inserting equipment that accurately inserts and positions reinforcing steel in the plastic concrete parallel to the profile grade and horizontal alignment in accordance to plan details.

Delete Subsection 439.3.05.B.6 and substitute with the following:

6. Deposit concrete near the formed joints. Place or discharge concrete only in the center of joint assembly.

Add the following to Subsection 439.3.05.B:

8. Arrange the operation so that leave-outs in continuous reinforced concrete pavement are unnecessary. The Engineer may grant permission for leave-outs in case of emergency provided a plan is approved for increasing the reinforcement, if required, at no additional expense to the Department.

Delete Subsection 439.3.05.D and substitute the following:

D. Protection From Rain

Protect the unhardened concrete from rain. See Subsection 439.3.02.I, "Protective Equipment".

When rain is imminent, stop paving operations and place forms against the sides of the pavement. Cover the surface of the unhardened concrete with the protective covering. Remove and replace areas damaged from rain with no additional expense to the Department.

Delete Subsection 439.3.05.G.4 and substitute the following:

4. When removing and replacing a pavement section, remove an area to the nearest transverse joint and the full width of the lane. Saw the sections to be removed to a vertical face and replace the concrete using a construction joint with dowels.

Delete Subsection 439.3.05.H.3 and substitute the following:

3. Longitudinal Sawed Joints

   a. Cut longitudinal sawed joints with a mechanical saw within three days after the concrete is placed and before traffic or equipment enters the pavement.

   b. When concrete is placed against existing concrete, begin sawing when concrete has hardened enough to prevent surface raveling, usually 4 hours after placement, but no later than 24 hours. Concrete should be sawn to a depth of 2 in. (50 mm).

Add the following to Subsection 430.3.05.H:

8. Concrete Lug Anchors for Continuously Reinforced Concrete Pavement (CRC)

   Construct lug anchors in accordance with the plan details. Use concrete of the same Class as specified for the CRC pavement.

   a. Excavate the trenches for lug anchors after the base and when required by the plans, the asphalt interlayer is in place.

   b. Place the reinforcement steel in the trench according to plan details. Maintain clearances and support reinforcement steel using mortar blocks fabricated according to Subsection 511.2.1.g of the Specifications. Remove any earth material or other debris which may have dislodged and fallen into the trench before the reinforcement steel is placed.

   c. Construct lug anchors using one of the following two methods:

      1. Method 1: Construct lug anchors with pavement slab in one continuous placement of concrete to form a monolithic structure.

         a. Place the concrete in layers not to exceed 18 in. (450 mm) thick.

         b. Compact each layer with suitable vibrators according to Subsection 430.3.05.D, except place lug anchor concrete against earth, not forms.

         c. Remove all loose earth before concrete placement and do not allow earth to be placed into the concrete during placement and compaction.

      2. Method 2: Construct lug anchors in advance of the construction of the pavement slab.

         a. Construct lug anchors according to Subsection 430.3.05.K.8, except construct a shear key joint between the anchor and slab.

         b. Construct shear key joint according to plan details.

         c. During the time interval between completion of the lug anchor and placement of the concrete slab, keep the shear key joint and the protruding reinforcement steel clean and free of dirt or other materials which may weaken the bond between the lug anchors and the pavement slab.

Delete Subsection 439.3.06.I and substitute with the following:

I. Texture Depth Testing

Test the pavement surface to determine the texture depth by using GDT 72 at locations selected by the Engineer.

Transversely saw-groove areas with a surface texture depth less than 0.018 in. (0.5 mm) at no additional expense to the Department. Meet the depth requirement of 0.035 in. (0.9 mm) or greater.

Perform saw-grooving to meet the following dimensions:

Width	1/8 in. (3 mm)
Depth	3/16 in. (5 mm)
Spacing	1/2 in. (12 mm) center-to-center

Delete Subsection 439.4:

Add Subsection 439.4:

Portland cement concrete pavement (special) complete, in-place and accepted, will not be measured separately.

Reinforced concrete lug anchors below the bottom of the normal pavement will not be measured separately.

Delete Subsection 439.5:

Add Subsection 439.5:

Concrete pavement completed and accepted will be paid for under CONSTRUCTION COMPLETE.

Payment is full compensation for furnishing and placing materials, reinforcements, dowels, joint materials, supplies, and incidentals to complete the work including any reinforced concrete lug anchors (including furnishing and installing all materials, including reinforcement, for all excavation, for the satisfactory disposal of surplus material and for all incidentals necessary to complete the anchor).

Office of Materials and Research

First Use Date 2001 Specification: November 18, 2005
Revised February 28, 2007

GEORGIA DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 441—Miscellaneous Concrete

Delete Subsection 441.3 and Substitute the following:

441.3 Construction Requirements

441.3.01 Personnel

General Provisions 101 through 150.

441.3.02 Equipment

A. Forms

Forms are subject to the Engineer's approval. Use forms that are:

- Wood or metal that is readily available
- Straight and oiled before each use

Use metal divider plates and templates.

Use the slip form placement method when applicable. If the slip form method does not produce a product with the proper quality, shape, grade, or alignment, the Engineer may require using fixed forms.

B. Weep Holes

Provide weep hole drain pockets filled with coarse aggregate to use with weep hole drain pipe or formed openings according to the Plan details.

441.3.03 Preparation

Before placing the concrete, excavate for toe walls, edge walls, and weep hole drain pockets; place coarse aggregate in weep hole drain pockets; and grade, finish, and compact the subgrade surface. Use mechanical tamps for compaction if necessary.

441.3.04 Fabrication

General Provisions 101 through 150.

441.3.05 Construction

A. Extent and Thickness of Pavement

See the Plans to determine the areas to be paved and the dimensions.

Thicknesses are subject to a minus tolerance of 0.5 in (13 mm). Do not perform overlay pours.

B. Preparation of Subgrade

Finish the subgrade for miscellaneous concrete to the line and grade on the Plans and the following:

1. Compact the subgrade to the same degree as the roadway on which it is placed. Compact the subgrade according to Section 209.
2. If a Contract involves a Roadway and a Bridge Contractor, the Roadway Contractor shall complete the grading for the slope paving.

   The Bridge Contractor shall complete final grading, compacting, dressing, placing, and maintenance to the structures until completion.
3. When placing paving on the front slopes of ditches and shoulders, place any required special materials during the roadway construction.
4. Do not excavate for velocity dissipators, spillways, and slope drains below the foundation elevation. Do not excavate wider than necessary to provide working space or to remove soft, unsuitable material. Backfill with selected material.
5. When fitting spillways to concrete pavement, set the specified dowel bars into the pavement when it is laid. Use metal parting strips to hold the ends of dowels bent into the grooves.

C. Concrete

1. Mixing

   Mix Class B concrete as specified in Section 500 with the following exceptions:

   a. Use of small capacity job-site batchers and one-bag mixers is allowed. The rate of concrete placement in Subsection 500.3.05.P, "Meet the Minimum Placement Rates" is waived for miscellaneous concrete.

   b. Proportion concrete ingredients volumetrically if the Engineer has approved equipment calibration and operation and the operator is certified by the Office of Materials and Research.
2. Placing and Finishing

   Place and finish concrete as follows:

   a. Deposit concrete within forms or against other pavements on a compacted and wetted subgrade to the depth to produce the specified thickness.

NOTE: Do not place concrete on a muddy or frozen surface.

   b. Vibrate the headwalls.

   c. Strike off the concrete to a plane surface and finish it with a Type IV or Type V finish as defined in Subsection 500.3.05.AB, "Finish Concrete" and complete the following:

      1) **Concrete Slope Paving.** Give a final finish with a stiff-bristle broom. With the Engineer's approval, mechanically convey the concrete to the forms.

      2) **Concrete Sidewalks.** Give a Type V finish unless otherwise noted on the Plans. Test the surface with a 10 ft (3 m) straightedge laid parallel to the center line. Eliminate irregularities greater than 0.25 in (6 mm) per 10 ft (3 m) while the concrete is still plastic.

         Ensure that concrete sidewalk constructed as curb cut (wheelchair) ramps has a rough or textured finish.

      3) **Concrete Paved Ditches.** Ensure that the surface of the bottom and sides of paved ditches are uniform and true to grade and cross section.

         Ensure that straight-grade tangents do not deviate more than 1 in (25 mm) within 10 ft (3 m) when tested with a 10 ft (3 m) straightedge. Do not allow deviation if it reduces the ditch paving thickness, causes water to pond, or alters the direction of flow.

         Finish the ditch paving by floating with wood or metal floats to bring mortar to the surface to cover the coarse aggregate.

         Use reinforcing that conforms to Plan details if required.

      4) **Concrete Curbs, Gutters, and Median.** Finish according to Subsection 441.3.05.C.2, "Placing and Finishing." Remove face forms as soon as possible and finish the exposed surfaces with a wood float.

         Use a straightedge to test the edge of the gutter and top of the curb and median to conform to the requirements for the adjacent pavement. Irregularities shall not exceed 0.25 in (6 mm) in 10 ft (3 m).

Place the curb and gutter using a machine as long as the results are satisfactory.

5) **Curb Cut Wheel chair Ramps.** Construct a Type A, B, C, or D ramp according to the Special Details in the Plans. Tie ramps into adjacent paved or unpaved sidewalk and use a rough or textured finish.

3. Joints

Follow these procedures to construct joints on slopes, ditches, sidewalks, and curbs, gutters, and medians.

a. Slope Paving

Place paving on slopes in horizontal or vertical courses, but not a mixture of both.

1) Construct horizontal courses approximately level and at least 3 ft (1m) but no more than 6 ft (1.8 m) wide measured along the slope.

When needed, construct trapezoidal courses at the top and bottom to accommodate sloping berm and ditch line conditions.

2) Edge the paving at construction joints between courses with a 0.25 in (6 mm) radius tool.

3) Provide vertical contraction or construction joints spaced along the horizontal course at right angles to the horizontal construction joints at approximately 40 ft (12 m) intervals, in line not staggered.

No other vertical lines will be required in horizontal courses.

When using vertical contraction joints, cut them with a tool one-third the depth of the paving during the finishing operation. Edge the contraction joints the same as construction joints.

Vertical courses approximately equal and at least 3 ft (1 m) but no more than 5 ft (1.5 m) wide across the plane of the slope. The desired width is 4 ft (1.2 m). Horizontal lines are not required in vertical courses.

Separate slope paving from the masonry of structures, sidewalks, curbs, and rigid-type roadway pavements of preformed joint filler that are 0.5 in (13 mm) thick.

b. Concrete Paved Ditches

Form joints in concrete paved ditches as follows:

1) Space contraction joints at 30 ft (9 m) intervals.

2) Place expansion joints only where the paved ditch joins the roadway pavement or some other structure.

3) Do not use joint sealers for expansion or contraction joints.

c. Concrete Sidewalk

Form transverse contraction joints using a tool designed to form a groove one-third the depth of the sidewalk at intervals shown on the Plans.

Where sidewalks abut the curb and gutter, ensure that alternate joints coincide. Round the edges with a 0.25 in (6 mm) edger. Make expansion joints according to the materials, dimensions, and locations specified on the Plans.

d. Concrete Curbs, Gutters, and Medians

Form contraction joints or expansion joints on curbs, gutters, and medians.

1) **Contraction Joints.** Ensure that joints in curb, gutters, and medians are spaced the same as the joints in paving. Form joints by using metal divider plates or sawing them as in Section 430.

Form joints at least one-fifth but not greater than one-fourth the depth of the concrete. Except for sawed joints, finish the joints with a 0.25 in (6 mm) edging tool.

For curbs, gutters, and medians adjacent to pavement other than concrete, contraction joints shall be as follows:

- For header curb and combination curb and gutter, install contraction joints spaced no more than 20 ft (6 m) apart.
- For gutter median, install a contraction joints spaced no more than 20 ft (6 m) apart.

2) **Expansion Joints.** Form expansion joints according to the Plan details or as directed. Ensure that they coincide with the expansion joints in the adjoining pavement or gutter.

Cut the joint fillers to the same cross section as the construction. Trim flush the material that protrudes after the concrete is finished.

When miscellaneous concrete items are not adjacent to concrete construction, provide expansion joints at an interval of at least 500 ft (150 m).

e. Curb Cut Wheelchair Ramps

Locate and form expansion joints for curb cut wheelchair ramps according to the Special Details in the Plans for ramp Type A, B, C, or D.

4. Curing

Use curing methods specified in Subsection 430.3.05.L, "Cure the Concrete." Ensure that the membrane curing compound is Type 2, if used. Pack honeycombed areas immediately after removing the forms.

D. Backfilling

Backfill the areas as soon as possible without damaging the work.

E. Clean-Up

When concrete work is complete, clean each surface. Protect the work from stains or other damage until Final Acceptance.

441.3.06 Quality Acceptance

General Provisions 101 through 150.

441.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

441.4 Measurement

No separate measurement will be made for this item.

A. Concrete Slope Paving

Includes concrete in toe or edge walls, excavation, backfill, weep holes, and aggregates.

B. Concrete Sidewalks

Includes excavation and backfill.

C. Concrete Paved Ditches

Includes reinforcing steel, excavation, preparation of subgrade including Type I backfill, forms, and concrete in toe or edge walls and Type II backfill.

D. Concrete Curbs, Gutter, Median, Pavement, and Combination Curb and Gutter

Concrete doweled integral curb includes dowels.

E. Concrete Headwalls

Includes headwalls and filler concrete.

F. Concrete Spillways

G. Concrete Slope Drains

H. Velocity Dissipators

I. Concrete Driveways

J. Curb Cut Wheelchair Ramps

Includes ramps and transitioned curb in front of ramps. No additional payment will be made for sawing existing sidewalk and removal and disposal of removed material for new ramp construction.

441.4.01 Limits

General Provisions 101 through 150.

441.5 Payment

This item will be paid under CONSTRUCTION COMPLETE.

441.5.01 Adjustments

General Provisions 101 through 150.

Date: September 1, 2005
February 28, 2007

GEORGIA DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 442—Roller Compacted Concrete Pavement

442.1 General Description

This work includes constructing pavement composed of Roller Compacted Concrete (RCC) on a prepared subgrade or subbase course. Follow the requirements of these Specifications and conform to the lines, grades, thickness, and cross sections shown on the Plans or as directed by the Engineer.

442.1.01 Definitions

General Provisions 101 through 150.

442.1.02 Related References

A. Standard Specifications

Section 106—Control of Materials

Section 430—Portland Cement Concrete Pavement

Section 500—Concrete Structures

B. Referenced Documents

ASTM C 1435

AASHTO T 22

AASHTO T 180, Method D

QPL 10

GDT 59

442.1.03 Submittals

Submit the following to the Engineer at least 35 days before start of any production of RCC:

A. Concrete Mix Design

Submit a mix design prepared by a qualified testing laboratory. The Engineer will transmit the design to the Office of Materials and Research for approval.

Include details on aggregate gradation, cementitious materials, admixtures (if used), compressive strengths, required moisture and density to be achieved and quantities of individual materials per cubic yard for the mix design.

B. Paving Plan

Submit paving procedures describing direction of paving operations, paving widths, planned longitudinal and transverse cold joints, curing methods and patterns and description of all equipment.

442.2 Materials

Ensure that materials meet the requirements of the following Specifications:

Material	Section
Coarse Aggregate, Class A or B Crushed Stone or Gravel	800
Fine Aggregate, Size No. 10	801.2.02
Portland Cement, Type 1	830.2.01
Portland Pozzolan cement	830.2.03
Chemical Admixtures	831.2.02
Fly Ash and Slag	831.2.03
Curing Agents	832
Joint Fillers and Sealers	833
Low Modulus Silicone Sealant for Roadway Construction Joints	833.2.06
Water	880.2.01

A. **Fly Ash**

Ensure the use of fly ash conforms to Subsection 430.2.A.1, 2 and 4, "Fly Ash" and that the fly ash mix conforms to Subsection 442.3.06, "Quality Acceptance".

B. Granulated Iron Blast-Furnace Slag

Ensure the use of slag conforms to Subsection 430.2.B.1, 2 and 4, "Granulated Blast-Furnace Slag" and that the slag mix conforms to Subsection 442.3.06, "Quality Acceptance".

C. Composition of RCC

1. Aggregates

Use aggregates manufactured to meet the gradation at the quarry or blended at the plant site to produce the desired results. Use aggregates that are well graded without gradation gaps and conform to the following gradation:

Sieve Size	Percent Passing By Weight
1 in (25 mm)	100
3/4 in (19 mm)	90 – 100
1/2 in (12.5 mm)	70 – 100
3/8 in (9.5 mm)	60 – 85
No. 4 (4.75 mm)	40 – 60
No. 16 (1.18 mm)	20 – 40
No. 100 (150 µm)	6 – 18
No. 200 (75 µm)	2 – 8

Produce evidence that the proportions have the potential for strength development at 28 days as required in Subsection 442.3.06.B, "Approval of Mix Design Proportions".

442.3 Construction Requirements

442.3.01 Personnel

General Provisions 101 through 150.

442.3.02 Equipment

Provide equipment and tools to construct RCC that will produce a completed pavement meeting the requirements for mixing, transporting, placing, compacting, finishing, and curing as provided in this specification. All equipment will be on hand and approved by the Engineer before work can proceed.

A. Mixing Plant

Produce an RCC pavement mixture in the proportions defined by the approved mix design and within the specified tolerances.

Capacity of the plant will be sufficient to produce a uniform mixture at a rate compatible with the placement equipment.

1. Pugmill Plant

   a. Pugmill plant shall be a central plant with a twin shaft pugmill mixer, capable of batch or continuous mixing.

   b. Equip plant with synchronized metering devices and feeders to maintain the correct proportions of aggregates, cement, fly ash and water.

   c. The pugmill plant will also meet the following:

      1) Aggregate Storage

         a. If previously blended aggregate is furnished, storage may be in a stockpile from which it is fed directly to a conveyor feeding mixer.

         b. If aggregate is furnished in two size groups, aggregate separation must be provided at the stockpile.

      2) Aggregate Bins

         a. Control feed rate by a variable speed belt or operate gate calibrated to accurately deliver any specified quantity of material.

         b. If two aggregate size stockpile sources are used, the feed rate from each bin shall be readily adjustable to change aggregate proportions, when required.

         c. Feed rate controls must maintain the established proportions of aggregate from each stockpile bin when the combined aggregate delivery is increased or decreased.

      3) Plant Scales

         a. If utilized, for any weigh box or hopper will be either of beam or springless dial type, and be sensitive to 0.5 percent of the maximum load required.

         b. Provide beam-type scales that have a separate beam for each aggregate size, with a single telltale actuated for each beam, and a tare beam for balancing hopper.

         c. Belt scales will be of an approved design.

         d. Provide standard weights accurate to plus or minus 0.1 percent for checking plant scales.

      4) Cement, Fly Ash or Slag Material Storage

         a. Provide separate and independent storage silos for Portland cement, fly ash or slag.

         b. Identify clearly each silo to avoid confusion during silo loading.

      5) Cement, Fly Ash or Slag Feed Unit

         To assure a uniform and accurate quantity of cementitious materials enters the mixer, provide satisfactory means of dispensing Portland cement, fly ash or slag, volumetrically or by weight.

      6) Water Control Unit

a. Measure by weight or volume the required amount of water for the approved mix.

b. Equip the unit with an accurate metering device.

c. Keep RCC mixture at optimum moisture by having the rate of water added adjustable.

7) Gob Hopper

For continuous operating pugmills, attach a gob hopper to the end of the final discharge belt to temporarily hold the RCC discharge to allow the plant to operate continuously.

2. Central Mix Batch Plant

Central mix batch plant may be used in RCC work meeting the requirements of Subsection 500.3.04.E of the Specifications.

3. Dry Batch Plant

a. A dry batch plant meeting the requirements of Subsection 500.3.04.E of the Specifications may be used on projects with less than 5000 cubic yards of RCC.

b. RCC may be mixed at a central point or wholly or in part in truck mixers as provided in Subsection 500.3.04.E of the Specifications.

B. Paver

Place RCC with an asphalt paver meeting the following requirements:

1. Equip the paver with compacting devices capable of producing a RCC pavement with a minimum of 90% of the maximum density in accordance with AASHTO T 180, Method D.

2. Spread and finish the RCC material without segregation, to the required thickness, smoothness, surface texture, cross-section and grade using a paver of suitable weight and stability.

C. Compactors

1. For primary compaction, use self-propelled smooth steel drum vibratory rollers having minimum weight of 10 tons (9.07 Mg).

2. For finish rolling as required for final compaction or for removing roller marks, use a steel drum roller, operating in static mode, a rubber tired roller or combination roller.

3. For compacting areas inaccessible to large rollers, use walk-behind vibratory rollers or plate tampers.

D. Haul Trucks

1. Provide sufficient number of trucks to ensure adequate and continuous supply of RCC material to paver.

2. Equip trucks hauling RCC material from the plant to the paver with covers to protect the material from inclement weather and to reduce evaporation losses.

E. Water Trucks

1. Throughout the paving and curing process, have at least one water truck or other similar equipment on-site and available.

2. Equip the water truck with a spreader pipe containing fog nozzles capable of evenly applying a fine mist of water to the surface of the RCC without damaging the final surface.

442.3.03 Preparation

Prepare the subgrade/subbase as required by the Plans and Specifications before placing the RCC.

Ensure that the foundation immediately under the RCC pavement and the areas supporting the paving equipment will not contribute to deficient pavement thickness or excessive yield losses.

442.3.04 Fabrication

General Provisions 101 through 150.

442.3.05 Construction

A. Mixing RCC

Use the same mix design and materials for the entire project. If the source of cement, fly ash, slag, or aggregates is changed, suspend construction and submit a new mix design to the Engineer for approval.

1. Mixing Time
   a. Assure complete and uniform mixing of all ingredients.
   b. The volume of RCC material in the mixing chamber should not exceed the manufacturer's rated capacity for dry concrete mixtures.
   c. Keep sides of the mixer and mixer blade surfaces free of hardened RCC and other materials.
   d. Check mixer blades routinely for wear and replace if wear is sufficient to cause inadequate mixing.
2. Mixing Ingredient Tolerances

   Ensure that mixing plant receive the quantities of individual ingredients to within the following tolerances:

Material	Variation by Weight
Cementitious Materials	± 2.0%
Water	± 3.0%
Aggregates	± 4.0%

3. Plant Calibration
   a. Prior to RCC production, provide a complete and comprehensive calibration of the plant in accordance to the manufacturer's recommendation.
   b. Concrete batch plants currently listed on QPL 10, the calibration requirement is waived.

Supply daily plant records of production and quantities of materials used that day to the Engineer. These records may be used as a check on plant calibration.

B. Transporting RCC

Transport RCC pavement material from the plant to the paver as follows:

1. Use dump trucks fitted with retractable protective covers for protection from inclement weather or excessive evaporation.
2. Dump the trucks clean with no buildup or hanging of RCC material in the corners.
3. Deposit the RCC material directly into the hopper of the paver or secondary distribution system which deposits the material into the paver hopper.

C. Placing RCC

1. Subgrade/Subbase Condition
   a. Keep subgrade/subbase surface clean and free of foreign material, ponded water and frost prior to RCC placement.
   b. Uniformly moisten subgrade/subbase at the time of RCC placement.
   c. If the subbase becomes dry, uniformly water, but the method of watering used will not form mud or pools of freestanding water.
2. Paver Requirements

a. Adjust the paver and regulate the speed to prevent segregation and provide a surface course that is smooth and continuous without tears and pulling. Limit the spread of the RCC to a length that can be compacted and finished within the appropriate time limit under the prevailing air temperature, wind, and climatic conditions.

b. Proceed in a steady, continuous operation with minimal starts and stops.

c. Regulate speed to assure a constant supply of RCC material in the hopper.

d. Maintain RCC material above the auger shaft at all times during paving.

3. Lift Thickness

   Construct pavements greater than 10 in (250 mm) in two lifts of equal thickness.

4. Adjacent Lane Placement

   a. Place adjacent paving lanes within 60 minutes.

   b. If more than 60 minutes has elapsed between placements of adjacent lanes, the vertical joint will be considered a cold joint. Prepare the cold joint in accordance with Subsection 442.3.05.E.2, "Cold Vertical Joints".

   c. At the discretion of the Engineer, this time may be increased or decreased depending on the use of set retarding admixtures or the ambient weather conditions of temperature, wind, and humidity.

5. Multiple Lift Placement

   a. The thickness of each lift will meet the requirements of Subsection 442.3.05.C.3, "Lift Thickness".

   b. Place second lift within 60 minutes of the completion of the first lift.

   c. If more than 60 minutes has elapsed, the interface between the first and second lift will be considered a cold joint. Prepare cold joint in accordance with Subsection 442.3.05.E.4, "Horizontal Cold Lift Joints".

   d. At the discretion of the Engineer, this time may be increased or decreased depending on the use of set retarding admixtures or the ambient weather conditions of temperature, wind, and humidity.

   e. To reduce the opportunity for cold joints to develop, the use of multiple pavers in tandem formation is advantageous.

6. Hand Spreading

   a. Limit hand spreading, broadcasting, or fanning to immediately behind the paver and before compaction.

   b. Remove any segregated coarse aggregate from the surface before compaction.

7. Segregation

   a. If segregation occurs in the RCC during paving operations, cease the spreading until the cause is determined and corrected to the satisfaction of the Engineer.

   b. If the Engineer determines the segregation to be severe, remove and replace the segregated area at no additional cost.

Place RCC in a pattern so that the curing water from the previous placements will not pose a runoff problem on the fresh RCC surface or on the subbase layer.

D. Compacting

1. Immediately begin compaction behind the placement of RCC material and complete within 60 minutes of the start of mixing at the plant.

2. This time may be increased or decreased depending on the use of set retarding admixtures or ambient weather conditions of temperature, wind and humidity.

3. Plan operations and supply sufficient rollers to ensure these criteria are met.

4. Determine the sequence and number of passes by vibratory and non-vibratory rolling to obtain the specified density and surface finish.

5. Operation of rollers in the vibratory mode while stopped or reversing direction is not allowed.

6. Using rubber tire rollers for final compaction to knead and seal the surface is permissible.

7. Rolling Longitudinal and Transverse Joints:

   a. Do not operate roller within 12 in. (300 mm) of the edge of a freshly placed lane until the adjacent lane is placed.

   b. Within the allowable time roll together both edges of the two lanes.

   c. When a cold joint is planned, roll the complete lane and follow cold joint procedures as specified in Subsection 442.3.05.E.2, "Cold Vertical Joints".

   d. Provide additional rolling for longitudinal joints with a vibratory roller as necessary to produce the specified density for the full depth of the lift and provide a tight smooth transition across the joint.

   e. Smooth out any uneven marks left during the vibratory rolling utilizing a non-vibratory or rubber tire roller.

   f. Roll until a smooth, flat surface, free of tearing and cracking is obtained.

   g. Avoid displacement of RCC pavement by operating the speed of the rollers slow enough at all times.

   h. Correct any displacement of RCC pavement resulting from reverse direction of the roller or from any other causes.

8. Density Requirements:

   a. Perform in-place field density tests in accordance with GDT-59, direct transmission, as soon as possible, but no later than 30 minutes after completion of rolling. Only wet density will be used for evaluation.

   b. In-place field density will be not less than 98% of the average maximum laboratory density obtained according to AASHTO T 180, Method D, based on a moving average of five consecutive tests, with no test below 95%.

   c. RCC properly placed and compacted, but not meeting these requirements will be cored and tested at no additional cost.

   d. If tested area achieves the 28 day design strength as outlined in Subsection 442.3.06.D, "Concrete Strength Acceptance", it will be paid for at full price.

   e. Areas that fail the strength test will be removed and replaced at no additional cost.

E. Joints

1. Fresh Vertical Joints:

   a. A vertical joint is considered a fresh joint when an adjacent RCC lane is placed within 60 minutes of placing the previous lane, with time adjusted depending on use of retarders or ambient conditions. Fresh joints will not require the treatment specified for cold joints.

   b. Construct joints to assure continuous bond between new and previously placed lanes.

2. Cold Vertical Joints:

Note: Vertical joints that are constructed utilizing a drop extension or edging shoe are exempt from the following requirement when placed up to 15 degrees from vertical.

   a. Cold joints are any planned or unplanned construction joint in the RCC pavement that does not qualify as fresh joints.

      Treat longitudinal and transverse cold joints as followed:

      1) Cut the joint vertically full depth. Cut vertically at least 6 in. (150 mm) from the exposed edge.

      2) The edge of cold joints cut within 2 hours of placing the RCC pavement may be cut with an approved wheel cutter, or motor grader or other approved method provided that no edge raveling occurs.

      3) Edges of cold joints cut after 2 hours of placing the RCC pavement, cut to 1/4 to 1/3 of the depth of the RCC pavement and excess material removed.

      4) If the excess material cannot be removed without causing tearing and raveling, cut full depth.

b. Clean the joint of any loose or foreign material prior to placing fresh RCC material against a compacted cold vertical joint.

c. Before placement of fresh RCC, wet the compacted cold joint to prevent excess loss of moisture.

3. Fresh Horizontal Joints

a. For multi-layer construction, a horizontal joint is considered a fresh joint when an subsequent RCC lift is placed within 60 minutes of placing the previous lift, with time adjusted depending on use of retarders or ambient weather conditions.

b. Clean the surface of all loose material and moisten the surface prior to placement of the subsequent lift.

4. Horizontal Cold Lift Joints

a. For horizontal cold joints, clean all loose material and moisten the surface prior to placement of the subsequent lift.

b. The Engineer or Plans may require use of a cement slurry or grout between lifts. If required, apply supplementary bonding materials immediately prior to placement of the subsequent lift.

5. Control Joints:

Joint locations shall be shown on the Plans or as directed by the Engineer.

a. Early entry saws should be utilized as soon as possible behind the rolling operation and set to the manufacturer's recommendation.

b. Saw cut control joints to 1/4 depth of the compacted RCC pavement.

c. Saw as soon as possible without causing raveling or other damage to the pavement, but no later than 18 hours after placement.

6. Joints at Structures

Treat joints between RCC pavement and concrete structures as cold vertical joints.

F. Finishing

1. The finished surface of the RCC pavement, when tested with a 10 foot (3 m) straight edge or crown surface template, will not vary by more than 1/4 inch (6 mm) at any one point.

2. When the surface smoothness is outside of the specified tolerance, grind the surface to within the tolerance by use of self-propelled diamond grinders at no additional cost.

3. Milling to obtain a final riding surface is not acceptable.

G. Curing

Immediately after final rolling and compaction testing, keep the surface of the RCC pavement continuously moist for 7 days or until an approved curing method is applied.

1. Water Cure:

a. Apply water cure using water truck equipped with misting spray nozzles, soaking hoses, sprinkler system or other means that will assure a uniform moist condition to the RCC.

b. Apply moisture in a manner that will not wash out or damage the surface of the finished RCC pavement.

2. Curing Compound:

a. Apply curing compound as specified in Subsection 430.3.05.L.1 of the Specifications.

b. Ensure the application provides a uniform void-free membrane across the entire RCC pavement surface.

3. White Polyethylene Sheeting

Use sheet material as specified in Subsection 430.05.L.2 of the Specifications

H. Sealing Joints

If required by the Plans or directed by the Engineer, seal joints in accordance to Subsection 430.3.05.M, "Seal the Joints" of the Specifications.

I. Permitting Traffic on Pavement

Before using the pavement as a haul road for loaded or unloaded vehicles:

1. Protect the RCC from vehicular traffic during the curing period.
2. Ensure that compressive strength tests show the RCC has developed at least 2000 psi (14 MPa) and is at least 4 days old.
3. If required by the Plans or directed by the Engineer, seal the joints before permitting vehicles or equipment on the pavement.

442.3.06 Quality Acceptance

A. Concrete Mixing

Ensure mixing of RCC conforms to the requirements of Subsection 442.3.05.A, "Mixing RCC".

B. Approval of Mix Design Proportions

The Office of Materials and Research will review concrete mix designs and will verify compressive strength development.

The Department will approve material combinations and mix designs using approved materials and complying with Subsection 442.2, "Materials" and the following:

1. Compressive Strength

   Prepare and test 6 cylinders according to ASTM C 1435 and AASHTO T 22 to determine the 28 day compressive strength for RCC.

   The mix design will demonstrate a compressive strength of 4000 psi (28 MPa) at 28 days.

C. Thickness

The Engineer will designate pavement areas to be examined for depth measurement compliance with the Plan and Specifications.

The Engineer will evaluate areas deficient by more than 1/2 in (13 mm) thick. If the Engineer requires removal, remove and replace the pavement in full cross sections according to Plan requirements. The Engineer may require a reduction in payment if removal and replacement is not required.

D. Concrete Strength Acceptance

RCC pavement not meeting density requirements outlined in Subsection 442.3.05.D.8, "Density Requirements" will be accepted based on compressive strength development at 28 days. The compressive strength value shall be at least 3,500 psi (25 MPa).

442.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

442.4 Measurement

No separate measurement will be made for this item.

442.4.01

General Provisions 101 through 150.

442.5 Payment

The work will be paid for under CONSTRUCTION COMPLETE. Includes providing materials, equipment, and labor, mixing, transporting, handling, placing, compaction and providing incidentals to complete the work.

442.5.01 Adjustments

The most current Mean Item Summary Unit Price per square yard of RCC pavement will be used as the assumed value to adjust for RCC pavement accepted with a 28 day compressive strength or thickness deficiency.

Office of Materials and Research

GEORGIA DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 446—Placement of Pavement Reinforcement Fabric

Delete Section 446 and substitute the following:

446.1 General Description

This work includes installing Type II pavement reinforcement fabric and high strength pavement reinforcement fabric over cracks, joints, and patches in existing pavement. Install the fabric in strips or full width before placing an overlay where shown on the Plans or as directed by the Engineer. Install high strength pavement reinforcement fabric on interstate projects.

446.1.01 Definitions

General Provisions 101 through 150.

446.1.02 Related References

A. Standard Specifications

Section 150—Traffic Control

Section 400—Hot Mix Asphaltic Concrete Construction

Section 413—Bituminous Tack Coat

Section 881—Fabrics

B. Referenced Documents

General Provisions 101 through 150.

446.1.03 Submittals

General Provisions 101 through 150.

446.2 Materials

Use the reinforcement fabric that meets the requirements of Subsection 881.2.06.

Bituminous binder materials, when required, shall meet the requirements of Section 413, "Bituminous Tack Coat".

446.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

446.3 Construction Requirements

446.3.01 Personnel

General Provisions 101 through 150.

446.3.02 Equipment

A. Template

When using fabric strips, use a template or other method satisfactory to the Engineer to apply the bituminous tack coat uniformly.

B. Mechanical Device

Use a mechanical device approved by the Engineer when placing the fabric full width on the pavement to ensure the fabric is placed smooth, free of wrinkles, and with no uplifted edges.

C. Roller

Place the fabric in total contact with the underlying pavement. Roll the fabric with a static drum or pneumatic roller to ensure adequate adhesion to the pavement surface.

446.3.03 Preparation

Before an existing pavement surface is milled, mark the location of joints and cracks with an offset reference so that they can be located after milling has been completed.

A. Cleaning the Pavement

Immediately before applying the bituminous tack coat, clean the pavement surface to remove rocks, dirt, debris, and other materials that may prevent a clean bonding surface.

B. Repairing Potholes, Spalls, or Cracks

Before placing the fabric, repair potholes, spalls, or cracks greater than 3/16 in (5 mm) wide. Repair spalls and potholes using asphaltic concrete that meets the requirements of Section 400 or other materials such as cold mixes approved by the Engineer.

Fill cracks with PG 64-22 asphalt cement or other materials approved by the Engineer.

446.3.04 Fabrication

General Provisions 101 through 150.

446.3.05 Construction

Do not install reinforcement fabric when ambient temperatures are less than 45 °F (7 °C).

Use a bituminous tack coat when temperatures are between 45°F (7 °C) and 70°F (21°C) for all reinforcement fabric types.

When ambient temperatures are a minimum of 70 °F (21 °C) and rising, reinforcement fabric with a self-adhesive backing may be installed at the Contractor's option without applying a bituminous tack coat except when the fabric is placed on a milled surface.

Use a bituminous tack coat when fabric is placed on a milled surface regardless of the temperature.

A. Applying Bituminous Binder

Use a bituminous tack coat to bond self-adhesive fabric to the pavement and apply the bituminous tack coat at a rate of 0.10 gal/yd² (0.45 L/m²) over non-milled surfaces and 0.20 gal/yd² (0.90 L/m²) over milled surfaces. Heat the bituminous tack coat and apply within a temperature range of 350 °F to 375 °F (175 °C to 190 °C).

Use bituminous tack coat to bond non-self-adhesive fabric to the pavement and apply at a rate of 0.10 gal/yd² (0.45 L/m²) over non-milled surfaces and 0.25 gal/yd² (1.13 L/m²) over milled surfaces. Heat the bituminous tack coat and apply within a temperature range of 350 °F to 375 °F (175 °C to 190 °C).

Where using fabric strips, use a template or other method satisfactory to the Engineer to apply bituminous tack coat uniformly.

Do not allow the width of the bituminous tack coat applied to exceed the width of the fabric by more than 1 in (25 mm) on each side.

B. Placing the Fabric

For self-adhesive reinforcement fabric, remove the release liner of the fabric and place the adhesive side to the pavement. Place self-adhesive reinforcement fabric no more than 24 hours in advance of the paving operation to ensure proper adhesion of the fabric to the pavement.

Place non-self-adhesive reinforcement fabric at least 1 hour but no more than 24 hours in advance of the paving operation to ensure proper adhesion of the fabric to the pavement. Place fabric on the pavement immediately after the bituminous tack coat has been applied to the pavement. Place the non-woven polyester side of the fabric on the pavement.

Install the fabric so that it is smooth, free of wrinkles with no uplifted edges. Provide a minimum of 5 in (125 mm) overlap on all sides of the repair area. Center the material over the repair area within a 2 in (50 mm) tolerance. When placed full width, use a mechanical device approved by the engineer to place the fabric on the pavement.

Immediately after the fabric is placed on the pavement, ensure that the fabric is in total contact with the underlying pavement. Roll the material with a static drum or pneumatic roller to ensure adequate adhesion to the pavement surface.

Any fabric with loose edges, corners or other improperly bonded areas shall be replaced at the expense of the Contractor prior to placement of the overlay or opening the fabric section to traffic.

C. Overlapping Fabric.

If more than one strip of fabric is required to cover the repair area, the seams that are created shall be butt or lapped seams. When waterproofing is required, use lap seams with a minimum 2 in (50 mm) overlap. Make all lapped seams in the direction of the paving operation to prevent pickup by the paving train. The width of the fabric strips shall be shown on the plans.

Make joint overlaps to prevent pickup by the paving train that places the asphaltic concrete.

D. Protecting Fabric

When full width fabric is used, schedule work so that the fabric will be covered with asphaltic concrete prior to reopening the section to traffic. Do not allow traffic, other than necessary construction equipment or emergency vehicles, on unprotected fabric. If approved by the Engineer, traffic will be allowed to use a section with applied fabric strips for a maximum of 7 days. Coordinate all activities to conform to this restriction. Replace any damaged fabric prior to paving at the Contractor's expense. When short-term pavement markings are required, the markings shall meet the requirements of Section 150.

When in-place fabric is exposed to moisture prior to application of the overlay, make sure the fabric is completely dry before the overlay is placed.

If the fabric sticks to tires of trucks or paving equipment during the construction overlays, hot mix asphalt may be broadcast over the fabric for protection.

E. Placing Overlay

Use an asphaltic concrete overlay that meets the requirements of Section 400.

Prior to placement of the overlay, apply a bituminous tack coat over the fabric at a rate determined by the Engineer as described in Subsection 400.3.03.A.3.

The minimum thickness of asphaltic concrete over the strip shall be 2 in (50 mm). Milling may be required to provide the minimum thickness.

When using a vibratory roller for compaction, avoid the use of excessive amplitude. The use of excessive amplitude during the compaction process may result in an undesirable riding surface.

446.3.06 Quality Acceptance

General Provisions 101 through 150.

446.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

446.4 Measurement

This item shall not be measured separately. No allowance will be made for laps.

446.4.01 Limits

General Provisions 101 through 150.

446.5 Payment

Payment will be made under CONSTRUCTION COMPLETE

Includes cleaning the surface and furnishing and placing the pavement reinforcement fabric, all milling required to place the fabric and required traffic control.

446.5.01 Adjustments

General Provisions 101 through 150.

November 15, 2006
Revised February 28, 2007

Georgia Department of Transportation

State of Georgia

Special Provision
Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 500—Concrete Structures

Delete Subsection 500.1 and substitute the following:

This work consists of manufacturing and using High Performance Portland cement concrete to construct precast-prestressed concrete bridge members as shown in the plans and using normal weight Portland cement concrete to construct structures as shown in the Plans.

Add the following to Subsection 500.1.02.A:

Section 831—Admixtures

Add the following to Subsection 500.1.02.B:

AASHTO T 277

Add the following to Subsection 500.1.03.A:

High Performance Concrete Mix Designs

The Fabricator is responsible for all concrete mix designs. Ensure that concrete mixes contain enough cement to produce workability within the water-cement ratio specified in Table 1A—High Performance Concrete Mix Table, below.

Submit a mix design for approval to the Office of Materials and Research. Include the sources and actual quantity of each ingredient and laboratory results that demonstrate the ability of the design to attain both the required compressive strength and chloride permeability at 56 days.

Include laboratory compressive strength test results of at least eight test cylinders prepared and cured according to AASHTO T 126. Ensure these test cylinders are made from two or more separate batches with an equal number of cylinders made from each batch.

Also include laboratory chloride permeability test results of at least two test specimens prepared and tested according to AASHTO T 277. Ensure these test specimens are made from two or more separate batches with an equal number of specimens made from each batch.

Table 1A—High Performance Concrete Mix Table

English									
Class of Concrete	Coarse Aggregate Size No.	(1) Minimum Cement Factor (lbs/yd^3)	Maximum Water/ Cement ratio (lbs/lbs)	(2) Slump Acceptance Limits (in) Lower-Upper		Entrained Air Acceptance Limits (%) Lower-Upper		(3) Minimum Compressive Strength at 56 days (psi)	Maximum Chloride Permeability at 56 days (Coulombs)
"AAA HPC"	67	650	.330	2	7	3.5	6.5	Beams – As shown on the Plans Piling – 5000	Beams – 3,000 Piling – 2,000
Metric									
Class of Concrete	Coarse Aggregate Size No.	(1) Minimum Cement Factor (kg/m^3)	Maximum Water/ Cement ratio (kg/kg)	(2) Slump acceptance Limits (mm) Lower-Upper		Entrained Air Acceptance Limits (%) Lower-Upper		(3) Minimum Compressive Strength at 56 days (MPa)	Maximum Chloride Permeability At 56 days (Coulombs)
"AAA HPC"	67	386	.330	50	180	3.5	6.5	Beams – As shown on the Plans Piling – 35	Beams – 3,000 Piling – 2,000

1. Determine the slump acceptance after the addition of high-range water reducer.
2. Determine the minimum compressive strength at 56 days using 4 in. diameter x 8 in. high (100 mm x 200 mm) cylinders.

Add the following to Subsection 500.2 Table 3:

Fly Ash	831.2.03.A.1
Silica Fume	831.2.03.A.4

Add the following note to Subsection 500.2 Table 3:

4. Use Type I or III Portland cement in High Performance concrete. Do not use air-entraining cement.

Add the following to Subsection 500.3.04.D.4:

f. For High Performance concrete, fly ash may be used as an additive at an addition rate not to exceed 15% of the cement by weight.

Add the following to Subsection 500.3.04.D:

6. Silica Fume

   Silica Fume may be used as an additive at an addition rate not to exceed 10% of the cement by weight.

Delete Subsection 500.5 and substitute with the following:

500.5 Payment

Payment will be made under CONSTRUCTION COMPLETE. Includes incidentals, and direct and indirect costs, to complete the Work.

500.5.01 Adjustments

A. Contractor Costs

Assume the following costs:

1. Costs related to rejected concrete and removing rejected concrete
2. Costs of forming an approved construction joint, removing a partial pour, or completing other remedial measures requested by the Engineer unless the fault lies solely with the Department
3. Costs of repairing, removing, and replacing falsework as directed by the Engineer
4. Costs of repairing, removing, or replacing forms
5. Costs of air-blown mortar to repair honeycombed areas, if required by the Engineer
6. Costs of using a higher class of concrete to widen existing bases or bases and pavements

B. Profilograph Testing

The Department will conduct profilograph testing of bridge decks and approach slabs only twice per bridge at no cost to the Contractor.

The Department will conduct additional profilograph testing at the cost of $500 per test.

C. Plastic Shrinkage Crack Repair

The Engineer will determine how to repair cracks caused by plastic shrinking. Repair cracks at no cost to the Department.

D. Plan Quantities

For all bridges (except seal concrete), concrete culverts, headwalls, and retaining walls, the quantities shown on the Contract Plans, including Standard Plans, will be considered the Base Pay Quantity.

For seal concrete, the Plan quantities are approximate and are for estimating purposes only. The quantities will not be considered as Base Pay Quantities.

Calculated additions or deductions will be applied to the Base Pay Quantity when the Engineer makes authorized changes. Changes include, but are not limited to, authorized changes in the following:

- Footing dimensions
- Lengthening or shortening of concrete culverts
- Correcting Plan Quantities
- Dimension errors
- Multi-barrel culvert wall thicknesses
- Lengthening or shortening bridge columns
- Raising or lowering foundations

Calculations of the Base Pay Quantity and any changes will be made as follows:

7. No deductions will be made for the volume of concrete used by scorings, panels, and chamfers if the individual areas are less than 1 in^2 (625 mm^2).

   The volume of concrete in fillets of the same area will be neglected.
8. The volume of structural steel and of steel and concrete piling encased in concrete will be deducted.
9. The volume of timber piling encased in concrete will be deducted on the basis of 0.8 ft^3/linear foot (0.07 m^3/linear meter) of pile.
10. No deduction will be made for the volume of concrete displaced by the following:
    - Steel reinforcement
    - Shear connectors
    - Floor drains (unless they are paid for as separate Pay Items)
    - Incidentals such as expansion material
    - Joint sealing compound
    - Utility thimbles and hangers

E. Filler Concrete

Filler concrete, measured as described in Subsection 500.4.01.B.1, "Bridges, Concrete Culverts, Headwalls, and Retaining Walls," will be paid at 40 percent of the Contract Price per cubic meter for Class A Concrete or Class AA Concrete.

F. Seal Concrete

If there is no Contract Price for seal concrete, payment will be per cubic yard (meter), measured as described in Subsection 500.4.01.B.2, "Seals," and will be paid at 60 percent of the Contract Price per cubic yard (meter) for Class A concrete.

G. Lump Sum Payment Adjustments

Adjust the payment as follows:

11. Authorized Change Adjustments

    When authorized changes are made as described in Subsection 500.5.01.D, "Plan Quantities," the lump sum payment may be adjusted on a pro rata basis or according to Section 104 and as determined by the Engineer.

    The Plans show tabulated quantities as a service. This does not relieve any responsibility to conform to Plan details.

12. Optional Plan Feature Adjustments

    If exercising an optional Plan feature, the Base Pay Quantity will not be changed if it is the only quantity change involved.

    However, if other changes are necessary, the quantity change resulting from the optional feature will be considered in the necessary quantity adjustments.

13. Falsework for Post-Tensioned Box Girder Bridge Adjustments

    When the falsework is completed for post-tensioned box girder bridges, 20 percent of the Lump Sum superstructure concrete price will be paid.

    Additional payments made as the concrete is placed must be adjusted for the payment for falsework. In other words, payment for concrete placed will be based on 80 percent of the superstructure bid price.

4. When Metal Deck Forms are used and have been placed, payment in the amount of 5% of the Lump Sum Superstructure Concrete price will be made. For Post-Tensioned Box Girder Bridges, this percentage (5%) will apply to that part of the superstructure concrete in the top slab of the box only.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 501—Steel Structures

Delete Subsection 501.1 and substitute the following:

501.1 General Description

This work includes furnishing and building with structural steel and miscellaneous metals to the lines, grades, and dimensions shown on the Plans or established by the Engineer.

The work does not include bearing devices for prestressed concrete bridge members, utility installation hardware, or any metal covered under another Pay Item.

501.1.01 Definitions

HTS Bolts: High Tensile-Strength bolts.

501.1.02 Related References

A. Standard Specifications

Section 109—Measurement and Payment

Section 500—Concrete Structures

Section 512—Shear Connectors

Section 535—Painting Structures

Section 851—Structural Steel

Section 852—Miscellaneous Steel Materials

Section 854—Castings and Forgings

Section 857—Bronze Bushings, Bearings, and Expansion Plates

Section 870—Paint

Section 881—Fabrics

Section 885—Elastomeric Bearing Pads

B. Referenced Documents

ANSI/AASHTO/AWS D 1.5

AISC Manual of Steel Construction

ANSI B1.13 Class 2A

ANSI 2.5, 3.2, 6.3, 12.5, 25, 46, 46.1 Part 1, 50

ASTM A 6/A 6M

ASTM A153/A 153M

ASTM A 325 (A 325M)

ASTM A 490 (A490M)

ASTM A 919

ASTM F 568M Class 4.6

501.1.03 Submittals

A. Pre-Inspection Documentation

Furnish documentation required by the latest ANSI/AASHTO/AWS D 1.5 under radiographic, ultrasonic, and magnetic particle testing and reporting to the State's inspector before the quality assurance inspection.

B. Shop Drawings

Prepare Shop Drawings for structural steel and other metal materials to be fabricated. Show the details necessary for shop fabrication and field erection.

1. **Description.** Use the standard sheet size of the Department's Bridge Office. Submit at least two complete sets of preliminary prints marked "NOT FOR FIELD USE" to the Department's Bridge and Structural Design Engineer (the Bridge Engineer) for review before fabricating materials.

   As an option, shop drawings may be submitted on plan sheet sizes of 12" x 18" (305 mm x 457 mm) or 11" x 17" (279 mm x 432 mm) for review and approval. Information contained on these sheets must be legible.

   After shop drawings have been approved, submit an electronic file that is compatible with Bentley Microstation J (Version 7) Cadd operating system, or an electronic file in Adobe Acrobat Portable Document Format (.pdf) to the Engineer. For bridges carrying railroads only, after shop drawings have been approved, submit one full size set of reproducible drawings to the Department.

2. **Review Process.** After the preliminary prints have been reviewed and revisions have been made, submit 5 or more complete sets of the final drawings to the Bridge Engineer. The Bridge Engineer will mark each drawing with a conditional approval stamp and return one stamped set to the fabricator. Furnish the Bridge Engineer with as many additional sets of final prints as required.

   The Bridge Engineer's review and conditional approval of Shop Drawings is a service for the Contractor. The Department assumes no responsibility for the accuracy of the drawings, and the Contractor will not be relieved of any responsibility for conforming to the Specifications and Plans.

3. **Railway Structures.** For structures carrying railway traffic and for other structures when specifically designated, furnish the Bridge Engineer a full set of permanent reproducibles of the final Shop Drawings.

4. **Welded Construction.** On Shop Drawings for welded construction, use the standard welding symbols of the American Welding Socicty. Explain special conditions in notes or details. Show the sequence and techniques for areas where shrinkage stress and distortion control is necessary.

5. **Changes and Substitutions.** Do not change a Shop Drawing after it has been conditionally approved unless the Bridge Engineer gives written consent. List and symbolize revisions on each drawing.

   Obtain written consent from the Bridge Engineer before substituting materials with dimensions and weights other than those shown on the Plans. Make changes associated with an approved substitution at no expense to the Department.

6. **Alternate Locations of Splices and Connections.** If splices or connections are desired at locations other than those shown on the Plans, submit a proposal and Shop Drawings to the Bridge Engineer to get written approval before proceeding.

7. **Steel Identification.** Upon request, furnish an affidavit certifying the identification of steel is maintained throughout fabrication.

   On the Shop Drawings, show the grade of steel to be used and identify each piece. Give pieces made of different types or grades of steel different assembly or erection marks.

Maintain the identity of the mill test report number when assembly-marking individual pieces and when giving cutting instructions to the shop.

C. Fabrication Schedule

Ensure that the fabricator submits a proposed fabrication schedule to the State Materials and Research Engineer that includes the following:

- Correct project number, including county
- Bridge number
- Starting date
- Estimated completion date

D. Quality Control Program

Before fabrication begins, submit the fabricator's written Quality Control program to the Office of Materials and Research for approval. This program and its personnel will be subject to verification when the Department's Materials and Research Engineer deems necessary.

Even with a State inspection, continue to perform Quality Control (QC) on all nonfracture-critical and fracture-critical members and components.

E. Mill Orders and Shipping Statements

Furnish the number of copies of mill orders and shipping statements covering fabricated materials and related miscellaneous materials the Engineer directs. Show the weights of individual members on the statements.

F. Mill Test Reports

Furnish the Engineer two certified, legible copies of mill test reports that show the results of physical tests and complete ladle analyses for each heat and grade of steel ordered. Refer to the ASTM designation of tests used. Furnish mill test reports at no expense to the Department.

G. Welding Procedures

Before structural steel fabrication begins, submit welding procedures to the Engineer for review and approval.

H. Electrode Testing

Furnish a manufacturer's certification showing that the material requirements used for manufacturing the tested electrodes and furnished electrodes were the same for each lot of electrodes on the Project.

I. Falsework

If required, prepare and submit falsework plans for the Engineer's review. Continue to assume the responsibility to produce safe falsework. When erection is completed, remove falsework to the Engineer's satisfaction.

J. Camber Diagram

Furnish the Engineer a diagram showing the camber at each splice point for each girder. Base the diagram on measurements taken during shop assembly. In the case of partial shop assembly, base the camber diagram on theoretical calculated values.

Delete Subsection 501.4 and substitute the following:

501.4 Measurement

No separate measurement will be included for this item. Includes qualification tests and test sample preparation, ultrasonic or magnetic-particle testing as required under these Specifications

Delete Subsection 501.5 and substitute the following:

501.5 Payment

Payment will be made under CONSTRUCTION COMPLETE. Includes labor and equipment and the direct or incidental costs of furnishing easy access for inspection and testing.

First Use Date: 1/20/06
Revised February 28, 2007

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 507—Prestressed Concrete Bridge Members

Delete Subsection 507.1 and substitute the following:

507.1 General Description

This work consists of furnishing prestressed concrete bridge members, complete in place, except as noted for piling in this Specification. The work includes all items and work necessary to complete the erection according to the Plans and Specifications. All prestressed concrete bridge member nominal lengths shown on the plans are horizontal dimensions. The contractor will be responsible for adjusting the lengths, as necessary, to account for the final erected position of the member. Fabricate the ends of all members to be vertical in the final erected position. Slope bearing assemblies to accommodate the erected position of the member.

507.1.01 Definitions

PSC: Prestressed concrete. Prestressed concrete may be designated "PSC" in Specifications and on Plans and other documents.

507.1.02 Related References

A. Standard Specifications

Section 109—Measurement and Payment

Section 500—Concrete Structures

Section 501—Steel Structures

Section 506—Expanded Mortar

Section 520—Piling

Section 865—Manufacture of Prestressed Concrete Bridge Members

B. Referenced Documents

General Provisions 101 through 150.

507.1.03 Submittals

A. Erection Drawings

Furnish erection drawings to the Department only when the units are not interchangeable with respect to the following:

- Transverse placement within a span
- Longitudinal reversal within a span

The drawings shall cover superstructure unit placement, including bearing components.

B. Shop Drawings

Submit shop drawings to the Department on standard Plan size 22 in x 36 in (550 mm x 900 mm) sheets showing complete beam details of the following:

- Nonprestressed reinforcement
- The method of retaining depressed strands in place
- Calculations for determining the strand elongation required to produce the specified pretensioning force
- Detensioning schedule
- Increased length of beam due to vertical alignment

As an option, shop drawings may be submitted on plan sheet sizes of 12" x 18" (305 mm x 457 mm) or 11" x 17" (279 mm x 432 mm) for review and approval. Information contained on these sheets must be legible.

After shop drawings have been approved, submit an electronic file that is compatible with Bentley Microstation J (Version 7) Cadd operating system, or an electronic file in Adobe Acrobat Portable Document Format (.pdf) to the Engineer. For bridges carrying railroads only, after shop drawings have been approved, submit one full size set of reproducible drawings to the Department.

Delete Subsection 507.4 and substitute the following:

507.4 Measurement

No separate measurement will be included for this item.

507.4.01 Limits

No separate measurement will be made for any of the following:

- Painting, rubbing, anchor, and bearing components, as well as diaphragm bar assemblies on accepted PSC beams
- Individual deck units on which curb sections are located
- Material used in anchor components, shear key pours, and construction expansion joints
- Drifting components, anchor components, and asphalt-saturated felt for PSC caps
- Grouting between PSC box beams
- Furnishing and installation of diaphragm bar assemblies and anchor and bearing components

Delete Subsection 507.5 and substitute the following:

507.5 Payment

Payment will be made under CONSTRUCTION COMPLETE.

October 16, 2006
Revised February 28, 2007

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 509—Prestressing Concrete by Post Tensioning

Delete Subsection 509.1 and substitute the following:

509.1 General Description

This work consists of prestressing concrete by post-tensioning cast-in-place concrete. The work includes furnishing, placing, and tensioning prestressing steel according to the Plan details and these Specifications.

509.1.01 Definitions

Working Force and Working Stress: The force and stress remaining in the prestressing steel after the following losses:

- Creep and shrinkage of concrete
- Elastic compression of concrete
- Creep of steel
- Loss in post-tensioned prestressing steel from the sequence of stressing
- Friction and anchor set (see Subsection 509.3.05.J, "Post-Tension the Tendons," steps 18 to 19)
- Other losses peculiar to the method, technique, or system of prestressing (see Subsection 509.3.05.J, "Post-Tension the Tendons," step 21)

509.1.02 Related References

A. Standard Specifications

Section 501—Steel Structures

Section 535—Painting Structures

B. Referenced Documents

AASHTO Specifications for Highway Bridge, Article 9.16.1

AASHTO Specifications for Highway Bridge, Article 9.16.2

ASTM C 109

ASTM A 416

ASTM A 722

ASTM C 939

Post Tensioning Institute (PTI) Specification for Grouting of Post-Tensioned Structures

509.1.03 Submittals

A. Coupler Use and Location

The use and location of couplers in bars entering into the prestressing work is subject to the Engineer's approval.

B. Alternate Stressing or Anchorage Block Drawings and Calculations

When using stressing or anchorage blocks not shown on the Plans, submit shop drawings and calculations for the blocks to Bridge and Structural Design when submitting the prestressing system calculations and shop drawings.

C. Design Calculations

Submit design calculations for the proposed post-tensioning system to Bridge and Structural Design for Department review and approval. Design calculations may be on letter size sheets.

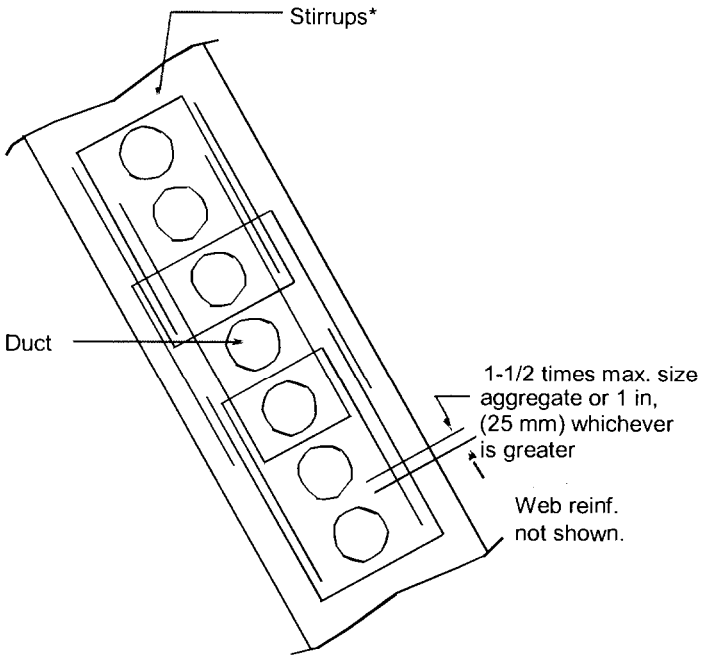
Submit calculations for the size and spacing of the reinforcing around the ducts, as shown in Figure 1 (metric), to Bridge and Structural Design. Include the following in the calculations:

- Required jacking force and elongation of tendons during tensioning

  Using the initial jacking force, design the reinforcing to prevent ducts from pulling out because of the effects of web curvature and slope.
- Stresses in anchorages and distribution plates

  Ensure that the calculations account for reinforcing to prevent the peeling of anchorages from the top and bottom slab. See Figure 2 for minimum reinforcing requirements for tying ducts to the deck reinforcing.
- Stress-strain curves typical of the prestressing steel to be furnished
- Seating losses
- Temporary overstresses
- Reinforcing in the concrete to resist tensioning loads

Determine bearing offsets and expansion joint gaps and adjust for construction sequence, prestress shortening, and temperature.



* A stirrup group is one pair of overlapping "U" shaped bars.
- Stirrups shall enclose vertical web reinforcement.
- No more than 3 ducts shall be enclosed by a stirrup group.
- Min. bar size: No. 4 (No. 13 M) bar.
- Max. longitudinal bar spacing: 24 in. (600 mm)

Figure 1

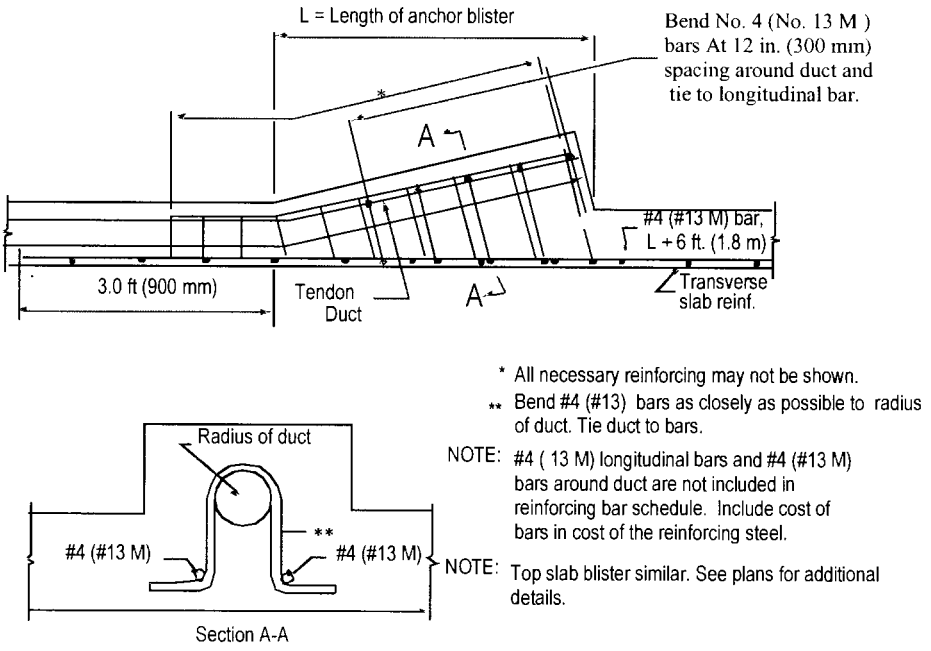


Figure 2

D. Certificates of Compliance

The Department will accept certificates of compliance for cements to be used. The Department reserves the right, however, to sample and test the cement before its use and at any time during the progress of the work.

E. Certified Mill Test Reports

Submit certified mill test reports for high tensile prestressing steel to the Project Engineer.

F. Shop Drawings

Submit Shop Drawings for review and approval according to Subsection 501.1.03.B, "Shop Drawings." Place a title block in the lower right-hand corner of the drawings that includes the following:

- Project number
- Sheet numbering for the Shop Drawings
- Structure name
- Contractor and fabricator names

Submit Shop Drawings on 23 in by 36 in (575 mm by 900 mm) sheets with a 1-1/2 in (38 mm) left margin and a ½ in (13 mm) top, bottom, and right margins.

The Shop Drawings shall include the following:

1. Fully dimensional views showing all projections, recesses, notches, openings, blockouts, and pertinent design details

2. Details of mild steel reinforcing showing size, spacing, and location, including special reinforcing required as determined by the design calculations but not shown on the Plans
3. Details of ducts for post-tensioning tendons showing size, type, and horizontal and vertical profiles
4. Details of duct supports, grout tubes, and vents showing size, type, and location
5. Details of the relative positions of reinforcing steel, ducts, and anchorages
6. Details of the anchorage systems for the proposed post-tensioning system
7. A table giving jacking sequence, jacking forces, and initial elongation of the tendons at each erection stage for post-tensioning
8. Details and a complete description of the post-tensioning system to be used for permanent tendons
9. Details of the prestressing, including:
    - Method, sequence, and procedure for prestressing and securing tendons
    - Procedure for releasing tendons
    - Equipment supplier and type
    - Tendon size and properties
    - Anchorage plates and assemblies
10. Working drawings and bar schedules for each prestressing system
11. Details of reinforcing or coil ties under anchorage plates
12. Details for usage of high-strength steel bar (furnished by the bar manufacturer)
13. Friction factors used in the prestressing system of deformed bars

As an option, shop drawings may be submitted on plan sheet sizes of 12" x 18" (305 mm x 457 mm) or 11" x 17" (279 mm x 432 mm) for review and approval. Information contained on these sheets must be legible.

After shop drawings have been approved, submit an electronic file that is compatible with Bentley Microstation J (Version 7) Cadd operating system, or an electronic file in Adobe Acrobat Portable Document Format (.pdf) to the Engineer. For bridges carrying railroads only, after shop drawings have been approved, submit one full size set of reproducible drawings to the Department.

G. Ram Calibration Charts

Before using rams in the work, furnish the Engineer with a certified chart from the calibration for each ram.

H. Designs and Details of Distribution Reinforcing Steel

The Department plans for anchorages show only a minimum amount of distribution reinforcing steel.

Design and detail the reinforcement needed to prevent bursting, peeling, and splitting. Submit the designs and details to the Engineer for review and approval.

I. Gauge Readings and Elongations

Keep a record of gauge pressures or readings and elongations at the end of each jacking operation and submit it to the Engineer for review and approval.

J. Grouting Operations Plan

Submit to the Engineer a grouting operations plan at least 6 weeks in advance of any scheduled grouting operations. The Engineer will forward the grouting operations plan to the Office of Materials and Research for approval. Written approval of the grouting operations plan by the Office of Materials and Research is required before any grouting of the permanent structure takes place.

At a minimum, the plan will address and provide procedures for the following:

1. Provide names and proof or experience/training for the grouting crew and the crew supervisor.

2. Type, quantity, and brand of materials used in grouting including all certifications required.
3. Type of equipment furnished, including capacity in relation to demand and working condition, as well as back-up equipment.
4. General grouting procedures.
5. Duct cleaning methods prior to grouting.
6. Mixing and pumping procedures.
7. Direction of grouting.
8. Sequence of use of the inlets and outlets pipes.
9. Procedures for handling blockages.
10. Procedures for possible post grouting repair.

Delete Subsection 509.2 and substitute the following:

509.2 Materials

Ensure that materials meet the requirements of the following Specifications:

Material	Section
Steel Wire Strand	853
Structural Steel for Anchorage Devices, Distribution Plates, and Incidental Parts Required to Be of Steel	501
Grout	509
Water	880

A. Steel

Do not use strands from more than one source within the same tensioning operation.

Strands that differ in size from ASTM A 416 are to be submitted for prior approval.

High strength steel bars shall meet ASTM A 722 Type II, and SI through S# supplemental requirements and have manufacturers details for their use.

Ensure all bars within any member are of same grade.

Bar couplers and locations are to be approved prior to use and shall have tensile strength not less than manufacturers minimum for strength of bar.

Allow the Department 60 calendar days before installing prestressing steel to test the steel and approve the materials furnished.

Use the anchor devices and distribution plates recommended by the manufacturer of the prestressing system.

B. Post-Tensioning Grouts

Use only post-tensioning grouts meeting the requirements of this subsection. Submit to the Engineer a written certification from the manufacturer that the product meets the requirements of this subsection. The Engineer may request that the manufacturer also submit certified test reports from an independent laboratory audited by the Cement Concrete Reference Laboratory (CCRL) which shows the material meets all the requirements specified herein.

1. The grout shall not contain aluminum or other components which produce hydrogen, carbon dioxide or oxygen gas.

2. The grout shall meet or exceed the specified physical properties stated as determined by the following standard and modified test methods. Conduct all grout tests with grout mixed to produce the minimum time of efflux. Establish the water content to produce the minimum and maximum time of efflux.

Property	Test Value	Test Method
Total Chloride Ions	Max. 0.08% by weight of cementitious material	ASTM C 1152
Volume Change	0.0% to +0.1% at 24 hours <+0.2% at 28 days	ASTM C 1090
Expansion	≤2.0% for up to 3 hours	ASTM C 940
Compressive Strength at 28 days	≥5000 psi (35 MPa)	ASTM C 942
Wet Density – Laboratory	Report maximum and minimum obtained test value lbs/ft^3	ASTM C 185

Property	Test Value	Test Method
Initial Set	Min. 3 hours Max. 12 hours	ASTM C 953
Time of Efflux[1]		
(a) Immediately after mixing	Min. 20 seconds Max. 30 seconds	ASTM C 939
	or Min. 9 seconds Max. 20 seconds	ASTM C 939[2]
(b) 30 minutes after mixing with remixing for 30 seconds	Max. 30 seconds	ASTM C 939
	or Max. 30 seconds	ASTM C 939[2]
Bleeding @ 3 hours	Max. 0.0%	ASTM C 940[3]
Permeability at 28 days	Max. 2,500 coulombs at 30 V for 6 hours	ASTM C 1202

(1) Adjustment to flow rates will be achieved by strict compliance with the manufacturer's recommendations. The time of efflux is the time to fill a one liter container placed directly under the flow cone.

(2) Modify ASTM C 939 test by filling the cone to the top instead of to the standard level.

(3) ASTM C 940 modified per PTI Specification subsection 4.4.6.1, Wick Induced Bleed Test.

Have the Engineer approve grout for filling recesses or encasing anchoring devices. Use a type recommended by the manufacturer for highly stressed steel.

Add the following to Subsection 509.2.01

D. Grout

Grouts shall be prepackaged in moisture proof containers. Store grout in a location that is both dry and convenient to the work. Storage in the open must be on a raised platform and with adequate waterproof covering. Grout bags shall indicate the following:

1. Type of application
2. Date of manufacture
3. Lot number
4. Mixing instruction

Provide to the Engineer the manufacturer's Quality Control Data Sheet for each lot number and shipment sent to the job site. Materials with a total time from manufacture to usage in excess of six (6) months shall be retested and certified by the supplier before use or removed and replaced.

Add the following to Subsection 509.3.01:

B. Grouting Supervisor

Ensure the supervisor has verifiable documentation of three years of experience in construction of grouted post tensioned structures and has successfully completed training in a grouting technician certification program, such as, the American Segmental Bridge Institute's grouting certification program or an approved equal training program.

Delete Subsection 509.3.02.C and substitute the following:

C. Grouting Equipment

Provide grouting equipment consisting of measuring devices for water, a high speed shear colloidal mixer, a storage hopper and a pump with all the necessary connecting hoses, valves, and pressure gauge.

Provide pumping equipment with sufficient capacity to ensure continuous grouting of the largest tendon on the Project in 20 minutes.

1. Mixer and Storage Hopper

   Provide a high speed shear colloidal mixer capable of continuous mixing producing a homogeneous and stable grout free of lumps and undispersed cement. The grout machinery will have a charging tank for blending and a holding tank.

   - The blending tank must be equipped with a high shear colloidal mixer.
   - The holding tank must be kept agitated and at least partially full at all times during the pumping operation to prevent air from being drawn into the post-tensioning duct.

   Add water during the initial mixing by use of a flow meter or calibrated water reservoir with measuring accuracy of ± 1.0 ounces (30 ml) or better.

2. Grout Pumping Equipment

   Provide pumping equipment capable of continuous operation which will include a system for circulating the grout when actual grouting is not in progress.

   - The equipment will be capable of maintaining pressure on completely grouted ducts and will be fitted with a valve that can be closed off without loss of pressure in the duct.
   - Grout pumps will be positive displacement type, will provide a continuous flow of grout and will be able to maintain a discharge pressure of at least 145 psi (1 MPa).
   - Pump seals adequate to prevent oil, air, or other foreign substances out of the grout and to prevent loss of grout or water.
   - Pressure gauge with a maximum full scale reading of 300 psi (2 MPa) installed at some point in the grout line between the pump outlet and the duct inlet to establish grout pressure at the pump.
   - Screen with 0.125 in (3 mm) maximum clear openings to screen the grout before it is introduced into the grout pump.

3. Vacuum Grouting Equipment

   Provide vacuum grouting equipment at the jobsite concurrently with all pressure grouting operations.

   - The equipment will be the volumetric measuring type with the ability to measure a void and supply a measured volume of grout to fill the void.

4. Standby Equipment

   Provide flushing equipment capable of pumping 300 psi (2 MPa) gauge and flushing out partially-grouted ducts.

   - A different power source for the flushing equipment than the grouting equipment.

Delete Subsections 509.3.05.K, L and M, and substitute the following:

K. Mix the Grout

Maximum grout temperature will not exceed 90 °F (32.2 °C). Use chilled water and/or pre-cooling of bagged material to maintain mixed grout temperature below the maximum allowed temperature.

Grouting operations are prohibited when the ambient temperature is below 40 °F (4 °C) or is 40 °F (4 °C) and falling. Remove any standing water from ducts using compressed air, if freezing temperatures are forecast.

Grout for use with prestressing concrete bridge members includes a mixture of prepackaged material and water, as follows:

- Prepackaged material—Use prepackaged material that meets the requirements of Subsection 509.2.01.D.

  The Department reserves the right to sample and test the prepackaged material before its use and at any time during the work.

- Water—Use potable water or other water that meets the requirements of Subsection 880.2.01.

Mix the prepackaged material and water in accordance with the manufacturer's recommendation and as follows:

1. Mix the grout with a metered amount of water.
2. When adding water, do not exceed the manufacturer's recommendations.
3. The materials will be mixed to produce a homogeneous grout.
4. Continuously agitate the grout until it is pumped.
5. Do not add water to increase grout flowability that has decreased because grout use is delayed.

The Engineer may determine grout pumpability according to ASTM C 939. When using this method, efflux time for the grout sample immediately after mixing will not be less than the efflux time as established in subsection 509.2.B.

L. Prepare Ducts for Grouting

Prepare the ducts for grouting by flushing the metal ducts with compressed air.

1. Clear ducts of water and debris at a pressure no greater than allowed for grouting the tendon.
2. Use oil-free compressed air to blow out ducts.

M. Grout the Duct

Bond prestressing steel to the concrete by filling the space between the duct and the tendon with grout. Grout tendons in accordance with the Grouting Operations Plan.

Grout the duct as follows:

1. Open the grout and vent openings.
2. Unless approved otherwise by the Engineer, pump grout at a rate of between 16 linear feet (5 m) and 50 linear feet (15 m) of duct per minute. Ensure that the pumping pressure at the grout inlet does not exceed 245 psi (1.7 MPa).
3. Allow the grout to flow from the first vent after the inlet pipe to remove any residual water or entrapped air.
4. Once water or air is removed, cap or otherwise close the vent. Close the remaining vents in sequence in the same manner.

5. If the grouting pressure exceeds 245 psi (1.7 MPa) gauge, inject grout at a vent that has been or is ready to be capped.
    a. Maintain a one-way grout flow while injecting.
    b. Fit the vent used for injection with a positive shutoff.
    c. If a one-way flow of grout cannot be maintained, immediately flush the grout out of the duct with water.
6. Pump grout through the duct and waste it continuously at the outlet pipe until the following happens:
    - No visible slugs of water or air are ejected.
    - The measured grout efflux time will not be less than the efflux time measured at the pump or minimum acceptable efflux time as established in subsection 509.2.B.
7. To insure that the duct remains filled with grout:
    a. Close the outlet.
    b. Hold pumping pressure for an additional 1 minute and then close the inlet under pressure.
    c. Do not remove or open plugs, caps, or valves used to close off the outlet or inlet until the grout has set.

Add the following to Subsection 509.3.06.

D. Tendon Grouting

At least 24 hours after completion of the grouting of tendon ducts, and no more than 7 days after grouting, investigate the ducts for voids, as follows:

1. After the grout has cured, open grout injection and exit ports by drilling through the ports into the duct cavity to probe for any void.
2. Sound all grout caps for voids. Unless grout caps are determined to have voids, do not remove or drill the cap.
3. If voids are found, completely fill the void with grout by secondary grouting of the duct with vacuum grouting process that determines the size of the void and measures filling of the void.
4. If no voids are found, clean and backfill the drilled hole with Type V epoxy selected from QPL 15—Epoxy Resin Adhesives. Use an injection tube to extend to the bottom of the drilled hole.

During drilling operations use equipment that will automatically cut-off when steel is encountered.

Delete Subsection 509.5 and substitute the following:

509.5 Payment

Payment will be made under CONSTRUCTION COMPLETE.

509.5.01 Adjustments

General Provisions 101 through 150.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 511—Reinforcement Steel

Delete Subsection 511.4 and substitute the following:

511.4 Measurement

No separate measurement will be included for this item.

511.4.01 Limits

A. Construction of Minor Items

No measurement or payment will be made for the cost of bar reinforcement steel used in constructing minor items. Payment shall be made under CONSTRUCTION COMPLETE.

B. Prestressed Concrete Bridge Members

Bar reinforcement steel in prestressed concrete bridge members will be considered a component part of the members. Payment shall be made under CONSTRUCTION COMPLETE.

C. Handrail End Posts

Reinforcement steel in handrail end posts that are a part of the superstructure or substructure will be considered part of the superstructure or substructure items. Payment shall be made under CONSTRUCTION COMPLETE.

D. Lap Splices

Extra reinforcement steel in lap splices permitted for convenience at splices not shown on the Plans will not be measured for payment. Payment shall be made under CONSTRUCTION COMPLETE.

Delete Subsection 511.5 and substitute the following:

511.5 Payment

Payment will be made under CONSTRUCTION COMPLETE. Includes full compensation for all costs to conform to approved plan details, reinforcement steel in concrete bridges, culverts, concrete handrailings, concrete parapets, barriers, and other items, including minor items, requiring reinforcing steel to complete the Item.

Revised: November 9, 2006

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

SECTION 524 – DRILLED CAISSON FOUNDATIONS

524.1 General Description

This Work consists of furnishing all labor, materials, equipment, tools and services necessary for construction of drilled caisson foundations and includes all incidentals and additional work in conjunction therewith. Adhere to the Department's Plans, Special Provisions and Standard and Supplemental Specifications for all Work.

524.2 Materials

Use materials that meet the requirements of the Standard Specifications with the following exceptions:

- Use non-air-entrained Class AA concrete with a coarse aggregate size of No. 67 stone and a slump at time of placement of between 7 and 9 inches (178 mm and 229 mm). Use 10 percent additional cement and a retarder or water reducing agent in all concrete.
- Use Grade 60 (Grade 420) reinforcing bars that conform to ASTM 615 (ASTM A 615M). If wire spirals are used, use spirals that conform to ASTM A 82.
- Use Grade 2 steel casing that conforms to ASTM A 252.

524.3 Construction Requirements

524.3.01 Personnel

Construct drilled caissons and supervise the work with personnel who are experienced in this type work. Visit and examine the work site and all conditions, and take into consideration all such conditions that may affect the work. At least 30 days prior to beginning drilled caisson work, submit to the Engineer for review and approval the following proof of the ability of the personnel to construct drilled caisson foundations:

1. Evidence of the successful completion of at least five projects similar in concept and scope to the proposed foundation. Include names, addresses and telephone numbers of the owners' representatives for verification.
2. Résumés of foreman and drilling operators to be employed on this project. Provide evidence showing that the drill operator has experience and knowledge of the drill rig to be used on the project. The Department will be sole judge of the qualifications of the foreman and drill rig operator.
3. A detailed sequence of construction for drilled caisson work that describes all materials, methods and equipment to be used, including, but not limited to the following:
    - casing sizes with proposed top and tip elevations
    - drilling equipment including the manufacturer's specifications on the drill rig
    - methods and equipment for stabilizing and cleaning shaft excavations
    - methods of materials handling and disposal
    - methods and equipment for placing concrete
    - details of tremie and sealing methods, if required
    - details of reinforcement placement, including support and centralization methods

Do not begin drilled caisson construction until the qualifications, construction plan and methods have been approved in writing by the Engineer.

524.3.02 Equipment

Use excavation and drilling equipment with a rated capacity (including power, torque and downward thrust) to excavate a caisson of the maximum specified diameter to a depth of 30 feet (9.1 meters) or 20 percent deeper than the deepest caisson indicated on the Plans, as measured from the ground or water surface elevation, whichever is higher.

524.3.03 Casing

Use casing that is a metal shell of a thickness to withstand handling, internal and external pressures, and that is watertight, smooth and clean. If the elevation of the top of the caisson is below ground level or water level at the time of concrete placement, use an oversize casing from ground elevation to a point below the top of the caisson to prevent caving into the fresh

concrete. Do not allow the top of the permanent casing, if required, to extend above the top of the drilled caisson. Use casing in all materials that do not have sufficient strength to safely remain open and stable during and after excavation.

When casing is used, do not use casing with an outside diameter less than the specified diameter of the caisson. That portion of the caisson below the casing may be slightly smaller than the normal outside diameter of the caisson. However, use drilling tools to excavate the caisson below the casing that are no smaller than the outside diameter of the casing minus 2 inches (51 mm). Do not leave casing in place unless permitted by the Engineer, and cut off any permanent casing as shown on the Plans.

Provide adequate equipment during concrete placement to prevent pulling up the reinforcing cage during casing extraction. The casing may be pulled in partial stages. Maintain a sufficient head of concrete above the bottom of the casing to overcome hydrostatic pressure. Extract the casing at a slow uniform rate with pull in line with the center of the caisson.

524.3.04 Protection of Existing Structures

Monitor structures for settlement that are within a distance of ten shaft diameters or the estimated shaft depth, whichever is greater, in a manner approved by the Engineer. Record elevations to an accuracy of 0.01 foot (3 mm). Record elevations before construction begins, during the driving of any required casings, during excavation or blasting, or as directed by the Engineer.

Document thoroughly the condition of the structures with descriptions and photographs made both before and after drilled caissons are constructed. Document all existing cracks, and provide copies of all documentation to the Engineer.

At any time settlement of 0.05 foot (15 mm) or damage to the structure is detected, immediately stop the source of vibrations, backfill any open drilled shaft excavations and contact the Engineer for instructions.

524.3.05 Excavation

Drill and excavate all caissons through whatever substances and to the elevations required. Excavate near the tip elevation in the presence of the Engineer. The Engineer may adjust the tip elevations depending on the quality of the bearing material found. Embed the caisson tips 5 feet (1.5 meters) into and on top of sound rock in accordance with Plan requirements and as determined by the Engineer. Sound rock is indicated by material that cannot be drilled with a conventional earth auger, and requires the use of special rock augers, core barrels, air tools, blasting and/or other methods of hand excavation. Sound rock is defined as material on which the rock auger penetration is equal to or less than 2 inches (51 mm) per five minutes of drilling with the auger subjected to a torque of 600,000 inch-pounds (67,791 kN-m) with a down thrust of 37,000 pounds (165 kN). There will be no additional compensation for removal of rock.

The Engineer will inspect the bottom of each caisson prior to setting the reinforcing cage and placing concrete. Obtain the Engineer's approval prior to placing the reinforcing cage. Remove water, sediment and debris from the bottom of the caissons to allow for a down-hole inspection. Bore the bottom of the caisson excavation a minimum of 6 feet (1.8 meters) into rock as outlined in Specification 211.3.05.C, "Boring of Foundations and Seals". The Engineer will make a determination of the soundness and consistency of the rock and may adjust the tips of the caissons based on this information.

Where drilled caissons are located in other than open water areas, use casings or other methods approved by the Engineer to stabilize the excavation and control the hole size. When casing is not specifically required on the plans, fill in any over-excavations with Class AA concrete at no additional cost to the Department. Dispose of excess concrete, grout, displaced water and materials removed from the caisson excavation in areas approved by the Engineer, and in accordance with any Federal, State, or local code or ordinance. Verify the accuracy and existence of all applicable codes, ordinances or other regulations prior to disposing materials.

524.3.06 Reinforcing Steel

Assemble a cage of reinforcing steel and place it as a unit immediately prior to concrete placement. Assemble the cage so that the clearance between the cage and side of the caisson will be at least 5 inches (127 mm), and the clearance between the cage and bottom of the caisson will be 3 inches (76 mm).

If the caisson is lengthened, extend all reinforcement to within 3 inches (76 mm) of the bottom. If a splice is required, place it in the lower one-third of the caisson, or as shown on the Plans. Tie hoops or spirals to the caisson and column steel (vertical bars) at 100% of the junctions with double wire figure-eight ties. Do not weld the reinforcing steel. Support the cage from the top in a concentric manner to minimize its slumping downward during concrete placement and/or extracting the casing.

Check the elevation of the top of the steel cage before and after casing extraction. Any upward movement of the steel not exceeding 2 inches (51 mm) or any downward movement thereof not exceeding 6 inches (152 mm) will be acceptable. Any upward movement of the concrete or displacement of the steel beyond the above limits will be cause for rejection. Tie and support the reinforcing steel in the caisson so that the reinforcing steel will remain within allowable tolerances. In uncased caissons, use only heavy-duty plastic rollers (wheels). In cased caissons, use heavy-duty non-corrosive plastic rollers (wheels) or steel chairs. Place rollers at maximum intervals of 8 feet (2.4 meters) along the cage to ensure concentric spacing for the entire cage length. Use one roller for each one foot (305 mm) of diameter of the cage, with a minimum of four rollers at each interval. Do not use concrete spacer blocks. Use rollers that are constructed of a material approved by the Engineer and that have sufficient bearing surface to provide lateral support to the reinforcing cage.

Use rollers of adequate dimension to provide the annular spacing between the outside of the reinforcing cage and the side of the excavated hole or casing as shown on the Plans. If an oversize casing is used, use rollers that will provide concentric spacing. Use pre-cast concrete or heavy-duty plastic bottom supports (feet/boots) to provide a spacing of 3 inches (76 mm) between the cage and caisson bottom.

524.3.07 Concrete

Mix and place all concrete in accordance with Section 500 of the Specifications where applicable and the requirements herein stated.

Place concrete as soon as possible after all excavation is completed and reinforcing placed and supported. Place concrete continuously in the caisson to the top elevation of the caisson. The Engineer may allow free falling of concrete to a maximum of 60 feet (18.3 meters), if satisfactory methods are demonstrated.

If ground water is encountered and the hole can not be pumped dry, or if the Engineer does not approve free fall of concrete, place concrete using a gravity feed watertight tremie. Use a tremie pipe of at least 8 inches (203 mm) in diameter with a concrete hopper at the top. The Engineer may allow concrete to be placed by pumping through a supply line if satisfactory methods are demonstrated. If this method is allowed, use pump supply lines with watertight couplings. Seal the end of the pump line with a foam plug or other device approved by the Engineer to prevent concrete within the tremie or pump supply line from mixing with fluid in the excavation.

If a tremie is used, place it on the bottom of the excavation at the beginning of concrete placement, and keep it there until the tremie pipe and hopper are filled with concrete. Then raise the tremie only enough to induce concrete flow and do not lift the tremie further until the discharge end is immersed at least 10 feet (3.1 meters) into the deposited concrete. If concrete placement by pumping is used, secure the supply line in place so that the discharge end will not lift off the bottom of the excavation more than 6 inches (152 mm) until at least 10 feet (3.1 meters) of concrete has been placed. Embed the discharge end of the tremie or pump supply line a minimum of 10 feet (3.1 meters) in the concrete throughout the remainder of the concrete pour.

Complete the placement of all concrete in the caisson in two hours. Adjusted the retarder or water reducing agent as approved by the Engineer for the conditions encountered on the job so the concrete remains in a workable plastic state throughout the pour.

Prepare and cure the top surface of the construction joint in accordance with the requirements of Section 500. Locate construction joints as indicated on the Plans.

Do not place concrete under water in the caisson excavation without the permission of the Engineer. When permission is granted, place the concrete in accordance with the requirements of Section 500. Provide a sump to channel displaced water away from the caisson. Contain all displaced water to prevent water from entering into any body of water.

During the twenty-four hour period immediately following the completion of the placement of concrete in the caisson, do not install or extract casing within 50 feet (15.2 meters) of the completed caisson, and do not excavate any caissons within 15 feet (4.6 meters) of the completed caisson. If the Engineer determines that any construction adversely affects the recently constructed caisson, cease such activities immediately.

Protect any portion of drilled caissons exposed to a body of water from the action of water by leaving the forms in place for a minimum of seven days after pouring the concrete. Remove the forms prior to 7 days only if the concrete strength has reached 3000 psi (20.7 Mpa) or greater as tested by cylinder breaks.

524.3.08 Inspection and Safety

1. Check the dimensions and alignment of the caisson excavation under the observation of the Engineer.
2. Provide, use and maintain in good working order the following safety devices for the purpose of entering the caisson excavation for cleaning or inspection work:

    a. A safety harness attached to a separate safety line.

    b. OSHA-approved personnel lifting devices. Do not suspend any crane weights, blocks or other heavy weights above the head of any person entering the caisson excavation.

    c. Approved gas-testing equipment that tests for both oxygen level and percent explosion level. Provide and use an approved blower for fresh air if the testing equipment indicates the need.

    d. Casing of adequate thickness, size and depth to safely support the excavation.

    e. Non-electric pump(s) to adequately remove water from the excavation.

In addition, prior to entering the excavation, remove all loose and unnecessary objects from around the top of the caisson. Secure any caissons that will not be immediately poured after inspection and approval to prevent persons or objects from falling into the excavation.

524.3.08 Tolerances

Adhere to the following construction tolerances for drilled caissons:

1. Construct the drilled caisson to within 3 inches (76 mm) of the plan position plane, at the top-of-caisson elevation. Adhere to a vertical alignment tolerance of ¼-inch per 12 inches (6 mm per 305 mm) of depth.
2. Place reinforcement in accordance with the requirements of Section 511 of the Standard Specifications and Sub-section 524.3.06. Tie column steel (vertical bars) to hoops and spirals at 100% of the junctions with double wire figure-eight ties.

3. Placed vertical caisson reinforcing bars, including bars extending into columns or footings to within ½-inch (13 mm) of plan location. Place hoops or spirals to within 1 inch (25 mm) of their specified location. Adhere to a side form clearance of within ¼-inch (6 mm) of plan requirements.

4. Place the construction joint of the top of caissons used as caisson/column intermediate bents to within a tolerance of plus or minus 3 inches (76 mm) of the plan elevation.

524.4 Acceptability

In the event that significant voids are suspected in the concrete that were created during placement, verify the integrity of the caisson using a method that has been approved by the Engineer. If the caisson in question is found to be structurally deficient or out of tolerance in any way, the caisson will not be accepted unless corrective measures as approved by the Engineer are accomplished. Furnish additional materials and work necessary to effect corrections at no cost to the Department and with no increase in contract time.

524.5 Measurement and Payment

No separate measurement for payment purposes shall be made for constructing drilled caissons. All costs for excavation, furnishing and placement of reinforcing steel and concrete in the caisson, all temporary casing, disposal of excavated materials, and the cost of furnishing all tools, safety devices, labor, equipment and all other necessary items to complete the work shall be included in the price bid for CONSTRUCTION COMPLETE.

Office of Materials and Research

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

Supplemental Specification

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 550—Storm Drain Pipe, Pipe-Arch Culverts, and Side Drain Pipe

Delete Section 550 and Substitute the following:

550.1 General Description

This work includes furnishing and installing the following:

- Storm drain pipe
- Pipe-arch culverts
- Side drain pipe flared end sections
- Tapered pipe inlets

Install structures according to the Specifications and the details shown on the Plans, or as directed by the Engineer.

550.1.01 Definitions

General Provisions 101 through 150.

550.1.02 Related References

A. Standard Specifications

Section 205—Roadway Excavation

Section 207—Excavation and Backfill for Minor Structures

Section 208—Embankments

Section 645—Repair of Galvanized Coatings

Section 815—Graded Aggregate

Section 834—Masonry Materials

Section 840—Corrugated Aluminum Alloy Pipe

Section 841—Iron Pipe

Section 843—Concrete Pipe

Section 844—Steel Pipe

Section 845—Smooth Lined Corrugated Polyethylene (PE) Culvert Pipe

Section 846—Polyvinyl chloride (PVC) Drain Pipe

Section 847—Miscellaneous Pipe

Section 848—Pipe Appurtenances

B. Referenced Documents

General Provisions 101 through 150.

550.1.03 Submittals

General Provisions 101 through 150.

550.2 Materials

Ensure that materials meet the requirements of the following Specifications:

Material	Section
Backfill Materials	207
Graded Aggregate	815.2.01
Reinforced Concrete Pipe	843.2.01
Nonreinforced Concrete Pipe	843.2.02
Mortar And Grout	834.2.03
Bituminous Plastic Cement	848.2.05
Rubber Type Gasket Joints (Concrete Pipe)	848.2.01
Preformed Plastic Gaskets	848.2.06
Corrugated Steel Pipe	844.2.01
Bituminous Coated Corrugated Steel Pipe	844.2.02
Corrugated Aluminum Alloy Pipe	840.2.01
Bituminous Coated Corrugated Aluminum Pipe	840.2.03
Aluminized Type 2 Corrugated Steel Pipe	844.2.06
Ductile Iron Pipe, Fittings and Joints	841
Precoated, Galvanized Steel Culverts	844.2.05
Smooth Lined Corrugated Polyethylene Pipe	845.2.01
Polyvinyl Chloride (PVC) Profile Wall Drain Pipe	846.2.01
Polyvinyl Chloride (PVC) Corrugated Smooth Interior Drain Pipe	846.2.02
Miscellaneous Pipe	847

Use any of the following types of pipe:

- Reinforced concrete
- Nonreinforced concrete
- Corrugated steel or Aluminum
- Smooth-lined corrugated polyethylene
- Ductile iron
- Polyvinyl Chloride (PVC) Profile Wall Drain Pipe
- Polyvinyl Chloride (PVC) Corrugated Smooth Interior Drain Pipe

Use the type of pipe designated on the Plans, or acceptable alternate types when applicable.

550.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

550.3 Construction Requirements

550.3.01 Personnel

General Provisions 101 through 150.

550.3.02 Equipment

General Provisions 101 through 150.

550.3.03 Preparation

Before installing pipe and pipe-arches, shape the foundation material as shown on the Plans.

Prepare structure excavations and foundation according to Section 207. Except, for smooth-lined corrugated polyethylene pipe, polyvinyl chloride (PVC) profile wall drain pipe and polyvinyl chloride (PVC) corrugated smooth interior drain pipe use the following requirements for backfill:

1. Cross drain applications use material that meets Subsection 815.2.01.
2. Longitudinal and side drain applications use material according to Section 207. Except, when Type I backfill material is required use Class II B2 soil or better.

550.3.04 Fabrication

General Provisions 101 through 150.

550.3.05 Construction

A. Drainage

Provide necessary temporary drainage. Periodically remove any debris or silt that constricts the pipe flow to maintain drainage throughout the life of the Contract.

B. Damage

Before allowing traffic over a culvert, protect the structure by providing sufficient depth and width of compacted backfill. Repair damage or displacement from traffic or erosion that occurs after installing and backfilling at no additional cost to the Department.

C. Installation

1. Concrete Pipe

   Lay flat-bottom and circular sections in a prepared trench with the socket ends pointing upstream. To join sections, use any of the following joint types:

   - Mortar
   - Bituminous plastic cement
   - Rubber-type gasket
   - O-ringed gasket
   - Preformed plastic gasket

   If using mortar and bituminous plastic cement joints:

   a. Fill the annular space with the joint material and wipe the inside of each joint smooth.
   b. Construct mortar joints in the same manner, but thoroughly wet the annular space before filling it with joint material.
   c. After the initial set, protect the outside mortar from air and sun with thoroughly wet earth or burlap cover. Install rubber-type, O-ring, and preformed plastic gasket joints according to the manufacturer's recommendations.

2. Ductile Iron Pipe

   Lay pipe sections in a prepared trench, with bells pointing upstream. Construct joints according to Subsection 841.2.02.A.

3. Corrugated Aluminum or Steel Pipe and Pipe-Arches

Lay pipe sections in a prepared trench, with outside laps of circumferential joints pointing upstream and longitudinal joints at the sides. Join the sections with coupling bands, fastened by two or more bolts. Keep no more than 2 in (50 mm) of space between adjoining sections.

Before backfilling the structure:

a. Repair exposed base metal in metal coating according to Section 645.

b. Recoat exposed base metal in bituminous coating with asphalt.

4. Smooth-Lined Corrugated Polyethylene Pipe

   Install smooth-lined corrugated polyethylene pipe according to ASTM D 2321. Use fitting and couplings that comply with the joint performance criteria of AASHTO Standard Specifications for Highway Bridges, Division II. Ensure that all joints are "soiltight" as stated in the AASHTO bridge specifications.

5. Specials (Wyes, Tees, and Bends)

   Install wyes, tees, and bends as shown on the Plans or as directed.

6. Tapered Pipe Inlets

   Locate and install tapered pipe inlet end sections as shown on the Plans or as directed.

7. Elongation

   Elongate metal pipe as shown on the Plans. Order the elongation of the vertical axis of the pipe to be done in the shop.

   Have the manufacturer ship metal pipe with wire ties in the pipe ends. Remove wire-ties immediately after completing the fill.

8. Flared End Sections

   Use flared end sections on the inlet, outlet, or on both ends of storm drain pipe, according to Plan details.

9. Polyvinyl Chloride (PVC) Drain Pipe

   Install polyvinyl chloride (PVC) drain pipe according to ASTM D 2321. Use fittings and couplings that comply with the joint performance criteria of AASHTO Standard Specifications for Highway Bridges, Division II. Ensure that all joints are "soiltight" as stated in the AASHTO bridge specifications.

550.3.06 Quality Acceptance

Clean pipes and pipe-arch culverts before final acceptance of the Work.

The Department may conduct video surveillance on storm drain (cross drain and longitudinal drain) installations after all activities are complete that may damage the pipe, but before the placement of the base and paving when applicable. If video surveillance shows problems such as pipe deformation, cracking, or joint separation, the Contractor shall repair or replace these pipes at no cost to the Department.

Use a nine-point mandrel to test a minimum of 25% of the installed length of smooth-lined corrugated polyethylene or PVC drain pipe for deformation (pieces will be selected by the Engineer). Use a mandrel that has an effective diameter equal to 95% of the base inside diameter. Provide the Engineer with a proving ring to verify the mandrel size. Mandrel testing shall not be paid for separately.

Ensure that smooth-lined corrugated polyethylene or PVC drain pipe installations have a maximum of 5% deflection when checked after completing all construction activities that may damage the pipe, but before placing the base and paving when applicable. If mandrel testing reveals problems, the Engineer may require that up to 100% of the storm drain installations be checked for deformation. Remove and replace pipe with over 5% deflection at no cost to the Department.

550.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

550.4 Measurement

No measurement to be included for this item.

Excavation and normal backfill are not measured for payment.

550.5 Payment

Payment will be made under CONSTRUCTION COMPLETE. Includes backfill, pipe installations, excavating, furnishing, and hauling materials; installing, cutting pipe where necessary; repairing or replacing damaged sections; making necessary connections; strutting, elongating, providing temporary drainage; joining an extension to an existing structure where required; and removing, disposing of, or using excavated material as directed by the Engineer.

DEPARTMENT OF TRANSPORTAION
STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 600—Controlled Low Strength Flowable Fill

Delete Section 600 and substitute the following:

600.1 General Description

This work consists of furnishing and placing ready-mixed or volumetric mixed Flowable Fill as an alternate to compacted soil as approved by the Engineer. Applications for this material include beddings, encasements, and closures for tanks and pipe, and general backfill for trenches and abutments.

600.1.01 Definitions

General Provisions 101 through 150.

600.1.02 Related References

A. Standard Specifications

Section 500—Concrete Structures

Section 801—Fine Aggregate

Section 830—Portland Cement

Section 831—Admixtures

Section 880—Water

B. Referenced Documents

SOP-10

General Provisions 101 through 150.

600.1.03 Submittals

Mix designs for flowable fill and other documentation listed in Subsection 500.1.03.

600.2 Materials

All materials shall meet the requirements of the following Specifications:

Material	Section

Material	Section
*Fine Aggregate	Subsection 801.2.02
Portland Cement	Subsection 830.2.01
**Fly Ash	Subsection 831.2.03
***Air-Entraining Admixtures	Subsection 831.2.01
Water	Subsection 880.2.01

*Note—Gradation requirement is waived.

**Note—The requirements of Subsection 831.2.03 will be waived for fly ash.

***Note—High air generators or foaming agents may be used in lieu of conventional air entraining admixtures and may be added at the job site and mixed according to the manufacturer's recommendation.

600.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

600.3 Construction Requirements

600.3.01 Personnel

General Provisions 101 through 150.

600.3.02 Equipment

General Provisions 101 through 150.

600.3.03 Preparation

A. Mix Design

Flowable fill can be batched by ready-mix or volumetrically mixed on site.

Ready-mixed flowable fill is a mixture of Portland cement, fly ash, fine aggregate, air entraining admixture, and water. Ready-mixed flowable fill contains a low cement content for reduced strength development.

Volumetric mixed flowable fill is a mixture of Class C fly ash or Portland cement, Class F fly ash, and water mixed on site.

1. Submit mix designs for flowable fill to the Engineer for approval by the Office of Materials and Research. The following table lists mix design proportion ranges for excavatable and non-excavatable flowable fill:

***Table 1—Mix Designs for Flowable Fill**

	Ready-Mixed		Volumetric Mixed	
	Excavatable	**Non-Excavatable**	**Excavatable**	**Non-Excavatable**
Cement, Type I	75-100 lbs/yd^3 (45-60 kg/m^3)	75-150 lbs/yd^3 (45-90 kg/m^3)	90 lbs/yd^3 (53 kg/m^3)	150 lbs/yd^3 (90 kg/m^3)
Class C Fly Ash	-	-	735-840 lbs/yd^3 (333-381 kg/m^3)	841-1045 lbs/yd^3 (381-474 kg/m^3)

Class F Fly Ash	-	150-600 lbs/yd^3 (90-355 kg/m^3)	1250-2000 lbs/yd^3 (567-1186 kg/m^3)	1045-1940 lbs/yd^3 (474-1150 kg/m^3)
Water	**	**	**	**
***Air	15 to 35%	5-15%	NA	NA
***28-Day Compressive Strength	Maximum 100 psi (690 kPa)	Minimum 125 psi (860 kPa)	Maximum 100 psi (690 kPa)	Minimum 125 psi (860 kPa)
***Unit Weight (Wet)	90-100 lbs/ft^3 (1440-1600 kg/m^3)	100-125 lbs/ft^3 (1600-2000 kg/m^3)	90-100 lbs/ft^3 (1440-1600 kg/m^3)	100-125 lbs/ft^3 (1600-2000 kg/m^3)

*Amounts singly or in combination to make the mix yield one cubic yard (meter).

**Mix designs shall produce a consistency that will result in a flowable self-leveling product at time of placement.

***The requirements for percent air, compressive strength, and unit weight are for laboratory designs only and are not intended for jobsite acceptance requirements.

600.3.04 Fabrication

A. Ready-Mixed

Ensure ready-mixed flowable fill is manufactured at plants that qualify as approved sources according to the Standard Operating Procedure for Quality Assurance for Ready-Mix Concrete Plants in Georgia (SOP-10). Mix and deliver according to Subsection 500.2.01 of the Specifications or other methods approved by the Engineer. Revolution counter requirements are waived.

B. Volumetric Mixed

Ensure volumetric mixed flowable fill is manufactured through the use of volumetric mixers according to Subsection 500.3.02 of the Specifications or other methods approved by the Engineer.

600.3.05 Construction

When using as backfill for pipe, where flotation or misalignment may occur, assure correct alignment of the pipe by using straps, soil anchors, or other approved means of restraint.

Protect flowable fill from freezing for 36 hours after placement.

600.3.06 Quality Acceptance

A. Jobsite Acceptance

Acceptance of flowable fill is based on documentation as outlined in Subsection 500.1.03 of the Specifications and a minimum temperature of flowable fill at the point of delivery of 50 °F (10 °C).

600.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

600.4 Measurement

No measurement to be included for this item.

600.4.01 Limits

General Provisions 101 through 150.

600.5 Payment

Payment will be made under CONSTRUCTION COMPLETE.

600.5.01 Adjustments

General Provisions 101 through 150.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 603—Rip Rap

Delete Subsection 603.4 and substitute the following:

603.4 Measurement

No separate measurement will be included for this item.

603.4.01 Limits

General Provisions 101 through 150.

Delete Subsection 603.5 and substitute the following:

603.5 Payment

Payment will be made under CONSTRUCTION COMPLETE.

603.5.01 Adjustments

General Provisions 101 through 150

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 615—Jacking or Boring Pipe

Delete Subsection 615.4 and substitute the following:

615.4 Measurement

No separate measurement will be included for this item.

615.4.01 Limits

General Provisions 101 through 150.

Delete Subsection 615.5 and substitute the following:

615.5 Payment

Payment will be made under CONSTRUCTION COMPLETE. Includes full compensation for furnishing the pipe of type, size, and class required and the incidentals to complete the Item. Excavation will not be paid for separately but will conform to Section 205 and Section 208.

615.5.01 Adjustments

General Provisions 101 through 150

July 25, 2005
First Use Date: October 21, 2005
Revised February 28, 2007

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Add the following:

Section 620—Temporary Barrier

620.1 General Description

This work provides for Method 1 and Method 2 temporary barrier systems.

620.1.01 Definitions

Method 1- Method of furnishing, placing, maintaining, moving, and reusing where required, and removing temporary barrier of the length and at the locations shown on the Plans. Method 1 barrier is not suitable on bridges where the distance from the centerline of the barrier to the free edge of the bridge deck is less than or equal to 6'-0" (1.8 m) measured normal to the barrier.

Method 2- Method of furnishing, placing, maintaining, moving, and reusing where required, and removing manufactured barrier of the length, and at the locations shown on the Plans. Method 2 barrier is to be used on bridges and bridge approaches where the distance from the centerline of the barrier to the free edge of the bridge deck is less than or equal to 6'-0" (1.8 m) measured normal to the barrier.

620.1.02 Related References

A. Standard Specifications

Section 500—Concrete Structures

Section 501—Steel Structures

Section 511—Reinforcement Steel

B. Referenced Documents

General Provisions 101 through 150

National Cooperative Highway Research Program (NCHRP) Report 350.

620.1.03 Submittals

Method 1- Submit certification from the manufacturer that the proposed barrier and its interconnecting hardware replicates an NCHRP-350 "Test Level 3" approved documented in an acceptance letter from FHWA or certification that the barrier meets the requirements of Ga. Std. 4961. Submit all certification documents to the engineer prior to delivery of the barrier to the project.

Method 2 — Submit certification from the manufacturer that the proposed barrier and its interconnecting hardware replicates an NCHRP 350 "Test Level 3" approved documented in an acceptance letter from FHWA and that the barrier does not deflect more than 1'-0" (300mm) under NCHRP test conditions. Attach the acceptance letter stating that the proposed is in compliance with NCHRP 350 "Test Level 3" and that the barrier meets the deflection criteria to the certification. Submit all certification documents to the engineer prior to delivery of the barrier to the project.

620.2 Materials

A. Method 1

Supply a temporary barrier.

Ensure that materials are in accordance with the manufacturer's recommendations, specifications, and details or that the materials meet the requirements of the Standard Specifications and Ga. Std. 4961.

B. Method 2

Supply a temporary barrier.

Ensure that materials used in the barrier are in accordance with the manufacture's recommendations, Specifications, and details.

620.2.01 Delivery, Storage, and Handling

A. General

Deliver, store, and handle barrier in accordance with the manufacturer's recommendations.

Repair damage to the barrier and its connections in accordance with the manufacturer's recommendations at no additional cost to the Department prior to acceptance for use by the Department.

620.3 Construction Requirements

620.3.01 Personnel

General Provisions 101 through 150.

620.3.02 Equipment

General Provisions 101 through 150.

620.3.03 Preparation

General Provisions 101 through 150

620.3.04 Fabrication

A. Method 1

Perform barrier fabrication as detailed on Ga. Std. 4961 or in accordance with the manufacturer's recommendations.

B. Method 2

Perform barrier fabrication in accordance with the manufacturer's recommendations.

620.3.05 Construction

A. General

Handle and transport units to prevent damage and/or as recommended by the manufacturer. When required, use units at one or more sites on the same project.

Ensure that the units are complete and in acceptable condition and located where designated on the Plans or directed by the Engineer before acceptance by the Department.

Use the Plan quantity of barrier effectively to complete The Work within the Contract time. If scheduling The Work requires additional barrier, furnish it at no additional expense to the Department.

Use only one section shape, length, and connection type in a single run of interconnected barrier.

B. Method 2

Rigidly attach the barrier to the bridge deck and extend it off the bridge a transition distance indicated in the Standard Plans.

Interconnect all barrier sections within each single run of barrier.

Use non-shrink grout to fill all holes remaining in permanent bridge decks after barrier is removed.

620.3.06 Quality Assurance

General Provisions 101 through 150.

620.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

620.4 Measurement

No measurement to be included for this item.

620.4.01 Limits

General Provisions 101 through 150.

620.5 Payment

Payment will be made under CONSTRUCTION COMPLETE. Includes fabrication, use, moving, reuse, and removal of the units.

No separate payment will be made for moving and/or reusing units during the work or for using additional units beyond the Plan quantity to facilitate the construction schedule.

No separate payment will be made for filling holes used to bolt Method 2 barrier to bridge decks.

620.5.01 Adjustments

General Provisions 101 through 150.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 621—Concrete Barrier

Delete Subsection 621.4 and substitute the following:

621.4 Measurement

No separate measurement will be included for this item.

621.4.01 Limits

General Provisions 101 through 150.

Delete Subsection 621.5 and substitute the following:

621.5 Payment

Payment will be made under CONSTRUCTION COMPLETE. Includes full compensation for providing materials, forms, and equipment; preparing subgrade and base; and providing labor, incidentals, and direction to complete the work.

621.5.01 Adjustments

General Provisions 101 through 150

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 634—Monuments and Road Markers

Delete Subsection 634.4 and substitute the following:

634.4 Measurement

No measurement to be included for this item. Includes monuments, name plaques—special designs, road markers, Right-of-Way markers, and county line markers placed, completed, and accepted.

634.4.01 Limits

General Provisions 101 through 150.

Delete Subsection 634.5 and substitute the following:

634.5 Payment

Payment will be made under CONSTRUCTION COMPLETE.

634.5.01 Adjustments

General Provisions 101 through 150.

Revision Date: March 28, 2006
First Use Date: June 16, 2006
Revised February 28, 2007

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

Special Provision

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 636—Highway Signs

Delete Subsection 636.3.05.E and substitute the following:

E. Legends and Borders

Place legends and borders according to Subsection 917.2.01, "Demountable Characters", with Type IX reflective sheeting.

Delete Subsection 636.4 and substitute the following:

636.4 Measurement

No separate measurement will be included for this item.

A. Type-1 or Type-2 Highway Signs

Includes providing the message and furnishing and placing signs complete and accepted.

B. Extruded Aluminum Panels

Includes legend components, border material, fittings, nuts, washers, clamps, molding, etc., furnished, erected, completed, and accepted.

C. Galvanized Steel Posts

Includes number of pounds (kilograms) furnished, erected, and accepted as well as base plates, connections, anchors, stub post, etc.

D. Delineators

Includes posts, rivets, and spacers, that are furnished, placed, and completed and accepted.

E. Mast Arm Assemblies

Includes actual number furnished and erected and concrete footing, sign, and post, completed and accepted.

F. Special Roadside Signs

No deductions are made for the volume of concrete displaced by steel piling, anchor bolts, or posts.

G. Portland Cement

Portland cement stabilized material used for backfilling holes is not measured for payment.

H. Steel H—Piling

No separate measurement will be included for this item.

636.4.01 Limits

General Provisions 101 through 150.

Delete Subsection 636.5 and substitute the following:

636.5 Payment

Payment will be made under CONSTRUCTION COMPLETE.

Office of Materials and Research

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 638—Structural Supports for Overhead Signs

Delete Subsection 638.1.01 and substitute the following:

638.1.01 Definitions

Structural supports for overhead signs are defined generally as follows:

Type	Description
I	A SIGN BRIDGE type structure that spans the roadway with more than two horizontal chords supported by two columns, one at each end. Each column shall have at least two braced vertical members.
II	A CANTILEVER type structure with two or more horizontal chords supported by a single column at one end.
III	A BUTTERFLY type structure with two or more horizontal chords extending an equal distance in opposite directions from a single column.
IV	A COMBINATION (Bridge-Cantilever) type structure with more than two horizontal chords supported by two columns, only one at one end and one at an intermediate point. Each column shall have at least two braced vertical members.
V	A CANTILEVER type structure with a maximum of two horizontal chords supported by a single column at one end.
VI	A SIGN BRIDGE type structure that spans the roadway with a maximum of two horizontal chords supported by two columns, one at each end.
VII	A BRIDGE MOUNTED (attached to a highway bridge) structural frame.
VIII	A BUTTERFLY type structure with a maximum of two horizontal chords extending an equal distance in opposite directions from a single column.

Type II and V structures' maximum horizontal dimension shall be 32 ft (9.75 m). The horizontal dimension is measured from the column's centerline to the furthest point of the structure or sign.

Type III and VIII structures' maximum horizontal dimension shall be 25 ft (7.6 m). The horizontal dimension is measured from the furthest point of the structure or sign on one side to the furthest point of the structure or sign on the other side. Place the sign(s) on the structure to create a slightly unbalanced condition about the column's centerline during wind loads.

Types V, VI, and VIII structural supports shall be used with flat sheet aluminum signs. If the vertical dimension of the largest sign is 42 in (1050 mm) or less, one horizontal chord may be used.

A walkway is required only when called for on the signing plans.

Delete the introductory paragraphs under Subsection 638.1.03, Submittals, and substitute the following:

Submit to the Engineer 6 sets of shop drawings [(12 in x 18 in (305 x 457 mm)] half size plan sheets) and 2 sets of design calculations [8.5 in x 11 in (216 x 297 mm)] sheets, neatly bound and indexed] for the Structural Supports, anchor bolt assemblies, and foundations for review and approval. Also send a copy of your transmittal letter to the State Traffic Safety & Design Engineer.

Detail the shop drawings to permit replacement of all members and include all dimensions, construction tolerances, elevations at top and bottom of foundations, and sizes of members. The shop drawings shall include the material designations of the structure and of the hardware for attaching the sign, the lane delineation of the roadway under the structure, and the walkway (when required by the signing plans). See Figure 1, Figure 2, and Figure 3.

Delete Subsection 638.1.03.B and substitute the following:

B. Walkways

When walkways are required by the signing plans, place walkways in front of the signs and extend them at least 1 ft (300 mm) outside of the edge of all overhead signs and at least 2 ft (600 mm) outside of the right edge of paving, or as directed by the Engineer. Provide walkways in front of the lower front chord, and do not locate a portion higher than the lowest part of any sign. Make the walkway continuous from end to end with a railing along the front side that can be folded down flush with the walkway when not in use.

Delete Subsection 638.2.D and substitute the following:

D. Concrete Foundations

Class A concrete shall comply with Section 500.

Reinforcement steel shall comply with Section 853, Grade 60 (420).

Delete Subsection 638.4 and substitute the following:

638.4 Measurement

No measurement to be included for this item. Includes design, fabrication, and construction of structural supports including anchor bolt assemblies, foundations, excavation, backfill, redressing, and regrassing; but exclusive of signs.

638.4.01 Limits

General Provisions 101 through 150.

Delete Subsection 638.4 and substitute the following:

638.5 Payment

Payment will be made under CONSTRUCTION COMPLETE.

638.5.01 Adjustments

General Provisions 101 through 150.

First Use February 28, 2007

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 639—Strain Poles for Overhead Sign and Signal Assemblies

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Delete Subsection 639.4 and substitute the following:

639.4 Measurement

No measurement to be included for these items.

639.4.01 Limits

General Provisions 101 through 150.

Delete Subsection 639.5 and substitute the following:

639.5 Payment

Payment will be made under CONSTRUCTION COMPLETE.

A. Treated Timber Poles

Includes poles, concrete encasements, excavation for pole and anchor holes, temporary pole alignment, bracing, guys, and items to complete the Work.

B. Steel Strain Poles

Includes backfill, erection, and necessary regrassing.

C. Prestressed Concrete Strain Poles

Includes backfill, erection, and necessary regrassing.

D. Steel Cable

Includes furnishing and erecting the cable and providing hardware including thimbles, but not hardware that is a part of the pole.

639.5.01 Adjustments

General Provisions 101 through 150.

Revised: February 28, 2007

DEPARTMENT OF TRANSPORATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

SECTION 641 – Guardrail

Delete Sub-section 641.4 and substitute the following:

641.4 Measurement

The item will not be measured separately.

Includes:

A. Guardrail .

B. Guardrail Anchorage Assembly

C. Guardrail Posts

641.4.01 Limits

General Provisions 101 through 150.

Delete Sub-section 641.5 and substitute the following:

641.5 Payment

This item will be paid for under CONSTRUCTION COMPLETE

Includes posts, offset blocks, and hardware, furnishing the posts, offset block, hardware, and Work to complete the Item. Also includes:

- Embankment material for shoulders as shown on the Standard Details or Plans
- Compacting embankment material for shoulders to the approximate density of the surrounding soils
- Removing existing vegetation and obstructions before placing the embankment
- Grassing the reconstructed area according to Section 700

Payment will not be increased or decreased when wood offset blocks are added to or substituted for steel or plastic offset blocks.

641.5.01 Adjustments

General Provisions 101 through 150.

Revised: February 28, 2007

DEPARTMENT OF TRANSPORATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

SECTION 643 – Fence

Delete Sub-section 643.4 and substitute the following:

643.4 Measurement

This item shall not be measured separately.

Includes posts, post assemblies, pull, corner, and gate posts, and gates.

643.4.01 Limits

General Provisions 101 through 150.

Delete Sub-section 643.5 and substitute the following:

643.5 Payment

This item will paid for under CONSTRUCTION COMPLETE.

Includes posts and hardware, locks, keys, and other incidentals, clearing and grubbing, grading, excavating, backfilling, disposing of surplus materials, and furnishing materials and incidentals such as molten lead or cement filler on concrete walls, slabs, or solid rock to complete the work.

Materials salvaged from temporary field fence remain the Contractor's property.

Includes all necessary clearing, installation of fence including hardware and other incidentals, and removal of the fence. The barrier fence, posts, and all incidentals become the property of the Contractor upon removal.

643.5.01 Adjustments

General Provisions 101 through 150.

First use date: December 16, 2005
Revised : February 24, 2006
Revised February 28, 2007

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 648-Traffic Impact Attenuator

Delete Section 648 and substitute the following:

648.1 General Description

This work includes furnishing and installing impact attenuator units/arrays to conform with Plan locations and details and/or as directed by the Engineer. All impact attenuator units/arrays shall be tested and approved at the specified NCHRP 350 Test Level.

648.1.01 Definitions

General Provisions 101 through 150.

Gating-A gating end treatment allows a vehicle impacting the nose or the side of the unit at an angle near the nose to pass through the device

Non- Gating-A non-gating end treatment is capable of redirecting a vehicle impacting the nose or the side of the unit along the unit's entire length.

648.1.02 Related References

A. Standard Specifications

General Provisions 101 through 150

B. Referenced Documents

National Cooperative Highway Research Program (NCHRP) Report 350.

ASTM A 123/A 123M

QPL 64

Roadside Design Guide

648.1.03 Submittals

A. Installation Drawings

Submit all required certifications, test reports and drawings of details for completing the installation. Obtain Engineer's approval of these documents before beginning work on attenuator installation. Portable Impact Attenuator arrays shall meet the requirements of Ga. Std. 4962, or manufacturer specifications.

B. Manufacturer's Information

Submit certification from the manufacturer that the attenuator unit/array and its interconnecting hardware replicates an NCHRP-350 approved attenuator in an accepted letter from the FHWA. Furnish items such as manufacturer's brochures or specifications that completely outline the manufacturer's recommendations for materials and installation methods. All workmanship and materials are subject to the Engineer's approval.

648.2 Materials

A. Attenuator

1. Ensure that materials are in accordance with the manufacturer's recommendations, specifications and details.
2. Use attenuators that have been classified as "accepted" by the Department's Office of Materials and Research and approved by the Federal Highway Administration (FHWA) as meeting NCHRP-350 for the test level specified
3. Ensure that restoration and/or repair can be accomplished without the necessity of removing the unit/array from the original location.
4. Where required, ensure the approach end of the attenuator is equipped with a reflectorized object marker in accordance with Plan Details. The object marker may be furnished by the manufacturer of the attenuator or by others. Ensure that the front most section of the unit (the "nose") is yellow in color unless specified otherwise.
5. Where required, use an approved back-up system as specified in the Plans.
6. For non-gating attenuators, anchor the attenuator to the pavement according to a system recommended by the manufacturer for the type pavement encountered.
7. Use Class "A" concrete for reinforced concrete pads, concrete back up if used, and concrete transition where required.
8. Use metal components and hardware galvanized according to ASTM A 123/A 123M unless otherwise specified. Ensure all metal components and hardware of permanent attenuators are free of corrosion when shipped.
9. In freezing conditions, water filled attenuators shall be treated according to the manufacturer's recommendations.

648.2.01 Delivery, Storage, and Handling

A. General

General Provisions 101 through 150.

648.3 Construction Requirements

648.3.01 Personnel

General Provisions 101 through 150.

648.3.02 Equipment

General Provisions 101 through 150.

648.3.03 Preparation

General Provisions 101 through 150.

648.3.04 Fabrication

A. Design Criteria and Type Selection

The Impact Attenuator Unit Type will be shown on the plans. Two characters designate the type Permanent attenuator.

- First character

  Indicates the type of permanent installation.

  The letter "P" designates a permanent installation.

  The letter "S" designates a permanent self restoring (non-gating) installation which is capable of withstanding multiple hits without requiring repair or adjustment.

- Second character

  Designates the required NCHRP test level.

- Third character

  Indicates the traffic flow direction(s).

The letter "B" indicates bi-directional traffic typical for median applications or when the unit is installed on the shoulder of a two-lane, two-way traffic facility. Bi-directional means traffic flows in opposite directions at the site of the attenuator installation.

The letter "U" indicates uni-directional traffic flow typical for gore areas. Uni-directional means traffic on both sides traveling the same direction, from the nose to the rear of the unit.

The letter "S" indicates traffic flow in one direction on a single side only, typical for a unit located on the outside shoulder of a roadway with one-way traffic and the other side of the attenuator not being exposed to traffic.

- Fourth character

  Indicates the numerical value of the width, in inches (millimeters), of the base of the rigid object that the attenuator will be shielding.

  At bridge columns, this character is typically the width of the column plus the barrier base widths on the column sides at the pavement surface.

B. Example

A Type P-3-U-60 attenuator designates

a permanent installation

tested and approved at NCHRP test level 3

Uni-directional traffic flow

a 5' (1500 mm) wide base for the rigid object being shielded.

Temporary portable units/arrays may be either gating or non-gating based on construction sequencing and/or field conditions, See Specification Section 150. Unless otherwise specified, all permanent attenuators shall be non-gating.

648.3.05 Construction

Field locate the position of the attenuator nose as shown on the plans prior to beginning the installation. Have any variations approved by the Engineer.

If the length of the attenuator unit/array is less than that indicated in the plan details for the specified conditions, the length of the concrete transition section or the length of the longitudinal barrier shall be increased as needed to provide a proper beginning point for the attenuator nose as shown in the plans.

The length of the system will be the combined length of the attenuator unit/array, the back-up system and any required transition. The length of the system shall not be excessive to the extent that it intrudes appreciably within the clear offset distance as shown on the plans.

The increased length of transition or barrier is considered as an incidental part of the system and will not be itemized separately.

Temporary portable units/arrays shall be installed, moved, reinstalled and maintained as required.

648.3.06 Quality Assurance

Obtain certification from the manufacturer that the impact attenuator unit/array installed meets all required approvals and specifications and furnish these to the Engineer.

Furnish any mill test/galvanizing test reports and heat numbers for all metal components of the unit per current requirements of the Department's Office of Materials and Research.

648.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

648.4 Measurement

No measurement to be included for this item. Includes components, hardware, anchors, incidentals, freeze treated water or sand, and labor for each installation shown on the plans or as directed by the Engineer.

648.4.01 Limits

General Provisions 101 through 150.

648.5 Payment

Payment will be made under CONSTRUCTION COMPLETE. Includes materials, labor, and incidentals necessary to complete the Item including installing, moving, reinstalling and maintaining Units/Arrays as required and the back-up system and transitions where required.

648.5.01 Adjustments

General Provisions 101 through 150.

February 15, 1999
Revised September 2, 2002
Revised July 21, 2003
Revised January 8, 2004
Revised April 9, 2004
Revised February 28, 2007

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 652—Painting Traffic Stripe

Retain Section 652 and add the following:

Section 652—Polyurea Traffic Stripe

652.1 General Description

This work includes furnishing and applying reflectorized traffic line paint according to the Plans and these Specifications.

This Item also includes applying words and symbols according to Plan details, Specifications, and the current Manual on Uniform Traffic Control Devices.

652.1.01 Definitions

Painted Stripes: Solid or broken (skip) lines. The location and color are designated on the Plans.

Skip Traffic Stripes: Painted segments between unpainted gaps on a designated sequence with a ratio of 1:3 [10 ft (3 m) segment and 30 ft (9 m) gap] as specified on the Plans. The location and color are designated on the Plans.

652.1.02 Related References

A. Standard Specifications

General Provisions 101 through 150.

Section 656—Removal of Pavement Markings

Section 870—Paint

B. Referenced Documents

QPL 46

AASHTO M 247

ACI Method 503

ASTM C 4060

ASTM D 711

ASTM D 1155

ASTM D 1213

ASTM D 4061

ASTM D 6359

ASTM E 303

ASTM E 1710

ASTM G 154

Federal Standard No. 595A-17778

652.2 Materials

A. Polyurea Composition Requirements

- Use a polyurea composition that is specifically formulated for use as a durable pavement marking material and for application at elevated temperatures not exceeding 170 °F (77 °C).
- Ensure the liquid markings consist of a two-component (Part A and Part B), 100% solids polyurea film formulated and designed to provide a simple volumetric mixing ratio as recommended by the manufacturer.
- Use white or yellow films for the markings. Ensure that these films are manufactured without the use of lead chromate pigments or other similar, lead-containing chemicals.
- Ensure that the white polyurea contains not less than 13% by weight rutile titanium dioxide pigment to insure adequate opacity, hiding power,and reflective properties.

B. Glass Beads and Ceramic Reflective Elements

Use glass beads and/or ceramic reflective elements for the reflective media system that ensures the polyurea pavement markings meet the reflectance performance requirements in Section 652.2.C.2.

C. Finished Product Requirements:

1. Composition

   Ensure that the retroreflective pavement markings consist of a mixture of high-quality resins, curing agent and pigments, with a reflective layer bonded to the top surface consisting of glass beads.

2. Reflectance

   When applied according to the manufacturer's recommendations, ensure that the white and yellow markings have the average initial and 12 months retroreflectance values shown in the tables below, as measured in accordance with the testing procedures of ASTM D4061 or ASTM E 1710.

   An observation angle of 1.05° and an entrance angle of 88.8° corresponds to 30 meter geometry. The photometric quantity to be measured is the coefficient of retroreflected luminance (R_L) and is expressed as millicandelas per square foot per foot-candle [$(mcd \bullet ft^{-2}) \bullet fc^{-1}$]. The metric equivalent is expressed as millicandelas per square meter per lux [$(mcd \bullet m^{-2}) \bullet lx^{-1}$].

   Determine the intitial and 12 months retroreflectance of a single installation according to the measurement and sampling procedures outlined in ASTM D 6359, using a 30-meter retroreflectometer.

Average Minimum Initial Reflectance		
	White	**Yellow**
Entrance Angle	88.8°	88.8°
Observation Angle	1.05°	1.05°
Retroreflected Luminance R_L [$(mcd \bullet ft^{-2}) \bullet fc^{-1}$]	600	400

Measure intial performance of pavement markings within 7 days after application.

Average Minimum Reflectance at 12 Months		
	White	Yellow
Entrance Angle	88.8°	88.8°
Observation Angle	1.05°	1.05°
Retroreflected Luminance R_L [(mcd • ft^{-2}) • fc^{-1}]	400	250

3. Color

   Meet these color requirements:

   - White markings are pure white and free from dirt or tint.
   - Yellow markings are "Federal Yellow" in color.
   - The material does not change its color and brightness characteristics after prolonged exposure to sunlight.

4. Skid Resistance

   Ensure the surface of the retroreflective marking provides an initial average skid resistance value of 45 BPN when tested according to ASTM E303.

5. Color and Weathering Resistance

   Ensure that the mixed polyurea compound, both white and yellow, when applied to 3 in (75 mm) x 6in (150 mm) aluminum panels at 15 ± 1 mils (0.381 mm ± 0.025 mm)wet thickness without glass beads and exposed in a Q.U.V. Environmental Testing Chamber, as described in ASTM G-53-77, conforms to the following minimum requirements:

   - The color of the white polyurea compound is not darker than Federal Standard No. 595A-17778.
   - The color of the yellow polyurea compound meets the requirements of the "Federal Yellow" color chart.

6. Drying Time (Laboratory)

   When tested in accordance with ASTM D-711 the polyurea marking material shall reach a no-pick-up condition in 10 minutes or less. Perform this test with ASHTO M247 Type 1 beads applied at a rate of 0.099 pounds per square foot (0.483 kg/m^2). Ensure that the drying time does not increase substantially with decreasing temperature.

7. Drying Time (Field)

   When installed at 77 °F (25 °C), at a wet film thickness of 20 ± 2 mils (0.508 mm ± 0.051 mm) and reflectorized with glass beadsand/or ceramic reflective elements, ensure that the polyurea markings reaches a no-track condition in less than 10 minutes. Dry to "no-tracking" will be considered as the condition where no visual deposition of the polyurea marking to the pavement surface is observed when viewed from a distance of 50 feet (15 m), after a traveling vehicle's tires have passed over the marking.

8. Abrasion Resistance

   Ensure that the wear index of the polyurea compound does not exceed 0.00026 lbs (120 mg) when tested in accordance with ASTM C4060 using a CS-17 wheel and under a load of 2.2 lbs (1000 g) for 1000 cycles.

9. Adhesion to Concrete

   Ensure that the polyurea pavement marking materials, when tested according to ACI Method 503, have such a high degree of adhesion to the specified concrete surface that there is a 100% concrete failure in the performance of this test. Condition the prepared specimens at room temperature 75 ° ± 2 °F (24 °C) for a minimum of 24 hours and maximum of 72 hours prior to the performance of this test.

10. Adhesion to Asphalt

    Ensure that the polyurea pavement marking materials, when tested according to ACI Method 503, have such a high degree of adhesion to the specified asphalt surface that there is a 100% asphalt failure in the performance of this test.

Condition the prepared specimens at room temperature 75 ° ± 2 °F (24 °C) for a minimum of 24 hours and maximum of 72 hours prior to the performance of this test.

652.3 Construction Requirements

652.3.01 Equipment

A. Traveling Traffic Stripe Painter

To apply the traffic marking material, use a mobile, truck mounted and self contained pavement marking machine, specifically designed to apply two-component liquid materials, and glass beads, in a continuous and skip-line pattern.

Apply the two-component liquid materials through airless impingement mixing guns. The guns must accommodate a plural component material system at the manufacturer's recommended volumetric mixing ratio. The guns must have the capacity to deliver materials from approximately 1.5 (5.7 L) to 3 gal (11.4 L) per minute to compensate for a typical range of application speeds of 3 mph (5 km/h) to 6 mph (10 km/h). Ensure that the machine travels at a uniform rate of speed both uphill and downhill.

Select the necessary accessories such as spray tip, mix chamber or static tube, and rod diameter to ensure proper mixing.

Ensure that the machine meets the following:

- The machine is capable of applying three separate stripes, either solid or skip, in any specified pattern by utilizing three adjacent spray nozzles at the same time.
- Each nozzle is equipped with satisfactory cutoff valves that will apply skip lines automatically.
- The application equipment is maneuverable to the extent that straight lines can be followed and normal curves can be made in a true arc.
- The truck-mounted unit is provided with accessories to allow for the marking of symbols and legends.

Ensure that the mobile applicator also includes the following features:

- The mobile applicator provides individual material reservoirs for the storage of Part A and Part B of the resin composition.
- The applicator is equipped with heating equipment of sufficient capacity to maintain the individual resin components at the manufacturer's recommended temperature for spray application.
- The applicator is equipped with separate temperature controls for each component.
- The applicator is equipped with glass bead dispensing equipment and capable of applying the glass beads at a uniform rate.
- The application equipment is equipped with metering devices or pressure gauges on the proportioning pumps as well as stroke counters to monitor volumetric usage. Ensure that the metering devices or pressure gauges and stroke counters are visible.
- The applicator is equipped with all the necessary spray equipment, mixers, compressors, and other appurtenances to allow for the placement of reflectorized pavement markings in a simultaneous sequence of operations.

B. Cleaning Equipment

Use brushes, brooms, scrapers, grinders, high-pressure water jets, or air blasters to remove dirt, dust, grease, oil, and other foreign matter from painting surfaces without damaging the underlying pavement.

652.3.02 Preparation

Before painting, thoroughly clean pavement surfaces of dust, dirt, grease, oil, and all other foreign matter.

Remove concrete curing compounds on new Portland cement concrete surfaces and existing pavement markings on both concrete and asphalt surfaces.

652.3.03 Construction

A. Atmospheric Conditions

Apply pavement markings only during conditions of dry weather and subsequently dry pavement surfaces. Ensure that the pavement surface temperature and the ambient temperature at the time of installation are both greater than 40 °F (4 °C) and that the relative humidity is not greater than 85%.

B. Alignment

Ensure that the traffic stripe is the specified length, width, and placement. On sections where no previously applied markings are present, ensure accurate stripe location by establishing control points at spaced intervals. The Engineer will approve control points.

C. Application

Apply the pavement markings as follows:

1. Apply the liquid marking material by spray method and according to the manufacturer's installation instructions.
2. Ensure marking configurations are in accordance with the "Manual on Uniform Traffic Control Devices."
3. Place the reflectorized pavement markings only on properly prepared surfaces and at the widths and patterns designated on the Plans. Do not begin marking operations until applicable surface preparation work is completed and approved by the Engineer.
4. Air-blast the surface first, to remove any dirt and residues from the pavement. Then apply the pavement markings as a continuous operation.
5. Heat Component A and Component B to the manufacturer's recommended temperatures.
6. Ensure that mixing of the two components occurs in a static tube or impingement chamber prior to reaching the application spray nozzle.
7. Spray the mixed resin onto the pavement surface at a minimum uniform wet thickness of 20 mils (0.51 mm).
8. Immediately following application, drop the glass beads and/or ceramic reflective elements onto the liquid marking at the application rates recommended by the binder manufacture.
9. The work will be subject to application rate checks for both paint and beads.

Following an application of glass beads, and upon curing, ensure that the resulting marking is an adherent reflectorized stripe of the specified thickness and width that is capable of resisting deformation by traffic.

D. Protective Measures

Protect newly applied paint as follows:

1. Traffic

   Control and protect traffic with warning and directional signs during painting. Set up warning signs before beginning each operation and place signs well ahead of the painting equipment. When necessary, use a pilot car to protect both the traffic and the painting operation.

2. Fresh Paint

   Protect the freshly painted stripe using cones or other satisfactory devices. Repair stripe damage or pavement smudges caused by traffic according to Subsection 652.3.06.

E. Appearance and Tolerance of Variance

Continually deviating from stated dimensions is cause for stopping the work and removing the nonconforming stripe. (See Section 656.) Adhere to the following measurements:

1. Width

   Do not lay stripe less than the specified width. Do not lay stripe more than 1/2 in (13 mm) over the specified width.

2. Length

   Ensure that the 10 ft (3 m) painted skip stripe and the 30 ft (10 m) gap between painted segments vary no more than ± 1 ft (300 mm) each.

3. Alignment
   a. Ensure that the stripe does not deviate from the intended alignment by more than 1 in (25 m) on tangents or curves of 1 degree or less.
   b. Ensure that the stripe does not deviate by more than 2 in (50 mm) on curves exceeding 1 degree.

652.3.04 Quality Acceptance

Ensure that stripes and segments of stripes are clean-cut and uniform. Markings that do not appear uniform or satisfactory, either during the day or night, or do not meet Specifications or become marred or damaged by traffic or from other causes, will be corrected at the Contractor's expense.

Sections of painted stripe, words, and symbols placed according to the Plans and Specifications and have dried so that paint will not be picked up or marred by vehicle tires will be accepted. The Contractor will be relieved of responsibility for maintenance on accepted sections.

A. Correction of Alignment

When correcting a deviation that exceeds the permissible tolerance in alignment, do the following:

1. Remove the affected portion of stripe, plus an additional 25 ft (8 m) in each direction.
2. Paint a new stripe according to these Specifications.

Remove the stripe according to Section 656.

B. Removal of Excess Paint

Remove misted, dripped, or spattered paint to the Engineer's satisfaction. Do not damage the underlying pavement during removal.

Refer to the applicable portions of Section 656.

652.4 Measurement

No measurement to be included for this item.

652.5 Payment

Payment will be made under CONSTRUCTION COMPLETE.

Date: April 18, 2003
First Use Date: July 1, 2003
Revised February 28, 2007

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 653—Thermoplastic Traffic Stripe

Delete Section 653.1.02.B and substitute the following:

B. Referenced Documents

QPL 46B

QPL 71

AASHTO M 249

AASHTO T 250

ASTM D 476

ASTM D 2240

ASTM D 4764

ASTM D 4960

Delete Section 653.1.03 and substitute the following:

653.1.03 Submittals

Ensure that the producers of the thermoplastic compound and glass spheres furnish to the Department copies of certified test reports showing results of all tests specified in this Section. Also, ensure that producers certify that the materials meet the other requirements of this Section by submitting copies of certification at the time of sampling.

Delete Section 653.2.A and substitute the following:

653.2 Materials

A. Requirements

Ensure that the resin of the thermoplastic material is an alkyd binder. The binder shall be Type A – alkyd. Ensure that at least one third of the binder composition is solid maleic-modified glycerol ester resin and is not less than 8% by weight of the entire material formulation. Do not use alkyd binder that contains petroleum based hydrocarbon resins. Ensure that the finished thermoplastic material is not adversely affected by contact with pavement materials or by petroleum

droppings from traffic. Use thermoplastic material that is produced from an approved source listed on QPL 46B. Also ensure that thermoplastic material meets the requirements of AASHTO M 249 with the following exceptions:

1. Color

   Confirm the color of thermoplastic is as follows:

   a. White-Use titanium dioxide that meets the requirements of ASTM D 476, Type II Rutile, as the pigment for white thermoplastic material. White thermoplastic material shall be free from dirt or tint. White thermoplastic material heated for 240 ± 5 minutes at 425 ± 3 °F (218 ± 2 °C) and cooled to 77 ± 3 °F (25 ± 2 °C) shall match Federal Test Standard Number 595b-Color 17925. The material, when compared to the magnesium oxide standard using a standard color spectrophotometer according to ASTM D 4960, shall meet the following:

Scale	Definition	Magnesium Oxide Standard	Sample
Rd	Reflectance	100	75 min.
a	Redness-Greenness	0	-5 to +5
b	Yellowness-Blueness	0	-10 to +10

   b. Yellow-Yellow thermoplastic material heated for 240 ± 5 minutes at 425 ± 3 °F (218 ± 2 °C) and cooled to 77 ± 3 °F (25 ± 2 °C) shall match Federal Test Standard Number 595b-Color 13538. The material, when compared to PR#1 Chart using a standard color spectrophotometer according to ASTM D 4960, shall plot within the following chromaticity coordinates:

Scale	1	2	3	4	5
X	0.492	0.513	0.514	0.507	0.483
y	0.471	0.463	0.460	0.445	0.445

2. Indentation Resistance

   Measure the hardness by a Shore Durometer, Type A2, as described in ASTM D 2240. Maintain the temperature of the Durometer, 4.4 lb. (2 kg) load and the specimen at 115 °F (45 °C). Apply the Durometer and 4.4 lb. (2 kg) load to the specimen and the reading shall be between 50 to 75 units, after 15 seconds.

3. Reheating

   Ensure that the compound does not break down, deteriorate, scorch, or discolor if held for 6 hours at the plastic temperature of 425 °F (218 °C); and if reheated up to the plastic temperature 4 times.

4. Drop-On Glass Spheres

   Ensure that the spheres meet the requirements of Subsection 652.2. Also, ensure that the spheres are produced from an approved source listed on QPL 71.

5. Sealing Primer

   Place the particular type of two-part epoxy binder-sealer at the application rate as recommended in writing by the thermoplastic material manufacturer.

Delete Section 653.4 and substitute the following:

653.4 Measurement

No measurement to be included for this item.

653.4.01 Limits

General Provisions 101 through 150.

Delete Section 653.5 and substitute the following:

653.5 Payment

Payment will be made under CONSTRUCTION COMPLETE. Removal of existing traffic striping will not be paid for separately.

653.5.01 Adjustments

General Provisions 101 through 150.

MATERIALS AND RESEARCH

Revised: February 28, 2007

DEPARTMENT OF TRANSPORATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

SECTION 654 – Raised Pavement Markers

Delete Sub-section 654.4 and substitute the following:

654.4 Measurement

This item will not be measured separately.

654.4.01 Limits

General Provisions 101 through 150.

Delete Sub-section 654.5 and substitute the following:

654.5 Payment

This item will be paid for under CONSTRUCTION COMPLETE.

Includes furnishing and installing each marker, and recessing as needed.

654.5.01 Adjustments

General Provisions 101 through 150.

Office of Urban Design

Revised: February 28, 2007

DEPARTMENT OF TRANSPORATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

SECTION 655 – Pavement Arrow and Raised Reflectors

Delete Sub-section 655.4 and substitute the following:

655.4 Measurement

This item will not be measured separately.

655.4.01 Limits

General Provisions 101 through 150.

Delete Sub-section 655.5 and substitute the following:

655.5 Payment

This item will be paid for under CONSTRUCTION COMPLETE.

Includes furnishing materials, cleaning, and installing the completed arrow with raised reflectors.

655.5.01 Adjustments

General Provisions 101 through 150.

Office of Urban Design

Revised October 4, 2005
Revised February 28, 2007

GEORGIA DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 657— Preformed Plastic Pavement Markings

Delete Subsection 657.1 and Substitute the following:

657.1 General Description

This work includes placing plastic pavement markings or legends according to the Plans and Specifications or as otherwise directed.

657.1.01 Definitions

General Provisions 101 through 150.

657.1.02 Related References

A. Standard Specifications

General Provisions 101 through 150.

B. Referenced Documents

ASTM D 638

ASTM D 4061

ASTM E 303

ASTM E 1710

Manual on Uniform Traffic Control Devices for Streets and Highways

QPL 74

657.1.03 Submittals

Transfer to the Department manufacturer warranties or guarantees for heat-applied and wet reflective preformed plastic marking materials. Ensure that warranties or guarantees state that they are subject to transfer.

Delete Subsection 657.2 and Substitute with the following:

657.2 Materials

Select one of the following types of preformed marking material according to the Plans and Proposal:

- Type TR – Temporary Removable Plastic Marking

- Type TN – Temporary Non-Removable Plastic Marking
- Type PA – Permanent Plastic Marking
- Type PB – Permanent Patterned Plastic Marking
- Type PW – Permanent Wet Reflective Plastic Marking

For a list of sources, see QPL-74.

A. General Requirements for Preformed Pavement Markings

1. Shapes and Sizes

   Use markings that conform to the shapes and sizes outlined in the Manual on Uniform Traffic Control Devices for Streets and Highways.

2. Pigmentation

   Use white or yellow pigmented plastic according to each marking type.

3. Adhesion

   Use markings that can be affixed to bituminous or Portland cement concrete pavements by pressure-sensitive precoated adhesive or a liquid contact cement.

   Ensure that marking adhesive adheres to the roadway under normal climactic and traffic conditions.

4. Conformability

   Use markings that will mold to pavement contours, breaks, faults, and the like, by normal action of traffic at normal pavement temperatures.

5. Resealability

   Use markings containing resealing characteristics that allow the material to fuse to itself or to similar previously applied material under normal use.

6. Glass or Ceramic Beads

   Use markings with a layer of glass or ceramic beads bonded to the surface according to the marking type. Type PB contains ceramic beads and glass beads. Types TR, TN, and PA contain only glass beads.

   Use glass beads with less than 2% by weight showing any milkiness, scoring or scratching. Use clear, transparent beads that are free from air inclusions and conform to the following:

	Glass Beads	Ceramic Beads
Refractive Index, (tested by oil immersion)	1.50 minimum	1.70 minimum
Uniform Distribution of Spheres	0.75 minimum	0.75 minimum

7. Reflective Intensity

   Determine reflective intensity using photometric testing procedures of Federal Specification L-S-300 A, Paragraph 4.4.7.

   Ensure that marking types TR, TN, and PA use white or yellow film with the initial reflective intensity indicated in the table below, when measured at the angles shown. See Subsection 657.2.C.2.k for reflective intensity of Type PB.

	White		Yellow	
Divergence Angle	0.2°	0.5°	0.2°	0.5°
Incidence Angle	86°		86°	
Reflective Intensity --candle power per foot-candle per square foot (Candelas per Lux per square meter)	1.00	0.75	0.75	0.50

8. Composition

   Use markings made of high-quality polymeric materials and pigments. Ensure types TR, PA, and PB contain the following composition of materials:

Material	Min% By Weight
Resins and Plasticizers	20
Pigments	30
Graded Glass Beads	33

B. Requirements for Temporary Markings (Types TR and TN)

1. Temporary Removable Markings (Type TR)

   Use temporary, removable markings that meet the following requirements:

   a. Removability

   Ensure the marking material can be removed from asphaltic and Portland cement as follows:

   - Lifted intact or in large pieces.
   - Lifted either manually or with a roll-up device.
   - Lifted at temperatures above 40 °F (5 °C) without using heat, solvents, sand blasting, or grinding.

   Ensure the pavement shows no objectionable staining or damage after removing the marking.

   b. Elongation and Tensile Strength

   Provide temporary markings with the following elongation and tensile strength when tested according to ASTM D 638:

Elongation	0.75 minimum
Tensile Strength	40 lbs/in² (275 kPa) minimum

   Test as follows:

   1) Cut a 1 in by 6 in (25 mm by 150 mm) specimen.
   2) Test at a temperature between 70 °F and 80 °F (21 °C and 27 °C).
   3) Test at a jaw speed of 12 in/min (300 m/min).

   c. Adhesion

   Ensure that at least 10 lbs (20 N) of force is required to lift stuck-on marking material from the pavement.

   d. Glass Bead Retention

   Confirm the glass bead retention quality of marking material in both of the following ways:

   1) Laboratory Test
      - Take a 2 in by 6 in (50 mm by 150 mm) sample.
      - Bend the sample over a ½ in (13 mm) diameter mandrel, leaving the 2 in (50 m) side perpendicular to the mandrel axis.
      - Ensure that the area on the mandrel shows no more than 10 percent of the beads entrapped by the binder less than 40 percent.
   2) Field test

      Ensure the beads cannot be easily removed by scratching the material firmly with the thumbnail.

   e. Skid Resistance

   Ensure that the material surface provides a 35 BPN minimum skid resistance value when tested according to ASTM E 303.

   f. Thickness

   Ensure that the removable marking material is at least 20 mils (0.50 mm) thick not including the backing adhesive.

2. Temporary Non-Removable markings (Type TN)

   This type of pavement marking may use a conformable metallic foil backing with a precoated pressure-sensitive adhesive.

   a. Abrasion Resistance

Use marking material that does not wear through to the backing surface in less than 125 cycles.

Test according to Federal Test Standard 141, Method 6192, using an H-22 wheel and a 250 gram load.

b. Skid Resistance

Ensure the retroreflective pliant polymer surface provides a skid resistance value of at least 35 BPN. Test according to ASTM E 303.

c. Elongation and Tensile Strength

No test for elongation and tensile strength is required for type TN marking.

d. Glass Bead Retention

Refer to Subsection 657.2.B.1.d, "Glass Bead Retention" for types TR and TN.

e. Thickness

Ensure the nonremovable marking material is at least 20 mils (0.50 mm) not including the adhesive backing.

C. Requirements for Permanent Markings (Types PA, PB and PW)

1. Permanent Plastic Marking (Type PA)

Provide permanent plastic markings with these features:

a. Adhesive and Backing

Use markings supplied with the following:

- A precoated adhesive
- An easily removable backing to protect the adhesive
- An adhesive backing that allows repositioning of the marking on the surface before permanently sticking with greater pressure

In addition, supply rolls of lane lines with a precoated adhesive but without the protective backing material.

b. Pigments

1) White

Use white marking material with at least 20 percent of the total pigment consisting of titanium dioxide that meets Federal Specification TT-P442 for a dense opaque marking.

2) Yellow

Use yellow marking material with sufficient yellow pigment for a durable finished color.

In addition, match the yellow to the Highway Yellow Color Tolerance Chart and Chip 33538 of Federal Standard 595.

3) Appearance

Ensure that each marking meets the following appearance standards:

- Markings are extruded to a uniform thickness.
- Edges are smoothly cut and true.
- Glass spheres are retained on all sides by the plastic base material.
- The wearing surface is free of indentations, displaced spheres, or other irregularities that retain dirt, dust, or other foreign materials.

c. Thickness

Ensure the permanent material is at least 60 mils (1.52 mm) thick, without the pre-coated adhesive.

d. Glass Bead Retention

Confirm that the surface glass beads are strongly bonded and are not easily removed by traffic. Test them as follows:

1) Use a Taber Abraser with an H-18 wheel and 125 gram load.
2) Inspect the sample at 200 cycles under the microscope to observe the extent and type of bead failure.
3) Ensure that no more than 15 percent of the beads have popped-out.
4) Verify that the predominant mode of failure is "wear-down" of the beads.

e. Reseal Test

Test the plastic to confirm that it reseals to itself. Test as follows:

1) Cut two samples, 1 in by 3 in (25 mm by 75 mm) each, keeping the adhesive backing material in place.
2) Overlap these pieces face-to-face on a flat steel plate. The overlap area should be 1 in² (625 mm²).
3) Center a 1000 gram weight over the overlap area.
4) Place the sample in an oven for 2 hours at 190 °F ± 10 °F (88 °C ± 5 °C).
5) Cool the sample to room temperature.
6) Ensure the sample pieces cannot be separated except by tearing. Reject material that separates without tearing.

f. Tensile Strength and Elongation

Ensure that the permanent markings have the following elongation and tensile strength when tested according to ASTM D 638:

Elongation	75% minimum
Tensile Strength	150 psi (1035 kPa) minimum

Test as follows:

NOTE: Run this test 3 times and base the result on an average of the 3 tests.

1) Cut 3 specimens, 1 in by 6 in (25 mm by 150 mm) each.
2) Place 1 in² (625 mm²) of carborundum extra-coarse emery cloth or its equivalent at each end of the test specimens to prevent the adhesive from sticking to test equipment.
3) Test at a temperature between 70 ° and 80 °F (21° and 27 °C).
4) Test at a jaw speed of 10 to 12 in/min (250 mm to 300 mm/min).

g. Skid Resistance

Test the plastic surface to verify that it provides a skid resistance value of at least 45 BPN. Test according to ASTM E 303.

h. Abrasion Resistance

Ensure that plastic loses no more than 0.25 grams of weight in 500 revolutions when abraded according to Federal Test Method Standard No. 141 (Method 6192).

Test the material with calibrade H-18 wheels with a 1000 gram load on each wheel.

i. Adhesive Shear Strength

Ensure that the load required to break the adhesive bond is strong enough to resist a load at least 10 lbs (4.54 kg).

Test as follows:

NOTE: Run this test 3 times and base the result on an average of the 3 tests

1) Cut 3 specimens, 1 in by 6 in (25 mm by 150 mm) each.
2) Apply a 1 in by 3 in (25 mm by 75 mm) piece of carborundum extra coarse emery cloth or its equivalent to the adhesive face of each test strip. Overlap the area by 1 in² (625 mm²).
3) Apply 60 psi (415 kPa) of pressure over the overlapped area for 120 seconds.

   Apply the load by gripping the ends of each laminated piece in a tensile test machine, such as a Dillon or Scott tester.
4) Run the test at 77 °F (25 °C).
5) Run the test at 0.25 in/min (64 mm/min).

2. Permanent Patterned Plastic Marking (Type PB)

Use patterned plastic markings with these features:

a. Patterned Surface

Ensure that the patterned surface has the following characteristics:

- A reflective layer of ceramic beads bonded to a durable polyurethane topcoat.
- The raised area comprises between 35 and 65 percent of the total marking face.
- The surface presents a near vertical face to traffic from any direction.
- The Office of Materials and Research approves the pattern configuration.
- The channels between raised areas are free of exposed beads or particles.

b. Adhesive and Backing

Refer to Subsection 657.2.C.1.a, "Adhesive and Backing" for Type PA.

c. Pigments

Refer to Subsection 657.2.C.1.b, "Pigments" for Type PA.

d. Ceramic Beads

Ensure that the top layer of ceramic beads is bonded to a durable polyurethane surface.

e. Ceramic Bead Retention

Refer to Subsection 657.2.C.1.d, "Glass Bead Retention" for Type PA.

f. Thickness

Ensure the materials are at least 60 mils (1.52 mm) thick, not including the pre-coated adhesive backing.

g. Reseal Test

Refer to Subsection 657.2.C.1.e, "Reseal Test" for Type PA.

h. Tensile Strength and Elongation

Refer to Subsection 657.2.C.1.f, "Tensile Strength and Elongation" for Type PA.

i. Skid Resistance

Refer to Subsection 657.2.C.1.g, "Skid Resistance" for Type PA.

j. Abrasion Resistance

Refer to Subsection 657.2.C.1.h, "Abrasion Resistance" for Type PA.

k. Reflective Intensity

Determine reflective intensity using photometric testing procedures of Federal Specification L-S-300 A, Paragraph 4.4.7. Reflective values are as follows:

	White			Yellow		
Observation Angle	0.2°	1.0°	1.05°	0.2°	1.0°	1.05°
Entrance Angle	86°	86.5°	88.8°	86°	86.5°	88.8°
Reflective Intensity--candle power per foot-candle per 5 ft² (Candelas per Lux per square meter)	1.10	0.70	0.50	0.80	0.50	0.30

3. Wet Reflective Preformed Pavement Markings (Type PW)

a. Reflective Intensity

Determine reflective intensity using photometric testing procedures of ASTM D 4061 under dry conditions and ASTM E 1710 under wet conditions.

Create the wet test condition by pouring clean water from a bucket of approximately 3 gallon (11 Liter) capacity from a height of approximately 20 in (500 mm) above the surface. Pour the water evenly along the test surface so that a crest of water momentarily floods the measuring field and its surrounding area.

Ensure that markings use white or yellow film with the initial reflective intensity indicated in the table below, when measured at the angles shown.

	White			Yellow		
Divergence Angle	0.2°	1.0°	1.05°	0.2°	0.5°	1.05°

Incidence Angle	86.0°	86.5°	88.8°	86.0°	86.5°	88.8°
Reflective Intensity --candle power per foot-candle per square foot (Candelas per Lux per square meter)	1.50	1.00	0.75	1.10	0.70	0.45

b. Composition

Use markings made of high-quality polymeric materials, pigments and reflective glass beads enclosed in a polymeric layer.

c. Adhesive and Backing

Use markings supplied with the following:

- A precoated adhesive.
- An easily removable backing to protect the adhesive.
- An adhesive backing that allows repositioning of the marking on the surface before permanently sticking with greater pressure.

In addtion, supply rolls of lane lines with a precoated adhesive but without the protective backing material.

d. Appearance

Ensure that each marking meets the following appearance standards:

- Markings are extruded to a uniform thickness.
- Edhes are smoothly cut and true.
- Glass spheres are retained on all sides by the plastic base material.
- The wearing surface is free of indentations or other irregularities that retain dirt, dust, or other foreign materials.
- The color conforms to standard white or yellow highway colors.

e. Thickness

Ensure the permanent material is a least 30 mils (0.76 mm) thick, without the pre-coated adhesive.

f. Elongation and Tensile Strength

Provide temporary markings with the following elongation and tensile strength when tested according to ASTM D 638:

Elongation	0.75 minimum
Tensile Strength	150 psi (1035 kPa) minimum

Test as follows:

NOTE: Run this test 3 times and base the result on an average of the 3 tests.

1). Cut 3 specimens, 1 in by 6 in (25 mm by 150 mm) each.

2). Place 1 in^2 (625 mm^2) of carborundum extra-coarse emery cloth or its equivalent at each end of the test specimens to prevent the adhesive from sticking to test equipment.

3). Test at a temperature between 70 °F and 80 °F (21 °C and 27 °C).

4). Test at a jaw speed of 10 to 12 in/min (250 mm to 300 mm/min).

g. Skid Resistance

Test the plastic surface to verify that it provides a skid resistance value of at least 50 BPN. Test according to ASTM E 303.

h. Plastic Pull Test

1). Cut a test specimen to 1 in by 6 in (25 mm by 150 mm).

2). Ensure that the specimen can support a dead load weight of 6 lbs (27 N) for at least 30 minutes.

3). Test at a temperature between 70 °F and 80 °F (21 °C and 27 °C)

Delete Subsection 657.4 and Substitute with the following:

657.4 Measurement

No measurement to be included for this item. Removal of existing pavement markings will not be paid for separately, but will be included in the payment for other Work under this Section.

657.4.01 Limits

General Provisions 101 through 150.

Delete Subsection 657.5 and Substitute with the following:

657.5 Payment

Payment will be made under CONSTRUCTION COMPLETE. Includes applying markings, including adhesives, cleaning, application, and traffic control necessary to complete the Item.

657.5.01 Adjustments

General Provisions 101 through 150.

Revised: February 28, 2007

DEPARTMENT OF TRANSPORATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

SECTION 668 – Miscellaneous Drainage Structures

Delete Sub-section 668.4 and substitute the following:

668.4 Measurement

This item will not be measured separately.

Includes:

A. Catch Basins and Drop Inlets

- Group 1: Structures connected to pipe 36 in (900 mm) or less in diameter, regardless of the pipe skew
- Group 2: Structures connected to pipe over 36 in (900 mm) diameter regardless of the pipe skew

Each catch basin or drop inlet deeper than 6 ft (2m) will not be measured for additional payment.

B. Manholes

Sanitary and Storm Sewer Manholes

- Type 1: Structures connected to pipe 42 in (1050 mm) or less in diameter regardless of the pipe skew
- Type 2: Structures connected to pipe 48 in to 84 in (1200 mm to 2100 mm) diameter regardless of the pipe skew

Manhole Additional Depth – not measured separately.

C. Junction Boxes, Spring Boxes, and Drain Inlets

D. Safety Grates

E. Special Inlets for Safety Grates

F. Vertical Tee Sections (or Saddles)

668.4.01 Limits

General Provisions 101 through 150.

Delete Sub-section 668.5 and substitute the following:

668.5 Payment

This item will be paid for under CONSTRUCTION COMPLETE.

Includes:

A. Catch Basins and Drop Inlets

- Furnishing castings
- Making pipe connections regardless of skew
- Providing materials, making forms, and disposing of surplus material

B. Manholes

- Furnishing castings, fittings, and other appurtenances called for on the Plans to complete the Item
- Making pipe connections regardless of skew
- Providing materials, making forms, and disposing of surplus material

NOTE: No additional payment will be made for connecting manholes to existing or new sewer lines. Include costs related to connections in the price bid for CONSTRUCTION COMPLETE.

C. Junction Boxes, Spring Boxes, and Drain Inlets

- Furnishing castings, fittings, and other appurtenances called for on the Plans to complete the Item
- Making pipe connections regardless of skew
- Providing materials, making forms, and disposing of surplus material

D. Pipe

E. Sand Bedding Material for Precast Structures

F. Excavation and Normal Backfill

G. Safety Grates

H. Inlets for Safety Grates

Includes reinforcing steel.

I. Vertical Tee Sections (or Saddles)

No separate payment will be made for excavation, backfill, and disposal of surplus material.

668.5.01 Adjustments

General Provisions 101 through 150.

Office of Urban Design

Revised: February 28, 2007

DEPARTMENT OF TRANSPORATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

SECTION 681 – Lighting Standards and Luminaires

Delete Sub-section 681.4 and substitute the following:

681.4 Measurement

This item will not be measured separately..

681.4.01 Limits

General Provisions 101 through 150.

Delete Sub-section 681.5 and substitute the following:

681.5 Payment

This item will be paid for under CONSTRUCTION COMPLETE.

681.5.01 Adjustments

General Provisions 101 through 150.

Office of Urban Design

Revised: February 28, 2007

DEPARTMENT OF TRANSPORATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

SECTION 682 – Electrical Wire, Cable, and Conduit

Delete Sub-section 682.4 and substitute the following:

682.4 Measurement

This item will not be measured separately.

682.4.01 Limits

General Provisions 101 through 150.

Delete Sub-section 682.5 and substitute the following:

682.5 Payment

This item will be paid for under CONSTRUCTION COMPLETE.

682.5.01 Adjustments

General Provisions 101 through 150.

Office of Urban Design

Revised: February 28, 2007

DEPARTMENT OF TRANSPORATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

SECTION 683 – High Level Lighting System

Delete Sub-section 683.4 and substitute the following:

683.4 Measurement

This item will not be measured separately.

683.4.01 Limits
General Provisions 101 through 150.

Delete Sub-section 683.5 and substitute the following:

683.5 Payment

The item will be paid for under CONSTRUCTION COMPLETE.

683.5.01 Adjustments
General Provisions 101 through 150.

Office of Urban Design

Date: November 1, 2002
First Use Date January 1, 2003
Revised December 30, 2002
Revised August 4, 2003
Revised April 27, 2004
First Use Date June 1, 2004
Revised October 31, 2005
Revised February 28, 2007

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 700—Grassing

Delete Section 700 and substitute the following:

700.1 General Description

This work includes preparing the ground, furnishing, planting, seeding, fertilizing, sodding, and mulching disturbed areas within the Right-of-Way limits and easement areas adjacent to the right-of-way as shown on the Plans except as designated by the Engineer to remain natural.

700.1.01 Definitions

General Provisions 101 through 150.

700.1.02 Related References

A. Standard Specifications

Section 160—Reclamation of Material Pits and Waste Areas

Section 163—Miscellaneous Erosion Control Items

Section 718—Wood Fiber

Section 822—Emulsified Asphalt

Section 882—Lime

Section 890—Seed and Sod

Section 891—Fertilizers

Section 893—Miscellaneous Planting Materials

Section 895—Polyacrylamide

B. Referenced Documents

QPL 33

QPL 84

700.1.03 Submittals

Submit manufacturer's product expiration date along with written instructions to ensure proper application, safety, storage, and handling of Polyacrylamide products used in The Work.

700.2 Materials

Use materials that meet the requirements of the following Specifications:

Material	Section
Wood Fiber Mulch	718.2
Emulsified Asphalt	822
Agricultural Lime	882.2.01
Liquid Lime	882.2.01
Seed	890.2.01
Sod	890.2.02
Fertilizer	891.2.01
Plant Topsoil	893.2.01
Mulch	893.2.02
Inoculants	893.2.04
Tackifiers	QPL 33
Anionic Polyacrylamide	QPL 84 & Section 895

A. Seeds

Whenever seeds are specified by their common names, use the strains indicated by their botanical names.

B. Water

Obtain the water for grassing from an approved source. Use water free of harmful chemicals, acids, alkalies, and other substances that may harm plant growth or emit odors. Do not use salt or brackish water.

C. Asphalt

Secure the mulch with asphalt made of a homogenous emulsification of a refined petroleum. Ensure that the asphalt can be sprayed on with or without diluting with water.

Use suitable asphalt free of petroleum solvents or other diluting agents that may harm plant growth. Use asphalt according to Section 822 or Section 824, "slow setting". Do not use asphalt that separates after freezing or from any other cause.

D. Fertilizer Mixed Grade

Select fertilizer mixed grade such as 10-10-10, 6-12-12, 5-10-15, or other analysis within the following limits:

- Nitrogen 5 to 10 percent
- Phosphorus 10 to 15 percent
- Potassium 10 to 15 percent

If using mixed grade fertilizer for hydroseeding, ensure that it has the following analysis:

- Nitrogen 5 to 19 percent
- Phosphorus 10 to 19 percent

- Potassium 10 to 19 percent

E. Mulch

Use straw or hay mulch according to Subsection 700.3.05.G.

Use wood fiber mulch in hydroseeding according to Subsection 700.3.05.F.1.

700.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

700.3 Construction Requirements

700.3.01 Personnel

General Provisions 101 through 150.

700.3.02 Equipment

Use grassing equipment able to produce the required results.

Never allow the grading (height of cut) to exceed the grassing equipment's operating range.

A. Blower Equipment

When using blower equipment to apply bituminous treated mulch in a single operation, place two or more jets or spray nozzles at or near the end of the discharge spout to eject a uniform coat of mulch.

B. Mulch Material Equipment

Use mulching equipment that uniformly cuts the specified materials into the soil to the required control depth.

C. Rollers

Use at least 12 in (300 mm) diameter rollers with corrugated or notched surfaces. Do not use smooth surface rollers.

D. Hydroseeding Equipment

For hydroseeding equipment, see Subsection 700.3.05.F.

700.3.03 Preparation

General Provisions 101 through 150.

700.3.04 Fabrication

General Provisions 101 through 150.

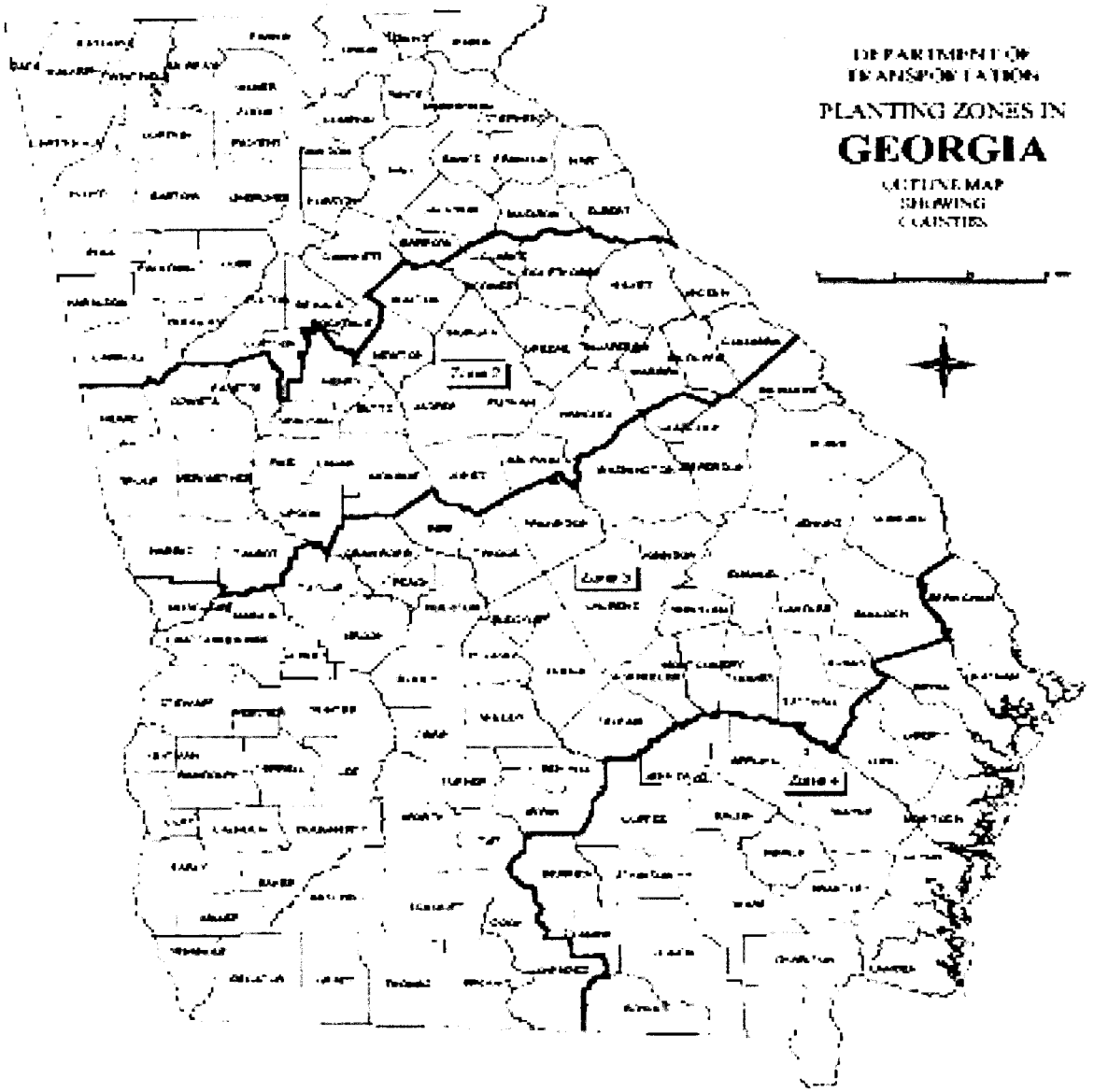
700.3.05 Construction

Follow the planting zones, planting dates, types of seed, seed mixtures, and application rates described throughout this Section. The Engineer has the authority to alter the planting dates as set forth by a period of 2 weeks. This 2-week period may be applied to either the beginning of the specified planting and/or to the end of the end of the specified planting season.

In general:

- Obtain the Engineer's approval before changing the ground cover type.
- Do not use annual rye grass seeds with permanent grassing.
- Follow the planting zones indicated on the Georgia State Planting Zone Map, below.
- Sod may be installed throughout the year, weather permitting.
- For permanent grassing, apply the combined amounts of all seeds for each time period within each planting zone and roadway location listed in the Seeding Table, below. Do not exceed the amounts of specified seed.

Planting Zone Map



SEEDING TABLE

Plant these combinations on shoulders, medians, and relatively flat areas. (Slopes 3:1 or flatter).		Rye Grass, Millet, Cereal Grass (Oats)	Common Bermuda Grass (Hulled	Common Bermuda Grass (Unhulled)	Tall Fescue	Weeping Love Grass	Scarified Interstate Lespedeza	Unscarified Interstate Lespedeza	REQUIRED PERMANENT PLANTING
Planting Zones	Planting Dates								
1	March 1 – May 15		10 (11)	10 (11)	50 (56)				Common Bermuda Grass
1	May 16 – August 31		10 (11)	10 (11)					
1	September 1 – February 28	50 (56)							
2,3,4	April 1 – October 31		10 (11)	10 (11)					
2,3,4	November 1 – March 31	50 (56)							Common Bermuda Grass

Plant these combinations on back slopes, fill slopes and areas which will not be subject to frequent mowing, slopes steeper than 3:1									
1,2	March 1 – August 31					10 (11)	50 (56)		Interstate Lespedeza
1,2	September 1 – February 28				50 (56)			75 (84)	
3,4	April 1 – October 31					10 (11)	50 (56)		Interstate Lespedeza
3,4	November 1 – March 31	50 (56)							

A. Ground Preparation

Prepare the ground by plowing under any temporary grass areas and preparing the soil as follows:

1. Slopes 3:1 or Flatter

   On slopes 3:1 or flatter, plow shoulders and embankment slopes to between 4 in and 6 in (100 mm and 150 mm) deep.

   Plow front and back slopes in cuts to no less than 6 in (150 mm) deep. After plowing, thoroughly disk the area until pulverized to the plowed depth.

2. Slopes Steeper Than 3:1

   Serrate slopes steeper than 3:1 according to Plan details when required.

   On embankment slopes and cut slopes not requiring serration (sufficient as determined by the Engineer), prepare the ground to develop an adequate seed bed using any of the following methods as directed by the Engineer:

   - Plow to a depth whatever depth is practicable.
   - Use a spiked chain.
   - Walk with a cleated track dozer.
   - Scarify.

   Disking cut slopes and fill slopes is not required.

3. All Slopes

   a. Obstructions

      Remove boulders, stumps, large roots, large clods, and other objects that interfere with grassing or may slide into the ditch.

   b. Topsoil

      Spread topsoil stockpiled during grading evenly over cut and fill slopes after preparing the ground.

      Push topsoil from the top over serrated slopes. Do not operate equipment on the face of completed serrated cuts.

B. Grassing Adjacent to Existing Lawns

When grassing areas adjacent to residential or commercial lawns, the Engineer shall change the plant material to match the type of grass growing on the adjacent lawn. The Contract Unit Price will not be modified for this substitution.

If the Engineer believes bituminous treated mulch would harm other portions of the work, bituminous treated mulch may be substituted with 1,500 lbs/acre (1680 kg/ha) of wood fiber mulch with tackifier.

C. Temporary Grassing

Apply temporary grassing according to Subsection 163.3.05.F. Determine lime requirements by a laboratory soil test.

In March or April of the year following planting and as soon as the weather is suitable, replace all areas of temporary grass with permanent grass by plowing or overseeding using the no-till method. If the no-till method is used, ensure that temporary grass is less than 3 inches in height (this may be achieved by mowing). Additional mulch will be required only if the temporary grass does not provide adequate mulch to meet the requirements of Subsection 700.3.05.G, "Mulching."

Temporary grass, when required, will be paid for according to Section 163.

Projects that consist of asphalt resurfacing with shoulder reconstruction and/or shoulder widening: Type II Wood Fiber Blanket is used to stabilize disturbed areas, no till seeding will be used when permanent grassing is applied and the areas will not be re-disturbed.

D. Applying Agricultural Lime and Fertilizer Mixed Grade

Apply and mix lime and fertilizer as follows:

1. Agricultural Lime

   Uniformly spread agricultural lime on the ground at the approximate rate determined by the laboratory soil test.

   A. Liquid Lime (Flowable Dolomitic Lime) may be applied during the hydroseeding operation at the rate of 2.5 gallons (of Liquid Lime concentrate) per acre (23.75 liters per hectare). This provides the equivalent of 1 ton per acre (2.25 mg per hectare) of agricultural lime. The remainder of lime specified by the soil test is applied as agricultural lime and uniformly spread over the surface of the ground.

   B. Agricultural Lime may be used as filler material in mixed grade fertilizer in lieu of inert material. The use of agricultural lime as filler material is to be shown on the fertilizer bag or invoice from the supplier. Do not deduct any amount of fertilizer when lime is used as filler.

2. Fertilizer Mixed Grade

Uniformly spread the fertilizer selected according to Subsection 700.2.D over the ground at approximately 1,200 lbs/acre (1350 kg/ha).

If using a higher analysis fertilizer with hydroseeding, apply it at the same rate per acre (hectare) as the standard fertilizer.

3. Mixing

Before proceeding, uniformly work the lime and fertilizer into the top 4 in (100 mm) of soil using harrows, rotary tillers, or other equipment acceptable to the Engineer.

On cut slopes steeper than 3:1, other than serrated slopes, reduce the mixing depth to the maximum practical depth as determined by the Engineer.

Omit mixing on serrated slopes.

E. Seeding

Following is a list of both common names and botanical names for approved seed types. Whenever seeds are specified by the common names, the strains indicated by their botanical name apply.

Common Name	Botanical Name
Annual Ryegrass	Lolium multiflorum
*Bermuda Grass, Common Hulled and Unhulled	Cynodon dactylon
**Lespedeza Virgata	Lespedeza Ambro Virgata
**Lespedeza Sericea	Lespedeza cuneta, Var. Sericea
**Lespedeza Serala	Lespedeza cuneta, Var. Serala
**Lespedeza Interstate	Lespedeza cuneta, Var. Interstate
**Lespedeza Korean	Lespedeza stipulacea Maxim
Pensacola Bahiagrass	Paspalum notatum, var. Pensacola
Tall Fescue	Festuca arundinacea
Weeping Love Grass	Eragrostis curvula
*Do not use Giant Bermuda Seed (Cynodon species) including NK-37. **Requires inoculation.	

Prepare seed and sow as follows:

1. Inoculation of Seed

Inoculate each kind of leguminous seed separately with the appropriate commercial culture according to the manufacturer's instructions for the culture.

When hydroseeding, double the inoculation rate.

Protect inoculated seed from the sun and plant it the same day it is inoculated.

2. Sowing

Weather permitting, sow seed within 24 hours after preparing the seed bed and applying the fertilizer and lime.

Sow seed uniformly at the rates specified in the Seeding Table. Use approved mechanical seed drills, rotary hand seeders, hydraulic equipment, or other equipment to uniformly apply the seed. Do not distribute by hand.

To distribute the seeds evenly sow seed types separately, except for similarly sized and weighted seeds. They may be mixed and sown together.

3. Rolling

Roll seeded areas before applying mulch, except on steep slopes where rollers cannot operate satisfactorily. On slopes inaccessible to compaction equipment, cover the seeds by dragging spiked chains over them or by using other methods.

Do not sow during windy weather, when the prepared surface is crusted, or when the ground is frozen, wet, or otherwise non-tillable.

4. Overseeding

   Temporary grass areas that were prepared in accordance with Subsection 700.3.05.A, may be overseeded using the no-till method. The no-till method is defined by planting permanent grass seeds using a drill-type seeder over existing temporary grass without plowing or tilling soil and in accordance with Subsection 700.3.05.C.

F. Hydroseeding

Hydroseeding may be used on any grassing area. Under this method, spread the seed, fertilizer, and wood fiber mulch in the form of a slurry. Seeds of all sizes may be mixed together. Apply hydroseeding as follows:

1. Use wood fiber mulch as a metering agent and seed bed regardless of which mulching method is chosen. Apply wood fiber mulch at approximately 500 lbs/acre (560 kg/ha).
2. Prepare the ground for hydroseeding as for conventional seeding in Subsection 700.3.05.A.
3. Use specially designed equipment to mix and apply the slurry uniformly over the entire seeding area.
4. Agitate the slurry mixture during application.
5. Discharge slurry within one hour after being combined in the hydroseeder. Do not hydroseed when winds prevent an even application.
6. Closely follow the equipment manufacturer's directions unless the Engineer modifies the application methods.
7. Mulch the entire hydroseeded area according to Subsection 700.3.05.F.1, above, and Subsection 700.3.05.G, below.

G. Mulching

Except as noted in Subsection 700.3.05.B and Subsection 700.3.05.C, apply mulch immediately after seeding areas as follows:

Areas with permanent grass seed and covered with slope mats or blankets will not require mulch.

Evenly apply straw or hay mulch between 3/4 in and 1-1/2 in (20 mm and 40 mm) deep, according to the texture and moisture content of the mulch material.

Mulch shall allow sunlight to penetrate and air to circulate as well as shade the ground, reduce erosion, and conserve soil moisture. If the type of mulch is not specified on the Plans or in the Proposal, use any of the following as specified.

1. Mulch with Binder

   Apply mulch with binder regardless of whether using ground or hydroseeding equipment for seeding.

   a. Mulch uniformly applied manually or with special blower equipment designed for the purpose. When using a blower, thoroughly loosen baled material before feeding it into the machine so that it is uniformly coated with binder and broken up.

   b. After distributing the mulch initially, redistribute it to bare or inadequately covered areas in clumps dense enough to prevent new grass from emerging.

      Do not apply mulch on windy days.

   c. Apply enough binder to the mulch to hold it in place. Immediately replace mulch that blows away.

      When using a power blower to distribute the mulch, spray the binder onto the mulch as the mulch is ejected from the machine. If distributing the mulch by hand, immediately apply the binder uniformly over the mulched areas.

      Use one of the following binders:

      - Emulsified asphalt, SS-1h or SS-1 (Section 822) : The public, adjacent property, bridges, pavements, curbs, sidewalks, and other existing structures shall be protected from discoloration by the asphalt. Correct discoloration damage at no expense to the Department.
      - Tackifier: Use a tackifier listed in the Laboratory Qualified Products Manual may be used at the manufacturer's recommended rates.

2. Walked-in-Mulch

   Apply walked-in-mulch on slopes ranging in steepness from 5:1 to 2:1 and treat as follows:

   a. Immediately walk it into the soil with a cleated track dozer. Make dozer passes vertically up and down the slope.

   b. Where walked-in-mulch is used, do not roll or cover the seeds as specified in Subsection 700.3.05.E.3.

H. Sod

Furnish and install sod in all areas shown on the Plans or designated by the Engineer.

1. Kinds of Sod

   Use only Common Bermudagrass (Cyndon dactylon) or one of the following Bermudagrass varieties:

   Tifway 419
   Tifway II
   Tift 94
   Tifton 10
   Midlawn
   Midiron
   GN-1
   Vamont

   No dwarf Bermuda types shall be used. Sod shall be nursery-grown and be accompanied with a Georgia Department of Agriculture Live Plant License Certificate or Stamp. Sod shall consist of live, dense, well-rooted material free of weeds and insects as described by the Georgia Live Plant Act.

2. Type And Size Of Sod:

   Furnish either big roll or block sod. Ensure that big roll sod is a minimum of 21 inches wide by 52 feet long. Minimum dimensions for block sod are 12 inches wide by 22 inches long. Ensure all sod consists of a uniform soil thickness of not less than 1 inch.

3. Ground Preparation

   Excavate the ground deep enough and prepare it according to Subsection 700.3.05.A to allow placing of sod. Spread soil, meeting the requirements of Subsection 893.2.01, on prepared area to a depth of 4 inches.

4. Application Of Lime And Fertilizer

   Apply lime and fertilizer according to Subsection 700.3.05.D within 24 hours prior to installing sod.

5 Weather Limitation

   Do not place sod on frozen ground or where snow may hinder establishment.

6. Install Sod

   Install Sod as follows:

   - Place sod by hand or by mechanical means so that joints are tightly abutted with no overlaps or gaps. Use soil to fill cracks between sod pieces, but do not smother the grass.
   - Stake sod placed in ditches or slopes steeper than 2:1 or any other areas where sod slipping can occur.
   - Use wood stakes that are at least 8 in (200 mm) in length and not more than 1 in (25 mm) wide.
   - Drive the stakes flush with the top of the sod. Use a minimum of 8 stakes per square yard (meter) to hold sod in place.
   - Once sod is placed and staked as necessary, tamp or roll it using adequate equipment to provide good contact with soil.
   - Use caution to prevent tearing or displacement of sod during this process. Leave the finished surface of sodded areas smooth and uniform.

7. Watering Sod

   After the sod has been placed and rolled or tamped, water it to promote satisfactory growth. Additional watering will be needed in the absence of rainfall and during the hot dry summer months. Water may be applied by Hydro Seeder, Water Truck or by other means approved by the Engineer.

8. Dormant Sod

   Dormant Bermuda grass sod can be installed. However, assume responsibility for all sod through establishment and until final acceptance.

9. Establishment

   Sod will be inspected by the Engineer at the end of the first spring after installation and at the time of Final Inspection. Replace any sod that is not live and growing. Any cost for replacing any unacceptable sod will be at the Contractor's expense.

I. Application of Nitrogen

Apply nitrogen at approximately 50 lbs/acre (56 kg/ha) when specified by the Engineer after plants have grown to2 in (50 mm) high.

One application is mandatory and must be applied before Final Acceptance.

Apply nitrogen with mechanical hand spreaders or other approved spreaders capable of uniformly covering the grassed areas. Do not apply nitrogen on windy days or when the foliage is damp.

Do not apply nitrogen between October 15 and March 15 except in Zone 4. In planting zones 3 and 4 apply an additional application of nitrogen.

J. Application of Polyacrylamide (PAM)

1. Prepare soil according to project Plans and Specifications prior to applying PAM.
2. Apply PAM according to manufacturer's recommendations and the requirements listed herein.
3. Apply Polyacrylamide (PAM) to all areas that receive permanent grassing.
4. Apply PAM (powder) before grassing or PAM (emulsion) to the hydroseeding operation.
5. Use only anionic PAM.
6. Ensure that the application method provides uniform coverage to the target and avoids drift to non-target areas including waters of the state.
7. Achieve > 80% reduction in soil loss as measured by a rainfall simulator test performed by a certified laboratory (1 hour storm duration, 3 inches (75 mm) rainfall per hour).
8. Ensure uniform coverage to the target area and minimize drift to non-target areas. Apply anionic PAM to all cut and fill slopes, permanently grassed or temporarily grassed, either prior to grassing or in conjunction with hydroseeding operations. Mulch will not be eliminated.
9. Use application rates in accordance with manufacturer's instructions.
10. Do not exceed 200 lbs/acre/year (224 kg/ha/year).

700.3.06 Quality Acceptance

The Engineer may require replanting of an area that shows unsatisfactory growth for any reason at any time.

Except as otherwise specified or permitted by the Engineer, prepare replanting areas according to the Specifications as if they were the initial planting areas. Use a soil test or the Engineer's guidance to determine the fertilizer type and application rate, then furnish and apply the fertilizer.

700.3.07 Contractor Warranty and Maintenance

A. Plant Establishment

Before Final Acceptance, provide plant establishment of the specified vegetation as follows:

1. Plant Establishment

   Preserve, protect, water, reseed or replant, and perform other work as necessary to keep the grassed areas in satisfactory condition.

2. Watering

   Water the areas during this period as necessary to promote maximum growth.

3. Mowing

   Mow seeded areas of medians, shoulders, and front slopes at least every 6 months. Avoid damaging desirable vegetation.

   In addition, mow as necessary to prevent tall grass from obstructing signs, delineation, traffic movements, sight distance, or otherwise becoming a hazard to motorists.

   Do not mow lespedezas or tall fescue until after the plants have gone to seed.

B. Additional Fertilizer Mixed Grade

Apply fertilizer at approximately 600 lbs/acre (675 kg/ha) each spring after initial plant establishment. Continue annual applications until Final Acceptance. This additional fertilizer will be measured and paid for at the Contract Unit Price for fertilizer mixed grade.

C. Growth and Coverage

Provide satisfactory growth and coverage, ensuring that vegetation growth is satisfactory with no bare spots larger than1 ft^2 (0.1 m^2). Bare spots shall comprise no more than 1 percent of any given area. An exception is given for seed not expected to have germinated and shown growth at that time.

D. Permissible Modifications

When all Items of the work are ready for Final Acceptance except for newly planted repaired areas or other areas with insufficient grass, the Contractor may fill the eroded areas or treat bare areas with sod obtained, placed, and handled according to Subsection 700.3.05.H.

Carefully maintain the line and grade established for shoulders, front slopes, medians, and other critical areas.

Sod as described above will not be paid for separately, but will be an acceptable substitute for the satisfactory growth and coverage required under this Specification. These areas treated with sod are measured for payment under the Item for which the sod is substituted.

700.4 Measurement

No measurement to be included for this item.

700.4.01 Limits

General Provisions 101 through 150.

700.5 Payment

Payment will be made under CONSTRUCTION COMPLETE.

A. Permanent Grassing

Includes preparing the ground, seeding, wood fiber mulch, polyacrylamide, and providing plant establishment and other incidentals.

B. Straw or Hay Mulch

Includes straw or hay mulch.

C. Fertilizer Mixed Grade

Includes furnishing and applying the material.

D. Lime

Includes furnishing and applying the material.

E. Nitrogen

Includes furnishing and applying the material.

F. Sod

Includes ground preparation, including addition of topsoil, furnishing and installing live sod, and for Plant Establishment.

G. Temporary Grass

Includes temporary grass.

700.5.01 Adjustments

General Provisions 101 through 150.

Revised August 3, 2005
February 28, 2007

Georgia Department of Transportation

State of Georgia

Special Provision

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County
Section 702—Vine, Shrub, and Tree Planting

Delete Section 702 and substitute the following:

702.1 General Description

This Work includes furnishing and planting vines, shrubs, trees and plants, as well as treating regenerated areas according to the Specifications, Plans, and the Engineer.

702.1.01 Definitions

General Provisions 101 through 150.

702.1.02 Related References

A. Standard Specifications

Section 108—Prosecution and Progress

Section 700—Grassing

Section 882—Lime

Section 891—Fertilizers

Section 893—Miscellaneous Planting Materials

B. Referenced Documents

Standardized Plant Names

702.1.03 Submittals

A. Certificates of Inspection

Submit certificates of inspection with the invoice for each shipment of plants as required by law for transportation.

File certificates with the Engineer before the material is accepted. Plants may be rejected at the site regardless of Federal or State government inspections at the place of growth.

B. Substitutions

When both primary and alternate plants are specified, use the alternate only after providing written proof that the primary plants specified are not available. In this case a Supplemental Agreement is not required to use the alternate plants.

When a primary or an alternate plant cannot be furnished, provide the Engineer written proof that neither is available. A Supplemental Agreement is required for substitute plants in this case.

702.2 Materials

Ensure that materials meet the requirements of the following Specifications:

Material	Section
Water	700.2.B
Agricultural Lime	882.2.01
Fertilizers	891.2.01
Plant Topsoil	893.2.01
Landscape Mulch	893.2.02
Vines, Shrubs, Trees, and Miscellaneous Plants	893.2.03
Tree Paint	893.2.06
Prepared Plant Topsoil	893.2.07
Stakes	893.2.08
Organic Soil Additives	893.2.09

A. Plant Specifications

Furnish plants according to the plant name and Specifications included on the Plans titled, "Plant Specifications."

1. Plant Names

   Ensure that the botanical and common names of plants specified conform with the most current edition of Standardized Plant Names, as adopted by the American Joint Committee on Horticultural Nomenclature.

   Plants should be clearly labeled at the nursery. Labels should remain on the plants until inspected by the engineer.

2. Grades

   Ensure that plants meet the grade requirements of the most current American Nursery and Landscape Association ANSI Z60.1 and any other requirements.

   Caliper used for establishing plant grades or trunk sizes is measured according to the American Nursery and Landscape Association ANSI Z60.1. Plant trees with straight stems and symmetrical branches according to their natural growth. Trees with broken or damaged terminal or main stems will be rejected. There should be one dominant leader to the top of the all large canopy shade trees. There can be a double leader in the top 10% of the tree.

   Trees should be rooting into the root ball so that soil or media remains intact and trunk and root ball move as one when lifted, but not root bound. The trunk should bend when gently pushed and should not be loose so it pivots at or below the soil line.

   There shall be no roots greater than 1/10 diameter of the trunk circling more than one-third the way around in the top half of the root ball. Roots larger than this may be cut provided they are smaller than one-third the trunk diameter.

   The leaf-bearing crown should be full and uniform. Leaves should show no evidence of chlorosis, necrosis, disease or insect infestation.

3. Substitutions

   Use approved substitute plants, as designated by the Engineer, equal in value to specified plants. Request substitutions at least 30 days before the end of the planting season in the area.

B. Nursery Plants

Unless otherwise specified, use plants stock-grown in a licensed nursery under intensive care and cultivation for at least one year. The largest branches of shade trees should be spaced at least 6 inches apart. The branch system shall be normally developed and free of disease, injurious insects,

disfiguring knots, sun-scald, injuries, bark abrasions, dead or dry wood, broken terminal growth, or other disfigurements. Stems should show no evidence of die-back. Ensure that proper certificates of inspection and a complete list of the nursery growers accompany nursery grown plants. See Subsection 893.2.03.

C. Collected Plants

Collected plants grow in the wild and are uncultivated and untransplanted. Do not take collected plants from areas infested with insects under quarantine. See Subsection 893.2.03 .

D. Approval and Selection of Materials and Work

Select materials and execute operations required under the Specifications and drawings with the approval of the Engineer. Remove rejected materials from the site promptly.

702.2.01 Delivery, Storage, and Handling

A. Bare-Rooted Plants

Tie bare-rooted plants in bundles and place moist sphagnum moss, shingletoe, or other moisture-retaining material around the roots to keep the plants moist for up to 10 days. Over-wrap the bundle with a heavy weight, waterproof, flexible material, covering the roots and one-half of the tops. Keep the plants wrapped until they are planted or heeled-in.

Wrapped plants may be held in the package for up to 10 days from shipment if protected from the sun and wind. If unable to plant plants within 10 days from shipment, unwrap, spread the roots, heel-in using moist soil, and water well.

Protect roots of plants that have been heeled-in from drying out. Cover soil and roots with wet canvas, burlap, or straw while transporting and distributing them for planting. The type of protection depends on weather conditions and the length of time the plants remain unplanted. Use protection methods satisfactory to the Engineer.

B. Balled and Burlapped Plants (B&B)

Ensure that the soil in the ball is the original and undisturbed soil in which the plant has grown.

1. Dig, burlap, transport, and handle the plant carefully to avoid loosening the soil (stripping or exposing the roots). Burlap shall be a natural biodegradable material. Do not use synthetic burlap.
2. Replace plants rejected because of broken or loose balls, or balls of less diameter than that specified.
3. Adequately protect the roots of balled and burlapped plants, unless they are planted immediately after they are delivered. Completely cover them with damp soil, sawdust, or other moist material until removing them for planting.
4. Keep plants moist while awaiting planting.
    a. Do not saturate the ball, causing it to pull off in handling.
    b. Handle B&B plants by the ball and not by the top growth.
    c. Never leave the balls of plants unprotected overnight.

C. Container-Grown Plants

Keep container-grown plants moist until planted. Handle them by the container or soil ball and not by the top growth.

D. Collected Plants

Do not collect plants more than 24 hours before planting.

1. Select plants with good shape and form. Do not select poorly shaped, weak plants taken from dense shade and crowded conditions.
2. Dig collected plants with a wide root system equal to at least the spread of the top of the plant.
3. Protect the roots with a moist packing material.

4. Load them onto a covered truck, protected from the sun and wind and transfer them directly to the final planting site.
5. Prune collected plants by removing from one-third to one-half of the side branches as directed by the Engineer.

E. Heeled-in Plants

Properly maintain heeled-in plants until they are planted. Do not allow plants to remain heeled-in over the summer or for over 30 days without the Engineer's consent.

F. Injury Prevention

In digging, loading, unloading, planting, or otherwise handling plants, avoid injuring the trunk, branches, and roots of the plants. Injured plants will be rejected. Protect tops of shrubs and trees while in transit to prevent windburn.

702.3 Construction Requirements

702.3.01 Personnel

General Provisions 101 through 150.

702.3.02 Equipment

General Provisions 101 through 150.

702.3.03 Preparation

A. Inspect Plants Before Digging

The Engineer will inspect trees or plants from the bidder's source for acceptability. When rejecting the trees or plants, the Engineer reserves the right to pursue and examine other sources of plants to find acceptable specimens. This change will not constitute an increase in cost to the State.

B. Clear and Grub

Clear and grub before planting or beginning to prepare the plant bed. See Special Provision 202

C. Prepare Plant Bed

Prepare for planting as follows:

1. Planting Limits

   Stake planting limits according to Plan details and the Engineer. Have the Engineer approve the method of plant identification before planting.
2. Applications of Soil Additives
   a. Apply fertilizer approximately 3 lbs/100 ft² (1.5 kg/10 m²) of bed surface. Fertilizer for plant bed may be 6-12-12 if 4-12-12 is not available.
   b. Apply agricultural lime for plant bed approximately 5 lbs/100 ft² (2.5 kg/10 m²) of bed surface.
   c. Spread an organic soil additive, (See Subsection 893.2.09), evenly throughout the designated area to at least 2 in (50 mm) deep. Thoroughly dig it into the soil to at least 6 in (150 mm) deep using a rotary hoe type tiller or other equipment that evenly mixes the soil, lime, fertilizer, and organic soil additive.
   d. Till the area until the surface is smooth and free of weeds, roots, rocks, and other debris, to the satisfaction of the Engineer.

702.3.04 Fabrication

General Provisions 101 through 150.

702.3.05 Construction

A. Seasonal Limitations for Planting

For geographic seasonal limitations, refer to the Planting Zones Map found in Subsection 700.3.05. Plant in Zones 1 and 2 between October 15 and January 20. Plant in Zones 3 and 4 between November 1 and January 1.

B. Planting Operations

Plant using either the pit method or the dibble method as called for on the Plant Specification sheet. Before beginning planting of each area, have available the necessary materials including prepared plant topsoil (see Subsection 893.2.07), water, stakes, and mulch.

When seasonal limitations and weather conditions permit, continuously water, mulch, guy, and stake, until completing the last operation.

After completing planting, provide a method for retaining water adjacent to the plant according to the details shown on the Plans or as directed by the Engineer.

1. Planting By the Pit Method
   a. Placing Bare-Rooted Plants

      Plant bare-rooted plants delivered to the pit area. Protect roots from drying out until placing them in the pit.

      - Center plants in pits and spread roots as they originally grew.
      - Cover and prepare the topsoil according to details shown on the Plans.

   b. Placing Balled and Burlapped Plants

      Immediately plant these plants after they are delivered to the pit site. Never allow the balls to remain unprotected overnight.

      - The pit diameter shall be a minimum of 3 times the diameter of the rootball. Center the ball in the prepared pit, leaving the top of the ball 1 in (25 mm) above the top of the ground for settlement.
      - Cut away and remove the top 1/3 of burlap from the rootball. Cut all ropes and twine, pull the nails, and drop the remaining burlap to the bottom of the hole. Cut away and remove all wire from the root ball.
      - Partially fill the pit with prepared plant topsoil and compact the soil enough to hold the ball firmly. Add mycorrhizal innoculant to plant topsoil if specified in plans.

   c. Placing Container-Grown Plants

      When the container is delivered to the pit site, split the container from top to bottom and carefully remove the plant.

      - The pit diameter shall be a minimum of 3 times the diameter of the rootball. Spread into the hole any major roots growing around the container or prune them to remove any circular growth.
      - Place the ball in the center of the prepared pit, leaving the top of the ball 1 in (25 mm) above the top of the ground for settlement.
      - Partially fill the pit with prepared plant topsoil and compact the soil enough to hold the ball firmly. Add mycorrhizal innoculant to plant topsoil if specified in plans.

   d. Completing Pit Plantings

      After placing pit plantings, water plants thoroughly the same day regardless of weather or soil moisture conditions.

      - After the water has soaked in, add prepared plant topsoil and compact firmly up to 2 in (50mm) below the adjacent ground.
      - Stop compacting when the compacted prepared topsoil is 2 in (50 mm) below the adjacent ground.

- Fill the remainder of each pit with loose, prepared plant topsoil according to the details shown on the Plans.
- Prepare the loose topsoil to retain water adjacent to the plant according to the Plans or as directed by the Engineer.

2. Planting By the Dibble Method

   If the Plans require the dibble method, perform the Work as outlined. Standard dibble blades are made in 10 in (250 mm) and 12 in (300 mm) heights. Use the 12 in (300 mm) blade on all plants except those with a root system of 8 in (200 mm) or less.

   Locate plants as shown on the Plans or as approved by the Engineer. Only plant when there is adequate moisture in the ground and when the ground is not frozen.

   Follow these steps when grass or other vegetation is present:

   a. Mow an area at least 2 ft (600 mm) on all sides of the proposed location of the individual dibbled plants to a height of 1 in (25 mm).
   b. Apply landscape mulch of the specified type and amount to the mowed area before planting.
   c. Dibble the seedling into the soil.
   d. Dibble the plant within 48 hours after mowing.
   e. Complete each planting according to the Plan details to retain water adjacent to the plant.

C. Landscape Mulching

1. For Pit Plantings

   Follow these requirements when mulching for pit plantings:

   a. Where the distance between plants is 8 ft (2.4 m) or less, spread mulch throughout and 3 ft (900 mm) beyond the outermost plants. Where plants are more than 8 ft (2.4 m) apart, apply mulch in a circular fashion around each plant, forming a ring 5 ft (1.5 m) in the outside diameter.

      If plant pits are greater than 5 ft (1.5 m) in diameter, ensure that the mulch extends out to cover the berm as shown in the planting details on the Plans.

   b. Apply mulch within 3 days of planting at least 4 in (100 mm) in depth to obtain a compacted depth of at least 3 in (75 mm).

      Compaction occurs naturally. Check compaction at least two months after spreading and exposing the mulch to the elements.

      If the compacted depth is less than 3 in (75 mm), apply additional mulch to deficient areas within 1 month following notification.

   c. Apply mulch to a uniform depth and remove lumps for a neat appearance. Tuck mulch neatly against all paving edges, drainage structures, and where planting beds meet grassed areas.
   d. Leave a 1 in (25 mm) to 2 in (50 mm) ring of non-mulched area directly around all tree trunks.
   e. Do not mulch with Cypress Mulch.

2. For Plantings by the Dibble Method

   Apply landscape mulch according to Subsection 702.3.05.C.1 with the following exceptions:

   a. Apply mulch before planting.
   b. Ensure that the minimum compacted height after 2 months exposure is 2 in (50 mm).

D. Wrapping

Do not wrap the trucks of tree unless specified in the plans. When wrapping is specified, tightly wrap the trunks of deciduous trees over 1.25 in (32 mm) in caliper. Wrap in strip burlap or waterproof crepe tree wrapping paper or other approved materials.

1. Begin wrapping at the ground and extend spirally up and beyond the first rosette of branches with an overlap of one half the width of the wrapping material.

2. Tie the wrapping material securely with binder twine spaced every 12 in (300 mm) for the full length of the wrapping. Wrap immediately after planting.

E. Staking and Guying

1. Perimeter Staking

   Place perimeter stakes 2 in x 2 in x 36 in (50 mm x 50 mm x 900 mm). Stake the perimeter of indicated regenerated areas within specified planting dates according to the Plans or as directed by the Engineer.

2. Vine, Shrub, and Miscellaneous Plant Staking

   Use stakes to identify isolated vines, shrubs, and miscellaneous plants outside of solid mulched beds according to Plan details.

3. Tree Staking and Guying

   Stake trees with an identification stake and guy according to the details and dimensions shown on the Plans. Each guy wire shall consist of 18-gauge (1.2 mm) malleable galvanized iron wires twisted into a single strand and enclosed loosely into a rubber hose (or other approved covering or guying materials) extending around the trunk. Replace at no additional expense to the Department, any staking and guying materials that break or loosen.

   Nylon guying straps of accepted size and quality may be substituted for the hose and wire specified above.

   a. After fastening the wire to the stake by tying or twisting it into a figure-8, nail or staple the wire to the stake to prevent slippage using a 4d nail or a 0.5 in (13 mm) staple.

   b. Tighten the wire so that twisting the wire causes a slight strain between the tree and the stake.

   c. Place guy wires above the first rosette of lower branches and fasten wire to the stake approximately 6 in (150 mm) above the ground.

F. Pruning

1. Prune plants on the site before planting and after initial inspection by the Engineer. Never prune severely to get plants to meet Specifications.

   a. Follow modern horticultural practices and use approved tools designed for pruning.

      Lopping, topping, or shearing trees or shrubs will result in rejection.

   b. Prune back damaged, scarred, frayed, split, and skinned branches, limbs, and roots to live wood nearest to the next sound, outside lateral bud, branch, limb, or root.

   c. Leave the terminal leaders or buds in trees intact.

   d. Remove approximately one-third of the smaller branches on nursery grown vines, shrubs, and trees for root-top balance.

   e. Prune roots, when necessary, as directed by the Engineer.

   f. Prune Crape Myrtles to maintain natural form only. Severely cutting back crape myrtles is not permitted. Remove sucker growth from Crape Myrtles.

G. Watering

1. Apply water in a manner to prevent erosion. Water plants at the time of planting. Water after applying fertilizer called for in Subsection 702.3.05.H and as necessary to maintain enough moisture to promote plant growth. Use tree gator watering bags or approved equivalent if specified in plans.

   a. Apply enough water to wet the soil to a depth slightly below the roots. Direct the water to the ground around the plant, not the tops.

   b. Do not allow plant foliage to dry out or plants to defoliate from lack of water. Remove plants in such condition from the site immediately.

   c. Apply water once per week throughout the planting season in which the plants are installed. Follow Subsection 702.3.07.B and 702.3.07.C for shrub and tree watering requirements throughout the life of the project.

H. Spring Application of Fertilizer

1. Method and Rate of Application

   Follow these requirements when applying fertilizer in the spring:

   a. Trees

      Deep-root feed trees each spring by using a 8-12-12 slow release fertilizer. Bore a 1.5 in (38 mm) diameter hole between 18 in to 24 in (450 mm to 600 mm) deep at the rate of 8 to 10 holes per tree.

      Use 1 cup (0.25 L) of fertilizer per 1 in (25 mm) in caliper of tree measured 6 in (150 mm) off the ground. Fill the holes with soil upon completing each hole.

   b. Shrubs

      Fertilize shrubs with a 6-12-12 slow release 60 percent organic fertilizer by spreading fertilizer around the base of the plant and working it into the soil by hand. Use 0.5 cup (0.12 L) of fertilizer per foot (300 mm) of shrub height.

   c. Bed Areas

      Spread fertilizer on bed areas (defined by method of planting in Subsection 702.3.05.B), over the mulch at the rate of 3 lbs/100 ft^2 (1.5 kg/10 m^2) using 6-12-12 or 8-12-12. Thoroughly water in the plants.

   d. Vines

      Fertilize vines when not planted in a bed at the rate of 1/4 cup (60 ml) per vine using 6-12-12 or 8-12-12. Thoroughly water in the plants.

   e. Regenerated Areas

      Spread fertilizer on regenerated areas evenly at a rate of 3 lbs/100 ft^2 (1.5 kg/10 m^2) and thoroughly water in using 6-12-12.

NOTE: 2 cups (1 L) of 6-12-12 or 8-12-12 equals 1 lb (1 kg).

2. Time of Application

   Apply fertilizer in the spring in Zones 1 and 2 (with reference to the Planting Zones specified in Subsection 702.3.05.A) between April 1 and April 15. Apply between March 15 and April 1 for Zones 3 and 4.

   For late plantings, do not apply fertilizer less than 30 days after the plantings.

3. Additional Fertilizer Grades 8-12-12 or 6-12-12

   Approximately one month after the spring fertilizer is applied, the Engineer will inspect planted areas and determine if an additional application of fertilizer is needed for any plant or group of plants.

   If the Engineer determines additional fertilizer is required, apply fertilizer at the rate specified in Subsection 702.3.05.H. Make the additional application between June 15 and July 15th.

I. Treatment of Regenerated Areas

Treating regenerated areas includes staking the perimeter and applying fertilizer in the spring.

Pruning, mulching, staking (except perimeter staking), guying, mowing, weeding, and watering (except watering following fertilization) are not required.

Perform perimeter staking as specified in Subsection 702.3.03.C.1. Apply fertilizer in the spring as specified in Subsection 702.3.03.C.2.

J. Restoration and Cleanup

Restore areas where existing grass has been damaged or scarred during planting operations at no expense to the Department. Restore the disturbed areas to their original conditions as directed by the Engineer. Clean up debris, spoil piles, and containers and leave the Project area clean.

702.3.06 Quality Acceptance

Preserve the plants in a healthy growing condition. The acceptability of the plant material planted and maintained as specified will be determined at the end of an establishment period.

The plant establishment period is the period from the last planting specified in Subsection 702.3.05.B until the following October 1. Plant all plants in one planting season unless otherwise approved by Engineer.

A. Establishment Period and Final Inspection

At the end of the first planting season, the establishment period begins. The Department will make the final inspection 30 days before the end of the establishment period. Replace dead, dying, diseased, unsatisfactory, and missing plants, prior to Final Acceptance of the Project. Assume responsibility for the plants until the Final Acceptance of the Project or a portion of the Project.

702.3.07 Contractor Warranty and Maintenance

Project maintenance includes, but is not limited to, watering, cultivating, weeding, pruning, repairing, adjusting guys and stakes, and performing other work as ordered by the Engineer until final acceptance.

An additional 5% (calculated by type) of all plants actually planted shall be delivered to the City of West Point (Contractor to coordinate details with the Engineer) prior to Final Acceptance. Plants shall be in individual containers suitable for storage up to one year. The City of West Point shall be named/ included on any extended warrantees on all plants.

Promptly remove from the Project area dead plants or those that no longer conform to the requirements of Subsection 702.2.A.2.

Mow the entire right-of-way within the limits of the Project up to a maximum of four times per calendar year.

A. Leaning Trees

Straighten leaning trees as directed by the Engineer. Follow Staking and Guying requirements for replacements or repairs as per Subsection 702.3.05.E.

B. Shrub Maintenance

1. Pruning

   Prune or thin shrubs, as directed by the Engineer, at least two times per year, once before spring and once during mid-summer. Maintain an attractive shape and fullness with respect to the intended character of the planting. See Subsection 702.3.05.F.

2. Landscape Mulching

   Continuously maintain shrub and tree beds with a clean, freshly mulched appearance using the mulch originally specified. See Subsection 702.3.05.C.

   a. Apply a 2 in (50 mm) loose layer of specified mulch (top-dressing) on top of all areas, including tree pits, initially mulched, at the following times:
      - In August, during the first plant establishment period.
      - In April, during the second plant establishment period.
      - In August, during the second plant establishment period.
      - In April, prior to the final inspection.

3. Applying Fertilizer

   See Subsection 702.3.05.H.

4. Applying Pesticides

   a. Inspect all planted or seeded vegetation for insects, grubs, mites, diseases, etc., once every two weeks. Apply insecticides, fungicides, and herbicides according to the manufacturer's recommendations to effectively control or eradicate the problem.

b. Perform all pesticide applications under the direct supervision of a trained licensed commercial pesticide operator whose license includes subcategory 27 – Right of Way Pest Control. Carry the pesticide license/certification on the work site during applications. Carry all labeling associated with the chemical being applied at the work site.

c. Submit all product information data sheets and EPA approval numbers on all pesticides proposed to be used prior to application for approval.

d. Notify the Engineer a minimum of 48 hours prior to any and all pesticide applications.

e. Add a blue dye to all spray applications unless approved otherwise by the Engineer.

f. Monitor the weather and spray under proper weather conditions. Spraying shall not occur when the weather is greater than 10 miles per hour.

g. Wear the proper safety attire. Wear long sleeve shirts, long pants, gloves, and safety glasses. Wear or use any additional protective safety attire or gear as recommended by the product's manufacturer.

h. Repair any damage that is a result of mishandling or misuse of materials, at no expense to the Department, to the satisfaction of the Engineer.

5. Edging

a. Edge all shrub pits, shrub beds, and tree pits twice a month throughout the life of the project such that the vee-cut edging detail specified on the plans is maintained. Prevent grass and weeds from growing over or into the shrub beds and tree pits.

b. Use equipment specifically designed for edging. Line trimming equipment shall not be used.

6. Watering

a. Check all planted material once a week throughout the contract for dryness by removing the mulch from their base and "sampling the soil" approximately 4 in (100mm) deep. Water if the soil is not moist.

b. Water all planted material if a drought (no rain for two weeks) occurs. Provide the water required to meet the watering requirements.

c. Water each plant thoroughly until the ground is saturated to a depth slightly below the root ball. Apply water in a manner to prevent erosion.

7. Weed Control

Perform weed control throughout the project, a minimum of once every two weeks, in all areas within the project limits to maintain tree pits, shrub beds, sidewalks, curb and gutter, walkways, ditch paving, concrete medians, and other pavement weed free. Meet the following conditions:

a. Perform weed control to prevent weeds from becoming established, setting seed, or from becoming visible in the planting beds.

b. Completely remove all undesirable plants (weeds) by hand pulling. Removal of weeds may be accomplished using herbicides if approved by the Engineer.

c. Apply an approved pre-emergent herbicide twice each year, once in the spring and once in the fall, throughout the contract. Apply pre-emergent to all shrub beds and tree pits. Notify the Engineer 48 hours prior to spraying. Use a blue dye in all applications unless approved otherwise by the Engineer.

d. If noted on plans, eradicate all invasive exotic pest plants found within the project limits throughout the life of the project.

e. Dispose off site on a daily basis all weed, exotic plants, clippings, litter, and debris generated.

8. Policing

Remove debris such as paper, broken limbs, bottles, cans, etc., a minimum of the first and third week of each month from all areas within the project limits while maintaining the site.

C. Tree Maintenance

1. Watering

See Subsection 702.3.07.B.6

2. Landscape Mulch

   See Subsection 702.3.07.B.2

3. Fertilizer

   See Subsection 702.3.05.H.

4. Abnormal Conditions

   Periodically (once every two weeks) observe trees and shrubs for abnormal conditions such as insects, borers, web worms, red spiders, etc., and immediately treat.

5. Sucker Growth

   Remove sucker growth once a month. Sucker growth is the shoots that sprout out around the base of the tree trunk.

6. Pruning and Deadwood

   Remove deadwood at least two times a year. Prune dead branches. Paint cuts, and wounds or scars with tree paint only when specified in the plans. Do not top Crape Mrytles. See Subsection 702.3.05.F.

7. Pesticide Control

Apply pesticides as necessary to control bores, aphids, mealy bugs, mites, and tent worms, and diseases. Follow the manufacturer's instructions. . See Subsection 702.3.07.B.4. NOTE: Use chemicals according to Federal, State and county directives on environmental control that carry an EPA approval number.

8. Weed Control

   See Subsection 702.3.07.B

9. Staking and Guying

   Remove all guy wires/nylon strapping and stakes from plants which have gone through one complete growing season.

702.4 Measurement

A. Plants – not measured separately.

Plants must be living and in an acceptable condition at the time of Final Acceptance according to approved plan.

B. Fertilizer – not measured separately.

Spring application fertilizer applied to planted and regenerated areas is include in price bid for project. Fertilizer, lime, and plant topsoil used in prepared plant topsoil or plant bed preparation are not measured for separate payment.

C. Perimeter Stakes

Perimeter stakes is not measured for payment unless such item is shown as a separate Pay Item in the Proposal.

D. Clearing and Grubbing

Clearing and grubbing is not measured for payment unless the Item is shown as a separate Pay Item in the Proposal.

E. Landscape Mulch – not measured separately.

The quantity of landscape mulch and top-dressing is included in price bid for project. The presence of weeds or other growth, or foreign material, will be cause for rejection of pay request. The addition of landscape mulch in deficient areas will not be measured for payment.

702.4.01 Limits

General Provisions 101 through 150.

702.5 Payment

A. Plants – paid for under CONSTRUCTION COMPLETE.

If the Contractor fails to properly maintain the landscaping, the Department will assess liquidated damages according to the schedule of deductions shown in Subsection 108.08, but not less than $150 per calendar day, and will continue until project maintenance is approved by the Engineer.

The liquidated damages are in addition to those specified for delay or failure in completing the Work within the specified time.

Includes furnishing, planting, replanting as required, pruning, staking, guying, soil conditioning, and preparing plant beds, including applying additives, digging plant pits, preparing plant topsoil and mulch, disposing of waste material, and maintaining the plants during the plant-establishment period.

B. Fertilizer – paid for under CONSTRUCTION COMPLETE.

C. Perimeter Stakes – paid for under CONSTRUCTION COMPLETE.

D. Landscape Mulch – paid for under CONSTRUCTION COMPLETE.

702.5.01 Adjustments

General Provisions 101 through 150.

Office of Maintenance

First Use Date: November 17, 2006

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

Supplemental Specification

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 800—Coarse Aggregate

Delete Section 800 and substitute the following:

800.1 General Description

This section includes requirements for coarse aggregate. All aggregate shall be the specified type, class, and grade, and shall meet the requirements for the intended use.

800.1.01 Related References

A. Standard Specifications

Section 424—Bituminous Surface Treatment

B. Referenced Documents

AASHTO	ASTM	
T 11	C 277	C 295
T 27	C 289	C 586
T 96	C 294	E 30
T 104		G 23

GDT 104

GDT 129

GDT 133

QPL 2

SOP 1

800.2 Materials

800.2.01 Coarse Aggregate

A. Requirements

The Contractor shall use the type, group, class, and grade of coarse aggregate specified. For coarse aggregate sources, see QPL 2.

1. Coarse Aggregate Types

Type	Characteristics

Type	Characteristics
Crushed stone	Sound, durable rock particles.
Gravel	Sound, durable rock without damaging coatings.
Air-cooled blast furnace slag	Sound, durable particles with uniform density and quality, or other slags that have a good service record. Dry slag shall weigh at least 70 lb/ft³ (1120 kg/m³) compacted and shall contain less than 30% glassy particles by weight. Do not use slag as aggregate for Portland cement concrete.
Synthetic aggregate	Sound, durable, expanded clay, shale, or other manufactured product.

2. Coarse Aggregate Groups
   a. Group I: Limestone, dolomite, marble, or any combination thereof. Ensure Group I aggregates meet the abrasion requirement for Class A stone when used in Portland cement concrete of any type or class.
   b. Group II: Slag, gravel, granitic and gneissic rocks, quartzite, synthetic aggregate, or any combination thereof.
3. Classes

   Aggregates are classified by physical properties that determine how they are used.
   a. Do not blend aggregates that meet abrasion requirements with aggregates that do not meet requirements.
   b. "Class A" and "Class B" aggregate used in Portland cement concrete, asphaltic concrete, and bituminous surface treatment shall meet these limits:

Percent Wear AASHTO T 96 ("B" Grading)		
	Class A	**Class B**
Group I Aggregates	0-40	41-55
Group II Aggregates	0-50	51-60

   c. "Class B" aggregates used in all applications other than Portland cement concrete, asphaltic concrete, or bituminous surface treatment shall meet these limits:

Percent Wear AASHTO T 96 ("B" Grading)	
	Class B
Group I Aggregates	41-55
Group II Aggregates	51-65

4. Soundness

   Test coarse aggregate used in Portland cement concrete, bituminous surfaces, bituminous bases, aggregate bases, or surface treatment with five alternations of the magnesium sulfate soundness test.
   a. Use aggregate with a weight loss of less than 15 percent.
   b. The 15 percent soundness loss for a Class "CS" concrete is waived if it has a 5-year service record.
   c. If the material meets all the requirements except for the 15 percent soundness requirement, the material may be used in Zones 3 and 4 (see Subsection 424.3.05, "Construction Requirements") under the following conditions:
      1) The aggregate in bituminous courses and in all types and classes of Portland cement concrete construction, except as stated in Group I, has a satisfactory five-year service record under similar service and exposure.
      2) The Engineer's investigation shows that it equals or exceeds the quality of approved aggregate (in cases where the material's uniformity changes at the source, or does not have a five-year service record).
5. Grades

   Use coarse aggregate that is well graded within the limits and sizes specified in Table 800.1.
6. Detrimental Substances
   a. Detrimental substances include shale, weathered or decomposed rock, friable particles, or any substance that may be detrimental for the use intended..

b. Do not use any aggregate that can cause a deleterious reaction.

c. Do not use aggregates that contain Chrysotile (defined as fibrous serpentinite) as a temporary or permanent unbound surfacing for roads, nor as stabilizer for soil used as subgrade, base, or surface course.

d. Detrimental substances shall not exceed the following limits:

1) For Portland Cement Concrete:

Substance	Max % Allowed
Mica schist—Materials defined in ASTM C 294 as phyllite or schist. Use GDT 104 to analyze these materials.	5
Materials that pass the No. 200 (75 µm) sieve.	1.5
Flat and elongated pieces (with lengths more than five times the average thickness).	10
Sulphur content computed as sulfide sulphur (for bridge-type structures)—If the sulphur content exceeds 0.01%, do not use the aggregate unless it passes a petrographic analysis and a weathering test equivalent to 6 months or more of exposure.	0.01
Other local detrimental substances. (Any Combination)	2.0
NOTE: Do not use aggregate in Portland Cement concrete that is capable of producing a deleterious reaction when combined with Portland Cement.	

2) For Asphaltic Concrete:

Substance	Max. % Allowed
Mica schist—Materials defined in ASTM C 294 as phyllite or schist. Use GDT 104 to analyze these materials. (Use this requirement for Interstate Construction only.)	10
Flat or elongated particles (with lengths more than five times the average thickness).	10
Glassy particles (slag).	30
Other local detrimental substances. (Any combination)	2.0

3) For Bituminous Surface Treatment:

Substance	Max. % Allowed
Mica schist—Materials defined in ASTM C 294 as phyllite or schist. Use GDT 104 to analyze these materials.	10
Material finer than No. 200 (75 µm) sieve. #5 Stone #6 Stone #7 Stone #89 Stone	 0.5 0.7 0.7 1.0
Flat and elongated particles (with lengths more than five times the average thickness).	10
Glassy particles (slag).	30
Other local detrimental substances. (Any combination)	2

e. Ensure that gravel used in asphaltic concrete and bituminous surface treatment meets the following additional requirements:

- Consists of siliceous particles.
- A minimum of 85%, by count, of the material retained on the No. 4 (4.75 mm) sieve has one or more fractured faces.
- The fracture is for the approximate average diameter or thickness of the particle.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test as follows:

Test	Method
Material that passes the No. 200 (75 µm) sieve	AASHTO T 11
Sulphur content	ASTM E 30, Leco method
Weathering	ASTM G 23
Petrographic analysis	ASTM C 295
Soundness (magnesium sulfate)	AASHTO T 104
Percent wear	AASHTO T 96
Aggregate gradation	AASHTO T 27
Reactivity	ASTM C 227, C 289, and C 586
Schist or phyllite	GDT 104
Flat and elongated particles	GDT 129
Friable Particles	GDT 133

D. Materials Warranty

General Provisions 101 through 150.

TABLE 800.1 - SIZES OF COARSE AGGREGATES

SIZE NO	NOMINAL SIZE SQUARE OPENINGS		AMOUNTS FINER THAN EACH LABORATORY SIEVE (SQUARE OPENINGS). %, BY WEIGHT										
	(1)	mm	2 ½"	2"	1 ½"	1"	¾"	½"	3/8"	No. 4	No. 8	No-16	No. 50
			63 mm	50 mm	37.5mm	25 mm	19 mm	12.5 mm	9.5 mm	4.75 mm	2.36mm	1.18 mm	300 µm
3	2-1	50 - 25	100	90-100	35-70	00-15	-----	00-5	----	-----	-----	-----	-----
357	2-No. 4	50 - 4.75	100	95-100	-----	35-70	-----	10-30	----	00-5	-----	-----	-----
4	1 ½ - 3/4	37.5 - 19	-----	100	90-100	20-55	00-15	-----	00-5	-----	-----	-----	-----
467	1 ½- No. 4	37.5 - 4.75	-----	100	95-100	-----	35-70	-----	10-30	00-5	-----	-----	-----
5	1-1/2	25 – 12.5	-----	-----	100	90-100	20-55	00-10	00-5	-----	-----	-----	-----
56	1-3/8	25 – 9.5	-----	-----	100	90-100	40-75	15-35	00-15	00-5	-----	-----	-----
57	1-No. 4	25 – 4.75	-----	-----	100	95-100	-----	25-60	-----	00-10	00-5	-----	-----
6	¾-3/8	19 – 9.5	-----	-----	-----	100	90-100	20-55	00-15	00-5	-----	-----	-----
67	¾-No. 4	19 – 4.75	-----	-----	-----	100	90-100	-----	20-55	00-10	00-5	-----	-----

68	¾-No. 8	19 – 2.36	-----	-----	-----	100	90-100	-----	30-65	05-25	00-10	0-5	-----
7	½-No. 4	12.5 – 4.75	-----	-----	-----	-----	100	90-100	40-70	00-15	00-5	-----	-----
78	½-No. 8	12.5 – 2.36	-----	-----	-----	-----	100	90-100	40-75	05-25	00-10	0-5	-----
8	3/8-No. 8	9.5 – 2.36	-----	-----	-----	-----	-----	100	85-100	10-40	0-10	0-5	-----
89	3/8-No. 16	9.5 – 1.18	-----	-----	-----	-----	-----	100	90-100	20-55	0-15	0-10	0-5
9	No. 4-No. 16	4.75 – 1.18	-----	-----	-----	-----	-----	-----	100	85-100	10-40	0-10	0-5

(1) In inches, except where otherwise indicated. Numbered sieves are those of the United States Standard Sieve Series.

GEORGIA DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 710—Permanent Soil Reinforcing Mat

Delete Subsection 710 and substitute the following:

710.1 General Description

This work includes furnishing and placing a permanent mat over prepared areas according to the Plans or as directed by the Engineer.

710.1.01 Definitions

General Provisions 101 through 150.

710.02 Related References

A. Specifications

Section 700—Grassing

Section 881—Fabrics

B. Referenced Documents

QPL 49

710.1.03 Submittals

General Provisions 101 through 150.

710.2 Materials

Use materials listed in the QPL 49 .

Ensure that materials meet the following requirements.

A. Preformed Mat

Use mat with a web of mechanical or melt-bonded polymer nettings, monofilaments, or fibers entangled to form a dimensionally stable matrix. Bond the mat with one of the following:

- Polymer welding
- Thermal fusion
- Polymer fusion

- Fibers placed between two high-strength, biaxially oriented nets bound by parallel-lock stitching with polyolefin, nylon, or polyester threads

Use a mat with enough strength and elongation to limit stretching and maintain its shape before, during, and after installation under dry or wet conditions. Provide a mat with stabilized components that avoid ultraviolet degradation and are inert to chemicals normally encountered in a natural soil environment. Ensure that the mat conforms to the following physical properties:

Property	Minimum Value	Test Method
Thickness	1/2 in (13 mm)	
Weight	0.60 lbs/yd² (325 g/m²)	
Roll width	38 in (965 mm)	
Tensile strength		ASTM D 5034*
Length (50% elongation)	15 lbs/in (2.5 N/mm)	
Length (ultimate)	20 lbs/in (3.5 N/mm)	
Width (50% elongation)	5 lbs/in (1 N/mm)	
Width (ultimate)	10 lbs/in (2 N/mm)	
Ultraviolet stability	80%	ASTM D 4355
1,000 hours in an Atlas ARC Weatherometer (ASTM G 23, Type D)		ASTM D 822
* Modified to use minimum 6 in (150 mm) wide test specimens.		

B. Stakes or Staples

Use 1 in by 3 in (25 mm by 75 mm) wood stakes made from sound stock cut in a triangular shape. Cut stakes 12 in to 18 in (300 mm to 450 mm) long depending on soil compaction. Use metal staples with the following characteristics:

- 11 gauge steel
- U shape
- Legs at least 8 in (200 mm) long
- Crown 2 in (50 mm) across

C. Filter Fabric

Use woven or nonwoven filter fabric that meets the requirements of Subsection 881.2.05, "Plastic Filter Fabric."

710.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

Delete Subsection 710.3 and substitute the following:

710.3 Construction Requirements

710.3.01 Personnel

General Provisions 101 through 150.

710.3.02 Equipment

General Provisions 101 through 150.

710.3.03 Preparation

A. Site Preparation

Before protecting areas with mat, prepare the area according to Section 700 with the following steps:

1. Bring to final grade

2. Plow
3. Lime
4. Fertilize
5. Grass

Provide a smooth, firm, and stable surface free of rocks, clods, roots, or other obstructions that would prevent the mat from contacting the soil directly.

710.3.04 Fabrication

General Provisions 101 through 150.

710.3.05 Construction

A. Installing Mat

Do not use a mat in areas with rock outcroppings or large rocks. Install the mat either in ditches or on slopes according to the following requirements:

1. Ditches

   To install the mat in ditches:

   a. Cut a transverse trench 6 in wide by 9 in deep (150 mm wide by 225 mm deep) at the ends of the mat and at 25 ft (7.5 m) intervals along the ditch.
   b. Cut longitudinal, 4 in (100 mm) deep anchor slots along each side of the mat along the full length of the ditch, burying mat edges.

      The Engineer will require additional or deeper anchor slots for large volumes of water.
   c. Roll out the center strip of matting, starting at the lower end of the ditch.
   d. Roll out each adjacent strip of matting to overlap the preceding strip at least 3 in (75 mm).
   e. Overlap the ends of each mat roll 3 ft (1 m) with the upslope mat on top. Stretch the mat to the bottom of the slot, folding it back and staking through two layers of material.
   f. Stake each strip of matting at 1 ft (300mm) intervals in each anchor slot, with one stake serving the overlapped edges of adjoining strips.
   g. Backfill and compact the slot.
   h. Fold the mat back over the slot and continue in the upstream direction (closed anchor slot).
   i. Stake the mat snugly in the longitudinal slots and at intervals a maximum of 5 ft (1.5 m) along the ditch (open anchor slot).
   j. Backfill and dress the longitudinal anchor slots.

   Lay up to 10 ft (3 m) of filter fabric under runs of matting that begin at pipe outlets.

B. Grassing

Grass the entire area where mat will be placed and disturbed soil area according to Section 700.

710.3.06 Quality Acceptance

General Provisions 101 through 150.

710.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

710.4 Measurement

No measurement to be included for this item.

710.4.01 Limits

Overlaps and anchor slots are incidental to the work and are not measured for payment.

710.5 Payment

Includes furnishing and installing the mat according to this Specification, including filter fabric and maintenance.

Payment will be made under CONSTRUCTION COMPLETE.

710.5.01 Adjustments

General Provisions 101 through 150.

Revised: February 28, 2007

DEPARTMENT OF TRANSPORATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

SECTION 715 – Bituminous Treated Roving

Delete Sub-section 715.4 and substitute the following:

715.4 Measurement

This item will not be measured separately.

715.4.01 Limits

Treated slopes and waterways are not measured separately.

Delete Sub-section 715.5 and substitute the following:

715.5 Payment

The item will be paid for under CONSTRUCTION COMPLETE.

715.5.01 Adjustments

General Provisions 101 through 150.

Office of Urban Design

Revised: February 28, 2007

DEPARTMENT OF TRANSPORATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

SECTION 716 – Erosion Control Mats (Slopes)

Delete Sub-section 716.4 and substitute the following:

716.4 Measurement

This item will not measured separately.

716.4.01 Limits

General Provisions 101 through 150.

Delete Sub-section 716.5 and substitute the following:

716.5 Payment

This item will be paid for under CONSTRUCTION COMPLETE.

Includes constructing the mat (blanket) and providing materials, equipment, tools, labor, and incidentals needed to maintain mats (blankets) for the life of the Contract or until a stand of grass has developed enough to prevent erosion.

716.5.01 Adjustments

General Provisions 101 through 150.

Office of Urban Design

First Use Date: November 17, 2006

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

Supplemental Specification

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 800—Coarse Aggregate

Delete Section 800 and substitute the following:

800.1 General Description

This section includes requirements for coarse aggregate. All aggregate shall be the specified type, class, and grade, and shall meet the requirements for the intended use.

800.1.01 Related References

A. Standard Specifications

Section 424—Bituminous Surface Treatment

B. Referenced Documents

AASHTO	ASTM	
T 11	C 277	C 295
T 27	C 289	C 586
T 96	C 294	E 30
T 104		G 23

GDT 104

GDT 129

GDT 133

QPL 2

SOP 1

800.2 Materials

800.2.01 Coarse Aggregate

A. Requirements

The Contractor shall use the type, group, class, and grade of coarse aggregate specified. For coarse aggregate sources, see QPL 2.

1. Coarse Aggregate Types

Type	Characteristics

Type	Characteristics
Crushed stone	Sound, durable rock particles.
Gravel	Sound, durable rock without damaging coatings.
Air-cooled blast furnace slag	Sound, durable particles with uniform density and quality, or other slags that have a good service record. Dry slag shall weigh at least 70 lb/ft³ (1120 kg/m³) compacted and shall contain less than 30% glassy particles by weight. Do not use slag as aggregate for Portland cement concrete.
Synthetic aggregate	Sound, durable, expanded clay, shale, or other manufactured product.

2. Coarse Aggregate Groups
   a. Group I: Limestone, dolomite, marble, or any combination thereof. Ensure Group I aggregates meet the abrasion requirement for Class A stone when used in Portland cement concrete of any type or class.
   b. Group II: Slag, gravel, granitic and gneissic rocks, quartzite, synthetic aggregate, or any combination thereof.
3. Classes

   Aggregates are classified by physical properties that determine how they are used.
   a. Do not blend aggregates that meet abrasion requirements with aggregates that do not meet requirements.
   b. "Class A" and "Class B" aggregate used in Portland cement concrete, asphaltic concrete, and bituminous surface treatment shall meet these limits:

Percent Wear AASHTO T 96 ("B" Grading)		
	Class A	Class B
Group I Aggregates	0-40	41-55
Group II Aggregates	0-50	51-60

   c. "Class B" aggregates used in all applications other than Portland cement concrete, asphaltic concrete, or bituminous surface treatment shall meet these limits:

Percent Wear AASHTO T 96 ("B" Grading)	
	Class B
Group I Aggregates	41-55
Group II Aggregates	51-65

4. Soundness

   Test coarse aggregate used in Portland cement concrete, bituminous surfaces, bituminous bases, aggregate bases, or surface treatment with five alternations of the magnesium sulfate soundness test.
   a. Use aggregate with a weight loss of less than 15 percent.
   b. The 15 percent soundness loss for a Class "CS" concrete is waived if it has a 5-year service record.
   c. If the material meets all the requirements except for the 15 percent soundness requirement, the material may be used in Zones 3 and 4 (see Subsection 424.3.05, "Construction Requirements") under the following conditions:
      1) The aggregate in bituminous courses and in all types and classes of Portland cement concrete construction, except as stated in Group I, has a satisfactory five-year service record under similar service and exposure.
      2) The Engineer's investigation shows that it equals or exceeds the quality of approved aggregate (in cases where the material's uniformity changes at the source, or does not have a five-year service record).
5. Grades

   Use coarse aggregate that is well graded within the limits and sizes specified in Table 800.1.
6. Detrimental Substances
   a. Detrimental substances include shale, weathered or decomposed rock, friable particles, or any substance that may be detrimental for the use intended..

b. Do not use any aggregate that can cause a deleterious reaction.

c. Do not use aggregates that contain Chrysotile (defined as fibrous serpentinite) as a temporary or permanent unbound surfacing for roads, nor as stabilizer for soil used as subgrade, base, or surface course.

d. Detrimental substances shall not exceed the following limits:

1) For Portland Cement Concrete:

Substance	Max % Allowed
Mica schist—Materials defined in ASTM C 294 as phyllite or schist. Use GDT 104 to analyze these materials.	5
Materials that pass the No. 200 (75 µm) sieve.	1.5
Flat and elongated pieces (with lengths more than five times the average thickness).	10
Sulphur content computed as sulfide sulphur (for bridge-type structures)—If the sulphur content exceeds 0.01%, do not use the aggregate unless it passes a petrographic analysis and a weathering test equivalent to 6 months or more of exposure.	0.01
Other local detrimental substances. (Any Combination)	2.0
NOTE: Do not use aggregate in Portland Cement concrete that is capable of producing a deleterious reaction when combined with Portland Cement.	

2) For Asphaltic Concrete:

Substance	Max. % Allowed
Mica schist—Materials defined in ASTM C 294 as phyllite or schist. Use GDT 104 to analyze these materials. (Use this requirement for Interstate Construction only.)	10
Flat or elongated particles (with lengths more than five times the average thickness).	10
Glassy particles (slag).	30
Other local detrimental substances. (Any combination)	2.0

3) For Bituminous Surface Treatment:

Substance	Max. % Allowed
Mica schist—Materials defined in ASTM C 294 as phyllite or schist. Use GDT 104 to analyze these materials.	10
Material finer than No. 200 (75 µm) sieve. #5 Stone #6 Stone #7 Stone #89 Stone	 0.5 0.7 0.7 1.0
Flat and elongated particles (with lengths more than five times the average thickness).	10
Glassy particles (slag).	30
Other local detrimental substances. (Any combination)	2

e. Ensure that gravel used in asphaltic concrete and bituminous surface treatment meets the following additional requirements:

- Consists of siliceous particles.
- A minimum of 85%, by count, of the material retained on the No. 4 (4.75 mm) sieve has one or more fractured faces.
- The fracture is for the approximate average diameter or thickness of the particle.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test as follows:

Test	Method
Material that passes the No. 200 (75 µm) sieve	AASHTO T 11
Sulphur content	ASTM E 30, Leco method
Weathering	ASTM G 23
Petrographic analysis	ASTM C 295
Soundness (magnesium sulfate)	AASHTO T 104
Percent wear	AASHTO T 96
Aggregate gradation	AASHTO T 27
Reactivity	ASTM C 227, C 289, and C 586
Schist or phyllite	GDT 104
Flat and elongated particles	GDT 129
Friable Particles	GDT 133

D. Materials Warranty

General Provisions 101 through 150.

TABLE 800.1 - SIZES OF COARSE AGGREGATES

SIZE NO	NOMINAL SIZE SQUARE OPENINGS		AMOUNTS FINER THAN EACH LABORATORY SIEVE (SQUARE OPENINGS). %, BY WEIGHT										
	(1)	mm	2 ½"	2"	1 ½"	1"	¾"	½"	3/8"	No. 4	No. 8	No-16	No. 50
			63 mm	50 mm	37.5mm	25 mm	19 mm	12.5 mm	9.5 mm	4.75 mm	2.36mm	1.18 mm	300 µm
3	2-1	50 - 25	100	90-100	35-70	00-15	-----	00-5	----	-----	-----	-----	-----
357	2-No. 4	50 - 4.75	100	95-100	-----	35-70	-----	10-30	----	00-5	-----	-----	-----
4	1 ½ - 3/4	37.5 - 19	-----	100	90-100	20-55	00-15	-----	00-5	-----	-----	-----	-----
467	1 ½- No. 4	37.5 - 4.75	-----	100	95-100	-----	35-70	-----	10-30	00-5	-----	-----	-----
5	1-1/2	25 – 12.5	-----	-----	100	90-100	20-55	00-10	00-5	-----	-----	-----	-----
56	1-3/8	25 – 9.5	-----	-----	100	90-100	40-75	15-35	00-15	00-5	-----	-----	-----
57	1-No. 4	25 – 4.75	-----	-----	100	95-100	-----	25-60	-----	00-10	00-5	-----	-----
6	¾-3/8	19 – 9.5	-----	-----	-----	100	90-100	20-55	00-15	00-5	-----	-----	-----
67	¾-No. 4	19 – 4.75	-----	-----	-----	100	90-100	-----	20-55	00-10	00-5	-----	-----

68	¾-No. 8	19 – 2.36	-----	-----	-----	100	90-100	-----	30-65	05-25	00-10	0-5	-----
7	½-No. 4	12.5 – 4.75	-----	-----	-----	-----	100	90-100	40-70	00-15	00-5	-----	-----
78	½-No. 8	12.5 – 2.36	-----	-----	-----	-----	100	90-100	40-75	05-25	00-10	0-5	-----
8	3/8-No. 8	9.5 – 2.36	-----	-----	-----	-----	-----	100	85-100	10-40	0-10	0-5	-----
89	3/8-No. 16	9.5 – 1.18	-----	-----	-----	-----	-----	100	90-100	20-55	0-15	0-10	0-5
9	No. 4-No. 16	4.75 – 1.18	-----	-----	-----	-----	-----	-----	100	85-100	10-40	0-10	0-5

(1) In inches, except where otherwise indicated. Numbered sieves are those of the United States Standard Sieve Series.

First Use Date: November 17, 2006

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

Supplemental Specification

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 801—Fine Aggregate

Delete Section 801 and substitute the following:

801.1 General Description

This section includes the requirements for fine aggregate. All aggregate shall be the specified type, class, and grade.

801.1.01 Related References

A. Standard Specifications

Section 800—Coarse Aggregate

Section 441—Miscellaneous Concrete

B. Referenced Documents

AASHTO	ASTM
T 11 T 21 T 27 T 112 T 303	C 295

GDT 4

GDT 5

GDT 63

GDT 75

GDT 132

QPL 1

SOP 1

801.2 Materials

801.2.01 Fine Aggregate for Cushion

A. Requirements

Use the type, class, and grade of fine aggregate specified.

1. Types

   Use fine aggregate for cushion under granite curb or brick that is natural or manufactured sand with hard, strong, durable particles. Make manufactured sand from crushed gravel or stone meeting the requirements of Section 800. For a list of fine aggregate sources, see QPL 1.

2. Grades

   Use fine aggregate for cushion with less than 10 percent total silt and clay. Grade as follows:

Size	Percent by Weight
Passing No. 4 (4.75 mm) sieve	100
Passing No. 16 (1.18 mm) sieve	25-75
Passing No. 100 (150 µm) sieve	0-25

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test as follows:

- Sieve analysis—AASHTO T 27

D. Materials Warranty

General Provisions 101 through 150.

801.2.02 Fine Aggregate for Portland Cement Concrete of All Types and for Mortar

A. Requirements

1. Concrete and Mortar

   Use fine aggregate for concrete and mortar that consists of natural sand, manufactured sand, or blends of natural and manufactured sands, having hard, clean, strong, durable, uncoated particles, meeting the requirements of the Specifications.

2. Manufactured Sand

   Use manufactured sand made exclusively from crushed stone or gravel that meets Section 800 requirements.

   Manufactured sand used in concrete for construction of Portland cement concrete pavement, approach slabs, and bridge decks, shall be made from Group II aggregates as specified in Subsection 800.2.01.A.2.

3. Miscellaneous Concrete

   Sand manufactured from synthetic aggregate meeting the requirements of Section 800 may be blended with natural sands or manufactured sands made from crushed stone or gravel for use in miscellaneous concrete as described in Section 441.

   Blend at least 50 percent natural sand or manufactured sand made from crushed stone or gravel.

4. Concrete Sand

   Concrete sand that passes the No. 10 (2 mm) sieve shall have these characteristics:

Characteristic	Requirement
Durability index	70 or greater

Sand equivalent	70 or greater

5. Detrimental Substances

Keep detrimental substances within these limits:

Substance	Maximum Percent by Weight
Clay lumps	0.5 maximum in total sample
Coal and lignite	0.5 maximum in total sample
All detrimental substances (any combination)	2.0 maximum in total sample
NOTE: Do not use fine aggregate in Portland cement concrete that is capable of producing a deleterious reaction with Portland cement	

Provided the material passing the No. 16 (1.18 mm) sieve is petrographically determined to be essentially free of detrimental substances, test results for coal and lignite and other detrimental substances listed will be based upon a petrographic analysis of material retained on the No. 16 (1.18 mm) sieve.

Calculations will be based upon the weighted average for the total sample.

Other detrimental substances include constituents such as shale, weathered or decomposed rock, soft or friable particles, coated grains, or other substances that might be considered detrimental for the use intended.

6. Organic Impurities (natural sands only)

Ensure all fine aggregate is free from detrimental amounts of organic impurities.

Do not use materials that have colorimetric test (AASHTO T 21) results darker than the Reference Standard color plate.

7. Grades

Grade fine aggregates for Portland cement concrete and mortar as follows:

Size No.	Description	Total Percent by Weight Passing Each Sieve					
		3/ 8 in (9.5 mm)	No. 4 (4.75 mm)	No. 16 (1.18 mm)	No. 50 (300 µm)	No. 100 (150 µm)	No. 200 (75 µm)
10 NS	Natural concrete sand	100	95-100	45-95	8-30	1-10	0-3
20 NS	Natural mortar sand	100	100	90-100	15-50	0-15	0-5
10 SM	Standard manufactured concrete sand	100	95-100	45-95	8-30	1-10	0-4
10 FM	Fine manufactured concrete sand	100	95-100	45-95	15-42	6-22	0-9

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test as follows:

Test	Method
Petrographic analysis	ASTM C 295
Material that passes a No. 200 (75 µm) sieve	AASHTO T 11

Organic impurities	AASHTO T 21
Sieve analysis	AASHTO T 27
Sand equivalent	GDT 63
Reactivity	AASHTO T 303
Durability index	GDT 75
Clay lumps	AASHTO T 112
Friable Particles	GDT 132
NOTE: The percent passing the No. 200 sieve (75 µm) for size 10FM will be based upon the total percent determined by AASHTO T-11 and AASHTO T-27. The percent passing the No. 200 sieve (75 µm) for sizes 10NS, 20NS and 10SM will be as determined by AASHTO T-11 only.	

D. Materials Warranty

General Provisions 101 through 150.

First Use Date: November 17, 2006

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

Supplemental Specification

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 802—Aggregates for Asphaltic Concrete

Delete Section 802 and substitute the following:

802.1 General Description

This section includes the requirements for fine and coarse aggregates used in asphaltic concrete.

802.1.01 Definitions

Fine Aggregate: All aggregate passing a No. 8 (2.36 mm) sieve

Coarse Aggregate: All aggregate retained on a No. 8 (2.36 mm) sieve

802.1.02 Related References

A. Standard Specifications

Section 800—Coarse Aggregate

Section 828—Hot Mix Asphaltic Concrete Mixtures

B. Referenced Documents

AASHTO T 27

AASHTO T 96

ASTM C 295

GDT 63

GDT 76

SOP 1

802.2 Materials

802.2.01 Fine Aggregate for Asphaltic Concrete

A. Requirements

Use the appropriate type, group, class, and grade of fine aggregate.

1. Types

   Use fine aggregate made of sharp, strong, angular material meeting the required performance characteristics when combined into a mixture.

   a. Ensure that the aggregate meets the following requirements:

- Does not contain any deleterious substances.
- Natural sand is free of organic matter, roots, or twigs.
- Aggregate is manufactured from Class A or B crushed stone, gravel, slag, or synthetic aggregate that meets the requirements of Section 800.
- A combination of natural and manufactured sands meets the requirements in Subsection 802.2.01.A.3 and Subsection 802.2.01.A.4 after being combined.

b. Do not use crushed alluvial gravel as virgin aggregate in any mixture.

2. Groups

Fine aggregate groups include:

a. Group I—Limestone, dolomite, marble, or combination thereof

b. Group II—Gravel, slag, granitic and gneissic rocks, quartzite, natural sand, or a combination thereof

3. Sand Equivalent

Use these sand equivalent values:

Material	Sand Equivalent Value
Group I	At least 28
Group II	At least 40
Natural sand	At least 25
Blended sand*	Natural sand at least 20; combined blend at least 25
*Blended natural sands or natural sand blended with stone screenings that meet the Group I or Group II sand equivalent limits.	

4. Mica

a. Use fine aggregate with no more than 35 percent free mica in asphaltic concrete surface mixes.

b. When approved by the Engineer, use fine aggregate with more than 35 percent mica if blended with natural sand or sand manufactured from Group II aggregates. Ensure the blend has no more than 35 percent free mica and meets all other requirements of this Section, Section 800 and Section 828.

5. Aggregate for Stone Matrix Asphalt

Manufactured screenings will be considered as fine aggregate and shall contain no more than 20 percent by weight coarser than a No. 4 (4.75 mm) sieve.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test the fine aggregate as follows:

Test	Method
Aggregate gradation	AASHTO T 27
Sand equivalent	GDT 63
Mica content	GDT 76 or ASTM C 295

D. Materials Warranty

General Provisions 101 through 150.

802.2.02 Coarse Aggregate for Asphaltic Concrete

A. Requirements

1. Types

Ensure coarse aggregate meets the following requirements:

- Class A or B crushed stone, gravel, slag, or synthetic aggregate as in Subsection 800.2.
- Have uniform quality throughout without any deleterious substances.
- Meet the required performance characteristics when combined into a mixture.

NOTE: Do not use alluvial gravel as virgin aggregate.

2. Groups

   Coarse aggregate shall be one of either group below as specified in the composition Table in Subsection 828.2.A.2:

   - Group I—Limestone, dolomite, marble, or combination thereof
   - Group II—Gravel, slag, granite and gneissic rocks, quartzite, or combination thereof

3. Aggregate for Stone Matrix Asphalt

   Use coarse aggregate that meets requirements of this Section and Section 800 except as follows:

   - Use Class A aggregate only with percent wear of each individual size not to exceed 45 percent based on the B grading of AASHTO T 96
   - Use aggregate which contains no more than 20 percent flat and elongated pieces (length greater than three times the average thickness) for that portion of the blend of all aggregate retained on the No. 4 (4.75 mm) sieve.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test as follows:

Test	Method
Coarse Aggregate	Subsection 800.2.01.C

D. Materials Warranty

General Provisions 101 through 150.

First Use Date: November 17, 2006

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

Supplemental Specification

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 803—Stabilizer Aggregate

Delete Section 803 and substitute the following:

803.1 General Description

This section includes the requirements for stabilizer aggregate, Types I through III, and Type IV stabilizer sand.

803.1.01 Related References

A. Standard Specifications

Section 800—Coarse Aggregate

B. Referenced Documents

AASHTO T 27

AASHTO T 96

GDT 63

SOP 1

803.2 Materials

803.2.01 Type I Stabilizer

A. Requirements

Use the appropriate type, class, and grade of stabilizer aggregate.

Use material of uniform quality that meets the requirements of Section 800, Class A or B aggregate, and SOP 1. Crushed concrete may be used provided it meets the requirements of Section 800 that are applicable to Group 2 aggregates. Ensure the material meets the following gradation:

Sieve Size	% Passing by Weight
1-1/2 in (37.5 mm)	100
1 in (25 mm)	80-100
No. 8 (2.36 mm)	0-5

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Use the following test:

Test	Method
Sieve analysis	AASHTO T 27

D. Materials Warranty

General Provisions 101 through 150.

803.2.02 Type II Stabilizer Aggregate

A. Requirements

Use material that meets the requirements of Section 800, Class A or B aggregate, and SOP 1. Crushed concrete may be used provided it meets the requirements of Section 800 that are applicable to Group 2 aggregates.

The aggregate shall:

- Not contain overburden soil or disintegrated rock
- Have a sand equivalent value of at least 20 for material passing the No. 10 (2 mm) sieve
- Meet these gradation requirements:

Sieve Size	% Passing by Weight
2 in (50 mm)	100
1-1/2 in (37.5 mm)	95-100
No. 10 (2 mm)	15-45
No. 200 (75 µm)	0-12

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test type II stabilizer as follows:

Test	Method
Sieve analysis	AASHTO T 27
Sand equivalent	GDT 63

D. Materials Warranty

General Provisions 101 through 150.

803.2.03 Type III Stabilizer Aggregate

A. Requirements

Use material that meets the requirements of Section 800, Class A or B aggregate, and SOP 1. Crushed concrete may be used provided it meets the requirements of Section 800 that are applicable to Group 2 aggregates.

Ensure the stabilizer aggregate does not contain soil or decomposed rock and that the Sand Equivalent value of the material passing the No. 10 sieve is not less than 20.

The aggregate shall meet these gradation requirements:

Sieve Size	% Passing by Weight
6 in (150 mm)	100
2 in (50 mm)	25-75
No. 10 (2 mm)	15-35

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test Type III stabilizer as follows:

Test	Method
Sieve analysis	AASHTO T 27
Percent wear	AASHTO T 96

D. Materials Warranty

General Provisions 101 through 150.

803.2.04 Type IV Stabilizer Sand

A. Requirements

Make Type IV stabilizer sand from either natural sand, manufactured sand, or any combination of natural and manufactured sands.

1. If using manufactured sand, make the sand from Class A or B crushed stone, gravel, slag, or synthetic aggregate that meets Section 800requirements and conforms to SOP 1.
2. Type IV stabilizer sand shall have a sand equivalent of at least 35 for material passing the No. 10 (2 mm) sieve and shall also meet these gradation requirements.

Sieve Size	% Passing by Weight
No. 10 (2 mm)	60-100
No. 60 (250 µm)	5-40
No. 200 (75 µm)	0-20

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test Type IV stabilizer as follows:

Test	Method
Sieve analysis	AASHTO T 27
Sand equivalent	GDT 63

D. Materials Warranty

General Provisions 101 through 150.

First Use Date 2001 Specification: November 18, 2005

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

Supplemental Specification

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 810—Roadway Materials

Delete Subsection 810.2.01.A and substitute the following:

A. Requirements

Do not use materials containing logs, stumps, sod, weeds, or other perishable matter.

1. Classes

The materials are divided into six major classes. Classes I, II, and III are further subdivided and identified by description and physical property requirements specified in the table below and in Table 1. Classes IV, V, and VI are identified by descriptive requirements.

Class I	
IA1 and IA2	Medium- to well-graded sand or clayey sand.
IA3	Fine-grained, silty, or clayey sand; usually less dense than IA1 or IA2. These soils have an excellent bearing capacity.
Class II	
IIB1, IIB2, and IIB3	Medium- to well-graded sandy clays, sandy silts, and clays with some mica. These soils generally have low volume change properties and good densities that serve well as subgrade material.
IIB4	Similar to IIB1, IIB2, and IIB3, but generally contain more mica and are more sensitive to moisture. The bearing value of these soils is less predictable. The soils may or may not be satisfactory for subgrade material. Analyze file data or run laboratory and/or field tests for Class IIB4 when considering it for a subgrade material.
Class III	
IIIC1, IIIC2, IIIC3 and IIIC4	Medium- to fine-graded micaceous sandy silts, micaceous clayey silts, chert clays, and shaly clays. Undesirable characteristics are high volume change properties and/or low densities. The bearing values are unpredictable. The Department recommends testing these materials in a laboratory, where possible, before use. One exception is District 6, where chert clay soils are prevalent. Chert clay soils (IIIC4) with less than 55% passing the No. 10 (2 mm) sieve may be considered suitable for subgrade materials. These soils are found generally in the

	northwest corner of the state in Dade, Walker, Catoosa, Whitfield, Murray, Chattooga, Gordon, and Floyd counties.
Class IV	Highly organic soils or peat, muck, and other unsatisfactory soils generally found in marshy or swampy areas.
Class V	Shaly materials that are not only finely laminated but have detrimental weathering properties and tend to disintegrate.
Class VI	Rock or boulders that cannot be readily incorporated into the embankment by layer construction, and that contain insufficient material to fill the interstices when they are placed.

Table 1: Physical Properties (Material Passing No. 10 (2.00 mm) Sieve)

Sub-Class	No. 60 (250 µm) Sieve % Passing	No. 200 (75 µm) Sieve % Passing	Clay, %	Volume Change, %	Maximum Dry Density lbs/ft^3 (kg/m^3)
Class I					
A1	15-65	0-25	0-12	0-10	115+ (1840+)
A2	15-85	0-35	0-16	0-12	100+ (1600+)
A3	15-100	0-25	0-12	0-18	98+ (1570+)
Class II					
B1		0-30	0-20	0-10	120+ (1920+)
B2		0-45	0-30	0-15	110+ (1760+)
B3		0-60	0-50	0-20	105+ (1680+)
B4		0-75		0-25	90+ (1440+)
Class III					
C1		0-75		0-30	90+ (1440+)
C2				0-35	80+ (1280+)
C3				0-60	80+ (1280+)
C4*					80- (1280-)
*Chert clay soils in District 6 having less than 55% passing the No. 10 (2.00 mm) sieve may be considered suitable for subgrade material.					

First Use Date: November 17, 2006

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

Supplemental Specification

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 812—Backfill Materials

Delete Section 812 and substitute the following:

812.1 General Description

This section includes the requirements for four types of material used as backfill: foundation backfill, Types I and II, imperfect trench backfill, Type III, and mechanically stabilized wall backfill.

812.1.01 Related References

A. Standard Specifications

Section 810—Roadway Materials

B. Referenced Documents

AASHTO T 27

GDT 4

GDT 6

GDT 7

GDT 67

SOP 1

812.2 Materials

812.2.01 Foundation Backfill, Type I

A. Requirements

1. Use natural or artificial mixtures of materials consisting of hard, durable particles of sand or stone, mixed with silt, clay and/or humus material for Type I backfill.
2. Have the final blend of material meet the requirements of Class I or II soils in Subsection 810.2.01.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test as follows:

Test	Method
Soil gradation	GDT 4
Volume change	GDT 6
Maximum density	GDT 7 or GDT 67

D. Materials Warranty

General Provisions 101 through 150.

812.2.02 Foundation Backfill, Type II

A. Requirements

1. Type

   Use material that meets the requirements of Section 800, Class A or B aggregate, and SOP 1. Crushed concrete may be used provided it meets the requirements of Section 800 that are applicable to Group 2 Aggregates.

   Do not use backfill aggregate containing soil or decomposed rock.

2. Gradation

   Use material that meets the following gradation requirements:

Sieve Size	% Passing by Weight
1-1/2 in (37.5 mm)	100
1 in (25 mm)	80-100
No. 8 (2.36 mm)	0-5

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test as follows:

Test	Method
Sieve analysis	AASHTO T 27

D. Materials Warranty

General Provisions 101 through 150.

812.2.03 Imperfect Trench Backfill, Type III

A. Requirements

1. Type

   Use material made from either of the following for Type III backfill:

   - A natural soil with a density of less than 95 lb/ft³ (1520 kg/m³) when tested with GDT 7
   - An artificial mixture of soil and organic material, such as hay, leaves, or straw

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

The laboratory will:

Test the soil density with GDT 7.

1. Review the mixture and the percentages of each material, and approve a mixture suitable for the Project.

D. Materials Warranty

General Provisions 101 through 150.

812.2.04 Mechanically Stabilized Embankment Backfill

A. Requirements

Use material comprised of crushed stone, natural sand, or a blend of crushed stone and natural sand free of soils, organic or any other deleterious substances that meet the following additional requirements:

1 Crushed Stone

Use a material manufactured from Class A or B stone that is free of soil overburden has a soundness loss of not more than 15 percent, and conforms to the requirements of SOP 1.

2. Natural Sand

Use material that consists of strong, hard, durable particles, is non-plastic, and has a durability index of at least 70.

3. Gradation

Sieve Size	% Passing by Weight
4 in (100 mm)	100
2 in (50 mm)	80 -100
No. 10 (2 mm)	20 - 90*
No 200 (75 μm)	0 - 12
* Natural Sand may be 20 - 100	

4. Chemical

Ensure the material meets the following chemical requirements:

Test Method	Requirement
pH	6.0 – 9.5
Resistivity	>3000 ohms/cm
Chlorides	<100 ppm
Sulfates	<200 ppm
Note: These chemical requirements are not applicable to MSE walls stabilized with an approved extensible reinforcement.	

5. Maximum Dry Density

Use backfill material with a maximum dry density equal to or greater than the design unit weight shown on the plans. If no maximum dry density of the backfill material is shown, use a weight of 125 lb/ft^3 (2000 kg/m^3).

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test the material as follows:

Test Method	Requirement
Percent Wear	AASHTO T96 ("A" Grading)

Sieve Analysis	AASHTO T 27
Material Passing No. 200 (75 μm) Sieve	AASHTO T 11
Durability Index	GDT 75
Maximum Dry Density	GDT 7 or GDT 24a, GDT 24b
Soundness (Magnesium Sulfate)	AASHTO T 104

D. Materials Warranty

General Provisions 101 through 150.

First Use Date: September 16, 2005

GEORGIA DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 814—Soil Base Materials

Delete Subsection 814.1.01 and substitute the following:

814.1.01 Related References

A. Standard Specifications

Section 209– Subgrade Construction

Section 301– Soil-Cement Construction

Section 800–Coarse Aggregate

Section 810–Roadway Materials

Section 831–Admixtures

B. Referenced Documents

AASHTO T 89

AASHTO T 90

ASTM D 516

GDT 4

GDT 6

GDT 7

GDT 65

GDT 67

GDT 98

Delete 814.2.02 and substitute the following:

814.2.02 Soil-Cement Material

A. Requirements

1. Ensure that the material for soil-cement base will:
   a. Meet the requirements of Subsection 810.2.01 for Classes IA1, IA2, IA3, or IIB1 with the following modifications:

Clay content	4 to 25%

Volume change	18% maximum
Liquid Limit	25% maximum
Plasticity Index	10% maximum
Maximum dry density	95 lb/ft³ (1520 kg/m³) minimum
Sulfates	4000 ppm
pH	4.0 minimum

b. Be friable and not contain large amounts of heavy or plastic clay lumps, organic material, roots, or other substances that would interfere with how the Portland cement sets, plant production, or the finished surface of the base and meet the requirements of Subsection 301.3.05.A.2, "Pulverization" or Subsection 301.3.05.B.1, "Soil".

c. Produce a laboratory unconfined compressive strength of at least 450 psi (3.1 MPa). To make the sample, mix in a maximum of 8 percent Type I Portland cement, moist-cure for 7 days, and test with GDT 65.

2. Analyze the soil-cement design and create a Job Mix Formula for each Project where soil-cement base or subbase is specified. Have the Job Mix Formula approved by the Engineer before starting base or subbase construction.
3. You may use fly ash or slag that meets the requirements of Subsection 831.2.03 as admixtures for poorly reacting soils when the blend of soil and fly ash, or slag, meets the design requirements in this Subsection.
4. Ensure that subgrade material used underneath the soil-cement base meets the sulfate and pH requirements of this subsection (See Subsection 209.3.05.A.7).

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test as follows:

Test	Method
Soil gradation	GDT 4
Volume Change	GDT 6
Maximum density	GDT 7 or GDT 67
Soil-Cement Design	GDT 65
pH	GDT 98
Sulfates	ASTM D 516
Liquid Limit	AASHTO T 89
Plastic Limit and Plasticity Index	AASHTO T 90

D. Materials Warranty

General Provisions 101 through 150.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

Supplemental Specification

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 815—Graded Aggregate

Delete Section 815 and substitute the following:

815.1 General Description

This section includes the requirements for material to be used for base, subbase, or shoulder course material, and includes graded aggregate, unconsolidated limerock base, and crushed concrete base.

815.1.01 Related References

A. Standard Specifications

Section 800—Coarse Aggregate

B. Referenced Documents

AASHTO T 27

ASTM C 295

ASTM D 3042

FL DOT Method FM5-515

SOP–1

GDT 63

815.2 Materials

815.2.01 Graded Aggregate

A. Requirements

1. Type

   Use graded aggregate base, subbase, or shoulder course material of uniform quality.

   a. Obtain the graded aggregate from an approved source or deposit that will yield a satisfactory mixture meeting all requirements of this Specification.

   b. Use material that is crushed or processed as a part of the mining operations, or, mix two grades of material so that when combined in the central mix plant, the mixture meets the specifications.

2. Retained on the No. 10 (2 mm) sieve

   Ensure that the material retained on the No. 10 (2 mm) sieve is Class A or B aggregate that meets the requirements of Section 800.

3. Passing the No. 10 (2 mm) sieve

   Ensure that any material passing the No. 10 (2 mm) sieve is relatively free of detrimental substances, such as soil overburden, decomposed rock, and/or swelling silts.

4. Stabilized Mixtures

   Ensure that mixtures to be stabilized react satisfactorily when mixed with Portland cement. The Engineer will specify the percentage of Portland cement to use.

5. Gradation

   Grade the graded aggregate base, subbase, or shoulder material as follows:

Sieve Size	Percent Passing By Weight
Group I Aggregates	
2 in (50 mm)	100
1-1/2 in (37.5 mm)	97-100
3/4 in (19.0 mm)	60-95
No. 10 (2 mm)	25-50 (Note 1, 2 and 3)
No. 60 (250 µm)	10-35
No. 200 (75 µm)	7-15
Group II Aggregates	
2 in (50 mm)	100
1-1/2 in (37.5 mm)	97-100
3/4 in (19 mm)	60-90
No. 10 (2 mm)	25-45 (Note 2 and 4)
No. 60 (250 µm)	5-30
No. 200 (75 µm)	4-11
NOTE 1: Group I aggregates having less than 37% passing the No. 10 (2 mm) sieve, shall have at least 9 percent passing the No. 200 (75 µm) sieve.	
NOTE 2: For graded aggregate stabilized with Portland Cement, 30-50 percent by weight shall pass the No. 10 (2 mm) sieve. All other requirements remain the same.	
NOTE 3: Material passing the No. 10 (2 mm) sieve shall have a sand equivalent of at least 20 for Group I aggregates.	
NOTE 4: Material passing the No. 10 (2 mm) sieve shall have a sand equivalent of at least 28 for Group II aggregates. Sand Equivalent values as low as 20 will be acceptable provided they are attributed exclusively to rock flour and the percent passing the No. 10 (2 mm) sieve does not exceed 40.	

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test as follows:

Test	Method
Gradation	AASHTO T 27
Sand Equivalent	GDT 63

D. Materials Warranty

General Provisions 101 through 150.

815.2.02 Unconsolidated Limerock Base

A. Requirements

1. Type

   Use limerock base, subbase, or shoulder course material of uniform quality.

   a. To ensure uniform quality, the Department may restrict approved sources to specific mining areas, mining processes at a specific mining site, or both.

   b. Use a limerock base that yields a mixture to meet these Specifications.

   c. Use material that is crushed or processed as a part of the mining operations, or mix two grades of material so that when combined in the central mix plant the mixture meets the specifications.

   d. Use limerock base, subbase, or shoulder material that has the following characteristics:

Limerock bearing ratio	At least 100.
Deleterious substances	Do not allow chert or other extremely hard pieces that will not pass the 2 in (50 mm) sieve. Do not allow clay, sand, organics, or other materials in quantities that may damage bonding, finishing, or strength. All material passing the No. 40 (425 µm) sieve shall be non-plastic.
Carbonate content (magnesium or calcium)	At least 90%.

2. Gradation

   Grade the limerock base so at least 97 percent by weight passes the 3-1/2 in (90 mm) sieve.

   a. Grade the material uniformly to dust. The fine portion passing the No. 10 (2 mm) sieve shall all be dust of fracture.

   b. Crush or break the limerock base, if necessary to meet size requirements before placing the material on the road.

   c. Ensure that materials having soundness losses of 20% or less, comply with the following gradation requirements:

Gradation Requirements

SIEVE SIZE	PERCENT PASSINGBY WEIGHT
2" (50 mm)	100
1-1/2" (37.5 mm)	97-100
3/4" (19 mm)	60-95
No. 10 (2.00 mm)	25-45
No. 60 (250 µm)	10-30
No. 200 (75 µm)	7-20

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test as follows:

Test	Method
Gradation	AASHTO T 27
Limerock bearing ratio	FL DOT Method FM5-515
Petrographic analysis	ASTM C 295
Total carbonates (insoluble residue)	ASTM D 3042

D. Materials Warranty

General Provisions 101 through 150.

815.2.03 Crushed Concrete Base

A. Requirements

1. Sources

   Obtain sources of crushed concrete materials approved by the Office of Materials and Research. The criteria for approval will be as outlined in Standard Operating Procedure No. 1, "Monitoring the Quality of Coarse and Fine Aggregates" except that the raw material will be recyclable concrete as specified herein rather than a geological deposit of aggregate.

2. Type

   Use crushed concrete derived exclusively from Portland cement concrete pavement or structural concrete as a base, subbase, or shoulder course.

   Ensure that the material does not contain delivery unit washout material.

3. Gradation

   Ensure that the finished product meets the quality and gradation requirements of Subsection 815.2.01 for Group II aggregates, except that the aggregate will be recycled concrete.

   Ensure that the finished product is free of foreign materials such as asphaltic concrete, steel reinforcement, clay balls, soils, epoxy expansion material, and miscellaneous paving materials.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test as follows:

Test	Method
Gradation	AASHTO T 27
Sand Equivalent	GDT 63

D. Materials Warranty

General Provisions 101 through 150.

GEORGIA DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 819—Fiber Stabilizing Additives

Delete Section 819 and Substitute the following:

819.1 General Description

This Section covers the general requirements for fiber stabilizing additives incorporated into asphaltic concrete mixtures. These fibers are used to stabilize the asphalt film surrounding aggregate particles to reduce drain-down of the asphalt cement., use cellulose or mineral fiber stabilizer listed on QPL 77, Fiber Stabilizing Additives.

819.1.01 Related References

A. Standard Specifications

General Provisions 101 through 150.

B. Referenced Documents

AASHTO T 245

AASHTO T 305

ASTM D 128

GDT 130

QPL 77

819.2 Materials

Use an approved mineral or cellulose fiber stabilizing additive currently listed in QPL 77. Approved additives shall meet the requirements below. Dosage rates below are typical ranges. Use the dosage rate prescribed in the Job Mix Formula, as approved by the Office of Materials and Research.

A. Requirements for all fiber types

1. Use a fiber stabilizer of the type and properties appropriate to the plant's metering and delivery system.
2. When tested in a standard mixture according to AASHTO T 305, the fiber stabilizing additive shall limit drain-down to not more the 0.2% of the weight of the mixture. For the purpose of evaluating these additives, the following test conditions apply.
   - The mixture tested shall consist of a standard No. 7 stone and 6.4% asphalt cement.
   - Mixing and compaction temperatures for the test shall be as prescribed in AASHTO T 245, Section 3.3.1.
   - Wet mixing time shall be 60 ± 2 seconds.

- Unseparated fibers, determined by visual inspection of the mixture after the drain-down test, shall not exceed 5% of total fiber content.

B. Cellulose Fibers

Add cellulose fibers at a dosage rate between 0.2% and 0.4% by weight of the total mix, according to the approved Job Mix Formula. Fiber properties shall be as follows:

- Ash Content by ASTM D 128: 23% maximum non-volatile content
- pH: 7.0 to 12.0
- Moisture Content: 5.0% maximum

C. Cellulose Pellets

Use cellulose fiber stabilizing additive in pellet form that meets the requirements of Subsection 819.2.A and Subsection 819.2.B. Use pellets that disperse sufficiently at mixing temperature to blend uniformly into the asphalt mixture. Use pellets that do not exceed 0.24 in (6.0 mm) average pellet diameter. Pellets may contain binder ingredients such as asphalt cement, wax, or polymer. Do not use pellets if the binder ingredient exceeds 20.0% of the total weight of the pellets. Use binder that produces no measurable effect on the properties of the asphalt cement. Do not use fiber pellets which soften or clump together when stored at temperatures up to 122 ^{0}F (50 ^{0}C).

Add approved palletized fiber stabilizing additive at a dosage rate between 0.2% and 0.4% by weight of the total mix, according to the approved Job Mix Formula established by the Office of Materials and Research.

NOTE: If the binder material constitutes more than 3% of the pellet weight, the dosage rate shall be based upon the net fiber content.

D. Mineral Fibers

Use mineral fibers made from virgin basalt, diabase, slag or other silicate rock. Add the fiber at a dosage rate prescribed in the approved Job Mix Formula, between 0.3% and 0.6% by weight of the total mix. Use approved mineral fiber from QPL 77, meeting the following requirements for Shot content, as tested according to GDT 130:

Sieve	Minimum Percent Passing
No 60	90
No. 230	60

E. Materials Warranty

General Provisions 101 through 150.

February 28, 2007
First Use Date: April 20, 2007

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

Supplemental Specification
Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County
Section 828—Hot Mix Asphaltic Concrete Mixtures

Delete Section 828 and substitute the following:

828.1 General Description

This specification includes the requirements for hot mix asphaltic concrete mixtures, including:

- Open-graded surface mixtures (OGFC and PEM)
- Stone Matrix Asphalt mixtures (SMA)
- Superpave mixtures .
- Fine-graded (4.75 mm) mixtures

828.1.01 Definitions

The Nominal Maximum Sieve Size is one standard sieve size larger than the first sieve to retain more than ten percent of the aggregate, per AASHTO PP28. Mixture types in this section are identified according to Nominal Maximum Sieve Size.

828.1.02 Related References

A. Standard Specifications

Section 400-Hot Mix Asphaltic Concrete Construction

Section 800–Coarse Aggregate

Section 802–Aggregates for Asphaltic Concrete

Section 819–Fiber Stabilizing Additives

Section 820–Asphalt Cement

Section 831–Admixtures

Section 882–Lime

Section 883–Mineral Filler

B. Referenced Documents

AASHTO PP 2

AASHTO PP28

AASHTO TP 8-94

AASHTO T 112

AASHTO T 209

AASHTO T 305

AASHTO T 312

AASHTO T-245

ASTM PS-129

SOP-36

SOP-2 SP

GDT 56

GDT 66

GDT 114

GDT 115

GDT 123

QPL 1

QPL 2

QPL 7

QPL 26

QPL 41

QPL 77

QPL 81

828.2 Materials

A. Requirements

Use approved hot mix asphalt concrete mixtures that meet the following requirements:

1. Produce each asphalt mixture according to a Job Mix Formula and Asphalt Mix Design approved by the Department. For submittal and approval of Job Mix Formulas, see Subsection 400.1.
2. Ensure that individual acceptance test results meet the Mixture Control Tolerances specified in the appropriate table below, Subsections 828.2.01 through 828.2.04.
3. Ensure that the Engineer approves all materials used to prepare and place the mixtures before incorporating them into the Work. Use only the ingredients listed in the approved Asphalt Mix Design and Job Mix Formula. For virgin aggregates use sources which meet the requirements of Section 802 and are listed in QPL 1 or QPL 2; for mixes in which local sand is permitted, use the approved sand source identified in the mix design. For mixtures containing Reclaimed Asphalt Pavement (RAP), use only RAP from the approved stockpile identified in the mix design. Use asphalt cement meeting the requirements of Section 820, from a source listed in QPL 7.
4. Obtain approved Superpave mix designs and 4.75 mm mix designs from a mix design laboratory certified by the Department. Obtain approved mix designs for types PEM, OGFC, and SMA mixtures from the Department's Office of Materials and Research, which produces and furnishes these mix designs.
5. Ensure that Superpave and 4.75 mm mix designs are designed in accordance with SOP-2SP ("Control of Superpave Bituminous Mixture Designs") and are approved by the Department as provided therein. Ensure that these mixes are designed by a laboratory and technician certified in accordance with SOP-36, ("Certification of Laboratories and Personnel for Design of Superpave Asphalt Mixtures").
6. Use only mixtures composed of the aggregate groups and blends indicated in the Proposal and Plans by their pay item designations, defined as follows:

Pay Item Designation	Allowable Aggregate Groups
Group I or II	Group I, Group II, or Blend I
Group II only	Group II only
Blend I	Either 100% Group II material or a blend of Group I and Group II. Do not use Group I material for more than 60%, by weight, of the total aggregate nor more than 50%, by weight, of the coarse aggregate fraction.

7. For patching or leveling use Group I, Group II, or Blend I. Mix types for patching and leveling are specified in Subsection 400.3.03.B.

8. Include lime (hydrated lime) from an approved source and meeting the requirements of Subsection 882.2.03 in all paving courses except as otherwise provided in the Contract. For a list of approved sources of lime, see QPL 41.
    a. Add lime to each mixture at the rate prescribed in the approved mix design.
    b. Mix designs using only virgin aggregate shall include lime at a minimum rate of 1.00 % of the total dry aggregate weight. Mix designs using RAP shall include lime at a minimum rate equal to 1.00 % of the virgin aggregate fraction plus 0.50 % of the aggregate in the RAP fraction.
    c. If necessary to meet requirements for mixture properties, and pursuant to an approved mix design, add more lime or add lime plus an approved Heat-Stable Anti-Stripping Additive that meets the requirements of Subsection 831.2.04. However, the Department will not make additional payment for these materials. For a list of sources of Heat-Stable Anti-Stripping Additives, see QPL 26.
    d. Where specifically allowed in the contract on LARP, airport, and parking lot projects, an approved Heat-Stable Anti-Stripping Additive that meets the requirements of Subsection 831.2.04 may be substituted for hydrated lime. In this case the mix gradation shall be adjusted as necessary to replace the lime with an equivalent volume of fines passing the 0.075 mm sieve. Add Heat-Stable Anti-stripping Additive at a minimum rate of 0.5 percent of the asphalt cement portion.
9. Use performance grade PG 67-22 asphalt cement in all mix designs and mixtures except as follows:
    a. For mixtures containing 25% or greater RAP, the Engineer will determine the performance grade to be used.
    b. On PR, LARP, airport, and parking lot projects, PG 64-22 may be substituted for PG 67-22, with approval of the Office of Materials and Research, on roads having current ADT less than 2,000.
    c. Use only grade PG 76-22 in the following mixes: SMA, 12.5 mm PEM, 12.5 mm and 9.5 mm OGFC, 12.5 mm Superpave, excluding shoulder construction, on projects with ADT greater than 25,000; and in all mixtures for which polymer-modified asphalt is specified in the pay item.
10. Use of local sand is restricted as follows:
    a. Do not place mixtures containing local sand on the traveled way of the mainline or ramps of the Interstate System. Mixtures with local sand may be used for shoulder construction on these facilities.
    b. Local sand shall not constitute more than 20 % of the total aggregate weight of any mix design or production mix.
    c. Subject to the above limits, 19 mm, 12.5 mm, and 9.5 mm Superpave mix designs and 4.75 mm mix designs containing local sand may be used on projects with a current ADT not exceeding 2,000.
    d. 25 mm Superpave mix designs containing not more than 20 % local sand may be used on all facilities except the main line and ramps of the Interstate System.
    e. Obtain local sand for use in asphalt mixtures from a source approved by the Department.
    f. Approval of local sand sources: The Department will sample, test, and approve sources of local sand. Local sand shall not contain more than 7.0 % clay by weight and shall be free of foreign substances, roots, twigs, and other organic matter. It shall be free of clay lumps, as determined by AASHTO T 112, and shall have a sand equivalent value exceeding 25%, as determined by GDT 63.

B. Fabrication

1. Design procedures: For all Superpave and 4.75 mm mixes, designers shall adhere to the Superpave System for Volumetric Design (AASHTO T 312 and AASHTO PP 2), as adapted in SOP-2SP. The Department will design open-graded mixes and Stone Matrix Asphalt (SMA) mixes according to GDT 114 and GDT 123, respectively. In all cases, the procedure for measuring Maximum Specific Gravity (G_{mm}) shall be AASHTO T 209. In addition to gradation and volumetric analysis, mix designs shall include the following performance tests, as applicable.
2. Performance Test:
    a. Permeability test: Superpave and Stone Matrix mix designs shall include testing according to ASTM PS-129. Specimen air voids for this test shall be 6.0 ±1.0 %. The average permeability of three specimens may not exceed 3.60 ft per day (125×10^{-5}cm per sec).
    b. Moisture susceptibility test: Mix designs of all types except open-graded surface mixes shall include testing for moisture susceptibility according to GDT 66. Specimen air voids for this test shall be 7.0 ±1.0%. The minimum tensile splitting ratio is 0.80, except that a tensile splitting ratio of no less than

0.70 may be acceptable if all individual strength values exceed 100 psi (690 kPa). Average splitting strength of the three conditioned and three controlled samples shall be not less than 60 psi (415 kPa) for either group. Retention of coating as determined by GDT 56 shall be not less than 95%.

c. Rutting susceptibility test. Mix designs of all types except Open-graded Surface Mixes (OGFC and PEM), and mixtures designed exclusively for trench widening shall include testing according to GDT 115. Design limits for this test are as follows: Specimen air voids for this test shall be 5.0 ± 1.0% for all mix types. Testing temperature shall be 64°C (147°F) for all mix types except 25 mm Superpave mixes, which shall be tested at 49°C (120°F). Maximum deformation shall be 5.0 mm for all mixes except 4.75 mm mix, 9.5 mm Type I and 9.5 mm Type II Superpave mixes. Maximum deformation for the

9.5 mmType II Superpave mix shall be 6.0 mm at 64°C (147°F) and 8.0 mm at 64°C (147°F) for the 4.75 mm and 9.5 mm Type I Superpave mix.

d. Fatigue testing: The Department may verify Superpave designs by fatigue testing according to AASHTO TP 8-94 or other procedure approved by the Department.

C. Acceptance

See Subsection 106.03 and Section 400. Ensure that individual test results meet the Mixture Control Tolerances listed in Subsections 828.2.01, 828.2.02, 828.2.03, or 828.04, whichever applies.

D. Materials Warranty

See General Provisions 101 through 150.

828.2.01 Open-Graded Surface Mixtures

A. Requirements

Use approved mixtures that meet the following mixture control tolerances and design criteria:

Sieve Size	Mixture Control Tolerance, %	Design Gradation Limits, % Passing		
		9.5 mm OGFC	12.5 mm OGFC	12.5 mm PEM
3/4 in (19 mm) sieve	±0.0		100	100
1/2 in (12.5 mm) sieve	±6.1	100*	85-100	80-100
3/8 in (9.5 mm) sieve	±5.6	85-100	55-75	35-60
No. 4 (4.75 mm) sieve	±5.7	20-40	15-25	10-25
No. 8 (2.36 mm) sieve	±4.6	5-10	5-10	5-10
No. 200 (75 µm) sieve	±2.0	2-4	2-4	1-4
Range for % AC	±0.4	6.0-7.25	5.75-7.25	5.5-7.0
Class of stone (Section 800)		"A" only	"A" only	"A" only
Drain-down (AASHTO T305), %		<0.3	<0.3	<0.3

* Mixture control tolerance is not applicable to this sieve for this mix.

1. In 12.5 mm and 9.5 mm OGFC and 12.5 mm PEM mixes, use only PG 76-22 asphalt cement (specified in Section 820).
2. All OGFC and PEM mixes shall include a stabilizing fiber of the type (cellulose or mineral) specified in the mix design and meeting the requirements of Section 819. The dosage rate shall be as specified in the mix design and shall be sufficient to prevent drain-down exceeding the above tolerance.

B. Fabrication

See Section 400.

C. Acceptance

See Subsection 106.03 and Section 400. Ensure that individual test results meet the Mixture Control Tolerances listed in Subsections 828.2.01, 828.2.02, 828.2.03, or 828.04, whichever applies.

D. Materials Warranty

See General Provisions 101 through 150.

828.2.02 Stone Matrix Asphalt Mixtures

A. Requirements

Use approved mixtures that meet the following mixture control tolerances and design criteria:

Sieve Size	Mixture Control Tolerance	Design Gradation Limits, Percent Passing		
		9.5 mm SMA	12.5 mm SMA	19 mm SMA
1- in (25 mm) sieve	±0.0			100
3/4 in (19 mm) sieve	±7.0	100*	100*	90-100
1/2 in (12.5 mm) sieve	±6.1	98-100**	85-100	44-70
3/8 in (9.5 mm) sieve	±5.6	70-100	50-75	25-60
No. 4 (4.75 mm) sieve	±5.7	28-50	20-28	20-28
No. 8 (2.36) mm sieve	±4.6	15-30	16-24	15-22
No. 50 (300 µm) sieve	±3.8	10-17	10-20	10-20
No. 200 (75 µm) sieve	±2.0	8-13	8-12	8-12
Range for % AC	±0.4	6.0-7.5	5.8-7.5	5.5-7.5
Design optimum air voids (%)		3.5 ±0.5	3.5 ±0.5	3.5 ±0.5
% aggregate voids filled with AC (VFA)		70-90	70-90	70-90
Tensile splitting ratio after freeze-thaw cycle GDT-66		80%	80%	80%
Drain-down (AASHTO T305), %		<0.3	<0.3	<0.3

*Mixture control tolerance is not applicable to this sieve for this mix.

**Mixture control tolerance shall be ± 2.0% for this sieve for 9.5 mm SMA mixes placed at spread rates greater than 135 lb/yd^2. For 9.5 mm SMA mixes placed at spread rates of 135 lb/yd^2 or less, 100 % passing is required on this sieve.

1. SMA mixtures shall be compacted at 50 gyrations with the Superpave Gyratory compactor or 50 blows with the Marshall compactor.
2. All SMA mixtures shall contain mineral filler and fiber stabilizing additives and shall meet the following requirements:
   a. Asphalt cement grade PG-76-22 (specified in Section 820) is required in all SMA mixtures.
   b. Aggregates for SMA shall meet the requirements of Subsection 802.2.02.A.3.
   c. Use mineral filler that meets requirements of Section 883 and is approved by the Department. Approved sources of mineral filler are listed in QPL 81.
   d. Do not use local sand in lieu of mineral filler.
   e. Use an approved Fiber Stabilizing Additive of the type (cellulose or mineral) specified in the mix design and meeting the requirements of Section 819. Approved sources of Fiber Stabilizing Additive are listed in QPL 77. The dosage rate will be as specified in the mix design and shall be sufficient to prevent drain-down exceeding the above tolerance.

B. Fabrication

See Section 400.

C. Acceptance

See Subsection 106.03 and Section 400. Ensure that individual test results meet the Mixture Control Tolerances listed in Subsections 828.2.01, 828.2.02, 828.2.03, or 828.04, whichever applies.

D. Materials Warranty

See General Provisions 101 through 150.

828.2.03 Superpave Asphalt Concrete Mixtures

A. Requirements

Ensure that Superpave mixtures meet the following mixture control tolerances and design limits:

1. All mixes are to be designed at a design gyration number (N_{des}) of 65 gyrations and an initial gyration number (N_{ini}) of 6 gyrations.
2. Gradation limits for Superpave mixtures are as follows:

Sieve Size	Mixture Control Tolerance	Design Gradation Limits, Percent Passing				
		9.5 mm Superpave Type I	9.5 mm Superpave Type II	12.5 mm Superpave Note 1	19 mm Superpave	25 mm Superpave
1-1/2 in (37.5 mm) sieve						100
1- in (25.0 mm) sieve	± 8.0			100*	100*	90-100
3/4 in (19.0 mm) sieve	±8.0**	100*	100*	98-100****	90-100	55-89**
1/2 in (12.5 mm) sieve	±6.0***	98-100****	98-100****	90-100	60-89	50-70
3/8 in (9.5 mm) sieve	±5.6	90-100	90-100	70-89	55-75	
No. 4 (4.75 mm) sieve	±5.6	65-85	55-75			
No. 8 (2.36 mm) sieve	±4.6	48-55	42-47	38-46	32-36	30-36
No. 200 (75 µm) sieve	±2.0	5.0-7.0	5.0-7.0	4.5-7.0	4.0-6.0	3.5-6.0

* Mixture control tolerance is not applicable to this sieve for this mix.

** Mixture control tolerance shall be ± 10.0% for this sieve for 25 mm Superpave.

***Mixture control tolerance shall be ± 8.0% for this sieve for 19 mm Superpave.

****Mixture control tolerance shall be ± 2.0% for this sieve for 12.5 mm and 9.5 mm mixes.

Note 1: Use PG 76-22 in 12.5 mm Superpave, excluding shoulder construction, on all projects with ADT greater than 25,000.

3. The Mixture Control Tolerance for asphalt cement shall be ± 0.4% for all mix types.
4. Volumetric limits are as follows:

Design Parameter	Mix Type	Limits
% of Max. Specific Gravity (G_{mm}) at design gyrations, N_{des})	All	96%
% G_{mm} at the initial number of gyrations, N_i	All	91.5% maximum
% voids filled with asphalt (VFA) at N_{des}	9.5 mm Type I	Min. 72; Max. 80
	9.5 type 2 and 12.5 mm	Min. 72; Max. 76
	19 mm	Min. 71; Max 76
	25 mm	Min. 69; Max 76
Fines to effective asphalt binder ratio (F/P_{be})	9.5 mm Type I	0.6 to 1.4
	all other types	0.8 to 1.6
Minimum % Voids in Mineral Aggregate (VMA) Note: VMA shall be calculated using the effective specific gravity of the aggregate (G_{se}). See SOP-2SP.	25 mm	13.0
	19 mm	14.0
	12.5 mm	15.0
	9.5 Type I	16.0
	9.5 Type II	16.0

B. Fabrication

See Section 400.

C. Acceptance

See Subsection 106.03 and Section 400. Ensure that individual test results meet the Mixture Control Tolerances listed in Subsections 828.2.01, 828.2.02, 828.2.03, or 828.04, whichever applies.

D. Materials Warranty

See General Provisions 101 through 150.

828.2.04 Fine-Graded Mixtures

A. Requirements

Design gyrations (N_{des}) for fine-graded mixes shall be 50 gyrations. Ensure that fine-graded mixtures meet the following mixture control tolerances and design limits:

ASPHALTIC CONCRETE - 4.75 mm Mix		
Sieve Size	**Mixture Control Tolerance**	**Design Gradation Limits, % passing**
1/2 in (12.5 mm) sieve*	±0.0	100*
3/8 in (9.5 mm) sieve	±5.6	90-100
No. 4 (4.75 mm) sieve	±5.7	75-95
No. 8 (2.36 mm) sieve	±4.6	60-65
No. 50 (300 µm) sieve	±3.8	20-50
No. 200 (75 µm) sieve	±2.0	4-12
Range for % AC	±0.4	6.00 – 7.50
Design optimum air voids (%)		4.0 – 7.0
% Aggregate voids filled with AC		60 - 80

* Mixture control tolerance is not applicable to this sieve for this mix.

B. Fabrication

See Section 400.

C. Acceptance

See Subsection 106.03 and Section 400. Ensure that individual test results meet the Mixture Control Tolerances listed in Subsections 828.2.01, 828.2.02, 828.2.03, or 828.04, whichever applies.

D. Materials Warranty

See General Provisions 101 through 150.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

Supplemental Specification

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 841—Iron Pipe

Delete Section 841 and substitute the following:

841.1 General Description

This section includes the requirements for iron pipe, including cast iron soil pipe and fittings, and ductile iron pipe and appurtenances.

841.1.01 Related References

A. Standard Specifications

Section 106—Control of Materials

Section 848—Pipe Appurtenances

B. Referenced Documents

ASTM A 74

ASTM B 29

ASTM C 564

ANSI/AWWA A 21.4

ANSI/AWWA A 21.10

ANSI/AWWA A 21.11

ANSI/AWWA A 21.50

ANSI/AWWA A 21.51

ANSI/AWWA A 21.53

841.2 Materials

For each item in this Section, submit a certification from the manufacturer as per the requirements in Subsection 106.05, "Materials Certification."

Include the chemical and physical properties of the materials and their conformance with this Specification on the certification.

841.2.01 Cast Iron Soil Pipe and Fittings

A. Requirements

1. Type

Use cast iron soil pipe and fittings that meet the requirements of ASTM A 74, including the inside and outside coatings.

a. Rubber Gasket Joints: Use rubber gasket joints for cast iron soil pipes that meet the requirements of ASTM C 564.

b. Lead Joints: Use refined lead that meets the requirements of ASTM B 29. Do not use reclaimed lead.

c. Plain End Cast Iron Soil Pipe: Plain end cast iron soil pipe may be joined with steel bolted couplings if they meet the requirements of Subsection 848.2.02.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

The Department accepts material that is properly certified by the manufacturer.

D. Materials Warranty

General Provisions 101 through 150.

841.2.02 Ductile Iron Pipe and Appurtenances

A. Requirements

Use ductile iron pipe that meets the requirements of ANSI/AWWA A 21.50 and A 21.51 for the class and joint specified.

1. Fittings

   Use fittings that meet the requirements of ANSI/AWWA A 21.10 or A21.53 for the class and joint specified.

2. Rubber Gasket Joints

   Use rubber gasket joints that meet the requirements of ANSI/AWWA A 21.11.

3. Flanges

   Use flanges that meet the requirements of ANSI/AWWA A 21.11.

4. Plain End Ductile Iron Pipe

   Plain end ductile iron pipe may be joined with steel-bolted couplings if they meet the requirements of Subsection 848.2.02.

5. Cement Mortar Linings

   Use cement mortal linings that meet the requirements of ANSI/AWWA A 21.4. Line all ductile iron pipe and fittings with cement mortar unless specified otherwise.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

The Department accepts material that is properly certified by the manufacturer.

D. Materials Warranty

General Provisions 101 through 150.

April 12, 2006
First Use Date: July 21, 2006

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 843—Concrete Pipe

Delete Section 843 and substitute the following:

843.1 General Description

This section includes the requirements for reinforced concrete pipe, nonreinforced concrete pipe, and concrete underdrain pipe.

843.1.01 Related References

A. Standard Specifications

Section 800—Coarse Aggregate

Section 801—Fine Aggregate

Section 831—Admixtures

Section 880—Water

B. Referenced Documents

AASHTO M 86(M 86M), Class II

AASHTO M 170 (M 170M)

AASHTO M 175 (M 175M) or AASHTO M 176 (M 176M)

QPL 4

SOP-19

843.2 Materials

843.2.01 Reinforced Concrete Pipe

A. Requirements

1. Type

   Use reinforced concrete pipe that meets the requirements of AASHTO M 170 (M 170M), with the changes described in the following table. For a list of sources, see QPL 4.

Material	Requirements	Other Modifications
Coarse aggregate	Subsection 800.2.01	Gradation requirements do not apply
Fine aggregate	Subsection 801.2.02	Gradation requirements do not apply

Fly ash	Subsection 831.2.03.A	None
Water	Subsection 880.2.01	None

NOTE: Before manufacture, you may request approval of modified designs that differ from the Specifications.

2. Certification
   a. File a certificate with the Engineer stating that the concrete pipe manufactured for Department use meets the requirements of reinforcement steel specified in this Section.

      A bonded legal authority of the manufacturing company shall endorse the requirements certification.
   b. Submit a guarantee with the certificate stating that concrete pipe will be replaced, without cost to the purchaser, if the reinforcement steel does not meet these Specifications.
   c. Ensure that the guarantee remains in effect as long as the manufacturer furnishes concrete pipe for Department use.
   d. This guarantee does not limit the right of the Department to inspect and check the materials in manufactured concrete pipe prior to and during pipeline construction.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

The Department will test and inspect using SOP-19.

D. Materials Warranty

See the Certification requirements under Subsection 843.2.01.A.2.

843.2.02 Nonreinforced Concrete Pipe

A. Requirements

1. Type

   Use nonreinforced concrete pipe to convey sewage, industrial waste, and storm water that meets the requirements of AASHTO M 86 (M 86M), Class II, with the following changes:

Material	Requirements	Other Modifications
Coarse aggregate	Subsection 800.2.01	Gradation requirements do not apply
Fine aggregate	Subsection 801.2.02	Gradation requirements do not apply
Fly ash	Subsection 831.2.03.A	None
Water	Subsection 880.2.01	None

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test and inspect with SOP-19.

D. Materials Warranty

General Provisions 101 through 150.

843.2.03 Concrete Underdrain Pipe

A. Requirements

1. Type

   Use concrete underdrain pipe that meets the requirements of AASHTO M 175 (M 175M) or AASHTO M 176 (M 176M), with the following changes unless the Plans state otherwise:

Material	Requirements	Other Modifications
Coarse aggregate	Subsection 800.2.01	Gradation requirements do not apply
Fine aggregate*	Subsection 801.2.02	Gradation requirements do not apply
Fly ash	Subsection 831.2.03.A	None
Water	Subsection 880.2.01	None
*Use fine aggregate in standard strength, perforated, nonreinforced concrete underdrain pipe.		

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test and inspect with SOP-19.

D. Materials Warranty

General Provisions 101 through 150.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

Supplemental Specification

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 846—Polyvinyl Chloride (PVC) Profile Wall Drain Pipe

Delete Section 846 and Substitute the following:

Section 846—Polyvinyl Chloride (PVC) Drain Pipe

846.1 General Description

This section includes the requirements for Polyvinyl Chloride (PVC) Drain Pipe.

846.1.01 Related References

A. Standard Specifications

Section 106–Control of Materials

B. Referenced Documents

AASHTO M 304

ASTM F 477

ASTM F 949

ASTM D 3212

846.2 Materials

846.2.01 Polyvinyl Chloride (PVC) Profile Wall Drain Pipe

A. Requirements

Use pipe that meets the requirements of AASHTO M 304.

Ensure joints are watertight and have elastomeric seals that meet the requirements of ASTM F 477.

Assemble the joints according to the manufacturer's recommendations.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Have the manufacturer test the joint tightness according to ASTM D 3212 and certify the results according to Subsection 106.05.

D. Materials Warranty

General Provisions 101 through 150.

846.2.02 Polyvinyl Chloride (PVC) Corrugated Smooth Interior Drain Pipe

A. Requirements

Use pipe that meets the requirements of ASTM F 949.

Ensure joints are watertight and have elastomeric seals that meet the requirements of ASTM F 477.

Assemble the joints according to the manufacturer's recommendations.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Have the manufacturer test the joint tightness according to ASTM D 3212 and certify the results according to Subsection 106.05.

D. Materials Warranty

General Provisions 101 through 150.

Date: October 10, 2006
First Use Date 2001 Specifications: October 17, 2003

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 851—Structural Steel

Delete Section 851 and substitute the following:

Section 851—ASTM A 709/ASTM A 709M Structural Steel

851.1 General Description

This section applies to the requirements for fabrication of ASTM A 709 (A 709M) structural steel which includes HPS 70W (HPS 485W) steel plates furnished in one of the following conditions: as-rolled, controlled rolled, thermo-mechanical-controlled-processed (TMCP) with or without accelerated cooling. Designs may be exclusively HPS 70W (HPS 485W), or may be hybrid/mixed design using high performance steel plates in combination with high strength, low alloy steel plates and shapes, for welded or bolted applications in bridge construction.

Provide HPS 70W (HPS 485W) steel plate full length, as shown in the plans, without intermediate splices.

851.1.01 Definitions

HPS Steel—High performance structural weathering steel that has a yield strength of 70 ksi (485 MPa).

Hybrid Design—A bridge or girder designed and fabricated with different grades of steel.

851.1.02 Related References

A. Standard Specifications

Section 106—Control of Materials

Section 501—Steel Structures

B. Referenced Documents

Guide Specification for Highway Bridge Fabrication with HPS 70W Steel, 2nd Edition.
(referred to hereafter as HPS Fab Guide)

AASHTO/AWS D1.5M/D1.5:2002 Bridge Welding Code.

ASTM A 673 (A 673M)

ASTM A 709 (A 709M)

ASTM A 709-01 for Grade HPS 70W (HPS 485W)

ASTM E 23

AASHTO M-270 (M-270M)

851.2 Materials

851.2.01 Structural Steel

A. Requirements

1. Type

   Use the structural steel specified in the Plans. Ensure the steel meets all requirements of the governing ASTM or AASHTO specification, this Specification, and Plan requirements.

   Ensure that all steel submitted as main load-carrying member components subject to tensile stress meets either S83, Non-Fracture Critical Materials Toughness Tests and marking, or S84, Fracture Critical Materials Toughness Tests and marking, as appropriate, of ASTM A 709 (A 709M).

2. Certification

   Certify that the steel meets the requirements according to Subsection 106.05, "Materials Certification".

B. Fabrication

1. General Provisions 101 through 150.
2. Conform to the edition, as noted on the Plans, of the AASHTO/AWS D1.5/D1.5M:2002 Bridge Welding Code, except as modified in Section 501 and by the HPS Fab Guide.
3. Do not exceed 1100°F (600°C) for short-term application of heat for purposes of heat curving, heat straightening, or camber and sweep adjustment. All applications of heating must be done by procedures approved by the Engineer.
4. Welding:

   a. Only use submerged arc (SAW) or shielded metal arc (SMAW) welding processes when welding high performance steel. Perform consumable handling in accordance with AWS D1.5, Sections 12.6.5 and 12.6.6, and the HPS Fab Guide. SAW consumables and SMAW consumables are required to meet the diffusible hydrogen control levels of H4 or H8. The use of consumables meeting H8 further requires the higher preheat and interpass temperatures as noted in Table 3 of the HPS Fab Guide.

   Use matching consumables for all complete penetration groove welds connecting HPS 70W (HPS 485W) base metal to HPS 70W (HPS 485W) base metal as follows:

Submerged Arc Welding	Wire	LA85 by Lincoln Electric Company
	Flux	MIL800-HPNi by Lincoln Electric Company
Shielded Metal Arc Welding	Electrodes	E9018-M-H4-R (Reduced Preheat per Table 3 allowed) E9018-M-H8-R (Standard Preheat required)

   b. The use of alternate consumables for matching strength welds may be requested for approval. The request for approval must include documentation of successful welding in accordance with AWS D1.5, and include diffusible hydrogen tests as described in AWS D1.5, Article 12.6.2 indicating the deposited weld metal has a diffusible hydrogen level equivalent to H_8 or less.

c. Use undermatched consumables for all fillet weld connections to HPS 70W (HPS 485W) base metal as follows:

Submerged Arc Welding	AWS Electrode Specification	F7A0-EXXX-H4 F7A0-EXXX-H8 F8A0-EXXX-H4 F8A0-EXXX-H8
Shielded Metal Arc Welding	AWS Electrode Specification	E7018-M-H4-R (Reduced Preheat per Table 3 allowed) E8018-M-H4-R (Reduced Preheat per Table 3 allowed) E7018-M-H8-R (Reduced Preheat required) E8018-M-H8-R (Reduced Preheat required)

d. Use weld backing and run-off tabs manufactured from steel meeting the requirements of ASTM A 709, Grade 50W (ASTM A 709M, Grade 345W) except that the sulfur content is limited to a maximum of 0.025%.

e. Qualify all welding procedures in accordance with AWS D1.5, Section 5.

f. Ultrasonically test all procedure qualification tests in conformance with the requirements of AWS D1.5, Section 6, Part C. Evaluation will be in accordance with AWS D1.5, Table 6.3, Ultrasonic Acceptance – Rejection Criteria – Tensile Stress. Indications found at the interface of the backing bar may be disregarded, regardless of the defect rating.

g. Submit the procedure qualification test record (PQR) and proposed welding procedure specification (WPS) to the Engineer for review and approval. If post weld heat treatment is required by the Contract or proposed for production or repair welding, include it in the procedure qualification testing, or prequalified by additional PQR's, as necessary.

h. Only fabricators that meet the requirements of the AISC Quality Certification Program, Major Steel Bridges (Cbr) with Fracture Critical Endorsement (F), or Engineer approved equal, may fabricate with HPS 70W steel.

B. Acceptance

1. Toughness Tests

   Charpy V-Notch tests are mandatory for materials designated on the Plans as main load-carrying member components subject to tensile stress.

   a. Sample the steel according to ASTM A 673 (A 673M).

   b. Perform the Charpy V-Notch test according to ASTM E 23.

2. Whenever magnetic particle testing is done, only use the yoke technique as described in Section 6.7.6.2 of AWS D1.5, modified to test using alternating current only. The prod technique will not be allowed.

C. Materials Warranty

General Provisions 101 through 150.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

Supplemental Specification

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 854—Castings and Forgings

Delete Section 854 and Substitute the following:

854.1 General Description

This section includes the requirements for the following castings and forgings:

- Gray iron drainage castings
- Cast aluminum alloy railing posts
- Aluminum alloy sand mold castings
- Steel castings
- Steel forgings
- Cold-finished carbon shafting
- Steel castings for bridges

854.1.01 Related References

A. Standard Specifications

Section 501—Steel Structures

B. Referenced Documents

AASHTO	ASTM
M 102/ M 102M	ASTM A 27/ A 27M
M 169	ASTM B 26/ B 26 M, Alloy UNS A03560
M 306	ASTM B 108

QPL 11

ANSI 356 Temper T 6

854.2 Materials

854.2.01 Gray Iron Drainage Castings

A. Requirements

Each foundry shall conform to Standard Operating Procedure 18 (SOP 18), "Inspection of Gray Iron Drainage Castings".

1. Type

   Use gray iron drainage castings that meet the requirements of AASHTO M 306, Class 35B.

   Use foundries listed on QPL 11.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

The Department will accept the castings based on the following:

- Quality of work and conformance to dimension and shape requirements, including acceptable proof load tests and drawings on file with the Office of Materials and Research-Inspection Services Branch for each casting design supplied.
- Tension bar test results

D. Materials Warranty

General Provisions 101 through 150.

854.2.02 Cast Aluminum Alloy Railing Posts

A. Requirements

1. Type

   Use permanent mold types of cast-aluminum alloy roadway railing post that meet ASTM B 108 requirements.

   Ensure that the finish on the castings meets the specifications on the Plans.

2. Certification

   Submit a report with each shipment of castings that includes test results and certifies compliance with this Specification.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

The Department will accept the castings based on the following:

- Quality of work and conformance to dimension and shape requirements
- Certification that the physical and chemical properties of the material meet these Specifications

D. Materials Warranty

General Provisions 101 through 150.

854.2.03 Aluminum Alloy Sand Mold Castings

A. Requirements

1. Type

   Use aluminum base alloy and castings that meet the requirements of ASTM B 26/ B 26M, Alloy UNS A03560 or ANSI 356 Temper T 6.

2. Certification

   Submit a report with each shipment of castings that includes test results and certifies compliance with this Specification.

B. Fabrication

Sandblast or otherwise clean the scale and sand off the castings to produce a smooth and uniform surface.

C. Acceptance

The Department will accept the castings based on the following:

- Quality of work and conformance to the dimension and shape requirements, as inspected when received

- Certification that the physical and chemical properties of the material meet these Specifications

D. Materials Warranty

General Provisions 101 through 150.

854.2.04 Steel Castings

A. Requirements

1. Type

   Use carbon steel castings that meet the requirements of ASTM A 27/ A 27M, Grade 65-35 (450-240). Ensure that the form and dimensions of the steel castings are true to pattern.

2. Certification

   Submit a report with each castings shipment that includes test results and certifies compliance with this Specification.

B. Fabrication

1. If the Plans require large castings, suspend and hammer them all over. Ensure that no cracks, flaws, or other defects appear after this treatment. The Department will not accept sharp unfilleted angles or corners.
2. Coat surfaces marked "Finished" as soon as practical after finishing with a corrosion-resistant grease before removing them from the shop.
3. Apply a shop coat of paint to casting surfaces milled for removing scale, scabs, fins, blisters, or other surface deformations. Ensure that the shop coat of paint meets the requirements of Subsection 501.3.04.D.10, "Shop Painting."

C. Acceptance

The Department will accept the castings based on the following:

- Quality of work and conformance to the dimension and shape requirements, as inspected when received
- Certification that the physical and chemical properties of the material meet these Specifications

D. Materials Warranty

General Provisions 101 through 150.

854.2.05 Steel Forgings

A. Requirements

1. Type

   Use steel forgings that meet the requirements of AASHTO M 102/M 102M for the class shown on the Plans.

2. Certifications

   a. Submit a record to the Engineer of the annealing charges that show the forgings in each charge, the melt or melts from which they were secured, and the treatment they received.

   b. Submit a report with each castings shipment that includes test results and certifies compliance with this Specification.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

The Department will accept the castings based on the following:

1. Quality of work and conformance to the dimension and shape requirements, as inspected when received
2. Certification that the physical and chemical properties of the material meet these Specifications

D. Materials Warranty

General Provisions 101 through 150.

854.2.06 Cold-finished Carbon Shafting

A. Requirements

1. Type

   Use cold-finished carbon steel bars that meet the requirements of AASHTO M 169 for the grade shown on Plans.

2. Certification

   Submit a certification to the Engineer that shows the chemical properties of the material and conformance to the Specifications.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

The Department will accept the material based on favorable review of the certification.

D. Materials Warranty

General Provisions 101 through 150.

854.2.07 Steel Castings for Bridges

A. Requirements

1. Type

   Use steel castings for bridge components that meet the requirements of ASTM A 27/ A 27M for the class shown on the Plans.

2. Certification

   Submit a certification to the Engineer that shows the physical and chemical properties of the material and conformance to the Specifications.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

The Department will accept the material based on favorable review of the certification.

D. Materials Warranty

General Provisions 101 through 150.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 861—Piling and Round Timber

Delete Section 861 and substitute the following:

861.1 General Description

This section includes the requirements for timber piles and timber poles.

861.1.01 Related References

A. Standard Specifications

Section 863–Preservative Treatment of Timber Products

B. Referenced Documents

ANSI 05.1

National Electrical Safety Code (National Institute of Standards and Technology)

QPL 50

861.2 Materials

A. Definition and Limitation of Defects

Decay: Disintegration of the wood substance due to wood-destroying fungi. The words "dote" and "rot" mean the same as decay. Red heart is a form of decay.

Compression Wood: An abnormal, dense, hard growth frequently occurring on the underside of limbs and leaning trunks of coniferous trees. It is characterized by very wide and eccentric annual growth rings and includes what appears to be an exceptional proportion of summerwood growth.

The contrast in color between springwood and summerwood, however, is usually less in compression wood than in normal wood.

Turpentine Butt: A scar caused from bleeding the trees to obtain turpentine.

Scar: A damaged surface caused from injury to the tree during growth.

Sweep: Deviation of a piece or stick from a straight line measured from the center of one end to the center of the other end. A straight line from the center of the butt to the center of the tip shall lie entirely within the body of the pile.

Short Crook: A crook in which the direction of the piece or stick changes in a very short distance measured lengthwise.

Burst Check: A crack approximately at right angles to the annual rings, usually radial cracks in sticks from the center or from near the center to the outside, or a combination of this crack and a ring shake caused through either seasoning, exposure to high temperature, or the process of preservative treatment.

Unsound Knot: A knot solid across the face, but containing incipient decay.

Cluster Knot: Two or more knots grouped together, the fibers of the wood being deflected around the entire unit.

A group of single knots with fibers deflected around each knot separately is not a cluster, even though the knots may be close together.

Punk Knot: A fungus decay that extends from the interior of the piece of pile to the outside, which when prodded is usually found to contain a snuff-like substance.

Ring Knots: Three or more knots appearing in the same line of circumference, or any foot of length.

861.2.01 Timber Piles

A. Requirements

1. Use round timber piles of any species of wood that will withstand driving and support the load specified. Use plants listed on QPL 50.
2. Soundness

   Use piles of sound wood, free from decay, red heart, or insect attack.

   a. Cedar and Cypress: The butt ends may have a pipe or stump rot hole not more than 1-1/2 in (40 mm) in diameter. Cypress piles may have peck aggregating not more than 1-1/2 in (40 mm) in diameter.

   b. Southern Pine: Piles may have unsound knots less than half the permitted size of a sound knot, providing that the unsoundness does not extend more than 1-1/2 in (40 mm) deep and that the adjacent areas of the trunk are not affected.
3. Density

   a. All piles shall be dense with at least 6 annual rings per 1 in (25 mm) and 1-1/2 in (40 mm) or more of summerwood (the darker, harder portion of the annual ring), as measured over the outer 3 in (75 mm) of butt diameter on a radial line from the pith.

      The contrast in color between summerwood and springwood shall be sharp and the summerwood shall be darker in color.

   b. Piles excluded by the above rule may be accepted provided they have at least four annual rings per 1 in (25 mm) and 1/3 or more summerwood, as measured over the outer 3 in (75 mm) of butt diameter on a radial line from the pith.
4. Knots

   a. Sound knots:

For piles 50 ft (15 m) long or less, and in 3/4 of the length of piles over 50 ft (15 m), measured from the butt	Sound knots less than 4 in (100 mm) or 1/3 the diameter of the pile, whichever is smaller.
For the top 1/4 length of piles over 50 ft (15 m) long	Sound knots less than 5 in (125 mm) or 1/2 the diameter of the pile, whichever is smaller
The size of a knot shall be its diameter measured at right angles to the length of the pile.	

   b. Unsound knots are not permitted except in Southern Pine piles as specified in Subsection 861.2.01.A.2.b.

   c. The sum of sizes of all knots in any 12 in (300 mm) of the pile shall not exceed twice the size of the largest permitted single knot.
5. Holes

   Allow holes that average less than 1/2 inch (15 mm) in diameter if the sum of the average diameter of all holes in any 1 ft^2 (0.1m^2) of pile surface is less than 1-1/2 in (40 mm).
6. Splits and Shakes

   Splits shall not be longer than the butt diameter of the pile.

   The length of any shake or combination of shakes in the outer half of the radius of butt of the pile, when measured along the curve of the annual ring, shall not exceed 1/3 the circumference of the butt of the pile.
7. Sapwood

   Piles to be treated with preservative shall have at least 1 in (25 mm) of sapwood at the butt end.

8. Heartwood
    a. In untreated piles for use in exposed work, the diameter of the heartwood at the butt shall be at least 8/10 of the diameter of the pile at the butt.
    b. If high heartwood content is required for untreated foundation piles, the Plans will specify the ratio of heartwood to total diameter.
9. Peeling
    a. Peel piles by removing all of the outer bark and at least 80 percent of the inner bark, well distributed over the surface of the pile.
    b. If piles will be treated with preservative, do not leave inner bark wider than 1/2 in (15 mm).
    c. Do not remove more than three annual rings of the solid wood.
10. Cutting and Trimming
    a. Saw butts and tips square with the axis of the pile.
    b. Trim or smoothly cut all knots and limbs flush with the surface of the pile or the surface of the swell surrounding the knot.
11. Straightness

    In general, a straight line from the center of the butt to the center of the tip shall lie entirely within the body of the pile.

    If specified, the Department can accept long piles for foundations (but not for trestles) if the straight line lies partly outside the body of the pile. The maximum distance between the line and the pile shall not exceed 0.5 percent of the length of the pile or 3 in (75 mm), whichever is smaller.
12. Taper

    Cut piles above the butt swell so it has a continuous taper from the point of butt measurement to the tip.
13. Twist of Grain

    Do not allow spiral grain to exceed 180 degrees of twist when measured over any 20 ft (6 m) section of the pile.
14. Limits of Defects
    a. Piles shall not have short crooks that deviate more than 2-1/2 in (65 mm) from straightness in any 5 ft (1.5 m) length.
    b. Burst checks in piles shall be less than 1 in (25 mm) wide, measured at the outside, and shall not extend over 12 in (300 mm) long.
15. Circumferences, Diameters, and Lengths
    a. The circumferences of piles measured under the bark shall have the minimum and maximum values in Table 1 (metric Table 1) for the class specified. No more than 10 percent of the piles in any shipment may have circumferences 2 in (50 mm) less than the tabulated minimum values.

    NOTE: Requirements for tip circumference of piles that are longer than the required length may be applied at the tip end of the required length.

    b. The ratio of the maximum to the minimum diameter at the butt of any pile shall not exceed 1.2.
    c. Individual piles may vary from the length specified by ± 12 in (300 mm) in piles shorter than 40 ft (12 m), and ± 2 ft (600 mm) in piles 40 ft (12 m) or longer.
    d. The average length of all piles of a specified length in each lot shall not be less than the length specified.

Table 1
Circumferences and Diameters of Timber Piles

	3 ft (900 mm) from butt				At tip, minimum	
	Minimum		Maximum			
Length	Circumference	Dia. (approx.)	Circumference	Dia. (approx.)	Circumference	Dia. (approx.)
Feet (meter)	In (mm)	In (mm)	In (mm)	In (mm)	In (mm)	In (mm)
	Douglas Fir, Hemlock, Larch, Pine, Spruce, or Tamarack					
Under 40 (12)	38 (950)	12 (300)	63 (1575)	20 (500)	25 (625)	8 (200)
40 to 50 (12 to 15)	38 (950)	12 (300)	63 (1575)	20 (500)	22 (550)	7 (175)
51 to 70 (15.1 to 21.4)	41 (1025)	13 (325)	63 (1575)	20 (500)	22 (550)	7 (175)
71 to 90 (21.5 to 27.5)	41 (1025)	13 (325)	63 (1575)	20 (500)	19 (475)	6 (150)
Over 90 (27.5)	41 (1025)	13 (325)	63 (1575)	20 (500)	16 (400)	5 (125)
	Oak and Other Hardwoods, Cypress					
Under 30 (9)	38 (950)	12 (300)	57 (1425)	18 (450)	25 (625)	8 (200)
30 to 40 (9 to 12)	41 (1025)	13 (325)	63 (1575)	20 (500)	22 (550)	7 (175)
Over 40 (12)	41 (1025)	13 (325)	63 (1575)	20 (500)	19 (475)	6 (150)
	Cedars					
Under 30 (9)	38 (950)	12 (300)	69 (1725)	22 (550)	25 (625)	8 (200)
30 to 40 (9 to 12)	41 (1025)	13 (325)	69 (1725)	22 (550)	25 (625)	8 (200)
Over 40 (12)	41 (1025)	13 (325)	69 (1725)	22 (550)	22 (550)	7 (175)

NOTE: If the pile length is 25 feet (7.6 m) or less, a minimum circumference of 34 in (850 mm) and minimum diameter of 11 in (275 mm) at a point 3 ft (900 mm) from the butt are required.

16. Branding and Inspection
    a. Ensure the pile length and the diameter of the butt and tip are branded in the butts of the piles.
    b. Legibly brand the Preliminary inspection date in the tips.

B. Fabrication

Seasoning and Preservative Treatment: Where required, season and treat according to Section 863.

C. Acceptance

The Department will reject the pile based on any of the following defects:

- Decay
- Deep scars
- Unsound knots
- Punk knots
- Ring knots
- Cluster knots
- Compression wood (if readily identifiable based on ordinary visual inspection)

The Department may accept piles with sound turpentine scars undamaged by insects, provided they meet all other requirements.

D. Materials Warranty

General Provisions 101 through 150.

861.2.02 Timber Poles

A. Requirements

1. Select timber poles from plants listed on QPL 50.
2. Ensure that the poles that meet the requirements of the latest revision of ANSI 05.1, in the National Electrical Safety Code published by the National Institute of Standards and Technology, with the following exceptions:
   a. Section 2 Definitions—Modify the "Short Crook" definition as follows:

      "Any localized deviation from straightness within any section 5 ft (1.5 m) or less in length shall not be more than 1 in (25 mm) when measured with a straightedge parallel to the long axis of the pole."

   b. Section 4 Material Requirements, 4.4.9 Shape (1), (a)—shall read as follows:

      "For poles 50 ft (15 m) and shorter, of all species except northern white cedar, a straight line joining the edge of the pole at the butt and the edge of the pole at the top, in 90 percent or more of those poles supplied, shall not be distant from the surface of the pole at any point by more than 1 in (25 mm) for each 10 ft (3 m) of length between these points. In the remainder of those poles supplied (10 percent), the poles may have a deviation of 1 in (25 mm) for each 6 ft (1.8 m) of length when measured as above."

   c. Section 4 Material Requirements, 4.4.9 Shape (2)—shall read as follows:

      "Sweep in two planes (double sweep) - NOT PERMITTED."
3. Use the class and length specified on the Plans.
4. You may peel poles by machine, except that poles more than 55 ft (17 m) long may be debarked and trimmed by hand in lieu of machine peeling. Trim so that you preserve the buttressing effects of all overgrown knots.
5. Unless otherwise specified or indicated on the Plans, frame poles with flat roofs and slab grains.
6. Frame, drill, and machine poles as necessary before preservative treatment.

B. Fabrication

Seasoning and Preservative Treatment: Where required, season and treat according to Section 863.

C. Acceptance

General Provisions 101 through 150.

D. Materials Warranty

General Provisions 101 through 150.

Georgia Department of Transportation

State of Georgia

Special Provision

PROJECT NO.: NHS-0008-00(274), HENRY COUNTY

P.I. NO.: 0008274

Section 865—Manufacture of Prestressed Concrete Bridge Members

Delete Subsection 865.1 and substitute the following:

This section includes the following requirements for precast-prestressed concrete bridge members and piling using High Performance Portland cement concrete as shown in the Plans:

- Manufacturing
- Inspecting
- Testing
- Marking
- Painting
- Rubbing as specified
- Plant handling
- Storing
- Shipping

The term "precast-prestressed concrete" is referred to as "prestressed concrete" in the rest of this Section.

Add the following to Subsection 865.2:

Material	Section
Concrete, Class AAA HPC	500

Add the following to the end of Subsection 865.2.01.B.7.a.6:

Optional Method of Curing for Release Strengths with HPC: Temperature match curing ("Sure Cure" or equivalent methods) is allowed for specimens used to determine when stress may be transferred to the concrete for High Performance Concrete Units.

GEORGIA DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 866—Precast Concrete Catch Basin, Drop Inlet, and Manhole Units

Delete Section 866 and substitute the following:

866.1 General Description

This section includes the requirements for manufacturing the following to the dimensions shown on the Plans:

- Precast reinforced concrete catch basins
- Drop inlets
- Manhole units

866.1.01 Related References

A. Standard Specifications

Section 500–Concrete Structures

Section 853–Reinforcement and Tensioning Steel

B. Referenced Documents

AASHTO M 199

AASHTO T 22

AASHTO T 24

SOP 19

QPL 4

QPL 86

866.2 Materials

The materials to be used shall meet AASHTO M 199 and the following requirements:

Material	Section
Concrete, Class AA-1, Vibrated, Air Entrained	500*
Reinforcement for Concrete	
Steel Bars	853.2.01
Steel Wire	853.2.06
Welded Steel Fabric	853.2.07
Macro-Synthetic Fibers	941

*Ensure that the concrete compressive strength is at least 4,000 psi (28 MPa). Do not use the gradation requirements.

For a list of sources, see QPL 4.

866.2.01 Precast Concrete Catch Basin, Drop Inlet, and Manhole Units

A. Requirements

1. Reinforcement

   Follow the Plans, except as follows:

   a. Do not let steel reinforcement vary by more than 1/4 in (5 mm) from the position shown in the design, except at pipe connections.

   b. Ensure the cover on the steel reinforcement is not less than that shown on the Plans.

   c. Macro-synthetic fibers are permitted as reinforcement in lieu of steel reinforcement in precast manhole riser sections only. Approved fibers are listed on the Department's Qualified Products List 86 (QPL 86), entitled Macro-Synthetic Fibers for Concrete Reinforcement.

2. Ensure all precast concrete units are true to shape with smooth, dense, and uniform surfaces.

B. Fabrication

1. Casting

   a. Place the concrete in each unit without interruption.

   b. Consolidate the concrete with an approved vibrator and hand-tamping as necessary. Force the concrete into the corners of the forms to prevent stone pockets or cleavage planes.

2. Holes for Pipes

   Make each hole about 4 in (100 mm) larger than the outside diameter of the appropriate pipe.

3. Curing:

   Cure the units with one of the following methods until the minimum compressive strength has been achieved, or for 24 hours, whichever comes first.

   a. Method 1

      1) Place the units in a curing chamber, free from outside drafts, and cure them in a moist atmosphere not exceeding 160 °F (70 °C).

      2) Use steam injection for the time and temperature needed to obtain proper curing.

      3) Construct the curing chamber and place the units so that steam may fully circulate around the entire unit.

   b. Method 2

      1) Keep the units wet by covering the concrete not in contact with the forms with wet burlap or other suitable material.

      2) Protect the units from freezing between when you place the concrete until curing is complete.

4. Removing the Forms

   Leave the forms in place until you can remove them without damaging the unit.

5. Quality of Work

   a. Correct minor surface cavities or irregularities that do not impair the service value of the unit by pointing with an approved mortar. Apply the mortar immediately after removing the forms.

   b. Minor defects will not be cause for rejection.

C. Acceptance

1. Testing Facilities

   Ensure that the manufacturer furnishes facilities and assistance as required for the Inspector to sample and test quickly and efficiently.

NOTE: Check QPL 4 for pre-approved manufacturers that supply material compliant with this Specification.

2. The Department will accept the units based on the results of compressive tests on concrete cylinders and on inspection during manufacture. The tests will determine the unit's conformance with the design and quality of work prescribed in these Specifications and on the Plans.
3. The Department will accept any unit that meets the test requirements, regardless of age.
4. Rejection

   The Inspector will reject units if they fail to meet any requirements in this Specification, and for any of the following defects:

   - Imperfect mixing and molding
   - Honeycombed or open texture
   - Exposure of the reinforcement that indicates the reinforcement is misplaced
5. Marking

   Ensure that each approved unit is marked with the name or trademark of the manufacturer and the date it was cast. The mark will be stenciled or otherwise placed on the inside of the unit so it is clearly legible at time of delivery.

   a. When approved by the Inspector, each unit will be stamped with the official mark of the Department or Certified Pipe Technician number (CPT).

   b. Accepted units or finished units will be rejected at any time if found to be defective.
6. Test as follows:

Test	Method
Compressive strength	AASHTO T 22 and AASHTO T 24

7. Compressive Strength Test

   The Inspector shall do the following:

   a. Make compression tests on cylinders to satisfy the minimum strength requirements.

   b. Make at least three cylinders from each day's pour and cure them in the same manner as the precast units.

D. Materials Warranty

1. Shipping

   Do not ship or transport any unit to the installation site unless it bears the required markings, stated in Subsection 866.2.01.C.5.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 868—Bituminous Adhesive for Raised Pavement Markers

Delete Section 868 and substitute the following:

868.1 General Description

This section includes the requirements for bituminous hot-melt adhesive used to place raised pavement markers.

868.1.01 Related References

A. Standard Specifications

Section 106—Certification of Materials

B. Referenced Documents

AASHTO	ASTM	
T 48	C 430	D 1856
T 49	D 70	D 2669
T 53	D 1754	D 2712
T 202	D 1796	D 3407

868.2 Materials

868.2.01 Bituminous Adhesive

A. Requirements

1. Adhesive

   Use an adhesive made of asphaltic material and a homogeneously mixed filler that meets the following physical requirements:

   a. Adhesive Properties: Use the asphaltic material with filler.

	Min.	Max.	Test Method
Softening point	200° F (95 °C)	—	AASHTO T 53
Penetration, mm 3.5 oz (100 g), 5 sec., 77 °F (25 °C)	10	20	AASHTO T 49
Flow	—	0.2 in (5 mm)	ASTM D 3407 (modified in Subsection 868.2.01.C)
Viscosity, 400 °F (204 °C)	—	60 Poises (6.0 Pa-s)	ASTM D 2669 (modified in Subsection 868.2.01.C)

Flash point, C.O.C.	550 °F (285 °C)	—	AASHTO T 48

b. Asphalt Properties: Use the filler-free material derived from the extraction and Abson recovery process explained in Subsection 868.2.01.C.

	Min.	Max.	Test Method
Penetration, mm 3.5 oz (100 g), 5 sec., 77 °F (25 °C)	25	—	AASHTO T 49
Viscosity, 275 °F (135 °C)	12 Poises (1.2 Pa-s)	—	AASHTO T 202
Viscosity ratio, 275 °F (135 °C)	—	2.2	See Subsection 868.2.01.C

c. Filler Properties: Use the filler separation techniques described in Subsection 868.2.01.C.

	Min.	Max.	Test Method
Filler content, percent by weight	50	70	See Subsection 868.2.01.C
Filler fineness, percent passing			
No. 325 (45 µm)	75		ASTM C 430 (modified in Subsection 868.2.01.C)
No. 200 (75 µm)	95		
No. 100 (150 µm)	100		

d. Certification: Submit a certification from the manufacturer that includes the physical properties of the bituminous adhesives and that the material conforms with this Specification, as stated in Subsection 106.05, "Materials Certification."

2. Packaging and Labeling
   a. Pack the adhesive in a self-releasing cardboard container of approximately 10 in (250 mm) that can be stacked properly.
   b. Fill the containers with two 30 lb (13.5 kg) cubes that have a net weight of 60 lbs (27 kg).
   c. Put the manufacturer, quantity, and batch number on the label.
   d. Print "Bituminous Adhesive for Pavement Markers" on the label.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

1. Flow

   Determine flow according to Section 6, Flow, of ASTM D 3407.
   a. Set the oven temperature at 158 ° ± 2 °F (70 ° ± 1 °C).
   b. Prepare samples according to Subsection 7.1 of AASHTO T 49.
2. Viscosity

   Determine viscosity according to ASTM D 2669 using a spindle speed of 10 rpm.
   a. Heat the adhesive to approximately 410 °F (210 °C) and then let cool.
   b. Determine viscosity at 400 ° ± 1°F (204 ° ± 0.6 °C).
3. Asphalt Properties

   Determine the base asphalt properties based on the material obtained from the following extraction and Abson recovery methods:
   a. Extract the asphalt by heating the adhesive to the point where it will easily flow.

b. Add 125 to 150 g of adhesive to 400 mL of trichloroethylene that has a temperature of 125 ° to 150 °F (51 ° to 66 °C).

c. Stir the mixture to dissolve the asphalt.

d. Decant the trichloroethylene-asphalt mixture.

e. Recover the asphalt using the Abson recovery method described in ASTM D 1856, except do not use the extraction methods of ASTM D 2712, and do not filter the solvent-asphalt mixture.

f. Centrifuge the extraction solution of trichloroethylene and asphalt for at least 30 minutes at 770 times gravity in a batch centrifuge.

g. Decant the solution into a distillation flask. Do not include any filler sediment.

h. Apply heat and bubble carbon dioxide slowly until the solution reaches a temperature of 300 °F (149 °C).

i. Increase the carbon dioxide flow to between 800 to 900 mL per minute.

j. Maintain the decanted solution temperature between 320 ° and 335 °F (160 ° and 168 °C) with this carbon dioxide flow for at least 20 minutes and until the trichloroethylene vapors are completely removed from the distillation flask.

k. Repeat the extraction-recovery method as necessary to obtain the desired quantity of asphalt.

l. Determine penetration, 275 °F (135 °C) viscosity, and viscosity ratio with the recovered asphalt.

4. Viscosity Ratio

Determine the 275 °F (135 °C) viscosity ratio by comparing the 275 °F (135 °C) viscosity on the base asphalt before and after the Thin-Film Oven Test.

a. Perform the Thin-Film Oven Test as described in ASTM D 1754.

b. Determine the specific gravity with a pycnometer as described in ASTM D 70 for use in the Thin-Film Oven Test.

c. Calculate the 275 °F (135 °C) viscosity ratio by dividing the viscosity after the Thin-Film Oven Test by the original 275 °F (135 °C) viscosity.

5. Filler Material

Separate the filler material from the asphalt to determine filler content and filler fineness.

a. Filler Content

1) Determine the portion by weight of the adhesive that is insoluble in 1, 1, 1-trichloroethane by weighing 10.00 ± 0.01 g of solid adhesive into a centrifuge flask with a volume of approximately 100 mL, as specified in ASTM D 1796.

2) Add 50 mL of 1, 1, 1-trichloroethane to the adhesive.

3) Break the adhesive into small pieces to dissolve the solids.

4) Place the sample flask in a balanced centrifuge and spin with a minimum relative centrifugal force of 150 (as determined in Section 6 of ASTM D 1796) for 10 minutes.

5) Remove the sample flask and decant the solvent, without losing any solids.

6) Repeat the application of solvent and centrifuging until the solvent is clear and the filler is visually free of asphalt.

7) Dry the filler at 160 °, ± 5 °F (71°, ± 3 °C) to remove solvent and weigh the resulting filler.

8) Filter the decanted solvent to verify that no filler was lost.

9) Calculate the percent filler content as follows:

$$\text{Filler Content, \% by weight (g)} = \frac{\text{Filler Wt. (g) x 100}}{\text{Original Adhesive Wt. (g)}}$$

b. Filler Fineness

1) Determine filler fineness according to ASTM C 430, using No. 325 (45 µm), No. 200 (75 µm), and No. 100 (150 µm) sieves.

2) Modify this method by using a water-soluble, non-ionic wetting agent, such as Triton X-100, to aid the wetting action. Use a surfactant solution that is approximately 1 percent by weight.

3) Thoroughly wet the 1-gram dry sample in the surfactant solution.
4) Soak the sample for 30 minutes.
5) Transfer the filler to the sieve cup.
6) Spray water on the filler for two minutes.
7) Add surfactant solution as needed and physically disperse clumped particles.
8) Dry the sample and handle as directed in ASTM C 430.

The Department will reject any bituminous adhesive if it meets all requirements of this Specification but fails in actual use.

D. Materials Warranty

General Provisions 101 through 150.

Revised June 16, 2006
February 28, 2007

GEORGIA DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 881- Fabrics

Add the following to Subsection 881.2.08:

881.2.08 Filter Fabric for Embankment Stabilization

A. Requirements

1. Use woven filter fabric for embankment stabilization.
2. Sew fabric with a lock stitch using high strength polypropylene or nylon thread.
3. Obtain approval of the stitch and sewing method from the Engineer prior to use.
4. Use fabric that meets the following minimum tensile strength requirements:

Fabric Type	Tensile Strengths in lbs/in (kN/m) width			
	Warp Direction		Fill Direction	
	5% Strain	Ultimate	5% Strain	Ultimate
Polyester	200 (35)	500 (87.5)	100 (17.5)	250 (43.8)
Polypropylene	200 (35)	800 (140)	100 (17.5)	400 (70)

Minimum Seam Strength = 100 lbs/in (17.5 kN/m) width

   a. Tensile strengths at 5% strain are based on reduction factors from the ultimate strengths of 0.4 for polyester and 0.25 for polypropylene fabrics.

   b. Use of reduction factors other than those shown are allowed only if verified by laboratory tests acceptable to the Department.

5. Submit a certification from the manufacturer that shows the physical properties of the material used and how it meets this Specification. Submit the certificate according to Subsection 106.05, "Materials Certification."

8.2.15

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test according to the following:

Test	Method
Tensile strength, elongation	ASTM D 4595 Wide Strip Test
Seam Strength	ASTM D 4884 Wide Strip Test

1. Run the tests at a strain rate of 10% per minute.
2. Use a pre tensioning load of 10 lbs/in (1.75 kN/m) or 3%, whichever is less.

D. Materials Warranty

General Provisions 101 through 150.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 882—Lime

Delete Subsection 882 and substitute the following:

882.1 General Description

This Section includes the requirements for agricultural lime; lime for soil stabilization; and lime for asphaltic concrete.

882.1.01 Related References

A. Specifications

General Provisions 101 through 150.

B. Referenced Documents

AASHTO M 303

ASTM C 25

ASTM C 110

ASTM C 977

"Official Methods of Analysis," Association of Official Agricultural Chemists

QPL 41

882.2 Materials

882.2.01 Agricultural Lime

A. Requirements

1. Use agricultural lime made of ground dolomitic limestone with the following properties:

Requirements	Percent by Weight
Total carbonates, min.	85
Elemental magnesium derived from magnesium carbonate, min.	6
Passing No. 10 (2.00 mm) sieve, min	90
Passing No. 100 (150 µm) sieve, min	25

2. If desired, substitute liquid lime concentrate for one ton per acre (2240 kg/ha) of the ground dolomitic limestone. Use liquid lime concentrate conforming to the following composition by weight:

Component	Minimum	Maximum
Calcium Carbonate ($CaCO_3$)	30.0%	
Magnesium Carbonate ($MgCO_3$)	30.0%	
Moisture		30.0%

Add liquid lime concentrate to the hydroseeding mix at a rate of 2.5 gallons per acre (23 liters per hectare)

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test agricultural lime according to the "Official Methods of Analysis" of the Association of Official Agricultural Chemists.

D. Materials Warranty

General Provisions 101 through 150.

882.2.02 Lime for Soil Stabilization

A. Requirements

Use either a commercial dry hydrated lime or a commercial granular or pelletized quicklime for soil stabilization.

1. Hydrated Lime: Use hydrated lime that meets the requirements of ASTM C 977, except that at least 85 percent by weight of the lime shall pass the No. 200 (75 µm) sieve.
2. Quicklime: Use quicklime that meets the requirements of ASTM C 977, except that the lime shall contain at least 94 percent total calcium oxide and magnesium oxide (CaO + MgO), and at least 90 percent total available calcium oxide (CaO).
   a. Ensure the quicklime meets one of the following grade requirements (by weight):

Grade A	Grade B
100% passes the 3/8 in (9.5 mm) sieve	100% passes the No. 10 (2.00 mm) sieve
0% passes the 1/4 in (6.3 mm) sieve	

   b. Furnish certified test reports with each shipment of lime attesting that the lime meets the requirements of the Specification. However, the Engineer may inspect, test, and reject the material at any time.
   c. You may use lime from more than one source or more than one type on the same Project, but do not mix the limes.
   d. Protect the lime from exposure until used. Ensure that the lime is dry enough to flow freely when handled.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test the hydrated and quicklime used for soil stabilization according to ASTM C 977.

D. Materials Warranty

General Provisions 101 through 150.

882.2.03 Lime for Asphaltic Concrete

A. Requirements

Use hydrated lime that meets the chemical and physical properties of AASHTO M 303, Type I.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

1. Run the chemical analysis of hydrated lime used in asphaltic concrete according to ASTM C 25.
2. Test the physical properties of the hydrated lime according to the residue test in ASTM C 110.

NOTE: QPL 41 **for lime is used in asphaltic concrete only.**

3. See QPL 41 for acceptable hydrated lime that meets the requirements of this Specification.

D. Materials Warranty

General Provisions 101 through 150.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 893—Miscellaneous Planting Materials

Delete Section 893 and substitute the following:

893.1 General Description

This section includes the requirements for miscellaneous planting materials, such as the following:

- Plant topsoil
- Mulch
- Vines, shrubs, trees, and miscellaneous plants
- Inoculants
- Porous material
- Prepared plant topsoil
- Tree paint
- Stakes
- Organic soil additives
- Erosion Control Compost

893.1.01 Related References

A. Specifications

Section 814—Soil Base Materials

Section 822—Emulsified Asphalt

B. Referenced Documents

"USA Standard for Nursery Stock" of the American Association of Nurserymen, Inc.

"Standardized Plant Names"

"Method of Test for Moisture Content of Hay or Straw" United States Department of Agriculture and the United States Composting Council, "Test Methods for the Examination of Composting and Compost" (TMECC).

GDT 41

893.1.02 Submittals

A. Submissions for Erosion Control Compost

Submit a notarized certification that includes the following:

- The feedstock by percentage in the final compost product.
- A statement that the compost meets federal and state health and safety regulations.

- A statement that the composting process has met time and temperature requirements.
- A copy of the lab analysis, less than four months old, performed by a Seal of Testing Assurance certified lab verifying that the compost meets the physical requirements specified.

When requested by the Engineer, one Solvita Compost Maturity Test kit (six tests) for every 1000 yd^3 (765 m^3) of compost supplied shall be provided. The Solvita Compost Maturity Test kit is available from:

Woods End Research Laboratory Inc.
Box 297
Mt. Vernon, Maine 04352
1-800-0451-0337
email: info@woodsend.org
or approved equal.

893.2 Materials

893.2.01 Plant Topsoil

A. Requirements

1. Use plant topsoil with the following characteristics:
   - Obtained from well-drained, arable land, but not from fields where tobacco grew in the last three years, or where Johnson grass or kudzu is present.
   - Friable, loamy soil with between 2 and 30 percent organic matter. Determine the percentage by measuring the loss on ignition of oven-dried samples ignited at 1,200 °F (650 °C).
   - Reasonably free from subsoil, heavy or stiff clay, coarse sand, and other deleterious substances.
   - Has no toxic amounts of acid or alkaline elements.
   - Can sustain healthy plant life.
   - Meets the grade requirements of Subsection 814.2.01.A.8.
2. The Department reserves the right to inspect all plant topsoil during the planting period. The Department will reject any material that does not meet the Specifications.
3. Do not use frozen, muddy, or nonfriable topsoil.
4. Before delivering any topsoil to the job site, clear stones larger than 2 in (50 mm) size and roots, sticks, brush, coarse litter, and other substances that would interfere with mixing, planting, and maintenance.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

General Provisions 101 through 150.

D. Materials Warranty

General Provisions 101 through 150.

893.2.02 Mulch

A. Requirements

1. Use mulch materials from two groups:
   a. Grassing and Erosion Control: Threshed rye, oat or wheat straw; or Bermuda grass hay
   b. Vine, Shrub, Tree, and Miscellaneous Plant Plantings: Pine straw, pine bark, or hardwood mulch (see Subsection 893.2.09.A.2 for pine bark and hardwood mulch).
2. Use mulch materials from either group that meet the following requirements:
   - Are accepted by the Engineer.
   - Can be distributed uniformly when properly loosened
   - Produce the desired results

- Meet the moisture requirements specified herein
- Contain no excessive amounts of noxious weed seeds

3. Noxious Weed Seeds

   Do not use hay or straw mulch material that has an excessive quantity of matured seeds from noxious weeds or other species that would harm surrounding farmland.

4. Moisture Content

   Ensure that the mulch material is reasonably dry, especially when bituminous treated mulches must retain the bituminous material.

5. Erosion Control Compost

   Use erosion control compost that consists of 50% untreated wood chips blended with 50% general use compost measured by volume.

   a. Wood Chips shall be fresh or partially composted wood chips less than or equal to 3 in (75 mm) in length with 100% passing a 2 in (50 mm) sieve and less than 10% passing a 1 in (25 mm) sieve. Wood chips shall not contain any visible refuse or other physical contaminants, material toxic to plant growth, or over 5% sand, silt, clay or rock material.

   b. Produce General Use Compost by aerobic (biological) decomposition of organic matter. Compost feedstock may include, but is not limited to, leaves and yard trimmings, Class A biosolids, food scraps, food processing residuals, manure or other agricultural residuals, forest residues, bark, and paper. Compost shall not contain any visible refuse or other physical contaminants, material toxic to plant growth, or over 5% sand, silt, clay or rock material. Mixed municipal solid waste compost and Class B biosolids, as defined in the United States Environmental Protection Agency Code of Federal Regulations (USEPA, CFR), Title 40, Part 503 are unacceptable. Ensure Compost meets all applicable USEPA, CFR, Title 40, Part 503 Standards for Class A biosolids and the following requirements:

Table 1 – Physical Requirements for Compost

Test	Requirements	Test Method
Organic Matter Content	30-65% (dry mass)	TMECC 05.07-A
Particle Size	100 % passing 5/8 in (15.62 mm) sieve 70% retained on 3/8 in (9.5 mm) sieve	TMECC 02.02-B
Soluble Salts	5.0 max. * dS/m	TMECC 04.10-A
Fecal Coliform	Pass	TMECC 07.01-B
pH	5.5 – 8.5 pH	TMECC 04.11-A
Stability	8 or below	TMECC 05.08-B,
Maturity	greater than 80%	TMECC 05.05-A
Heavy Metals	Pass	TMECC 04.06 and TMECC 04.13-B

*A soluble salt content up to 10.0 dS/m for compost used in Compost Manufactured Topsoil will be acceptable.

NOTE: All physical requirements are in accordance with the United States Department of Agriculture and the United States Composting Council, "Test Methods for the Examination of Composting and Compost" (TMECC).

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

1. If the material feels damp, the Department will use GDT 41 to test for moisture content.
2. To pass, materials shall have a moisture content of 12 percent or less.

D. Materials Warranty

General Provisions 101 through 150.

893.2.03 Vines, Shrubs, Trees, and Miscellaneous Plants

A. Requirements

1. Use stock that meets the requirements of all State and Federal Laws for inspection of plant diseases and infestation.
2. Use nursery grown and collected plant materials that meet all regulations of the States of their origin and destination, and that meet Federal regulations governing interstate movement of nursery stock.
3. Use stock that is true to name and variety and is of first class quality with well developed tops and vigorous, healthy root systems.

NOTE: Use plant names according to the edition of "Standardized Plant Names" in effect at the time of Invitation For Bids.

4. Use only nursery-grown stock that have had their roots pruned during their development, unless otherwise specified.
   a. The Department will not accept plants and/or trees that are severely cut back or pruned to conform to contract size requirements.
   b. The Department will reject trees and shrubs that are undersized, have poorly developed tops or root systems, or are infected with disease or infested with insects.
5. Certification

   Furnish all certificates of disease and infestation inspection, a list of plant materials purchased, and a complete list of nurseries from which each plant was grown.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

The Department will inspect plants at the nursery whenever necessary.

1 .Inspect and grade living plants for type, size, and quality according to the requirements and recommendations of "USA Standard for Nursery Stock" of the American Association of Nurserymen, Inc.

2. Even if the Department accepts materials after a test at the source, the Department may inspect the stock during planting and reject any that does not meet specification.
3. The Department will reject any of the following:
   - Stock damaged during digging, loading, transporting, planting, and transplanting
   - Broken or loose balls or balls of less diameter than that specified
4. Replace rejected stock at your own expense.
5. Dispose of rejected stock to the satisfaction of the Engineer.

D. Materials Warranty

1. Delivery

   a.Give the Engineer at least 24 hours notice before delivering any stock to the job site.

   b.Send an invoice with each shipment that shows the sizes and varieties of material included.

2. Packaging

   Pack stock for shipment to properly protect against drying, freezing, breaking, or other injury.

   a.Pack and clearly label each variety in separate bundles.

   b.Designate plants that are to be balled and burlapped as "B&B."

   1) Place as many fibrous roots as possible in the ball.
   2) Securely and tightly wrap the ball with burlap. Tie a cord or wire around the ball, or pin it with nails to hold the burlap in place.

   c.For remaining plants, dig them bare-rooted and puddle them immediately after digging them up and when receiving them at the Project. Use the standard practices of the nursery trade.

893.2.04 Inoculants

A. Requirements

1. Use a pure culture of nitrogen-fixing bacteria for an inoculant to treat seeds. Select an inoculant for maximum vitality and ability to transform nitrogen from the air into soluble nitrates and deposit them into the soil.
2. Use only purebred cultures less than one year old.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

The Engineer will review acceptable cultures.

D. Material Warranty

General Provisions 101 through 150.

893.2.05 Porous Material

A. Requirements

Protect roots with gravel, broken stone, slag, broken concrete, brick bats, or other acceptable coarse aggregate ranging in size from 1-1/2 to 4 in (38 to 100 mm). Excessive amounts of lime in the form of brick mortar shall be grounds for rejection.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

The Department will reject the material if it has excessive amounts of lime in the brick mortar.

D. Material Warranty

General Provisions 101 through 150.

893.2.06 Tree Paint

A. Requirements

Use tree paint that meets the requirements of Subsection 822.2.01, or use any commercial tree paint with antiseptic qualities.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

See Subsection 822.2.01.C.

D. Material Warranty

General Provisions 101 through 150.

893.2.07 Prepared Plant Topsoil

A. Requirements

1. Use prepared plant topsoil made from plant topsoil, organic soil additive, commercial fertilizer, and lime, as described in Subsection 893.2.07.B.
2. Base any volume for peat moss used as an organic soil additive on the compressed bale.
3 .For loose peat, double the volume.

B. Fabrication

1.Make prepared plant topsoil from the following:

- Four parts plant topsoil, Subsection 893.2.01

- At least one part organic soil additive, by volume, Subsection 893.2.09
- A commercial fertilizer, grade 6-12-12, at the rate of 3 lb/yd³ (1.8 kg/m³)
- Lime at the rate of 5 lb/yd³ (3 kg/m³)

2. Base the above volumes on naturally compacted, undisturbed topsoil.

C. Acceptance

See the appropriate subsections.

D. Material Warranty

General Provisions 101 through 150.

893.2.08 Stakes

A. Requirements

1. Use wood stakes as indicated in the Specifications or shown on the Plans. Use the stakes for vine, shrub, tree, and miscellaneous plantings.
2. Saw wood stakes from either oak or gum. Use only stakes that are number two common or better, either rough or dressed.

B. Fabrication

1. Cut the stakes from sound, solid, undecayed wood, without unsound knots.
2. Shape stakes to within 1/4 in (6 mm) for all dimensions.
3. Taper all stakes at one end.

C. Acceptance

The Department will reject any stake that does not meet the following test:

1 Draw a line from the center of the top to the center of the butt of each stake.

2 Ensure that the line stays within the body of the stake and is not more than 1 in (25 mm) from the geometric center of the stake.

D. Materials Warranty

General Provisions 101 through 150.

893.2.09 Organic Soil Additives

A. Requirements

Use four types of organic additives: peat moss, pine bark, compost, and hardwood mulch.

1. Peat Moss

   Use peat moss that meets the following requirements:

   - Be granulated sphagnum virtually free from woody substances, consisting of at least 75 percent partially decomposed stems and leaves of sphagnum
   - Be essentially brown in color
   - Be free of sticks, stones, and mineral matter
   - Be in an air-dry condition
   - Shows an acid reaction of 3.5 pH to 5.5 pH
   - Meets State and Federal regulations

2. Pine Bark

   Use pine bark that meets the following requirements:

   - Be obtained from disease-free wood, 100 percent of which is 9 in² (5625 mm²) or less in area, and 50 percent is more than 1 in² (625 mm²) in area.
   - Contain no noxious weed seeds, soil, sawdust or any substance toxic to plant growth
   - Be at least two years old

3. Compost

Use compost that meets the following requirements:

- Be organic materials that have undergone biological decomposition
- Be disinfected using composting or similar technologies
- Be stabilized so it is beneficial to plant growth
- Be mature, dark brown or black in color and have minimal odors
- Contain no human pathogens
- Fall within a pH range of 5 to 8

Provide to the Department a list of all the ingredients in the original compost mix in the order of their relative proportions on a weight basis.

4. Hardwood Mulch

Use hardwood mulch that meets the following requirements:

- Derived from disease-free deciduous trees
- Particle size of less than 1 in (25 mm) diameter and less than 3 in (75 mm) in length. Hardwood mulch shall complete two composting cycles of 140 °F (60 °C) so that all viable weed seeds are destroyed and no further decomposition due to nitrification will occur
- Free from toxic levels of acidity and alkalinity

Provide test results stating that the ingredients meet Federal, State, and local requirements for priority pollutant limits and do not contain levels of any chemicals that are harmful to plants or humans.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

The Department will accept the materials based upon their compliance with this specification.

D. Material Warranty

General Provisions 101 through 150.

GEORGIA DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 894—Fencing

Delete Section 894 and substitute the following:

894.1 General Description

This section includes the requirements for the following types of fence and fencing accessories:

- Chain link fence
- Woven wire fence
- Barbed wire
- Ground rods
- Field fencing
- Silt fabric fencing

894.1.01 Related References

A. Standard Specifications

Section 862—Wood Posts and Bracing

Section 881—Fabrics

B. Referenced Documents

ASTM		AASHTO
A 116	A 239	M 111
A 121	A 584	M 181
A 123/ A 123M	A 585	M 232/ M 232M
A 153/ A 153M	A 702	
	F 1043	

894.2 Materials

894.2.01 Chain Link Fence

A. Requirements

Use zinc or aluminum coated steel fabrics, fittings, accessories, and posts for chain link fence conforming to the following requirements:

1. Fence Fabric

   Use woven wire with reasonably uniform 2 in (50 mm) square mesh. Ensure that the mesh has parallel sides and horizontal and vertical diagonals of uniform dimensions. Use the wire size specified on the Plans or in the Proposal.

   a. Zinc Coated: Use steel fabric that conforms to AASHTO M 181. Ensure that the wire and hot-dip coating conform to AASHTO M 181, Type I, Class C.

   b. Aluminum Coated: Use steel fabric conforming to AASHTO M 181. Ensure the wire and coating conform to AASHTO M181, Type II.

2. Fittings and Accessories

   a. Tension Wire: Use wire that conforms to AASHTO M 181. Use wire coated according to AASHTO M 181, Section 25.2 for aluminum coated fabric. Use wire coated according to AASHTO M 181, Section 3.5.2 for zinc-coated fabric.

   b. Fittings: Use fittings conforming to AASHTO M 181.

      1) Ensure fittings or accessories not included in AASHTO M 181 conform to industry standards for heavy, industrial-type fences.

      2) Hot-dip the materials in zinc with AASHTO M 111 Grade 50 Coating. For aluminum coated fabric, you may use materials made from Aluminum Alloy 360, die-cast, or Sand Alloy 356, ZG61A, or Tenzalloy.

      3) Use bolts and nuts that conform to industry standards and are zinc coated with the hot-dip process according to AASHTO M 232/ M 232M.

3. Posts, Rails, and Braces

   Use posts, rails, and braces that conform to AASHTO M 181 and ASTM F 1043. Diameter, wall thickness, and weight must conform to ASTM F 1043, Figure 2, Summary of Requirements for Industrial Fence, and the physical tolerance and material requirements must conform to AASHTO M 181. Do not use Light Industrial/Commercial Fence as detailed in ASTM F 1043, Figure 3. Check the Plans for specifications on posts used for special applications. Use special posts that conform to AASHTO M 181 or that are approved by the Office of Materials and Research.

4. Gates

   Use support posts and gate frames as designated on the Construction Detail or Project Plans. Use gate materials that meet the requirements of Subsection 894.2.01.A.3.

   a. Use the same coating requirements as for the fence posts. Coat gate frames after completing all welding.

   b. Use fittings and hinges conforming to Subsection 894.2.01.A.2.b.

B. Fabrication

Ensure that the chain link fence fabric is produced by recognized, good commercial practices.

1. Apply the zinc or aluminum coating to the fabric in a continuous process. Do not apply in roll form.
2. Carefully inspect the coated fabric visually, both before and after weaving, to determine the coating quality.

C. Acceptance

The Department will reject chain link fabric that has excessive roughness, blisters, sal ammoniac spots, bruises, flaking, bare spots, or other obvious defects to any considerable extent.

D. Materials Warranty

General Provisions 101 through 150.

894.2.02 Woven Wire Fence

A. Requirements

1. Fabric

   Use fabric that meets the requirements of ASTM A 116, Design Number 1047-6-11, with Class 3 coating.

   a. Ensure that the galvanizing is uniform.

   b. Ensure that less than 5 percent of the joints are deficient in zinc coating, as determined by ASTM A 239.

c. You may use aluminum coated steel that meets the requirements of ASTM A 584, Design Number 1047-6-11, for the woven wire fence fabric.

2. Posts

Use steel or wood posts of the sizes shown on the Plans.

a. Use wood posts that meet the requirements of Subsection 862.2.01.

b. Use steel posts and bracing that meet the requirements of ASTM A 702. Galvanize posts and braces with the hot-dip method according to ASTM A 123/A 123M.

3. Certification

Furnish a certification to the Engineer from the manufacturer that shows the physical properties of the materials.

4. Accessories

Galvanize the following accessories according to ASTM A 153/ A 153M. Use 0.80 oz./ft² (245 g/m²) as the galvanizing minimum. Galvanize other accessories as necessary or specified on the Plans.

a. Wire Fasteners: Use fasteners that meet the requirements of ASTM A 702.

b. Tension Wire: Use No. 11 gauge wire.

c. Staples: Use No. 9 gauge staples 1-1/2 in (38 mm) long.

d. Nails: Use 1 in (25 mm) roofing nails to fasten metal caps to wooden posts.

5. Gates

Use support posts and gate frames of the size designated on the Construction Detail or Project Plans.

a. Use a frame that is an all welded unit. Ensure that the gate is galvanized after welding with 2 oz./ft² (610 g/m²) of spelter coating.

b. Use hinges, latches, and other accessories of good commercial quality that are coated as in Subsection 894.2.02.A.4.

B. Fabrication

1. Ensure that the woven wire fence fabric is produced by methods recognized as good commercial practices.
2. Carefully inspect the galvanized fabric to determine the zinc coating quality.

C. Acceptance

The Department will reject woven wire fabric that has excessive roughness, blisters, sal ammoniac spots, bruises, flaking, bare spots, or other obvious defects to any considerable extent.

D. Materials Warranty

General Provisions 101 through 150.

894.2.03 Barbed Wire

A. Requirements

1. Galvanized Steel Barbed Wire

Use wire that meets the requirements of ASTM A 121 and has a Class 3 zinc coating.

2. Aluminum Coated Steel Barbed Wire

Use wire that meets the requirements of ASTM A 585.

3. Posts

Use posts as specified in Subsection 894.2.02.A.2 for barbed wire fence.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

General Provisions 101 through 150.

D. Materials Warranty

General Provisions 101 through 150.

894.2.04 Ground Rods

A. Requirements

1. Use ground rods that are 9/16 to 5/8 in (14 to 16 mm) diameter and at least 8 ft (2.4 m) long, unless otherwise shown on the Plans.
2. Ensure that the ground rods are galvanized steel with a minimum coating of 2 oz./ft^2 (610 g/m^2) according to the requirements of ASTM A 153/ A 153M.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

General Provisions 101 through 150.

D. Materials Warranty

General Provisions 101 through 150.

894.2.05 Field Fencing (Woven Wire and Barbed Wire)

A. Requirements

1. Definition

   Field fencing designates replacement fencing outside the Right of Way or temporary fencing inside the Right of Way, provided you do not reuse the materials for permanent fencing inside the Right of Way.

2. Fence fabric

   Use woven wire fabric that meets the requirements of ASTM A 116 Design No. 939-6-12-1/2, and has a Class I coating, unless otherwise designated.

3. Barbed wire

   Use wire that meets the requirements of ASTM A 121 and has a Class I coating. Use the same number of barbed wire strands as the existing or replaced fence, or as specified in the Plans.

4. Posts

   Use either galvanized steel, painted steel, or treated timber of the dimensions and spacing shown on the Construction Detail or Plans.

5. Gates

   Use posts, frame material, hinges, and fittings of acceptable commercial quality. Get approval from the Engineer before use.

6. Use the Special Plan Details and/or Special Provisions for any special design of the field fence.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

1. Get approval from the Engineer for all materials. Ensure that the materials are of an acceptable commercial quality and are equivalent in quality to the fence being replaced or to the existing fence, as applicable.
2. Do not send materials to the laboratory unless requested by the Engineer or required by the Plans.

D. Materials Warranty

General Provisions 101 through 150.

894.2.06 Silt Fabric Fencing

A. Requirements

1. Fabric
   a. See Subsection 881.2.07, "Silt Fence Filter Fabric," for the types of fabric available.
   b. Use a woven wire support fence with Type "C" fence.

1) Ensure that the wire fence fabric is at least 26 inches (660 mm) high with at least 6 horizontal wires.
2) Ensure that the vertical wires have a maximum spacing of 12 in (155 mm).
3) Ensure that the top and bottom wires are at least 10 gauge (2.49 mm) and all other wires are at least 12-1/2 gauge (2.03 mm).
4) You may use other designs subject to approval by the Office of Materials and Research.

2. Posts

Use post sizes and types as determined by the type of fence being installed. Generally hardwood posts will be limited to ash, hickory, or oak. Other hardwoods may be acceptable if approved by the Office of Materials and Research.

a. Type "A" Fence: Use either wood or steel posts that are at least 4 ft (1.2 m) long.
   1) If using soft wood, use posts that are at least 3 in (75 mm) in diameter or nominal 2 x 4 in (33 x 89 mm) and straight enough to provide a fence without noticeable misalignment.
   2) If using hardwood, use posts that are 1-1/2 x 1-1/2 in (38 x 38 mm) with a minus tolerance of 3/8 in (9 mm) providing the cross sectional area is at least 2.15 in^2 (1385 mm^2).
   3) If using steel, use posts that are "U," "T," or "C" shaped with a minimum weight of 1.15 lb/ft (1.7 kg/m), and have projections for fastening the fence to the posts.

b. Type "B" Fence: Use either wood or steel posts that are at least 3 ft (900 mm) long.
   1) If using soft wood, use posts that are at least 2 in (50 mm) in diameter or nominal 2 x 2 in (33 x 33 mm).
   2) If using hardwood, use posts that are 1 x 1 in (25 x 25 mm) with a minus tolerance of 1/ 4 in (6 mm) providing the cross sectional area is at least 0.95 in^2 (610 mm^2).
   3) If using steel posts, use types "U," "T," or "C" shapes with a minimum weight of 0.75 lb/ft (1.1 kg/m).

c. Type "C" Fence: Use only steel posts with a minimum length of 4 ft (1.2 m). Use "U," "T," or "C" shaped posts with a minimum weight of 1.15 lb/ft (1.7 kg/m). Use posts that have projections for fastening the woven wire and filter fabric.

NOTE: You must use woven wire to provide extra support for Type "C" fence installations.

3. Fasteners for Wooden Posts

a. Wire Staples: Use staples that are at least 17 gauge (1.37 mm), legs at least 1/2 in (13 mm) long, and a crown at least 3/4 in (19 mm) wide.

b. Nails: Use nails that are at least 14 gauge (2.03 mm), 1 in (25 mm) long, with button heads of at least 3/4 in (19 mm).

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

General Provisions 101 through 150.

D. Materials Warranty

General Provisions 101 through 150.

First Use Date: July 21, 2006

DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 911—Sign Posts

Delete Section 911 and substitute the following:

911.1 General Description

This section includes the requirements for the following:

- Galvanized steel sign posts
- Galvanized steel structural shape posts
- Aluminum structural shape posts
- Delineator posts
- Wood sign posts
- Ground-mounted breakaway sign supports

911.1.01 Related References

A. Standard Specifications

Section 106—Certification of Materials

Section 859—Guard Rail Components

Section 862—Wood Posts and Bracing

Section 863—Preservative Treatment of Timber Products

Section 913—Reflectorizing Materials

B. Referenced Documents

ASTM		
A 1	A709/A 709M	B 221 (B 221M)
A 123/A 123M	A 499	B 308 (B 308M)
A 153/A 153M	A 653/A 653M	B 695
A 193/A 193M	B 209 (B 209M)	B 766
A 307	B 211 (B 211M)	G 53

AASHTO M 181, Section 32

ANSI B 1.13M

ANSI B 18.22.1

AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (current edition)

Georgia Standard No. 9055

Southern Pine Inspection Bureau Grading Rules, 1977 Edition

NCHRP 350

QPL 29

QPL 35

QPL 69

911.2 Materials

911.2.01 Galvanized Steel Sign Posts (Drive Type)

A. Requirements

Use drive-type steel posts made of flanged "U" channel or square tubular sections. For a list of sources, see QPL 35.

1. U-Channel

   Use U-channel posts made of rerolled rail steel or new billet steel that meets the mechanical requirements of ASTM A 499, Grade 60, and the chemical requirements of ASTM A 1 for rails with nominal weights of 91 lbs/yd (45 kg/m) or greater.

   a. Dimensions, Weights, Tolerances: Use the dimensions, weights, and tolerances in Table 1 for U-channel posts, unless otherwise indicated on the Plans.

      1) Use post lengths as specified on the Plans.

      2) Use post assemblies within a sign structure from the same manufacturer.

Table 1—Dimensions, Weights, and Tolerances for Galvanized Steel Sign Posts (Drive Type)

Outside Diameters	TP 1 in (mm)	TP 2 in (mm)	TP 3 in (mm)	TP 4 in (mm)	Tolerance in (mm)
Flange Width					
a. Rib Back	2.063 (50)	3.125 (80)	3.5 (90)	3.75 (95)	± 0.125 (± 3)
b. Flat Back	2.313 (60)	3.125 (80)	3.5 (90)	3.75 (95)	± 0.125 (± 3)
Depth of "U"					
a. Rib Back	0.875 (22)	1.500 (40)	1.875 (50)	2.000 (50)	± 0.125 (± 3)
b. Flat Back	0.875 (22)	1.500 (40)	1.750 (45)	1.750 (45)	±0.125 (± 3)
Weight per linear foot (meter) before drilling, punching holes, or galvanizing)					
a. Rib Back	1.12 lb (1.7 kg)	2 lb (3 kg)	3 lb (4.5 kg)	4 lb (6 kg)	± 5%
b. Flat Back	1.12 lb (1.7 kg)	2 lb (3 kg)	3 lb (4.5 kg)	4 lb (6 kg)	± 5%

   b. Bolt Holes: Ensure the bolt holes are properly punched or drilled with the following characteristics:

      1) Holes are 3/8 in (10 mm) diameter and spaced 1 in, ±1/32 in (25 mm, ± 1 mm), center to center.

      2) Ensure that the holes start 1 in (25 mm) from the top and extend the full length of the post for Types II, III, and IV, and at least 18 in (450 mm) for Type I.

      3) The Department will not accept field-punched holes.

c. Coatings: Ensure that the posts are coated according to ASTM A 123/A 123M after the holes are punched or drilled.

2. Square Tubular

Use square tubular posts that meet the requirements of ASTM A 653/A 653M, Structural Steel, Grade 50, Class 1 (Grade 340, Class 1).

a. Dimensions, Weights, Tolerances: Use the dimensions, weights, and tolerances shown in Table 2 for square tubular posts unless otherwise indicated on the Plans:

Table 2—Dimensions, Weights, and Tolerances for Square Tubular Posts

	TP 5	TP 6	TP 7	TP 8	TP 9	Tolerance
Outside size, in (mm)	1.000 (25)	1.7 50 0(45)	2.000 (50)	2.500 (63)	2.250 (57.2)	± 0.010 (0.3)
Wall thickness, in (mm)	0.0 65 (1.7)	0.083 (2.1)	0.083 (2.1)	0.105 (2.7)	0.083 (2.1)	± 0.010 (0.2)
Weight before drilling/ punching holes or galvanizing, lb/ft (kg/m)	0.83 (1.2)	1.8 (2.7)	2.1 (3.1)	3.4 (5.1)	2.27 (3.4)	± 5%

1) Use post lengths as specified on the Plans.

2) Use post assemblies within a sign structure from the same manufacturer.

b. Bolt Holes: Ensure all bolt holes are properly punched or drilled with the following characteristics:

1) Holes are 7/16 in, ± 1/64 in (11 mm, ± 0.5 mm) diameter and spaced 1 in, ± 3/64 in (25 mm, ± 1 mm) center to center.

2) Ensure that the holes start 1 in (25 mm) from the top and extend the full length of the post on all four sides for Types 6, 7, and 8, and at least 18 in (450 mm) on all four sides for Type 5.

3) The Department will not accept field-punched holes.

c. Coatings: Coat square tubular posts with zinc at a minimum thickness of 0.90 oz/ft^2 (275 g/m^2).

3. Bolts, Nuts, and Washers

Use bolts, nuts, metallic washers, and spacers made of aluminum, stainless steel, or galvanized steel. Use stainless steel that meets the requirements of ASTM A 193/A 193M, Type B8.

a. Bolts: Use bolts 5/16 in (8 mm) diameter with hexagonal heads. Ensure they are long enough to extend at least 0.25 in (6 mm) beyond the nut when installed.

1) Use a bolt thread fit of ANSI B 1.13M, Class 6H.

2) If using aluminum bolts, ensure that the aluminum meets the requirements of ASTM B 211 (B 211M), Alloy 2024-T4.

b. Nuts: Use self-locking, plastic-insert hex nuts.

1) Use a bolt thread fit of ASNI B 1.13, Class 6G.

2) If using aluminum bolts, ensure that the aluminum meets the requirements of ASTM B 211(B 211M), Alloy 2017-T4.

c. Washers: Place metallic washers under all bolt heads. Place nylon washers between the metallic washer and the sign face.

1) If using aluminum washers, ensure that the aluminum meets the requirements of ASTM B 209 (B209M), Alloy 2024-T4.

2) Use aluminum washers with 25/64 in (10 mm) inside diameter, 0.75 in (19 mm) outside diameter, and 0.091 in (2.3 mm) thick.

3) Use standard galvanized and stainless steel washers that meet the size requirements of ANSI B 18.22.1.

4) Use nylon washers with 13/32 in (10 mm) inside diameter, 13/16 in (21 mm) outside diameter, and 1/16 in (1.6 mm) thick. Use nylon washers in combination with metallic washers to prevent torsional damage caused by the twisting action of the bolt heads.

d. Coatings: Use galvanized steel bolts and nuts that meet ASTM A 307 requirements.

B. Fabrication

1. Roll or form post sections of the dimensions specified.
2. Round all sharp corners and make rough or burred parts smooth.
3. Punch or drill holes as specified in Subsection 911.2.01.A.1.b.
4. Galvanize as necessary, according to ASTM A 153/A 153M.

C. Acceptance

Get approval for each sign support matrix from the FHWA.

The FHWA evaluates the matrix according to the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries, and Traffic Signals, current edition.

D. Materials Warranty

General Provisions 101 through 150.

911.2.02 Galvanized Steel Structural Shape Posts

A. Requirements

1. Ensure that the galvanized steel shapes for sign posts match the shape and dimensions shown on the Plans.
   a. Use steel that meets the requirements of ASTM A 709 (A 709M) Grade 36 (245).
   b. Galvanize the shapes according to ASTM A 123/A 123M. Handle the structural shape through only one hole during galvanizing.
2. Submit a certification according to Subsection 106.05, "Materials Certification."

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

General Provisions 101 through 150.

D. Materials Warranty

General Provisions 101 through 150.

911.2.03 Aluminum Structural Shape Posts

A. Requirements

1. Ensure that the aluminum shapes for sign posts match the shape and dimensions shown on the Plans.

NOTE: Use aluminum that meets the requirements of ASTM B 308/B 308M, Alloy 6061-T6.

2. Submit a certification according to Subsection 106.05, "Materials Certification."

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

General Provisions 101 through 150.

D. Materials Warranty

General Provisions 101 through 150.

911.2.04 Delineator Posts

A. Requirements

1. Check the Plans for the types of delineator posts to use. For a list of sources, see QPL 69.
2. If using flexible delineator posts, use only those indicated on the Georgia Department of Transportation Qualified Products List.
3. Mounting

   Fasten all delineators to be mounted on galvanized or aluminum posts with commercial aluminum lock bolts.

NOTE: Fasten delineators to be mounted on wood posts with galvanized wood screws.

4. Galvanized Steel Posts

   Use posts that meet the requirements of Subsection 911.2.02.A.
5. Aluminum Flange Type Posts

   Use aluminum that meets the requirements of ASTM B 221 (B 221M), Alloy 6063-T6.

   a. Provide a post section in the form of a flanged "U" with dimensions shown on the Plans. Point the bottom of the post.

   b. Punch or drill holes as specified in Subsection 911.2.01.A.1.b.
6. Wood Delineator Posts

   Use 4 in (100 mm) square posts of the length specified on the Plans.

   a. Use wood posts that meet the requirements of Subsection 862.2.02.

   b. Treat wood posts with preservative according to Section 863.
7. Flexible Delineator Posts

   Use posts made of a durable plastic or poly resin material. Check the Plans to see the type of flexible delineator post used for each location.

   a. Physical Characteristics: Use posts that can either be driven into the ground with equipment that does not damage the posts or reflective sheeting, or be surface-mounted onto pavement.

      1) Drill or form pilot holes where necessary to embed the posts as shown on the Plans.

      2) Classify flexible delineator posts as follows:

Type I	Curved or flat
A	Soil mount
B	Surface mount
Type II	Tubular
A	Soil mount
B	Surface mount

      3) Use durable, flexible, non-discoloring posts that can recover from repeated vehicle impacts.

      4) Ensure that materials used to manufacture flexible delineator posts are stabilized with UV (ultraviolet) inhibitors to prevent degradation.

      5) Ensure that the posts are inert to normal atmospheric elements and chemicals possibly used in grass or weed control.

      6) Use material for the post that can accept reflective sheeting.

   b. Color: Use gray, white, or yellow posts, as required.

   c. Reflective Sheeting: Use white or yellow reflective sheeting on the posts as required.

      Use sheeting that meets the requirements of Subsection 913.2.01, Type III.

      Obtain approved reflective sheetings from QPL 29.

   d. Certification: Submit a certification from the manufacturer that the flexible delineator posts are formulated of the same material as when tested by National Transportation Product Evaluation Program (NTPEP) and will meet the requirements of this Specification.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

1. Performance Criteria

   Get approval for flexible delineator posts through the evaluation performed by NTPEP.

   The Department will use the data generated by the NTPEP testing to select usable materials that performed satisfactorily when tested with the following material and field tests.

2. Shapes and Dimensions (Materials Test)
   a. Ensure that flexible delineator posts are curved, flat, or tubular with the upper 14 in (350 mm) presenting at least a 3 in (75 mm) wide profile facing approaching traffic.
   b. Place the top of the wide profile sheeting 0.5 in (13 mm) from the top of the delineator post.
   c. Cap the top of tubular posts to prevent water inclusion.
   d. Design flexible delineator posts that are soil mounted to connect with a drive-type anchor base made of corrosion-resistant material. When a post is no longer serviceable, remove it and replace it in the same anchor base.
   e. Ensure that the minimum length for the anchor base is 18 in (450 mm) and the minimum height above ground for the soil mount flexible delineator posts is 48 in (1200 mm).
   f. Design surface-mount flexible delineator posts to connect with the base assembly and be easily replaced when the existing post is no longer serviceable. Use post heights of 24 in (600 mm), 36 in (900 mm), or 48 in (1200 mm), as required.
3. Weathering (Materials Test)
   a. Ensure that flexible delineator posts withstand 1,000 hours of UV exposure in the QUV weatherometer without significant color change or physical deterioration. If the Department sees splitting, cracking, delaminating, or other failures, it will reject the delineator post.
   b. The Department will conduct the test according to ASTM G 53.
4. Field Tests

   Perform impact tests on the flexible delineator posts as described below:
   a. Install 8 delineator posts in 2 rows of 4 each so that 1 row will be bumper hits and 1 row will be wheel hits in 1 pass of the vehicle.
   b. Set the delineator post with a height of 48 in, ± 1 in (1200 mm, ± 25 mm) from ground level with the reflective sheeting facing the test vehicle.
   c. Use a standard American sedan or pickup for the test vehicle. Ensure that the vehicle has no unusually sharp hood ornaments or other appurtenances.
   d. Impact 8 delineator posts 10 times with the test vehicle at 55 mph (90 kph)
   e. Hit the posts five times at an ambient temperature of 32 °F, ± 5 °F (0 °C, ± 2 °C) and five times at an ambient temperature of 85 °F, ± 5 °F (30 °C, ± 2 °C).
   f. After concluding the impact test, ensure that at least 5 of the 8 posts remain intact, are securely anchored, and return to their original vertical orientation within an angle of ±10 degrees.
   g. Of the 5 posts that remain intact, ensure that they also retain at least 50 percent of their reflective sheeting and show minimal signs of distress (cracking, loss of rigidity).
5. The Department will place flexible delineator posts that pass the laboratory material test and field test requirements on the approved list.

D. Materials Warranty

General Provisions 101 through 150.

911.2.05 Wood Sign Posts

A. Requirements

1. Use wood sign posts to support special signs, when noted on the Plans. Use posts that comply with Georgia Standard No. 9055.
2. Treat the posts with preservative according to Section 863 and Standard No. 9055 notes.
3. Use wood that matches that specified in Subsection 859.2.04, except that it shall meet the grading requirements for No. 1 SR or No. 2 SR as specified in the current Southern Pine Inspection Bureau Rules.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

General Provisions 101 through 150.

D. Materials Warranty

General Provisions 101 through 150.

911.2.06 Ground Mounted Breakaway Sign Supports

A. Requirements

1. Use ground-mounted breakaway sign supports of any assembly approved by the Department as a breakaway foundation. For a list of sources, see QPL 63.
2. Design the support to modified AASHTO wind loads of 70 mph (112 kph).
3. Certification

   Furnish a copy from the manufacturer of an independent testing agency report showing that the support has been dynamically tested according to AASHTO Standard Specifications for Highway Signs, Luminaires, and Traffic Signals, current edition.

   a. Furnish evidence that the support has been tested and has met the criteria established in NCHRP 350.
   b. Supply a certification showing the physical properties of the material and how it meets the Specifications, as stated in Subsection 106.05, "Materials Certification."
   c. Show evidence that the assembly has been used successfully in installations with similar environmental and Project conditions to the satisfaction of the Department.
4. Sign Support Design
   a. Type A: A single-post mount that can support a 7 ft^2 (0.65 m^2) sign mounted to the centroid 9 ft (2.7 m) above ground.
   b. Type B: A two-post mount that can support a 18 ft^2 (1.67 m^2) sign mounted to the centroid 9 ft (2.7 m) above ground.
   c. Type C: A three-post mount that can support a 37 ft^2 (3.4 m^2) sign mounted to the centroid 9 ft (2.7 m) above ground.
5. Base Assembly
   a. Ensure that the furnished base assembly protrudes no more than 4 in (100 mm) above ground.
   b. Ensure that the foundation assembly is compatible with the applicable sign post in Subsection 911.2.01.
   c. Ensure that the assembly is galvanized with the hot-dip method as per ASTM A 123/A 123M or an approved equal.
   d. To use an alternate protective coating, obtain approval from the Office of Materials and Research before using it on Department Projects.
6. Assembly Hardware
   a. Use base attachment hardware that matches the Plans and is as recommended by the manufacturer.
   b. Ensure that the hardware is protectively coated as in ASTM A 153/A 153M, ASTM B 695 Class 55, or ASTM B 766 Type II, class 12-, whichever is applicable.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Use foundation assemblies that are FHWA-approved for the specific design category for which the unit was evaluated.

Foundation assemblies are evaluated according to AASHTO Standard Specifications for Highway Signs, Luminaires, and Traffic Signals, current edition.

D. Materials Warranty

General Provisions 101 through 150.

Revision Date: March 7, 2006
First Use Date: June 16, 2006

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 913—Reflectorizing Materials

Delete Section 913 and substitute the following:

913.1 General Description

This section includes the requirements for reflective sheeting.

913.1.01 Definitions

- Reflective Sheeting Types:
  - Type I: Medium-intensity retroreflective sheeting (engineering grade) that is typically an enclosed lens glass-bead retroreflective material.
  - Type II: Medium-high-intensity retroreflective sheeting (super engineering grade), that is typically enclosed lens glass-bead retroreflective material.
  - Type III: High-intensity retroreflective sheeting that is typically an encapsulated glass-bead retroreflective material.
  - Type IV: High-intensity retroreflective sheeting that is typically an unmetallized microprismatic retroreflective element material.
  - Type V: Super-high-intensity retroreflective sheeting that is typically a metallized microprismatic retroreflective element material. This material is typically used for delineators.
  - Type VI: Elastomeric high-intensity retroreflective sheeting without adhesive that is typically a vinyl microprismatic retroreflective material. This material is typically used for orange temporary roll up signs.
  - Type VII: Super-high-intensity retroreflective sheeting that is typically an unmetallized microprismatic retroreflective element material.
  - Type VIII: Super-high-intensity retroreflective sheeting that is typically an unmetallized microprismatic retroreflective element material.
  - Type IX: Very-high-intensity retroreflective sheeting that is typically an unmetallized microprismatic retroreflective element material.
  - Type X: Super-high intensity retroreflective sheeting that is typically an unmetallized microprismatic retroreflective element material.

913.1.02 Related References

A. Standard Specifications

General Provisions 101 through 150.

B. Referenced Documents

ASTM D 4956

QPL 29

913.2 Materials

913.2.01 Type I, II, III, IV, V, VI, VII, VIII, IX, and X Reflective Sheeting

A. Requirements

1. Use reflective sheeting that meets the requirements of ASTM D 4956.
2. Use reflective sheeting as listed in QPL 29.
3. Use reflective sheeting that has been evaluated by the National Transportation Product Evaluation Panel (NTPEP) test facility.or other approved test facility.
4. Submit the following to the Department:
   a. A certificate with each lot or shipment stating the following:
      - The material supplied will meet all the test requirements listed herein.
      - You have performed the specified tests to ensure compliance.
      - You will submit test results upon request.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

1. The Engineer will reject reflective sheeting in the following situations:
   a. The material fails to meet any one of the designated requirements.
   b. The material meets the requirements but later fails during sign fabrication or in actual field use. Cracks, wrinkles, delamination, color change, or abnormal loss of reflectivity constitute failure.
   c. Natural causes deteriorate the material to the extent that:
      1) The sign is ineffective for its intended purpose as defined in Subsection 913.2.01.C.1.b above.
      2) The average nighttime reflective brightness does not meet the outdoor weathering requirements of ASTM D4956.

D. Materials Warranty

Transfer to the Department a performance warranty for Type I, II, III, IV, V, VI, VII, VIII, IX, or X reflective sheeting issued by the manufacturer.

Ensure that the warranties cover the full replacement cost, including material and labor.

Include in these warranties a provision that the warranty is subject to a transfer to the Department.

Submit a warranty from the manufacturer that states that the reflective sheeting—processed, applied to sign blank materials, and cleaned—meets the outdoor weathering photometric requirements of ASTM D 4956.

Revision Date: March 28, 2006
First Use Date: June 16, 2006

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

Special Provision

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 917—Reflectors and Nonreflective Characters

Delete Subsection 917.1 and substitute the following:

917.1 General Description

This section includes the requirements of demountable characters with Type IX reflective sheeting, and direct-applied, nonreflective characters.

917.1.01 Related References

A. Standard Specifications

Section 106—Certification of Materials

Section 913—Reflectorizing Materials

B. Referenced Documents

ASTM B 209 (B 209M)

ASTM D 822

Delete Subsection 917.2.01 and substitute the following:

917.2.01 Demountable Characters with Type IX Reflective Sheeting

A. Requirements

1. Use Type IX reflective sheeting letters, numerals, symbols, and borders that meet the requirements of Subsection 913.2.02, Type IX.
2. Use a silver color, unless otherwise specified on the Plans.
3. Apply the characters to aluminum flat frames as recommended by the sheeting manufacturer.
4. Use flat frames (letter, numerals, symbols and borders) made from aluminum sheet 0.032 in (0.813 mm) thick matching ASTM B 209 (209M), Alloy 3003-H14.
5. Submit to the Department:
   - One letter of a predominant size and type to be used on the Project.
   - A certificate to the Engineer stating that the material used on the Project is the same as the sample submitted.

B. Fabrication

1. Before applying any sheeting, properly degrease, etch, and treat each frame with a light, tight amorphous chromate-type coating.

2. Mechanically apply the reflective sheeting to the prepared flat aluminum frames. Use the proper equipment as prescribed by the sheeting manufacturer.
3. When recommended by the sheeting manufacturer, coat the completed demountable letters, numerals, symbols and borders with a clear finish approved by the sheeting manufacturer.

   Apply the clear coat to the sheeting surface to ensure the sheeting has a fully glossy coat and a complete edge seal.
4. Ensure that the finished letters, numerals, symbols, and borders show careful workmanship, are clean cut, sharp, and have a plane surface.
5. Use the character size and shape to determine the hole spacing to mount the frame with aluminum rivets or other approved non-corrosive fasteners. Do not space holes more than 8 in (200 mm) on center.

C. Acceptance

The Department will accept the material based on test results of samples taken by the Department or of samples submitted by the manufacturer or fabricator, when directed. The sample shall consist of one letter of predominant size and type to be used on the Project. Samples submitted by the manufacturer or fabricator to the Engineer, shall include a certificate stating that the material used on the Project is the same as the sample submitted.

D. Materials Warranty

General Provisions 101 through 150.

Office of Materials and Research

First Use Date: January 20, 2006

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Addition to the Standard Specifications:

Section 941—Macro-Synthetic Fibers for Concrete Reinforcement

941.1 General Description

This section includes the requirements for manufacturing macro-synthetic fibers which are permitted as reinforcement in lieu of steel reinforcement in the following selected precast concrete products:

- Precast concrete manhole riser sections
- Precast concrete flared end sections

941.1.01 Related References

A. Standard Specifications

Section 866–Precast Concrete Catch Basin, Drop Inlet, and Manhole Units

B. Referenced Documents

ASTM C 1116

ASTM C 1399

ASTM D 3822

QPL 86

GDOT Standard 1120

941.2 Materials

For a list of sources, see QPL 86.

941.2.01 Macro-Synthetic Fibers for Concrete Reinforcement

A. Requirements

1. Ensure that macro-synthetic fibers are manufactured from virgin polyolefins (polypropylene and polyethylene) and comply with ASTM C 1116.4.1.3. Fibers manufactured from materials other than polyolefins must show documentary evidence confirming their long term resistance to

deterioration when in contact with the moisture and alkalies present in cement paste and/or the substances present in air-entraining and chemical admixtures.

2. The minimum fiber length required is 1.50 in (38 mm).
3. Ensure that macro-synthetic fibers have an aspect ratio (length divided by the equivalent diameter of the fiber) between 45 and 150.

B. Acceptance

1. Ensure that macro-synthetic fibers have a minimum tensile strength of 40 ksi (276 MPa) when tested in accordance with ASTM D 3822.
2. Minimum dosage rate in pounds of fibers per cubic yard is established by determining a minimum average residual strength of no less than 150 psi (1034 kPa) when tested in accordance with ASTM C 1399. In all cases, ensure a minimum fiber dosage rate of 5 lbs/yd^3 (2.9 kg/m^3) and a maximum fiber dosage rate of 10 lbs/yd^3 (5.9 kg/m^3).
3. Ensure that macro-synthetic fibers have a minimum modulus of elasticity of 400 ksi (2758 MPa) when tested in accordance with ASTM D 3822.
4. The fiber manufacturer is required to obtain independently performed test results that confirm the requirements listed herein and submit those for approval by the Engineer.
5. Approved fibers are listed on the Department's Qualified Products List 86 (QPL-86), "Macro-Synthetic Fibers for Concrete Reinforcement".

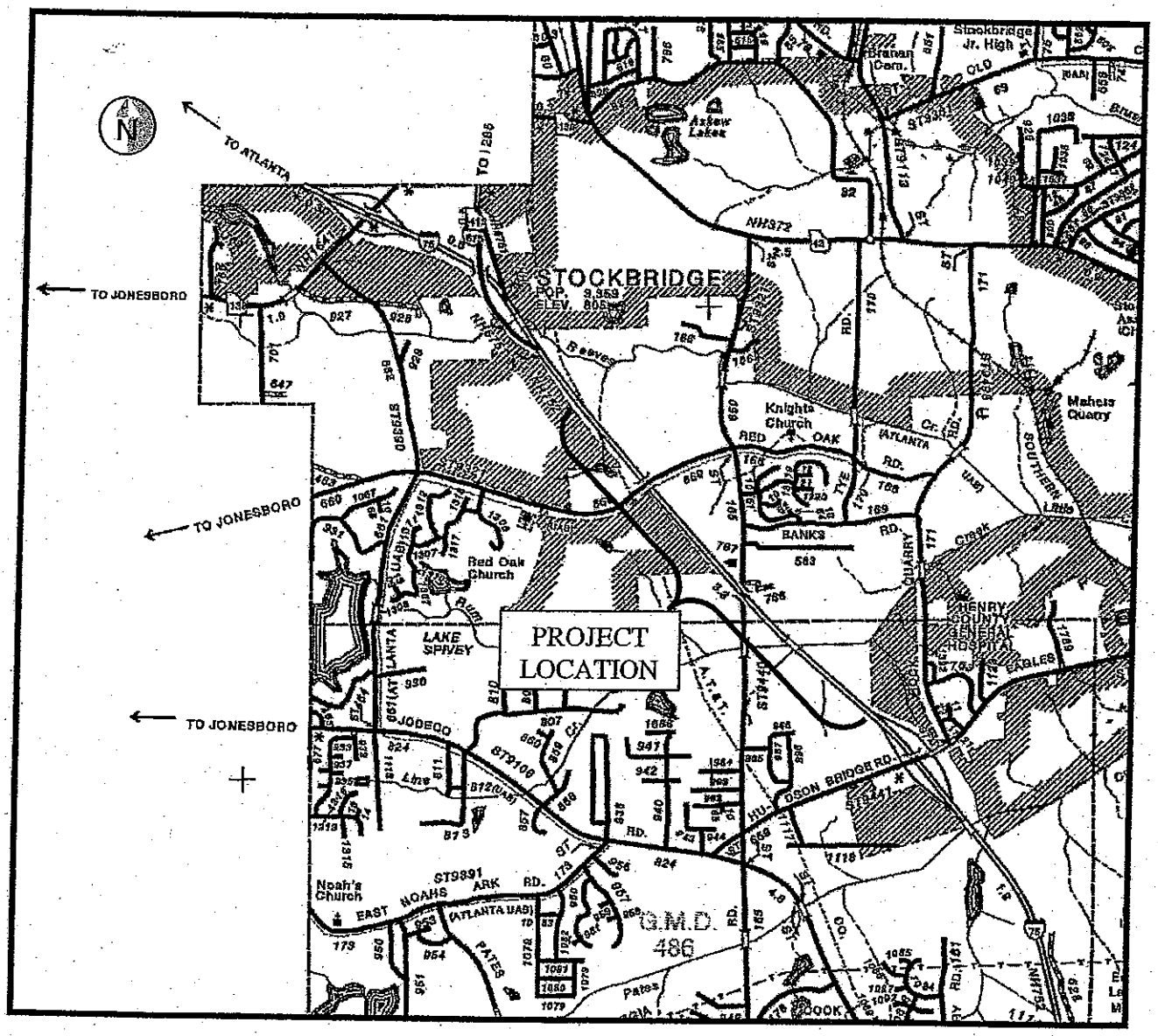
C. Materials Warranty

General Provisions 101 through 150.

Project Number: CSNHS-0008-00(274)
P.I. Number: 0008274
County: Henry

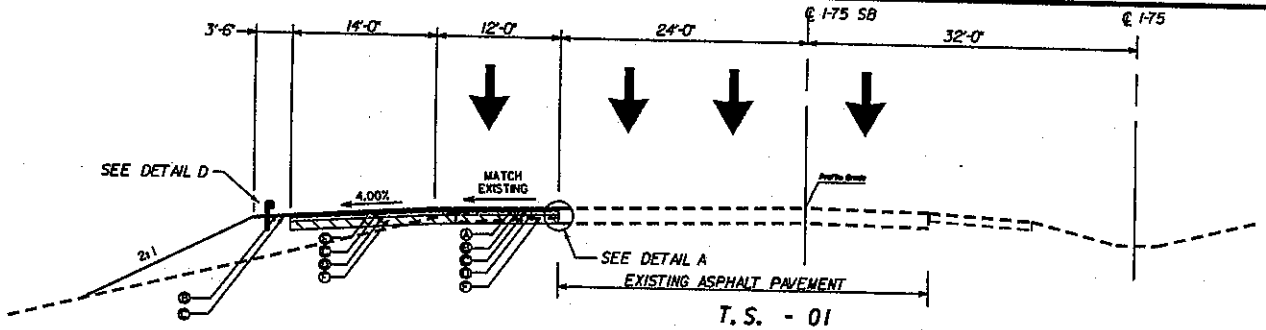
State of Georgia
Department of Transportation

CSNHS-0008-00(274) Henry County, GA PI# 0008274

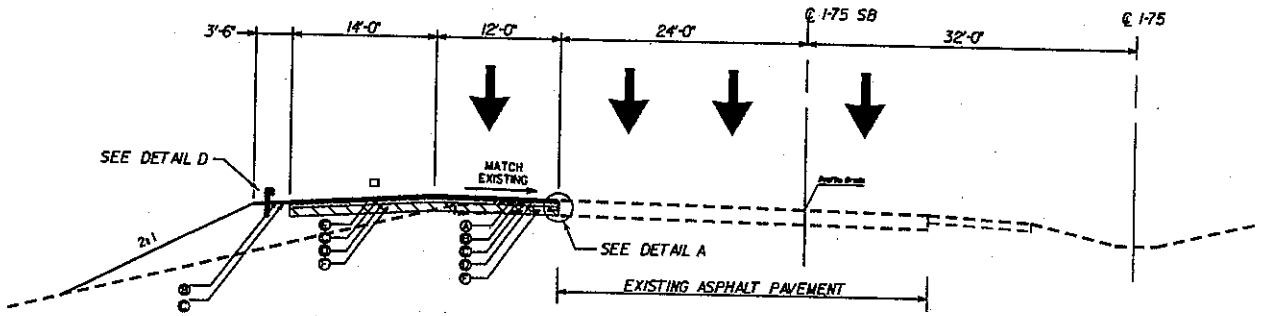


Description of Project: The proposed project involves the addition of an auxiliary lane along southbound lanes of Interstate 75. The project begins at the end of the taper to the exit ramp to Eagles Landing Parkway in Henry County and ends at the beginning of the taper to the entrance ramp of the I-675 interchange, for a total length of 1.42 miles. At the ending limits of the project, the southbound lanes of Interstate 75 consist of 3 through-lanes with 2 additional lanes converging with them from I-675. These 5 lanes taper back to 3 lanes within 4600 feet from where the two interstates converge. Southbound I-75 remains as 3 lanes to the project's beginning. This project will add an auxiliary lane from where southbound traffic tapers from 4 lanes to 3 lanes and travels to the next interchange at Eagles Landing Parkway, approximately 1.42 miles away. The proposed alignment will be deflected through the Walt Stephens Rd. overpass due to the limited outside horizontal clearance at that location. The I-75 bridge over Flippen Rd. will be widened to accommodate the additional lane. All proposed pavement, including the shoulders, will be full depth asphalt, with the exception of areas where the existing travel lanes are to be overlaid. Guardrail, traffic cameras, and overhead signs along the project corridor will be moved or replaced on as-needed basis as well. All work will be done while maintaining 3 lanes of traffic at all times.

COUNTY	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
HERD	CSNHS-0004-00(167)41		

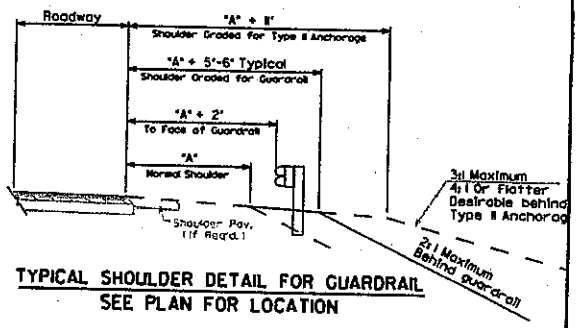


T. S. - 01
TANGENT SECTION
STA. 930+80 TO 977+97



□ ALGEBRAIC DIFFERENCE IN PAVING AND SHOULDER SLOPES NOT TO EXCEED 8.0%

T. S. - 01
SUPERELEVATED SECTION
STA. 930+80 TO 977+97

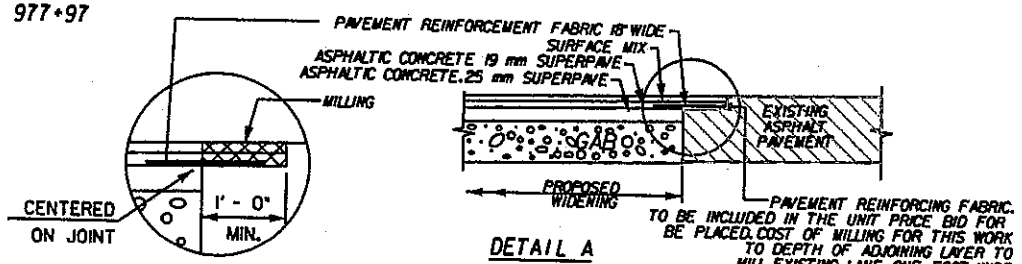


TYPICAL SHOULDER DETAIL FOR GUARDRAIL
SEE PLAN FOR LOCATION

DETAIL D

REQUIRED PAVEMENT

- (A) 135 LBS/SY RECYCLED ASPH CONC 12.5 MM PEM, GP 1 OR 2, INCL BITUM & H L LIME
- (B) 165 LBS/SY RECYCLED ASPH CONC 12.5 MM SMA, GP 1 OR 2, INCL BITUM & H L LIME
- (C) 220 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H L LIME
- (D) 1430 LBS/SY RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H L LIME
- (E) 165 LBS/SY RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H L LIME
- (F) GRADED AGGREGATE BASE, 12"
- (G) MILLING, 2" DEPTH
- (H) LEVELING AS NEEDED



DETAIL A

THIS DETAIL TO BE USED WHEN EXISTING ASPHALT PAVEMENT IS NOT TO BE RESURFACED

472

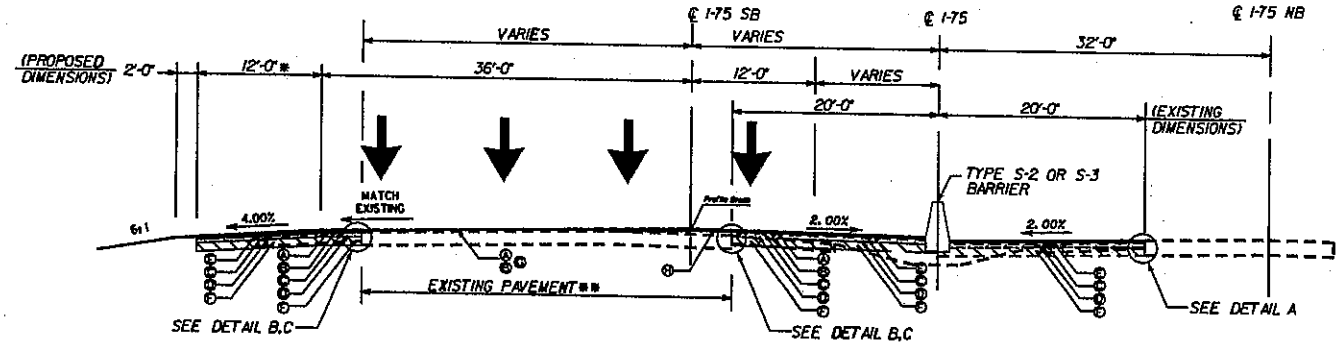
J.B. TRIMBLE, INC.
6445 Powers Ferry Road,
Suite 100
Atlanta, GA 30339

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: URBAN DESIGN

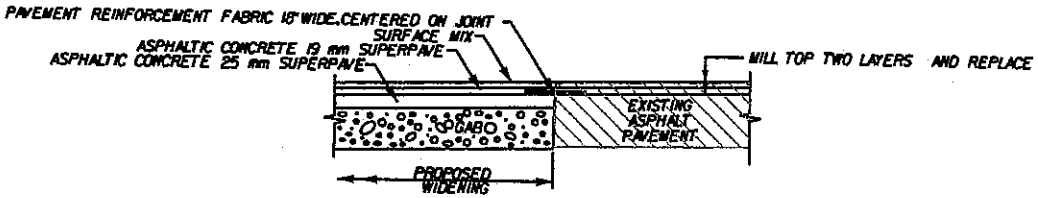
TYPICAL SECTIONS

DRAWING No.



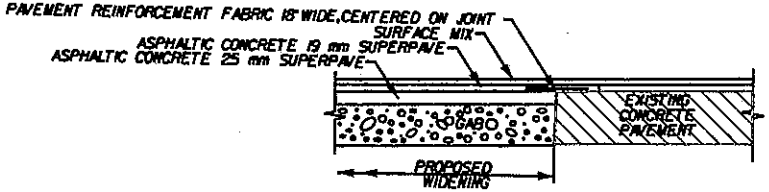
T. S. - 02
STA. 977+97 TO 990+86
STA. 991+14 TO 1005+97

*VARIES - STA.990+35 TO STA.990+86
STA.991+14 TO STA.991+70



DETAIL B

THIS DETAIL TO BE USED WHEN TWO INCHES OR MORE OF EXISTING ASPHALT PAVEMENT IS TO BE MILLED AND OVERLAYED



DETAIL C

THIS DETAIL TO BE USED WHEN EXISTING CONCRETE PAVEMENT IS TO BE RETAINED AND OVERLAID

REQUIRED PAVEMENT

- (A) 135 LBS/SY RECYCLED ASPH CONC 12.5 MM PEM, GP 1 OR 2, INCL BITUM & H L LIME
- (B) 165 LBS/SY RECYCLED ASPH CONC 12.5 MM SMA, GP 1 OR 2, INCL BITUM & H L LIME
- (C) 220 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H L LIME
- (D) 1430 LBS/SY RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H L LIME
- (E) 165 LBS/SY RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H L LIME
- (F) GRADED AGGREGATE BASE, 12"
- (G) MILLING, 2" DEPTH
- (H) LEVELING AS NEEDED

**EXISTING ASPHALT PAVEMENT: STA. 977+97 TO 990+28
EXISTING CONCRETE PAVEMENT: STA. 990+28 TO 1005+97

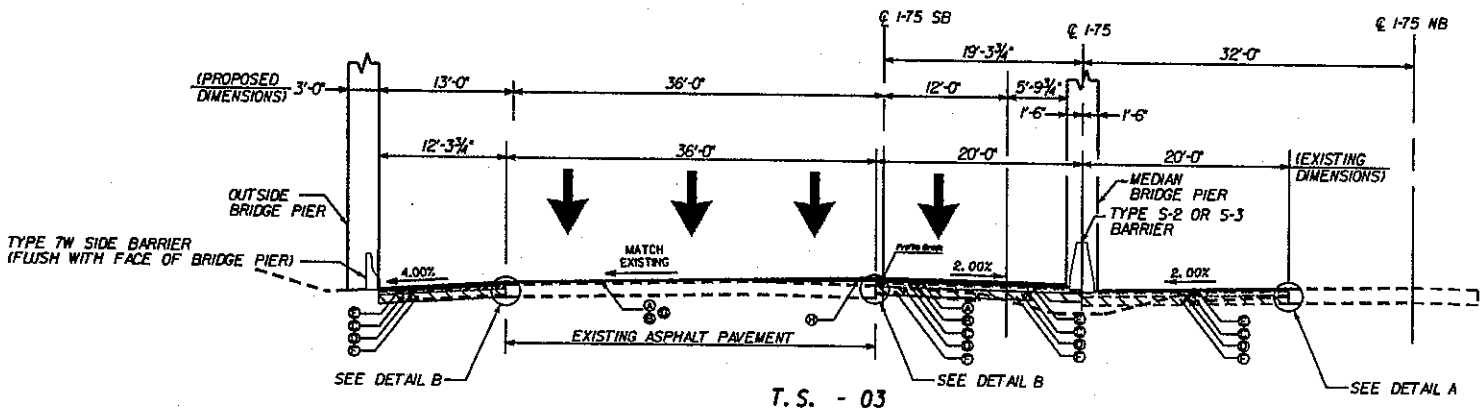
J.B. TRIMBLE, INC.
6445 Powers Ferry Road,
Suite 100
Atlanta, GA 30339

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: URBAN DESIGN

TYPICAL SECTIONS

DRAWING No.



T. S. - 03
WALT STEPHENS ROAD OVERPASS
STA. 990+86 TO 991+14

REQUIRED PAVEMENT

- (A) 135 LBS/SY RECYCLED ASPH CONC 12.5 MM PEM, GP 1 OR 2, INCL BITUM & H L IME
- (B) 165 LBS/SY RECYCLED ASPH CONC 12.5 MM SMA, GP 1 OR 2, INCL BITUM & H L IME
- (C) 220 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H L IME
- (D) 1430 LBS/SY RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H L IME
- (E) 165 LBS/SY RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H L IME
- (F) GRADED AGGREGATE BASE, 12"
- (G) MILLING, 2" DEPTH
- (H) LEVELING AS NEEDED

JBT J.B. TRIMBLE, INC.
6445 Powers Ferry Road,
Suite 100
Atlanta, GA 30339

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: URBAN DESIGN

TYPICAL SECTIONS

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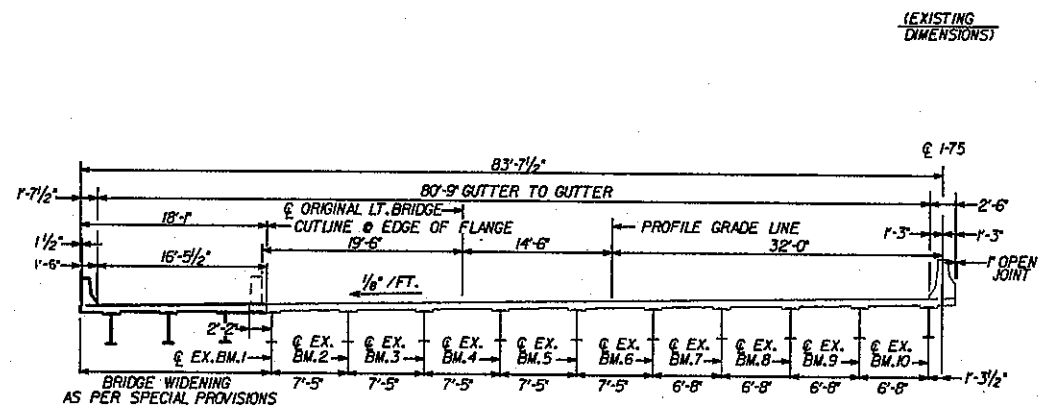
PROJECT NUMBER CSNHS-0008-00(274)
SHEET NO.
TOTAL SHEETS



FLIPPEN ROAD UNDERPASS WIDENING

JBT J.B. TRIMBLE, INC.
6445 Powers Ferry Road,
Suite 100
Atlanta, GA 30339

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: URBAN DESIGN
TYPICAL SECTIONS

DRAWING No.

Project Number: NHS-0008-00(274)

P.I. Number: 0008274

Henry County

I-75 SB FM I-675 TO EAGLES LANDING PKWY- AUXILIARY LANE

Estimate Report

Pay Item	Quantity	Units	Unit Price	Item Description
150-9011	1	LS	Lump	Traffic Control - Workzone Law Enforcement (Contractor Bids)
999-2010	Lump	LS	Lump	Design Complete
999-2015	Lump	LS	Lump	Construction Complete

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Add the following:

ESCROW BID DOCUMENTATION

Scope and Purpose

The purpose of this specification is to preserve the bid documents of the successful bidder (Contractor) for use by the parties in any claims or litigation between the Department and Contractor arising out of this contract.

The Contractor shall submit a legible copy of bid documentation used to prepare the bid for this contract to the Department. Such documentation shall be placed in escrow with a banking institution or other bonded document storage facility and preserved by that institution/facility as specified in the following sections of this specification.

Bid Documentation

The term "bid documentation" as used in this specification means all writings, working papers, computer printouts, charts, and all other data compilations which contain or reflect information, data, and calculations used by the Contractor to determine the bid in bidding for this project. The term "bid documentation" includes, but is not limited to, Contractor equipment rates, Contractor overhead rates, labor rates, efficiency or productivity factors, arithmetic extensions, and quotations from subcontractors and material suppliers to the extent that such rates and quotations were used by the Contractor in formulating and determining the amount of the bid. The term "bid documentation" also includes any manuals which are standard to the industry used by the Contractor in determining the bid for this project. Such manuals may be included in the bid documentation by reference. Such reference shall include the name and date of the Publication and the Publisher. The term does not include bid documents provided by the Department for use by the Contractor in bidding on this project.

Submittal of Bid Documentation

The Contractor shall submit the bid documentation to the Department in a container suitable for sealing, no later than ten calendar days following award of the Contract by the Department. The Department will not issue a Notice to Proceed until the acceptable documentation has been received. The container shall be clearly marked “Bid Documentation" and shall also show on the face of the container the Contractor's name, the date of submittal, the Project Number, the P.I. Number, the Contract Number, and the County.

Affidavit

In addition to the bid documentation, an affidavit, signed under oath by an individual authorized by the Contractor to execute bidding proposals shall be included. The affidavit shall list each bid document with sufficient specificity so a comparison may be made between the list and the bid documentation to ensure that all of the bid documentation

listed in the affidavit has been enclosed. The affidavit shall attest that the affiant has personally examined the bid documentation, that the affidavit lists all of the documents used by the Contractor to determine the bid for this project, and that all such bid documentation has been included.

Verification

Upon receipt of the bid documentation authorized representatives of the Department and the Contractor will verify the accuracy and completeness of the bid documentation compared to the affidavit. Should a discrepancy exist the Contractor shall immediately furnish the Department with any other needed total documentation. The Department, upon determining that the bid documentation is complete, will, in the presence of the Contractor's representative, immediately place the complete documentation and affidavit in the container and seal it. Both parties will deliver the sealed container to a banking institution or other bonded document storage facility selected by the Department for placement in a safety deposit box, vault or other secure accommodation.

Duration and Use

The bid documentation and affidavit shall remain in escrow during the life of the Contract or until such time as the Contractor notifies the Department of his intention to file a claim or his initiation of litigation against the Department related to the Contract. Notification of the Contractor's intention to file a claim or litigation against the Department shall be sufficient evidence for the Department to obtain the release and custody of the bid documentation. If no such notification is received and the Contractor has signed the final Standard Release Form the Department shall instruct the banking institution or other bonded document storage facility to release the sealed container to the Contractor.

The Contractor agrees that the sealed container placed in escrow contains all of the bid documentation used to determine the bid and that no other bid documentation shall be utilized by the Contractor in litigation over claims brought by the Contractor arising out of this contract.

Refusal or Failure to Provide Bid Documentation

Failure or refusal to provide bid documentation shall be deemed either:

1. Failure to execute the Contract if the Contract has not yet been executed or,
2. Material breach of the Contract if the Contract has been executed.

Should the Contractor fail to execute the Contract as stated in 1 above, the Department will retain the bid bond. Refusal of the Contractor to provide adequate documentation after execution of the Contract will be considered material breach of the Contract and the Contractor will be declared in default of the Contract. The Department may, at its option terminate the contract for default. These remedies are not exclusive and the Department may take such other action as is available to it under the law.

Confidentiality of Bid Documentation

The bid documentation and affidavit in escrow are, and will remain, the property of the Contractor. The Department has no interest in, or right to, the bid documentation and affidavit other than to verify the contents and legibility of the bid documentation unless notification of the intention to file claim is received or litigation ensues between the Department and Contractor. In the event of such notification or litigation, the bid documentation and affidavit shall become the property of the Department.

Cost and Escrow Instructions

The cost of the escrow will be borne by the Department. The Department will provide escrow instructions to the banking institution or other bonded document storage facility consistent with this specification.

Escrow Agreement

A copy of the Escrow Agreement the successful bidder will be required to sign is attached. The successful bidder (contractor) agrees that they will sign the Escrow Agreement. Should the Contractor fail to sign the Escrow Agreement, when presented, the Department will retain the bid bond. If the Contract has been executed, and the Contractor fails to sign the Escrow Agreement, the Contractor may be declared in default of the Contract.

Payment

There will be no separate payment for compilation of the data, container or cost of verification of the bid documentation. All costs shall be included in the overall Contract bid price.

Escrow Agreement
For
Bid Documents

THIS AGREEMENT is made and entered into this _____ day of_____, 20____, by and among the Department of Transportation, an agency of the State of Georgia, hereinafter called the "DEPARTMENT";_____; hereinafter called the "CONTRACTOR"; and _____, hereinafter called the "ESCROW AGENT".

WHEREAS, the DEPARTMENT awarded a project on _____, 20__, based on a bid proposal submitted by the CONTRACTOR, hereinafter called the "PROPOSAL", for the construction of Project Number _____County(ies), Georgia, hereinafter called the "PROJECT", pursuant to which the CONTRACTOR shall cause the work therein to be constructed; and

WHEREAS, the DEPARTMENT and CONTRACTOR are desirous of entering into an Escrow Agreement, to provide for specific contingencies governing the escrow and control of the PROPOSAL bid documentation; hereinafter called "BID DOCUMENTS"; and

WHEREAS, the DEPARTMENT and CONTRACTOR desire the ESCROW AGENT to hold the BID DOCUMENTS of the CONTRACTOR;

NOW THEREFORE, for and in consideration of the mutual covenants contained herein, it is agreed by and between the parties hereto that:

ARTICLE I

ESCROW BID DOCUMENTATION

The parties hereto agree to the establishment of Escrow of the BID DOCUMENTS for the PROPOSAL pursuant to the Specifications, Supplemental Specifications, or Special Provisions pertaining to construction under the contract. It is the understanding of the parties hereto that the DEPARTMENT shall pay the ESCROW AGENT, as determined by separate agreement, for the escrow of the BID DOCUMENTS submitted to the ESCROW AGENT under the terms of this Agreement.

ARTICLE II

ACKNOWLEDGMENT

By its signature below, the ESCROW AGENT hereby acknowledges receipt from the DEPARTMENT and CONTRACTOR of a sealed container bearing the CONTRACTOR'S name, address and PROJECT Number assigned by the DEPARTMENT and containing, as specified by the affidavit of the CONTRACTOR, the PROPOSAL BID DOCUMENTS for the aforementioned PROJECT.

ARTICLE III

DEPOSIT OF BID DOCUMENTS

The PROPOSAL BID DOCUMENTS shall remain on deposit with the ESCROW AGENT until those conditions of release, as specified in ARTICLE IV, RELEASE FROM ESCROW, are met. As long as the BID DOCUMENTS remain in escrow with the ESCROW AGENT, the ESCROW AGENT shall not allow any person access, to gain possession, or to in any way interfere with the sealed BID DOCUMENT container.

ARTICLE IV

RELEASE FROM ESCROW

Upon being presented, by the DEPARTMENT, with a CONTRACTOR signed final Standard Release Form for the contract for the PROJECT, the ESCROW AGENT shall deliver to the CONTRACTOR the sealed container bearing the CONTRACTOR'S name and address and project number on it. The ESCROW AGENT is also authorized to release the BID DOCUMENT sealed container to the DEPARTMENT without the CONTRACTOR'S signed consent subject to the following conditions:

1. The CONTRACTOR has provided written notification to the DEPARTMENT of the CONTRACTOR'S intention to file a claim related to the contract for the PROJECT; or

2. The CONTRACTOR has initiated litigation against the DEPARTMENT relating to the contract for the PROJECT.

Prior to any release from escrow to the DEPARTMENT the ESCROW AGENT shall verify that either condition of release to the DEPARTMENT, as stated above, has been met by providing written notice to the CONTRACTOR of the ESCROW AGENT'S intention to release the PROPOSAL BID DOCUMENTS to the DEPARTMENT. Such written notice from the ESCROW AGENT shall be sent by certified mail no less than ten (10) calendar days prior to release to the DEPARTMENT. Upon any release from escrow of the PROPOSAL BID

DOCUMENT container the ESCROW AGENT shall cause the execution of Exhibit A, Escrow Release for PROPOSAL BID DOCUMENTS, as attached hereto and incorporated herein as if fully contained, by the party receiving the BID DOCUMENT container.

ARTICLE V

INDEMNITY

The CONTRACTOR agrees to indemnify and hold the ESCROW AGENT harmless against any loss, claim, damage, liability or expenses incurred in connection with any action, suit, proceeding, claim or alleged liability arising from this Escrow Agreement, provided, however, that the ESCROW AGENT shall not be so indemnified or held harmless for its negligence or acts of bad faith by it or any of its agents or employees.

ARTICLE VI
NOTICES

All notices and other communication shall be in writing and shall be deemed to have been duly given and delivered if mailed by certified mail, return receipt requested, postage prepaid to the addresses stated herein:

DEPARTMENT:

Georgia Department of Transportation

ATTN: Treasurer

#2 Capitol Square

Atlanta, Georgia 30334-1002

CONTRACTOR:

ESCROW AGENT:

ARTICLE VII
DUTIES OF ESCROW AGENT

The duties and responsibilities of the ESCROW AGENT shall be limited to those expressly set forth herein and the ESCROW AGENT shall act only in accordance with this ESCROW Agreement. Notwithstanding specific provisions hereunder, the ESCROW AGENT shall at all times act upon and in accordance with the joint written instructions of the DEPARTMENT and CONTRACTOR.

ARTICLE VIII.

LAWS

This Escrow Agreement shall be deemed to have been executed in Fulton County, Georgia and the laws of the State of Georgia shall apply.

ARTICLE IX

ASSIGNMENT

This Escrow Agreement shall not be assigned without the written consent of all the parties hereto.

ARTICLE X

SURVIVAL OF CONTRACT

Except as may be expressly modified, all terms and conditions of this Escrow Agreement remain in full force and effect. The establishment of this Escrow Agreement is limited solely by the contingency of release of the PROPOSAL BID DOCUMENTS by the CONTRACTOR to the DEPARTMENT, as established by Article IV, Release From Escrow. Nothing contained herein shall alter the rights of the parties hereto.

The covenants herein contained shall, except as otherwise provided, accrue to the benefit of and be binding upon the successors and assigns of the parties hereto.

IN WITNESS WHEREOF, the parties hereunto set their hands and seals the day above first written.

CONTRACTOR:	ESCROW AGENT:
BY:	BY:
_____ (SEAL)	_____ (SEAL)
TITLE:	TITLE:
_____	_____
WITNESS	WITNESS

DEPARTMENT OF TRANSPORTATION

BY:

_____

TITLE: STATE TRANSPORTATION OFFICE ENGINEER

_____

WITNESS

ESCROW CONTAINER SEAL NUMBERS:

Exhibit A

ESCROW RELEASE
OF
BID DOCUMENTS

This is to certify that on this _____day of _____, 20__, the sealed container identified as:

"Bid Documentation"

CONTRACTOR:

PROJECT NUMBER:

P.I. NUMBER:

CONTRACT NUMBER:

DATE OF SUBMITTAL:

(Evidence by Agreement dated _____).

was released from escrow and personally handed to the below named individual acknowledging receipt, representing the CONTRACTOR/DEPARTMENT, by the ESCROW AGENT upon the presentation of the required documentation pursuant to Article IV, Release from Escrow, of the agreement dated_____, 20_, a copy of such documentation is attached hereto.

Acknowledgment of Receipt:

_____

Acknowledgment of Release:

_____

ESCROW AGENT

ESCROW CONTAINER SEAL NUMBERS:

AFFIDAVIT

STATE OF GEORGIA

COUNTY OF FULTON

COMES NOW (Name), (Title)

of (Company Name) who, after having been duly sworn, on oath, state and depose as follows:

1.

This Affidavit is based upon the personal knowledge of the Affiant.

2.

(Company Name) submitted a bid on Georgia Department of Transportation Project _____, _____ COUNTY(IES) which bid was the low, responsive bid, and a Contract has been entered into between (Company Name) and the Georgia Department of Transportation, known as Contract No. B_____.

3.

This Affidavit is given in compliance with the special provision entitled "ESCROW BID DOCUMENTATION" forming part of the Contract Documents of Contract No. B-_____.

4.

The Affiant attests that, in his capacity for (Company Name), he is personally aware the "Bid Documentation" which was used by the Company in determining, formulating, and submitting the bid on Project No._____, _____COUNTY(IES).

5.

The Affiant further states that he has examined the bid documentation which has been placed in a sealed container marked "Bid Documentation", and that all such Bid Documentation utilized by the Company in determining, formulating, and submitting its bid is contained in the sealed container so marked.

6.

Each bid document contained in the sealed container is separately listed on Exhibit A, which is attached hereto and incorporated herein as fully as if included in this Affidavit at this paragraph 6.

Further Affiant sayeth not.

_____(Company Name)_____

By: _____

_____(Name)_____

Its: _____(Title)_____

Sworn to and subscribed before me this _____ day of _____, 20_____.

_____

NOTARY PUBLIC

My Commission expires:_____

First Use Date: November 1, 2002
Revised March 2, 2007

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

SECTION 103- Award and Execution of Contract

Delete paragraph one of Subsection 103.02 and substitute the following:

If a Contract is Awarded, it will be Awarded to the lowest reliable bidder whose Proposal shall have met all the prescribed requirements. The Contract will be Awarded, if at all, within 90 calendar days after the opening of the Proposals, unless a longer period is specified in the Proposal or the successful Bidder agrees in writing a longer period for the Award.

Date: 16 August 2006

DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

SPECIAL PROVISION

PROJECT: NHS-0008-00(274), HENRY COUNTY, PI # 0008274

Section 107 – Legal Regulations and Responsibility to the Public

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Add the following to Subsection 107.23:

G. Protection of Federally Protected Environmentally Sensitive Species

The following conditions are intended as a minimum to protect this species and its habitat during any activities that are in close proximity to the known location(s) of this species.

1. The Contractor shall advise all project personnel employed to work on this project about the potential presence and appearance of the federally protected barn and cliff swallows and that there are civil and criminal penalties for harming, harassing, or killing barn or cliff swallows which are protected under the Migratory Bird Treaty Act of 1918. Pictures and habitat information will be provided to the Contractor at the preconstruction conference.

2. Removal of the existing bridge shall be done outside of the breeding season of barn and cliff swallows, neo-tropical migratory bird species, which begins April 1st and extends through August 31st.

3. In the event any incident occurs that causes harm to the barn or cliff swallow, or that could be detrimental to the continued existence of barn or cliff swallows along the project corridor, the Contractor shall report the incident immediately to the Project Engineer who in turn will notify:
   a. U.S. Fish and Wildlife Service, Brunswick Field Office at (912) 265-9336;
   b. Federal Highway Administration (FHWA), Georgia Division at (404) 562-3630; and
   c. Harvey Keepler, Georgia Department of Transportation, Office of Environment/Location at (404) 699-4401 or (770) 478-7268.

   In the event of possible harm to barn or cliff swallows, the above agencies and the Project Engineer shall be notified immediately and all activity shall cease pending consultation by the Department with the U. S. Fish and Wildlife Service and the lead Federal Agency.

4. Following project completion, a report summarizing any incidents with barn or cliff swallows shall be submitted by the Contractor to the:
   a. the Project Engineer;
   b. U.S. Fish and Wildlife Service, 4270 Norwich St., Brunswick, GA 31520;
   c. Federal Highway Administration, 61 Forsyth Street, S.W., Suite 17T100, Atlanta, Georgia 30303-3104;
   d. Nongame/Endangered Wildlife Program, Georgia Department of Natural Resources, 116 Rum Creek Drive, Forsyth, Georgia 31029; and
   e. Georgia Department of Transportation, Office of Environment/Location, 3993 Aviation Circle, Atlanta, Georgia 30336-1593.
5. All costs pertaining to any requirement contained herein shall be included in the overall bid submitted unless such requirement is designated as a separate Pay Item in the Proposal.

Date: May 29, 2001
First Use Date 2001 Specifications: November 1, 2002

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Section 108—Prosecution and Progress
(Federal Aid Projects)

Delete Subsection 108.06 and substitute the following:

The Engineer has the authority to suspend the Work wholly or in part, for as long as he may deem necessary, because of unsuitable weather, or other conditions considered unfavorable for continuing the Work, or for as long as he may deem necessary by reason of failure of the Contractor to carry out orders given, or to comply with any provisions of the Contract. If the performance of all or any portion of the Work is suspended or delayed by the Engineer, in writing, for an unreasonable period of time (not originally anticipated, customary, or inherent to the construction industry) and the Contractor believes that additional compensation and/or contract time is due as a result of such suspension or delay, the Contractor shall submit to the Engineer, in writing, a request for adjustment within 7 calendar days of receipt of the notice to resume work. The request shall set forth the reasons and support for such adjustment.

Upon receipt, the Engineer will evaluate the Contractor's request. If the Engineer agrees that the cost and/or time required for the performance of the Contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control of, and not the fault of, the Contractor, its suppliers, or subcontractors at any approved tier, and not caused by weather, the Engineer will make an adjustment (excluding profit) and modify the Contract in writing accordingly. The Engineer will notify the Contractor of his/her determination whether or not an adjustment of the Contract is warranted.

No contract adjustment will be allowed unless the Contractor has submitted the request for adjustment within the time prescribed.

No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided for or excluded under any other term or condition of this Contract.

September 10, 2004

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION
SECTION 108—PROSECUTION AND PROGRESS

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Add the following to Subsection 108.08:

In order to minimize the disruption of normal traffic flow, separate completion times are specified for those portions of the work that require closing of lanes as specified in Subsection 150.11.

Failure to reopen the lanes as specified in Subsection 150.11 will result in the assessment of liquidated damages at the rate of $1000.00 per hour.

These rates are cumulative and in addition to the Liquidated Damages which may be assessed in accordance with Subsection 108.08 for failure to complete the overall project on time.

Date: March 2, 2007

DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

SECTION 150 - TRAFFIC CONTROL

Retain Section 150 and add the following:

150.11 Special Conditions:

For I-75 Mainline

A. Perform no work or move equipment or materials on the traveled way that interferes with traffic flow between the hours of 6:00 AM to 9:00 AM and 4:00 PM to 6:00 PM Monday thru Friday. Failure to adhere to these restrictions will result in deductions as specified in Section 108.08.C.3

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project: CSNHS-0008-00(274) Henry County
P.I. No. 0008274

SECTION 999 – DESIGN-BUILD

999.1 DESCRIPTION

A. General

1. **Project Location:** The location of the construction work included in this Project is shown in the Concept Report. This Project is located in Henry County.

2. **Design-Build Concept:** The Contractor and a design consultant (or design consultant team) will work together to design and build the Project. The design consultant will either be acting as a subcontractor to the Contractor or as a joint-venture member with whom this agreement has been executed. In this document, the words "design consultant" or "design consultant team" shall refer to the consultant firm or consultant team acting as a subcontractor or joint-venture team member to the Contractor. The Department will have oversight responsibilities only, which include performing official reviews and granting approvals of design work.

The Contractor shall not begin any ground-breaking activities until the following have been approved by the Engineer:
- **Basis of the design**
- **Erosion and Sediment Control Plan**
- **Traffic Control Plan**
- **Utility Agreements, Utility Encroachment Permits, Utility Relocation Plans (Non anticipated), and Contractor Certification of "No-Conflict"**

3. **Project Scope:** This Project involves the addition of an auxiliary lane along the southbound lanes of I-75 in Henry County. The project contains the following features:
   - Begin Project occurs at the end of the taper to the I-75 SB Exit Ramp for Eagles Landing Parkway
   - End Project occurs at the beginning of the taper to the I-675 SB Entrance Ramp to I-75 SB
   - Project length is approximately 1.48 miles
   - All construction work will occur within the Existing Right of Way
   - The proposed Auxiliary Lane is to be located adjacent to the existing outside travel lane for the first 0.89 miles of the project
   - The entire I-75 SB is to be deflected toward the median, requiring an alignment change, for the remaining 0.59 miles of the project, due to insufficient horizontal clearance on the outside at the Walt Stephens Road over I-75 bridge
   - A single lane widening is proposed for the I-75 over CR 165 Flippen Road bridge
   - Guardrail is proposed on the outside, for the first 1.05 miles of the project
   - Noise barriers are proposed in two locations
   - Type S-2/S-3 median barrier is proposed for a length of approximately 2800'

- All proposed pavement is to be full-depth asphalt
- A minimum of three lanes of traffic in each direction shall be maintained. Temporary lane closures shall be in accordance with section 150.

The work covered under this Specification includes the furnishing of all materials, labor, tools, equipment, and other incidental items for the designing, detailing, and construction of the Project contained in the Project Scope and Concept Report. The Contractor will make all the improvements for this Project within the limits of the provided construction plans. Advanced signing relative to proposed work, to be placed outside the limits shown on the Project Concept Report, shall be included in the work and paid for under CONSTRUCTION COMPLETE. All proposal materials will become the property of the Department.

The Contractor will restore or replace existing facilities in kind or upgrade. Possible affected resources includes, but not limited to the following: GDOT ITS system, signing and marking, and utilities.

GDOT ITS System in Conflict with project:

Video detection cameras
CCTV surveillance cameras
ITS communication fiber and conduit
Variable Message signs
Utilities for powering ITS System

Note: The GDOT ITS System is a vital part of traffic management in metro Atlanta and shall not be taken out of service for more than 30 calendar days during construction. See special provision section 108.

Utilities

The Contractor shall have the responsibility of coordinating the project construction with all utilities that may be affected. Coordinating responsibilities shall include but not be limited to the following:

a. The Contractor shall be responsible for the cost of utility coordination. Coordination shall include, but shall not be limited to, contacting each Utility Owner to advise of the proposed project; supplemental verification of the locations of existing utility facilities (including the employment of additional Overhead/Underground Subsurface Utility Engineering investigations (SUE) as described in section 999.3.B.1.S of this specification); and determining requirements for the relocation or adjustment of facilities.

b. The Department and/or the Utility Owner shall be responsible for the cost of utility relocation (this may change according to the details contained in the MOUs), where they hold a property interest, and in accordance with the Department's "Utility Accommodation Policy and Standards Manual". Details are provided in the attached Memorandum of Understanding (MOU) executed between the Department and each Utility Owner.

c. The Contractor shall design the project to avoid conflicts with utilities when feasible, and minimize impacts where conflicts cannot be avoided (See Section 999.3.B.1.S). The Contractor shall submit to the Department a Utility Conflict Matrix in the Department's prescribed format within 180 days of notice to proceed.

d. The Contractor shall initiate early coordination with all Utility Owners located within the project limits.

e. The Contractor shall coordinate and conduct a preliminary review meeting with the Utility Owners to assess and explain the impact of the project. The Department's Project Manager, District Construction Engineer (or designee), and District Utilities Engineer (or designee) shall be included in this meeting. The Contractor shall record the minutes for this meeting and distribute to all attendees for their review and concurrence.

f. The Contractor shall research the property interests of each Utility Owner's facilities. If there is a dispute over property interests with a Utility Owner, the Contractor shall be responsible for resolving the dispute. The Contractor shall meet with the Department's District Utilities Engineer (or designee) to present the property interests information gathered. This information must be sufficient for the District Utilities Engineer (or designee) to certify the extent of the Utility Owner's property interests. The Department shall have final approval authority as to the Contractor's determination of whether the Utility Owner has property interests.

g. The Contractor shall prepare and submit to the Department a Preliminary Utility Status Report within 120 days after the Notice to Proceed has been given for the contract. This report shall include a listing of all Utility Owners located within the project limits and a recommendation as to the extent of each Utility Owner's property interests. This report shall include copies of easements, plans, or other supporting documentation that substantiates any property interests of the Utility Owners. The report shall also include a preliminary assessment of the impact to each Utility Owner.

h. Depending on the provisions stipulated in the Memorandum of Understanding (MOU – See Attached) between the Department and each Utility Owner the Contractor shall be responsible for one of the following Design Activities:

- The Contractor shall provide Utility Owners with design plans and Preliminary Utility Plans as soon as the plans have reached a level of completeness adequate to allow them to fully understand the project impacts. The Utility Owner will use the Contractor's design plan for preparing Utility Relocation Plans, cost estimates, and respective Utility Adjustment Schedules (UAS). If a party other than the Utility Owner prepares Utility Relocation Plans, there shall be a concurrence box on the plans where the Utility Owner signs and accepts the Utility Relocation Plans as shown.

- The Contractor shall prepare all engineering design, plans, technical specifications, cost estimates, and utility adjustment schedules required to perform the necessary utility relocations. The Contractor shall certify to the Department that the design package listed above has been reviewed and accepted by the each respective Utility Owner.

i. The Contractor shall be responsible for collecting the following from each Utility Owner that is located within the project limits: Certified Utility Relocation Plans including a letter of "no cost" where the Utility Owner does not have a prior right; Utility Agreements, certificates of eligibility, including cost estimate and Utility Relocation plans where the Utility Owner has a property interest; Letters of "no conflict" where the Utility Owner's facilities will not be impacted by the Project.

j. The Contractor shall be responsible for determining if the Department has agreed to be pay for in-kind relocations according to any approved Utility-Aid assistance package for publicly (government) owned utilities found within the project's limits (See the Department's TOPPS Policy #6863-11 for additional information regarding Utility-Aid). If the Department has approved Utility-Aid; it is the Contractor's responsibility to

assemble the necessary information including any Utility Agreements in a final and complete form and in such a manner that the Department may approve the submittals with minimal review. Failure to submit such required Utility Agreements prior to the beginning of construction shall fully transfer the utility owner's obligations, as stated in the subject Utility-Aid assistance package, to the Contractor. Deductions to reimburse the Department for such obligations may be made from any current partial payment of the Lump Sum price.

k. The Contractor shall review all Utility Relocation Plans and Utility Agreements and certificates of eligibility to ensure that relocations comply with the Departments "Utility Accommodation Policy and Standards Manual". The Contractor shall also ensure that there are no conflicts with the proposed highway improvements, and ensure that there are no conflicts between each of the Utility Owner's relocation plans.

l. The Contractor shall compile, and submit to the Department all Utility Relocation Plans, Utility Conflict Matrix, Utility Adjustment Schedules, Utility Agreements, Utility Estimates, and Letters of "no conflict," as set forth above for the project. The Contractor is expected to assemble the information included in the Utility Agreements and Utility Relocation Plans in a final and complete form and in such a manner that the Department may approve the submittals with minimal review. The Contractor is expected to meet with the Department's District Utilities Office within 15 days of the Notice to Proceed to gain a full understanding of what is required with each submittal. The Utility Owners shall not begin their Utility Relocation work until authorized in writing by the Department.

m. Each Utility Agreement and Utility Relocation Plan submitted must be accompanied by a certification from the Contractor stating that the proposed relocation will not conflict with the proposed highway improvement and will not conflict with another Utility Owner's relocation plan.

n. Depending on the provisions stipulated in the Memorandum of Understanding (MOU – See Attached) between the Department and each Utility Owner the Contractor shall be responsible for one of the following construction activities:

- The Contractor shall be responsible for coordinating the work of its subcontractors and the various Utility Owners. The resolution of any conflicts between Utilities and the construction of the project shall be the responsibility of the Contractor. No additional compensation will be allowed for any delays, inconveniences, or damage sustained by the Contractor or its subcontractors due to interference from utilities or the operation of relocating utilities.

- The Contractor shall be responsible for performing all utility removal, relocation, and adjustments required to accommodate the proposed project. This shall include any required inspection, permitting, testing and monitoring to ensure that the work is properly performed to the certified design package. The resolution of any conflicts between Utilities and the construction of the project shall be the responsibility of the Contractor. No additional compensation will be allowed for any delays, inconveniences, or damage sustained by the Contractor or its subcontractors due to interference from utilities or the operation of relocating utilities.

o. During the construction of the project, The Contractor shall designate, prior to beginning any work, a Worksite Utility Coordination Supervisor (WUCS) who shall be responsible for initiating and conducting utility coordination meetings and accurately recording and reporting the progress of utility relocations and adjustment work. Also,

the WUCS shall prepare an Emergency Response Plan for the purpose of planning, training, and communicating among the agencies responding to the emergency. The WUCS shall be the primary point of contact between all of the Utility companies, the Contractor and the Department. The WUCS shall recommend the rate of reoccurrence for utility coordination meetings and the Engineer will have the final decision on the regularity for utility coordination meetings. In no case will utility coordination meetings occur less than monthly until controlling items of utility relocations and adjustment milestones are completed. The WUCS shall contact each of the utility companies for the purpose of obtaining information including, but not limited to, a Utility Adjustment Schedule for the controlling items of utility relocations and adjustments. The WUCS shall notify the appropriate utility company and/or utility subcontractors and the Department of the status of controlling items of relocations and adjustment milestones as they are completed. The WUCS shall furnish the Engineer, for approval, a Progress Schedule Chart, immediately prior to beginning Construction unless otherwise specified, which includes the utility companies controlling items of work and other information in accordance with Section 108.03 or elsewhere in the Contract documents.

1. Qualifications

The WUCS shall be an employee of the Prime Contractor, shall have at least one year experience directly related to highway and utility construction in a supervisory capacity and have a complete understanding of the Georgia Utilities Protection Center operations, and shall be knowledgeable of the High-voltage Safety Act and shall be trained on the Georgia Utility Facility Protection Act (GUFPA). The Department does not provide any training on GUFPA but will maintain a list of the Georgia Public Service Commission certified training programs developed by other agencies. Currently the following companies offer approved GUFPA training programs:

Associated Damage Consultants
Phone: 706.234.8218 or 706.853.1362

Georgia Utility Contractors Association
Phone: 404.362.9995

Georgia Utilities Protection Center
Phone: 678.291.0631 or 404.375.6209

H B Training & Consulting
Phone: 706.619.1669 or 877.442.4282 (Toll Free)

The Prime Contractor is responsible for obtaining the GUFPA training for their employees.

Questions concerning the Georgia Public Service Commission GUFPA training program should be directed to:

Georgia Public Service Commission
244 Washington St. SW
Atlanta, GA 30334-5701
404.463.9784

2. Ticket Status

During the utility coordination meetings the WUCS shall collect and maintain the Ticket Status information to determine the status of all locate requests within the project limits. This information will be used to assure those planning to use mechanized equipment to excavate or work within the project limits are prepared to begin work when they have reported or estimated beginning work. At points where the Contractor's or utility company's operations are adjacent to or conflict with overhead or underground utility facilities, or are adjacent to other property, damage to which might result in considerable expense, loss, or inconvenience, work shall not commence until all arrangements necessary for the protection thereof have been made.

3. Notice

The names of known utility companies and the location of known utility facilities will be shown on the Plans, or listed in the Subsurface Utility Engineering Investigation if performed or in the Special Provisions; and the WUCS shall give 24-hour notice to such utility companies before commencing work adjacent to said utility facilities which may result in damage thereto. The WUCS shall further notify utility companies of any changes in the Contractor's work schedules affecting required action by the utility company to protect or adjust their facilities. Notice to the utility companies by the Department of the Award of Contract, under Subsection 105.06, shall not be deemed to satisfy the notice required by this paragraph. Furthermore, this 24-hour notice shall not satisfy or fulfill the requirements of the Contractor as stated in Chapter 9 of Title 25 of the Official Code of Georgia Annotated, known as the "Georgia Utility Facility Protection Act".

4. Agenda

The WUCS shall cooperate with the companies of any underground or overhead utility facilities in their removal and relocations or adjustment work in order that these operations may progress in a reasonable manner, that duplication of their removal and relocations or adjustment work may be reduced to a minimum, and services rendered by those parties will not be unnecessarily interrupted. To promote this effort the WUCS shall prepare an agenda for the utility coordination meetings and circulate same in advance of the meeting to encourage input and participation from all of the utility companies. The agenda will be prepared by an examination of the project site and may include photographs of potential/actual utility conflicts.

5. Emergency Response Plan

The WUCS shall prepare and submit to the Department an Emergency Response Plan no later than 30 days prior to beginning construction. The WUCS shall clearly mark and highlight the gas, water and other pressurized pipeline shut-off valves and other utility services including overhead switch locations on the utility plans; and prepare a chart to indicate the location of each site (Street address or intersections), the utility company or operator of the facility with emergency contact information and the working condition of the device to facilitate prompt shut-off. The WUCS shall post the Emergency Response Plan in an area readily accessible to the Department. In the event of interruption to gas, water or other utility services as a result of accidental breakage or as a result of being exposed or unsupported, the WUCS shall promptly

notify the appropriate emergency officials, the Georgia Utilities Protection Center and the appropriate utility facility company or operator, if known. Until such time as the damage has been repaired, no person shall engage in excavating or blasting activities that may cause further damage to the utility facility.

6. Submission

Provisions for reporting all utility coordination meetings, the progress of utility relocation and adjustment work milestones and ticket status information will be reported on a form developed by the WUCS and will be distributed by the WUCS to all of the utility companies as milestones are met and shall be included as part of the project records. These reports shall be delivered to the Engineer for review, on a monthly basis. The WUCS shall immediately report to the Engineer any delay between the utility relocation and adjustment work, the existing Utility Adjustment Schedule, or the proposed Utility Adjustment Schedule so that these differences can be reconciled.

7. Utility Adjustment Schedule

The purpose of the Utility Adjustment Schedule is to provide the Contractor with the pertinent information, including any utility staging required, dependent activities, or joint-use coordination that is required for the creation of a progress schedule chart that is feasible. A suitable Utility Adjustment Schedule form is available from the Department for the WUCS to circulate to utility companies for any proposed project construction staging. The WUCS shall submit the Progress Schedule Chart in accordance with Section 108.03 and the proposed Utility Adjustment Schedules from all utility companies to the Engineer for review and approval.

p. At the time the Contractor notifies the Department that the Contractor deems the Project to have reached Final Completion, the Contractor shall certify to the Department that all Utilities have been identified and that those Utility Owners with property interests or other claims related to relocation or coordination with the project have been relocated or their claims otherwise satisfied or will be satisfied by the Contractor.

q. The Contractor shall show the final location of all utilities on the as-built drawings for the project as stated in Section 999.3.A.2.

r. In addition to the above, the Contractor shall comply with all provisions set forth under subsection 107.21 of the Georgia Department of Transportation's Specifications, Construction of Transportation Systems, current edition.

4. **Design Consultant**: The Contractor will engage the services of a design consultant that is prequalified in all applicable area classes.

999.2 PLANS

The Department has not developed any preliminary plans for this project. The Department is making the following resources available for the design and construction of this project:

a. Approved Concept Report including concept layouts, concept typical sections and design exception
b. Approved Environmental Document
c. Aerial Mapping
d. Existing Digital Terrain Model (DTM)
e. Approved Traffic Study
f. Approved Soil Survey
g. Existing ITS Information
h. Microstation files showing proposed improvements
I. Overhead/Subsurface Utility Engineering Investigation Plans (See Section 999.03.B.1.S for details)

Note: It is expected that this project will require borrow material. Locating and acquiring borrow pits and ensuring that only suitable material is used in the embankments, is the responsibility of the Contractor. All applicable requirements for borrow pits in the Specifications are to be met, including but not limited to the appropriate environmental approvals and permits. **The Contractor shall not use borrow material within the existing right of way that is beyond the proposed construction limits.**

999.3 DESIGN

A. General

1. **Measuring Units:** The project will be designed in **English** units of measurements.

2. **Design Software:** Microstation and CAiCE software is required. On completion of the Project, a complete as-built set of plans will be provided to the Department in the following formats: two (2) sets of CD-ROMs with all electronic design files, design notes and calculations; one (1) set of full-size mylar reproducibles; one (1) full-size set of paper prints; and one (1) half-size set of paper prints. In addition, paper prints will be required throughout the design period for the Department's reviews as noted herein. All files are to conform to the criteria found in the Electronic Data Guidelines dated March 15, 2004, Current Revision March 15, 2006. This information can be found at the Department's web site: http://www.dot.state.ga.us/dot/preconstruction/adds/edg/index.shtml.

3. **Design Scope of Services:** Plans will be prepared in accordance with the Georgia Department of Transportation's instructions as to design criteria, procedures, and format as contained in this Special Provision and the following: Current Manual on Uniform Traffic Control Devices; Current Draft Georgia Manual on Drainage Design for Highways; Current Utility Accommodation Policy and Standards Manual; GDOT Bridge Design Guide and Memos; and the Department's Current Plan Preparation Guide. Project designers will adequately consider all elements of the design, including but not limited to roadway geometry, drainage requirements, traffic control during construction, erosion control, structural design, utility conflicts, signing and marking, and future maintenance requirements. Roadway lighting will not be required.

4. **Design Reviews:** The design is to be prepared under the direct supervision of licensed design professionals. A Professional Engineer licensed to practice engineering in the State of Georgia on the design team will seal the final plans. Their seal on the drawing shall represent certification that the design meets all applicable codes and is of good engineering practices and standards. It shall be the responsibility of the Contractor to check and certify the design.

The Department may establish dates and times for cursory reviews and may comment on design work, but will not require hold points, review periods, or comment responses, except noted otherwise. If at any time the Department determines that the design work is not in conformance with the Department's standards, specifications, or good engineering practice, the Department reserves the right to stop work, at the Contractor's expense until a resolution of the issue(s) has occurred. Monthly progress meetings are to be held for the duration of the project.

Construction documents (plans and specifications) relating to the construction phases shown in Table A-1 will be submitted to the Department for review and approval. Approvals, disapprovals, or comments made by the Department will be provided in writing to the Contractor within the appropriate timeframes shown in the table below. No construction is to begin prior to receiving approval from the Engineer. Other items will be submitted to the Department if requested.

TABLE A-1: REVIEWS

Submission	Review Type	Comments
QC/QA plan	Plan approved by Engineer	See 999.3.A.6
Preliminary Roadway Plans	Review by Office of Urban Design	14 day review period
Preliminary Bridge Layouts	Plans Reviewed by Office of Bridge Design	See 999.3.C
Bridge Foundation Investigation	Report approved by Office of Materials and Research	N/A
Bridge Construction Plans	Plans Reviewed by Office of Bridge Design	See 999.3.C
Construction Traffic Control Plan	See Specification 150	N/A
Utility Plans / Agreements Agreements: 3 hard copy 1 electronic pdf Plans: 1 for each Utility Owner + 3 for Dept. and Microstation files	Relocation Plans and Agreements reviewed by Department Utilities Office. Agreements also reviewed by Utility Owner.	Concurrently w/ Construction Traffic Control Plans Agreements: 30 days for Dept. + 120 days for each Utility Owner Plans: 30 days
Relocated Utility Plans Plans: 1 for each Utility Owner + 3 for Dept. and Microstation files	Plans approved by Engineer	Concurrently w/ Construction Traffic Control Plan Plans: 30 days

Bridge related Shop Drawings	Shop Drawings	N/A
Signing and Marking	Signing and Marking Complete	See criteria within this Special Provision
Control of Soil Erosion and Sedimentation Plan	Plan reviewed by the Environmental Compliance Bureau	14 day review period

Note: Roadway Plans and Bridge Plans will be submitted from the Contractor to the Engineer and the reviewing office simultaneously.

Note: Unless a different review time is specified elsewhere in the contract, a period of thirty (30) calendar days from receipt to release of the submittal by the Department is to be allowed for the Department's review of all drawings and Bridge Foundation Investigations. The review time for structural plans is forty-five (45) calendar days. All Contractor schedules should reflect said review times. All submittals must be directly submitted to the Engineer. The Engineer's receipt of submittals will mark the beginning of the review period. **All submittals by the Contractor will be required to contain a statement certifying that no unapproved design exceptions have been incorporated in the submittal.** Monthly progress meetings will be held on site. Attendees will include the Contractor, design consultant, and the Department's project engineer and design liaison.

Errors and omissions are the responsibility of the Contractor to correct and will be at the Contractor's expense.

5. **Field Surveys**: The Contractor will verify all provided surveying data. The Contractor is to provide terrain and drainage cross sections, pavement elevations, and drainage structure information for this project. All survey data will be noted in English units. The following is only a guideline for data collection and is not intended to be comprehensive:

   a. Provide cross sections of the terrain and pavement at mainline stations as follows:
      (1.) These cross sections will be provided at intervals adequate enough to accurately design and construct the Project, but not to exceed 100 feet.
      (2.) The cross sections are to extend from the centerline to existing right of way line.
      (3.) In addition to all terrain breaks, the cross sections will include all applicable edges of pavement (emergency, outside edges of travel lanes, and curb and gutter sections).
   b. Use the Department feature codes when collecting the data in accordance with CAiCE Survey Data Guidelines.
   c. Locate all existing mainline drainage structures (X,Y, and Z) within the right of way and provide their size, type, condition, and flow line elevations at each end.
   d. Gather inlet elevations for all drop inlets and catch basins.
   e. Develop terrain profile at each drainage structure showing the skew of the structure.
   f. Develop terrain profile of the drainage outfall from the end of each structure to the right of way.
   g. Provide any additional necessary survey control.
   h. Stake centerlines.
   i. Prepare Survey control Packet.

j. Perform sign surveys
k. Perform bridge surveys
l. Perform surface utility surveys
m. Perform supplemental topo surveys
n. Perform right of way surveys
o. Perform stream surveys
p. Perform surveys of ITS items
q. The accuracy for all survey data will be as follows:

Horizontal:	Additional control	= 1:10.000
Topography:	=	0.4'
Vertical:	Additional control	= NOAA 3rd Order
Pavement:	=	0.03'
Ground Terrain:	=	0.25'

6. **Quality Control/Quality Assurance for Design**: The Department, except where noted otherwise, will have oversight responsibilities only and will not perform official reviews and approvals of design work. The Department will not take any approval or formal review actions on design issues except as noted herein or for deviations from the intended scope of the project.

   The Contractor is to employ only persons duly registered in Georgia in the appropriate category in responsible charge of supervision and design of the work; and further, will employ only qualified, State of Georgia registered land surveyors in responsible charge of any survey work.

   The Contractor will use only a consultant design team that is prequalified by the Department in all applicable area classes for this Contract (see Section 999.1.A.4). Approval of any replacements within the team should occur prior to the letting of the project. Failure to secure approval of the replacements prior to letting may result in the disqualification of the Contractor's bid.

   The Contractor will endorse all final reports, contract plans and survey data. These endorsements will be made by a person(s) duly registered in the appropriate category by the Georgia State Board of Registration for Professional Engineers and Land Surveyors, being in the full employ of the Contractor and responsible for the work prescribed by this agreement.

   Authorized representatives of the Department and Federal Highway Administration may review and inspect the Project activities and data collected at all times. All reports, drawings, studies, specification estimates, maps and computations prepared by or for the Contractor will be available to authorized representatives of both the Department and the Federal Highway Administration for inspection and review in the General Office of the Department or at another location as determined by the Department. The Department's review comments are to be incorporated into the plans by the Contractor or as agreed. These changes will not result in an increase in cost.

   Before the start of the contracted design effort, the Contractor will develop and acquire the Department's approval for a QC/QA Plan to ensure that all design documents are prepared in accordance with the Department's Plans Presentation Guide (www.dot.state.ga.us, search for keyword "PPG") using good, prudent and generally accepted design and engineering practice. Also see the Manual of Quality Standards for Consultant Services with the Georgia Department of Transportation.

   The QC/QA Plan shall include the following:

a. Quality control and quality assurance procedures for design documents will specify measures to be taken by the Contractor (A) to ensure that appropriate quality standards are specified and included in the design documents and to control deviations from such standards, being understood and agreed that no deviations from such standards shall be made unless they have been previously approved by the Department, and (B) for the selection of suitable materials and elements of the Work that are included in the Project.
b. Quality control and quality assurance procedures for preparing and checking all plans, calculations, drawings and other items submitted ensure that they are independently checked and back-checked in accordance with generally accepted engineering practices, by experienced engineers. The originator, checker and back-checker should be clearly identified on the cover of all submittals. Specific procedures for verifying the computer programs used will be included as well. Plans, reports and other documents will be stamped, signed and dated by the responsible Georgia registered engineer where required under the contract documents, generally accepted engineering practices or by applicable laws. It is required the Contractor must also submit a statement that all reviews have been completed.
c. Procedures for coordinating work performed by different persons within the same area, in an adjacent area or in related tasks must ensure that conflicts, omissions or misalignments do not occur between drawings or between the drawing and specifications. These procedures must also allow for the coordination of the review, approval, release, distribution and revision of documents involving such persons.

   All the persons proposed to be responsible for design Quality Control and Assurance are to be listed as follows:
   - Discipline
   - Name
   - Qualifications
   - Duties
   - Responsibilities
   - Authorities

   All key personnel performing Quality Control and Assurance functions will be exclusively designated to such and should not be assigned to perform conflicting duties.

   All documents are to be maintained by the Contractor for the duration of the Contract and will be organized, indexed and delivered to the Department (1) upon Final Acceptance or (2) even if incomplete, within seven (7) days of receipt of request from the Department. These documents will include, but not be limited to, the following items: design criteria, reports and notes, calculations, drawings, schematics, supporting materials, statement regarding accomplishment of reviews and others.

7. **Ownership of Documents**: The Contractor agrees that all reports, drawings, studies, specifications, survey notes, estimates, maps, computations, computer files and other data, prepared by or for it under the terms of this agreement will be delivered to the Department to become and remain the property of the Department upon termination or completion of the work. The Department will have the right to use this information without restriction or limitation and without compensation to the Contractor other than that provided for in this agreement.

   Any use of these documents by the Department on any project other than this one will be done without warranty by the Contractor.

8. **Insurance:** In addition to the insurance requirements covered elsewhere in this Proposal, the Contractor must have insurance coverage of the following types and amounts:

    a. Valuable Papers: Insurance in an amount sufficient to assure the restoration of any plans, drawings, field notes or other similar data relating to the work covered by the project is required. Insurance is to be maintained in full force and effect during the life of the agreement.
    b. Professional Liability (Errors and Omissions): Insurance in an amount not less than one million dollars ($1,000,000) per claim (with a maximum of $250,000 deductible per claim) during the agreement term and for a period of at least five (5) years after the agreement is closed is required. Such a policy is to cover all of the Contractor's professional liabilities, whether occasioned by the Contractor, his employees, subcontractors or other agents, arising out of services performed under or in accordance with this agreement.

9. **Publication and Publicity:** Articles, papers, bulletins, reports or other materials reporting the plans, progress, analyses or results and findings of the work conducted under this Agreement will not be presented publicly or published without prior approval in writing from the Department. All releases of information, findings and recommendations will include a disclaimer provision to be included in all published reports on the cover and title page in the following form:

    "The opinions, findings and conclusions in the publication are those of the author(s) and not necessarily those of the Department of Transportation, State of Georgia or the Federal Highway Administration."

    Any information concerning the project, including conduct, results or data gathered or processed, released by the Contractor without prior approval from the Department will constitute grounds for termination of this Agreement without indemnity to the Contractor. Information released by the Department or by the Contractor with prior written approval is to be regarded as public information and no longer subject to the restrictions of this Agreement. Information required to be released by the Department under the Georgia Open Records Act, Section 50-18-70, et seq., O.C.G.A., the restrictions and penalties mentioned set forth herein shall not apply. Any request for information directed to the Contractor, pursuant to the Georgia Open Records Act, by the public is to be redirected to the Department for further action.

10. **Copyrighting:** The Contractor and the Department agree that any papers, interim reports, forms and other material which are a part of work under this Agreement are to be deemed a "work made for hire", as such term is defined in the Copyright Laws of the United States. As a "work made for hire", all copyright interests in said works will vest in the Department upon creation of the copyrightable work. If any papers, interim reports, forms or other material which are a part of work under the Agreement are deemed by law not to be a "work made for hire", any copyright interests of the Contractor are hereby assigned completely and solely to the Department. Publication rights to any works produced under this Agreement are reserved by the Department.

11. **Patent Rights**: If patentable discoveries or inventions should result from work described herein, all rights accruing from such discoveries or inventions will be the sole property of the Contractor. However, the Contractor agrees to and does hereby grant to the Department, an irrevocable, non-exclusive, non-transferable and royalty-free license to practice each invention in the manufacture, use and disposition according to law of any article or material and in use of any method that may be developed as a part of the work under this Agreement.

B. Roadway

1. Preparation of Construction Plans

a. **Criteria:** The Contractor is to become familiar with and use the latest, as determined by the Department, American Association of State Highway and Transportation Officials (AASHTO) Design Manuals for Arterial Streets, Rural, Urban and Interstate Highways, including those standards adopted by the AASHTO and approved by the Secretary of Commerce, as provided by Title 23, United States Code, Section 109 (b), with the Department's Standards, Procedures, Plans, Specifications and Methods, with Federal Highway Administration procedures relating to plan review and approval, and will produce plans in accordance therewith. The Project is to be designed and constructed utilizing guidelines found in the American Association of State Highway and Transportation Officials (AASHTO) Design Manuals for Arterial Streets, Rural, Urban and Interstate Highways (including but not limited to the "Green Book"), unless otherwise approved by the Department.

b. **Design Specifications and Guidelines:** Design for roadways and intersections will be in accordance with the current edition of AASHTO Design Specifications; AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals; and AASHTO Roadside Design Guide and the Department of Transportation Standard Specifications for Construction of Roads and Bridges, 2001 Edition, and current editions of Special Provisions. Design and plan preparation will also be in accordance with the FHWA Federal-Aid Policy Guide. Plan and specifications will conform to the requirements of the Highway Capacity Manual, current edition (T.R.B. Report No. 2). Design work for inside interstate rights of way will conform to the interstate standards. Design for work outside interstate right of way shall conform to AASHTO design standards for the appropriate classification and speed design. Any deviation will also require a written design exception or variance to be approved prior to incorporating it into the work. The Contractor will prepare the required design exception request for approval by the Department and/or the FHWA. A design exception request will justify fully why the guideline cannot be reasonable met considering such items as right of way impacts, cost, mitigation measures taken, and accident history and should include the recommendation. The Contractor will meet the current ADA guidelines. In addition to the references listed above, the following references will be used in the development of this project:

- Electronic Data Guidelines – March 15, 2004, Revised March 15, 2006
- Plan Presentation Guide – November 2002
- Current Manual on Uniform Traffic Control Devices "MUTCD" by the U.S. Department of Transportation, Federal Highway Administration "FHWA"
- Draft Manual of Drainage Design for Highways by the Georgia Department of Transportation
- Roadway and Bridge Standard Plans as of July, 2006 by the GDOT Road and Airport Design Office. Design and plan preparation will also be in accordance with the Certification Acceptance authorized by 23 USC 117(a) for Administering Federal Aid Projects Not On Interstate System, dated June 1, 1990.
- Guidelines for Processing Design Data in CAiCE – http://www.dot.state.ga.us – search for keyword "CAiCE".
- Construction Details by the GDOT Road and Airport Design Office
- Pay Item Index by the GDOT State Transportation Office Engineer
- Utility Accommodation Policy and Standards by the GDOT Utilities Office

This List is not intended to be all-inclusive. All references are to be the current editions accepted by the GDOT. Any current editions that are written in metric units should be "soft converted" to U.S. Standards Units. Any rounding will be to the dimension that will increase safety.

c. **Plan Sizes:** Plans for roadway, drainage and utilities will be reproducible quality ink drawings on bond paper. They should have outside dimensions of 36" by 24" with a 2" margin on the left and a ½" margin elsewhere and be produced by a Microstation CADD system. Review sets of plans may be on paper with the same dimensions as above.

d. **Construction Plan Requirements and Scale:** The Plans will be fully dimensioned in English units; all elevations necessary for construction will be shown similar to the Department's normal practice. All plans are to be prepared on the scales listed below, unless otherwise approved by the Department. Drawings and lettering will be such as to produce clear and legible reproductions when reduced to half-size. The scale of sheets are to be as follows:

(1.) 1" = 10'
- (a) Roadway cross sections 1" = 10' horizontal and 1" = 10' vertical
  NOTE: Cross sections may have to be plotted lengthwise on the sheet to avoid folded sections
- (b) Staging cross sections 1" = 10' horizontal and 1" = 10' vertical
  NOTE: Cross sections may have to be plotted lengthwise on the sheet to avoid folded sections

(2.) 1" = 50'
- (a) Roadway plan sheets for interstate type projects
- (b) Roadway profile sheets for interstate-type projects 1" = 50' horizontal and 1" = 10' vertical
- (c) Drainage profile sheets 1" = 50' horizontal, 1" = 10' vertical (include location of existing and proposed utility crossings.)
- (d) Staging plans for interstate projects
- (e) Bridge plan and elevation sheet
- (f) Utility relocation plans

(3.) 1" = 100'
- (a) Stake out sheet

(4.) 1" = 400' or 500'
- (a) Cover sheet
- (b) Drainage area map

The Contractor will check all details and dimensions shown on the plans before they are submitted to the Department for review. Topography will remain fully legible when plans are reduced in size, but will be less prominent and readily distinguishable from the proposed work. Profile sheets should have the existing ground line dashed and the required profile in a solid line. All other plan sheets (utility, erosion control, lighting, signing & marking, signal, etc.) will be the same scale as its corresponding roadway plan sheet.

e. **Construction Plans Organization and Sheet Index**: Construction plans will be assembled according to the Electronic Data Guidelines.

The total sheets shown in the Index will be the total number of sheets in the plans. The total sheets shown in the upper right hand corner of each sheet will be the total number of sheets submitted for the final plan submission. Any preliminary plans will be assigned temporary sheet numbers by using the sequence prefix followed by a

two-digit number per the Electronic Data Guidelines. These numbers are to be placed in small blocks in the lower right corner of the sheet.

f. **Computations:** All design computations and computer printouts will be neatly recorded on 8 ½" by 11", fully titled, numbered, indexed, dated and signed by the designer/project manager and checker. Project quantity computations will be done in electronic spreadsheet format or directly processed from the CAiCE software. The computer files and two copies of the computations fully checked and appropriately bound, should be submitted to the Department with the plans. A complete tabulation of the drainage analysis along with the calculations used to determine the size of drainage structures will be submitted to the Department with the construction plans.

g. **Plan Print Requirements**: The Contractor will furnish all the prints necessary for the development of the preliminary and final construction plans and specifications. All prints will be clear and legible.

h. **Supplementary Information on Construction Plan Preparation**: All of the following sheet descriptions and others required for completeness of the plans should conform to the Department's Plan Presentation Guide.

i. **Traffic Flow Diagrams**: These sheets provide the traffic data information to determine design criteria. The Contractor shall use traffic volumes from the May 2006 "Traffic Operations Analysis I-75 Auxiliary Lane Project" Technical Memorandum to prepare the Traffic Flow Diagram sheets. The sheets are not required to be to a scale, but the drawing should show and represent the alignment of the overall project. Two sets of diagram shall be prepared, one which shows the Average Daily Traffic (ADT) and the other showing the peak Design Hourly Volumes (DHV).

j. **Typical Sections**:

(1.) Typical sections will show exact dimensions (medians, travel-lanes, shoulders, slopes, ditches, etc.) from the construction centerline. Locate and label the roadway profile grade line for both existing and proposed. Label appropriate items as to type and thickness. All slope controls should be specified on each typical section. Preliminary typical sections will be provided by the Department.

(2.) Typical sections will indicate the spread rates for Asphaltic Concrete and thickness for Graded Aggregate Base to be used on the project. The pavement structures described in the typical sections are those already approved by the Department.

(3.) Any special conditions will be shown as details on the typical section sheets. However, if these items are covered by a Georgia Standard or a construction detail, then a note should be included referring to the standard or detail.

(4.) The scale of each typical section may differ between the horizontal and the vertical in order to more clearly show the division between separate layers of the structure of the pavement.

(5.) Roadway plans will meet the posted speed design within the limits of this project as shown in the 2002 Roadside Design Guide and the MUTCD.

(6.) Any substandard guardrail within the limits of construction is to be replaced under this contract. Where construction exists only on one side, only the guardrail on construction side adheres to this requirement.

k. **Construction Plan Sheets**: Construction plan sheets shall be in accordance with the Plan Presentation Guide including, but not limited to, the following: existing topography, construction centerline, curve data, edge of pavements, medians, drainage, bridges, and project limits.

l. **Roadway Profile Sheets:** The roadway profiles shall be in accordance with the Plan Presentation Guide including, but not be limited to, the following: existing ground line,

existing elevations , proposed ground line, proposed elevations, PVC, PVT, PVI, LVC, K Value, high points, low points, existing structures, and proposed structures.

m. **Staging Plan Sheets:** Staging plan sheets shall be in accordance with the Plan Presentation Guide including, but not limited to, the following: existing topography, construction centerline, curve data, edge of pavements, medians, drainage, bridges, and project limits

n. **Staging Profile Sheets:** The staging profiles shall in accordance with the Plan Presentation Guide including, but not be limited to, the following: existing ground line, existing elevations , proposed ground line, proposed elevations, PVC, PVT, PVI, LVC, K Value, high points, low points, existing structures, and proposed structures.

o. **Drainage Profile Sheets:** Drainage profiles should be shown for all proposed drainage structures except side drains. Existing drainage profiles will be shown if pipe and structures are to be retained and when a proposed drainage system connects to it. Drainage structures will be fully detailed and dimensioned.

All cross drain structures will be sized by the P.C. computer program HY-8. The Allowable Highwater will be the existing 100-year elevation plus 1.0 foot.

All drainage structures located in a designated floodway shall be sized to comply with FEMA regulations. FEMA structures require the computer analysis from FEMA, usually HEC-2 analysis. Remodel the floodway and do not increase the 100-year storm more than 1.0 foot total. If the floodway must be altered, all the necessary maps and computer printouts should be included in the drainage analysis and the Contractor will ensure that all FEMA and Local Government requirements are satisfied. When changing sizes of pipes, the top elevation of the pipes should be the same and the flow lines will change. All other guidelines and computation sheets are in the "Draft Manual on Drainage Design for Highways". The Contractor will submit all final drainage computations.

p. **Sound Barrier Envelopes and Plans:** Sound barrier envelopes and plans sheets shall be in accordance with the Plan Presentation Guide.

q. **Erosion and Sediment Control Sheets**:

Note: The Contractor will not begin work until the Control of Soil Erosion and Sedimentation Plan has been accepted and approved by the Engineer. See 999.1.A.2 and Specification 161.

Erosion and Sediment Control Plans detail the temporary erosion control devices to be used during construction. These devices include, but are not limited to, sediment traps, silt control gates, floating silt retention barriers, check dams, silt fence (types A, B & C), bailed straw ditch checks, brush barriers and slope drains. Additional plan sheets are required for each stage of construction. The criteria listed below will be required as a minimum for the plans:

Item Title	Includes / Comment
Erosion and Sediment Control Cover Sheet	• Project Description • Certification Statements • Project information • Note: Must be signed by GDOT Chief Engineer
General Notes	Miscellaneous Statements
Drainage Area Map	• Runoff Coefficients – before & after • Peak Flow – before & after • Drainage Patterns – flow arrows

	• Delineated Wetlands • Drainage to lakes within ½ mile • Disturbed Area • Pipe Sizes • Construction Limits
Best Management Practices	Actual Plans – including erosion and sediment control for any staging plans
NOI Form	Current form will be provided to successful Contractor by the Department after review and approval of erosion control

Note: Sediment and Erosion Control Items will be paid for under CONSTRUCTION COMPLETE.

Fill Slopes: Mats are to be used on all fill slopes for all heights that:

(1.) Cross a drainage structure (*minimum of 50 feet on either side of the centerline of the drainage structure*)
(2.) Adjacent to sensitive areas (i.e. wetlands, waterways, lakes, developed property)
(3.) Are unusually difficult to maintain
(4.) Are steeper than 2.5:1
(5.) Are planted with permanent grass (*It is not the intent to use mats as temporary slope protection.*)
(6.) Other conditions deemed appropriate by the Engineer

Cut Slopes: Mats will be used on all cut slopes that:

(1.) Are steeper than 2:1, regardless of height
(2.) Are on slopes of highly erodible soils (*Erosion Index greater than 9*)
(3.) Are adjacent to sensitive areas (i.e. wetlands, waterways, lakes, developed property)

r. **Signing and Marking Requirements**

General

Prepare signing, signalization and marking plans in accordance with the Manual of Uniform Traffic Control Devices (MUTCD) and any applicable AASHTO or Department standards and guidelines.

Prepare plan sheets to show all permanent roadway signs and pavement markings as they appear upon completion of the project. Place emphasis on designing clear directional signage and coordinating sign placement with roadway features, structures, sight distances and driver awareness. All signs are to be replaced unless they meet the current reflectivity and design policy requirements.

s. **Utilities**:

(1) General

By Georgia Statues, utilities whether public or privately owned, aerial or underground, are permitted by the Department and local governments to be accommodated within the public right of way. To this end, the Contractor needs to make every effort to design/build a project that will accommodate (and minimize impacts to) all existing utilities and new utilities to be constructed concurrently with the project.

The selection of typical section features, horizontal alignment, and location of storm sewer lines are design elements that can sometimes be varied without violating safety standards, and accepted design principles. Design/construction techniques

that minimize or avoid utility conflicts may involve increased upfront costs; however, those costs are offset by savings during construction, in addition to the total cost savings for the project owner (the Department or local government) and the respective utility owners.

Additional guidance for accommodating utilities within the right of way are given in the AASHTO publications: A Guide for Accommodating Utilities within Highway Right of Way, A Policy on Geometric Design of Highways and Streets; the TRB publication: Policies for Accommodation of Utilities on Highway Rights-of-Way; and in GDOT's Utility Accommodation Policy and Standards, current edition.

The Utility Plans are used as the primary tool to identify and resolve utility related conflicts/issues prior to beginning the construction of a project. Also, when these plans are properly prepared as indicated in this manual; they will support the vital coordination required between the Contractor and the Utility Owner during construction.

Existing utility information shown on the Utility Plans for this project have been obtained from an Overhead / Subsurface Utility Engineering (SUE) Investigation (please refer to Section 2.C. for more information on SUE). This existing utility information has been provided by the Department for the Contractor's use in the design and construction of this project. However, the Contractor shall be responsible for supplementing this utility information for utilities that have been installed after the Overhead / Subsurface Utility Engineering (SUE) Investigation was performed. Known utilities and contacts are shown in the plans package. This information shall be verified by the Contractor.

Utility plan sheets are comprised of completed roadway plan sheets but will contain more detailed information featuring existing and proposed utility facilities. Specific requirements for Utility Plans are detailed below.

(2) Required Information

(a) Preliminary Utility Plans

Preliminary Utility Plan sheets are typically comprised of preliminary roadway plan sheets with the inclusion of all existing utility facility locations (overhead & underground) found within a project's limits. Determining the location of the existing utilities was accomplished through an Overhead/Subsurface Utility Engineering Investigation. The "degree of effort" exerted on the part of the Department and the Utility Owner varies with the type and location of the utility. The Department has classified these "degrees of effort" into different Quality Levels of information. Please refer to Section 2.C. for definitions of these Quality Levels.

Preliminary Utility Plans shall be produced and used by the Contractor in the utility coordination/relocation design activities outlined here and under Section 999.1.3. The following minimum information shall be shown on the Preliminary Utility Plans:

1. Construction centerline with project stations and begin/end project limits.
2. Curb and gutter or edge of pavement (proposed and existing)
3. Road and street names
4. Existing and Required Right of Way limits, property lines, environmentally sensitive area limits, and property owners.
5. All proposed and existing easements (including existing utility easements)
6. Proposed and existing drainage structures/features (excluding drainage text)
7. Proposed construction limits (C/F lines)

7. Topographical planimetrics (i.e. existing buildings / structures, existing tree/vegetation limits)
8. All proposed bridges, walls, other structures and landscape hardscapes.
9. All proposed and existing strain poles (signal, sign, lighting)
10. Utilities Legend
11. Miscellaneous General Notes
12. Existing overhead and underground utilities found within the project's limits. Including size and material if known.
13. Sanitary sewer manhole top, and invert elevations. Sanitary Sewer pipe flow directions
14. Railroad mainline and spur tracks with their respective property/easement limits
15. Project Survey control point locations
16. SUE specific General Notes
17. Utility Pole Data Table
18. SUE investigation Limit of study
19. SUE Quality Level A information

(b) Final Utility Plans

Final Utility Plans consist of all the elements provided for in the Preliminary Utility Plans, but also show all proposed utility adjustments required to accommodate the project.

The proposed utility information will either be provided to the Contractor by each of the respective Utility Owners, or included in the Design Scope for this project. Refer to Section 999.1.A.3 to determine how proposed utility relocation design information is to be provided. In either case, the Contractor shall compile and incorporate this information into the project's Final Utility Plans.

The proposed utility work for this project shall either be performed by the Utility Owner or their designated contractor, or included as part of the project's construction contract. Refer to Section 999.1.A.3 to determine who is responsible for the proposed utility relocation work for this project.

In either case, the Final Utility Plans shall clearly show all existing, proposed, temporary, and relocated utilities on the plans and clearly indicate the disposition of all existing utilities: for example, "To be removed", "To be Adjusted", "To be Abandoned", "To Remain", "To be Relocated", etc. The plans shall also clearly define utility work as to which is to be done by the Contractor and which is to be done by others. Utilities to be relocated (or removed, or installed) prior to construction should be labeled on the plans as "To be relocated (or removed or installed) by others prior to project construction".

When proposed utility work is included as part of the project's contract, it is necessary for a Summary of Quantities to be included within the Final Utility Plans. The Summary of Quantities shown in the Final Utility plans shall be prepared in the same basic format as indicated in Section 999.3.B.1.q.

Where extensive or complex utility work is proposed to be performed, separate Utility Relocation Plan Sheets for that specific utility may be required to ensure plan legibility/constructability. The Contractor shall determine whether separate Utility Relocation Plans are needed. However, after review of the plans, the Engineer may require these additional sheets be included in the project plan package.

In addition to the information required for the Preliminary Utility Plans, the Final Utility Plans shall include the following:

1. All proposed and temporary utility facilities with annotation describing nature of work.
2. Miscellaneous General Notes required for coordination of utility facilities with roadway construction.
3. Proposed water and sanitary sewer plan/profiles.
4. Summary of Quantities for contract items (if applicable).
5. Any proposed utility easements.
6. Any miscellaneous proposed utility details.

c. Overhead/Subsurface Utility Engineering (SUE) Investigations (Provided by the Department):

(c) Overhead/Subsurface Utility Engineering (Sue) Investigations (Provided by the Department)
Employ an established engineering technology that can provide precise horizontal and vertical locations of underground and overhead utilities to produce an accurate picture of the underground and overhead utility infrastructure. The existing utility information provided in these investigations includes a description of what "degree of confidence" there is in its accuracy. The Department has classified these "degrees of confidence" into different Quality Levels of information:

Quality Level "D" Information - Information obtained solely from a review of utility records. The comprehensiveness and accuracy of such information is highly limited. Even when existing information for a utility in a particular area is accurate, there are often other underground systems that are not shown on any records. Quality Level "D" may be appropriately used early in the development of a project to determine the presence of utilities.

Quality Level "C" Information - Information obtained to augment Quality Level "D" information. This involves topographic surveying of visible, above-ground utility features (e.g., poles, hydrants, valve boxes, circuit breakers, etc.) and entering the topographic data into the CADD system. Since aerial utility lines are not surveyed, information provided for these facilities is considered Quality Level "C" also. Quality Level "C" may be appropriately used early in the development of a project and will provide better data than Quality Level "D" information alone. Designers must be very cautious when working on projects using information for underground utilities that is based only on Quality Levels "D" and "C" locates.

Quality Level "B" Information - Information obtained through the use of designating technologies (e.g., geophysical prospecting technologies). This is an application using scanning technologies, most of which have very specific capabilities. Applying a variety of techniques is essential to the process of preparing a comprehensive horizontal map of utilities and other underground structures on the site. Designating technologies are capable of providing good horizontal information.

Quality Level "A" (Test Hole) Information (not provided by the Department) - Provides the highest level of accuracy of utility locations in three dimensions. This level may apply manual, mechanical or nondestructive (e.g., vacuum excavation) methods to

physically expose utilities for measurement and data recording. Quality Levels "B", "C", and "D" locates are incorporated in Quality Level "A" locates.

The Contractor shall identify all utility conflict points where verified existing utility information is necessary to avoid the respective utility conflict. The Contractor shall obtain Quality Level "A" locates at these project/utility conflict points, and shall coordinate with the Utility Owners and make every effort to avoid existing utility facilities and thereby reduce utility relocations.

This Quality Level A information shall be performed to GDOT standards by a prequalified firm in Subsurface Utility Engineering (SUE). Refer to the following website for a list of current prequalified firms:

http://www.dot.state.ga.us/dot/preconstruction/consultantdesign/byclass/I508.htm

(3) Sheet Layout

The Contractor needs to ensure that any information and graphic data that is not necessary to depict the disposition of utilities found within the project's limits is removed by turning off the appropriate CADD levels(s) on which the data is stored. This will help ensure that information pertinent to utility facilities can be clearly seen in the Utility Plan sheets. Examples of extraneous information would be items such as horizontal curve data, superelevation data, roadway dimensions, misc. text, etc. All background information such as pavement limits, existing structures, etc. should be screened back. Also, the Contractor must ensure all text, line work, details, and symbols are clear and legible when plans are reduced to ½ size.

In order to maintain plan clarity all applicable general notes, tables, Summary of Quantities, and the Utility Legend shall be placed separately from the Utility Plan sheets. This Utility Plan "Cover Sheet" shall be provided for both preliminary and final Utility Plans. A recommended example utility sheet schedule is provided below:

- Utility Sheet 1 (Cover Sheet) – Utility General Notes, Utility Legend, Miscellaneous Details

- Utility Sheet 2 (required as needed) – Additional Miscellaneous Details, Summary of Quantities, Pole Data Table

- Utility Plan Sheets – Utilities shown in plan view with respect to project.

- Utility Profile and Cross Sections Sheets - Proposed Utility facility profiles and cross sections (as required)

- Miscellaneous Utilities Sheets – Miscellaneous proposed utility details (as required).

The above sheet schedule should also be generally followed for all separate utility relocation plans (i.e. water & sewer plans) included in the project plans.

(4) Miscellaneous Notes and Other Information

State on the Utility Plans whose responsibility it is for utility adjustment. If the Contractor is to adjust utilities, those items are to be summarized and the appropriate pay items are to be included on the detailed estimate.

For bridge plans required, the Contractor is to make sure the plans have made accommodations for utility crossings and attachments, if applicable. Any new utility crossings requests must include the size, weight, and type of utility. In addition, the method of attachment to the bridge must be fully detailed. Such requests shall be reviewed by the Contractor to ensure adequacy and constructability and final approval shall be obtained by the Contractor from the Department. The Contractor shall follow the approval process within this specification.

The Contractor is responsible to ensure that all proposed and existing utilities are coordinated with the respective project's Construction Staging and Erosion Control Plans.

Upon completion of the Utility Relocation Plans, the Contractor needs to ensure that any additional environmental impacts due to utilities are addressed in the project's environmental document/permit.

t. **Detailed Estimate Sheet**: Prepare the Detailed Estimate Sheet in accordance with the Plan Presentation Guide.

C. Bridges

1. General

DESIGN SPECIFICATIONS AND GUIDELINES: Design bridges in accordance with the 2002 AASHTO Standard Specifications for Highway Bridges, 17th Edition. Use GDOT Bridge Design Manual and Memos for information regarding bridge design practice located at the internet address:
http://www.dot.state.ga.us/dot/preconstruction/bridgedesign/index.shtml
Use "Basic Drawings where possible. Basic drawings and cells can be downloaded at the following internet address:
http://www.dot.state.ga.us/dot/preconstruction/adds/bridge/index.shtml
Use MicroStation/J to prepare plans in accordance with the Office of Bridge and Structural Design's MicroStation Customization. These files include a folder structure that is required to be on C:\Drive along with the "Bentley" folder. Access the Bridge MicroStation Customization files at the internet address:
http://www.dot.state.ga.us/dot/preconstruction/adds/microstation/customization.shtml

BRIDGE FOUNDATION INVESTIGATION:

a. General:
Perform field and laboratory testing and analysis, and prepare a report with foundation recommendations for the bridge. Work is to be performed by qualified and experienced firms that are prequalified with the Georgia DOT in Area Class 6.02.

Perform work in accordance with AASHTO Standards.

Comply with all applicable Federal and State requirements.

b. Field Investigation:
Perform field and laboratory testing and analysis in general conformance with the Department's Geotechnical Engineering Bureau Foundation Drilling and Sampling Guidelines. Drill a minimum of one boring at each bent line. Drill additional borings as necessary.

Perform the following, as applicable:

- Notify property owners prior to accessing their properties,

- Obtain locations and clearance for all utilities within the area of the borings,
- Provide traffic control and lane closures in accordance with the Georgia DOT Specifications,
- Clearing and preparation of the boring site,
- Obtaining and transporting water to the site,
- Foundation drilling and sampling of soil and rock,
- Obtaining accurate survey elevations,
- Site clean up, erosion control and restoration.

Fill portions of all drill holes with drill cuttings after completion of drilling that are not subject to excavation for construction. Top off all drill holes through pavements with cold mix asphalt (unless subject to excavation) to the same depth as the existing pavement. Remove all drill cuttings, muddy water, slurry and other debris deposited on pavements, paved shoulders and other travel ways immediately when the areas will be subject to traffic after the completion of this project. Calculate elevations to an accuracy of one tenth (0.1) of a foot.

Do not provide copies of boring logs, plans or field test reports to property owners or other parties without the permission of the State Geotechnical Engineer.

c. Laboratory Testing:
Perform laboratory testing on samples obtained from the field in accordance with applicable methods of AASHTO, ASTM or GDOT test procedures. Use a laboratory that possesses current AASHTO certification.

Furnish laboratory results as a part of the Final Report.

d. Final Analysis and Report

Perform a geotechnical analysis for this project and prepare geotechnical recommendations in the form of a final report to the Department's State Geotechnical Engineer for review, prior to foundation construction. Base the final report on the information collected from the field investigation, the plans, specifications, results of laboratory tests, and the analysis of all other available information.

Stamp and sign the final reports by a Professional Engineer registered in the State of Georgia. Provide copies of the final report to the State Geotechnical Engineer.

Prepare the reports in general conformance to the Department's Geotechnical Engineering Bureau Report Preparation Guidelines, Georgia DOT Specifications, and in conformance with good engineering practice. Incorporate the following recommendations and additional recommendations as applicable:

- Foundation types and allowable loads,
- Footing elevations,
- Pile minimum and estimated tip elevations,
- Drilled Caisson tip elevations,
- Small diameter (Pin) pile tip elevations,
- Foundation installations in rock,
- Waiting period for fill settlement,
- Embedment construction, settlement, and slope angles,
- Treatment of groundwater conditions,
- Treatment of poor soil conditions,

- Construction effects on adjacent structures and remedies for any potential problems.

In the Final Report, include (as applicable) copies of boring logs, field notes, laboratory and field test results or summaries, photographs, special provisions, details and drawings, and other related information. Address all comments from the Office of Materials and Research and correct final reports, as determined by the State Geotechnical Engineer. Resubmit the corrected report at no additional cost to the Department.

Acceptance of the work by the Department will not relieve the Contractor of the responsibility for subsequent correction of errors or for the costs associated with work caused by negligent errors or omissions from work performed by the Contractor.

2. Plan Submittals:

a. Preliminary Plans.

b. Construction Plans: At the Contractor's option, construction plans may be submitted as partial submittals as follows:

- All bridge substructure sheets including reinforcing schedule sheets
- All beam and bearing sheets
- Remaining superstructure sheets with reinforcing schedule sheets

c. Shop Drawings.

d. Submit two (2) full size paper copies and two (2) half size paper copies of Plans and one (1) copy of the calculations for each scheduled submittal.

e. Do not proceed with the final design of bridge plans until the preliminary plans have been approved by the Department.

3. Preliminary Bridge Plans

The existing bridge carrying I-75 southbound over Flippen Road shall be widened to provide 80'-9" from existing median barrier gutter to proposed outside barrier gutter. Consider the following in preparation of the Preliminary Plans:

a. A schematic typical section for the bridge widening is included with the contract documents.

b. Original bridge plans may be purchased by contacting the plans reproduction office at (404) 656-5401. The original bridge was built under project number I-75-2 (37) 218 and was widened under project number IR-75-2 (138).

c. The Contractor shall verify all dimensions and elevations in the field prior to preparing plans, ordering materials or building forms.

d. Design the bridge widening using structural steel W-beams or welded plate girders.

e. Design the steel beams or girders as composite with the concrete deck.

f. Do not increase stresses on existing bridge elements to remain above allowable levels defined by AASHTO.

g. Design the widening using a simple span beam arrangement similar to the existing bridge.

h. Design the substructure end bents and intermediate bents with concrete columns, caps, or walls with footings having their top a minimum of two feet below ground.

i. On the preliminary layout, define the construction scheme for the structure including the proposed staging of construction, temporary barrier type and location, temporary shoring, traffic handling requirements, construction access for delivering materials,

erection and construction activities, location of any temporary bents, location of transverse expansion joints and construction joints in the bridge.

j. Provide a minimum vertical clearance from bottom of proposed superstructure to roadway beneath greater than or equal to the existing vertical clearance. GDOT records indicate that the existing minimum vertical clearance to Flippen Road is 16'-4". Contractor shall field survey the existing clearance over all travel lanes and submit the survey results to the Bridge Office along with the Preliminary Layout.

k. Except as noted herein, widen the bridge using bents and joints which are collinear with the existing bridge bents and joints. Provide a minimum horizontal clearance from edge of travel lane on Flippen Road to face of bent which is equal to or greater than the existing horizontal clearance.

l. Provide a typical section which indicates the following information:

- Center to center spacing of girders: limit this dimension to a maximum spacing of 9'-0".
- Overhang or distance from outside edge of slab to center of exterior girder: This distance (overhang) shall meet AASHTO requirements, but shall not exceed 2'-7 1/2" for this structure.
- Cross slope of the deck.
- Deck thickness between girders and deck thickness at the centerline of girder measured from the top surface of deck to top of the flange.
- Provide a slab with a minimum thickness determined by the Georgia DOT computer program, BRSLAB06, Service Load Design of Concrete Bridge Slabs proportioned to provide 2.75 inches of concrete cover over the top mat of reinforcing and 1 inch cover to the bottom mat of reinforcement. Use the slab thickness determined for the portion of the bridge supporting the highway loading at all locations.
- Thickness of the top and bottom flange and depth of web for steel plate girders or the AISC steel beam section designation.
- Barrier location, height and width.
- Gutter to gutter and out-to-out dimensions.
- Location of the profile grade.

m. In addition to the requirements above, provide the following:

- A plan view of the proposed structure indicating beginning and end bridge stations, construction centerline, profile grade line, bent skew angles, joint locations, station and skew of roadways crossing under the structure, width of roadways beneath the structure, gutter to gutter width of the bridge, out to out width of the bridge, distance from gutter to outside edge of deck, taper control stations, location of point of minimum vertical clearance, and location and magnitude of the horizontal clearances from edge of travel way beneath the structure to the face of intermediate bents.
- Stations and elevations along the centerline of construction at the intersection of the centerline of construction and the back face paving rest and centerline of bents. Provide profile grade elevations corresponding to the above stations.
- An elevation view of the proposed structure indicating the span length, location of fixed and expansion joints, profile of roadways beneath structures, vertical clearance from bottom of structure to roadway beneath, proposed bent locations, and existing ground profile.

- All horizontal and vertical curve data for the bridge and the roadway beneath the bridge.
- The location and elevation of the nearest bench mark.
- A brief description of the proposed structure indicating span lengths, and type of end bents.
- Any drawing and/or narrative description of the construction scheme necessary to indicate how the bridge is to be built, including traffic handling sketches and temporary barrier locations.

4. Final Bridge Design

Additional bridge design criteria shall be as follows:

a. Design the bridge widening for seismic performance category "A".
b. Use ASTM A 615 Grade 60 reinforcement. Use epoxy coated reinforcement in the top mat of the deck and the traffic side of the barriers.
c. Use Class AA Concrete with a minimum 28 day concrete strength of 3,500 psi for the deck, barriers, endposts and substructure.
d. Include 30 pounds per square foot in the design loads to allow for future paving.
e. If metal deck forms are used, include 16 pounds per square foot in the non-composite design loads.
f. Design and detail edge beams where the deck is to be discontinuous. Extend edge beams a minimum of 18 inches below the bottom of the top slab.
g. Place slab transverse and longitudinal reinforcing steel 2 inches from the edge of the slab and place the top mat of edge beam bars below the top mat of the deck steel. Do not use truss shaped bars in the edge beam. Extend stirrups from the edge beam into the slab.
h. Use protective platforms over Flippen Road.
i. For structural steel beams and plate girders, meet the following:
    - Use ASTM A 709 Grade 36 or Grade 50 structural steel.
    - Design beams and girders as simple span beams, composite with the concrete deck.
    - Provide concealment plates attached to the exterior girders exposed to traffic at the intermediate bent.
    - Provide steel channel diaphragms in accordance with AASHTO guidelines and GDOT standard practice.
    - Provide bearing assemblies at the girder ends. Design bearing assemblies using steel sole and base plates and bronze lubricated plates that account for transverse and longitudinal expansion and contraction.
    - Indicate on the plans the main load carrying members that are subject to tension and state that they shall meet Charpy V-notch test requirements found in the Georgia DOT Specifications.
    - For fatigue, design all welds for Category C or better as defined by the AASHTO Specifications.
    - Provide web stiffeners on each side field web splices. Locate web stiffeners between six and twelve inches from centerline of web splices.
    - Design and detail the bridge ends with a paving rest to accommodate full width approach slabs.
    - Paint all new structural steel in accordance with Section 535 of the Georgia DOT Specifications using System VII.
j. Use spread footings, H-piles or drilled caissons in the foundations.

- For H-piles:
  (1) For H-piles driven to a maximum allowable stress of .25Fy:
  Minimum pile embedment will be 10 feet. Pile embedment is measured from the bottom of the footing to the bottom of the pile.
  (2) For H-piles driven to a maximum allowable stress of .33Fy:
  i. Pile Load Test and Pile Data Analyzer (PDA) will be required at two locations. The Department's Geotechnical Bureau will determine the location of each Load Test.
  ii. Minimum pile embedment will be 15 feet.
  (3) Maximum batter is 4 horizontal on 12 vertical.
  (4) Use a minimum of one pile per beam location at the end bents.
  (5) Use a minimum of one pile at the end of each wingwall. For wingwall piles, use a pile size equivalent to piles supporting beam locations at end bents.

- For drilled caissons, do not exceed a bearing of 150 kips per square foot.
- For spread footings, do not exceed a bearing of 6 kips per square foot on soil, 12 kips per square foot on weathered rock, or 20 kips per square foot on hard rock.

5. Bridge Construction Plans:

The Contractor shall meet with the Department and discuss how the plans will be prepared prior to beginning plan preparation on the project.

a. Prepare construction plans with all dimensions, notes and details necessary to construct the structure. As a minimum, include the following sheets:
- Plan and Elevation sheets that include:
  (1.) Plan view of the bridge,
  (2.) Elevation view of the bridge,
  (3.) Beginning and ending stations,
  (4.) North arrow,
  (5.) Location of fixed and expansion bearings,
  (6.) Location of the minimum vertical clearance above Flippen Road,
  (7.) Existing Bridge Serial No., Existing Bridge ID No., Project No. Project PI No., and construction ID No. supplied by the Department.
- General Notes sheets that include:
  (1.) Notes for the following; Specifications, Reinforcing Steel, Chamfer, Existing Bridge Plans, Welding, Salvage Material, and others as necessary,
  (2.) Bridge Design Data,
  (3.) A summary of Bridge Consists Of (for information),
  (4.) A summary of Traffic Data,
  (5.) A summary of Quantities (for information only)
  (6.) A list of Existing Utilities (if applicable),
  (7.) A list of Utilities (if applicable)
- Deck Plan sheets,
- Deck Cross-Section sheets,
- Bearing assembly sheets,
- Beam sheets,
- Miscellaneous sheets,

- Framing Plan and Substructure Layout sheets,
- End Bent/Abutment sheets,
- Intermediate Bent sheets,
- As Built Foundation sheets, and
- Bar Bending Detail sheets.

Additional sheets may be necessary to show the details required for construction. Provide additional sheets at no additional cost when deemed necessary by the Department.

b. Provide the following details
   - On deck section sheets, provide one full-width section across the structure which indicates, at least, all the horizontal dimensions necessary to construct the bridge. Provide sufficient deck cross-sections to indicate the staging, location of the existing structure and location of any temporary barriers on the structure. Show as many sections as are necessary to detail the placement of reinforcing in the deck and barrier. Also, draw deck sections indicating edge beams, back walls, diaphragms or cross-frames, and end walls. Cut sections radially across the structure.
   - Detail deck plan sheets with all longitudinal and transverse dimensions necessary to construct the bridge, including edge beam width, expansion joint widths, back wall or end wall locations, location of construction and expansion joints, and any other items that are necessary to construct the structure.
   - All views, sections and details, except those in GDOT's standard bridge cell library, are to be drawn to scale. Draw deck cross-sections and intermediate bent sheets "Looking Ahead". If the end bents or abutments are drawn separately, draw bent/abutment one "Looking Back", and draw the other end bent/abutment "Looking Ahead".
   - All details on the Plans shall be clear and legible. The Department will have the final say as to how a Project is to be drawn and will have the right to require additional drawings at no increase in Contract cost. Fully check the plans for completeness of content and accuracy before submittal to the Department for review.

c. Maintain and protect all utilities supported and in the area of the bridge during construction.

d. Groove the widened portion of the bridge deck in accordance with Section 500 of the Georgia Specifications.

SHOP DRAWINGS:

Provide shop drawings in accordance with Georgia DOT Specifications. The Contractor's Design Engineer shall review and stamp approved all shop drawings as the Engineer of Record. After being stamped by the Contractor's Design Engineer, the Department will review the shop drawings for conformance with the plans and specifications. Allow the Department a 30 day review period upon receipt of the shop drawings for each submittal.

BRIDGE REMOVAL

No material removed from the existing structure is to be salvaged for use by the Georgia DOT. The Contractor is responsible for the removal and disposal of all material removed from the existing bridge.

999.4 CONSTRUCTION

The Contractor will construct the project as per the project scope and as per the approved final plans in accordance with the Specifications.

Construction includes, but is not limited to, the following:

- All clearing and grubbing and grading required in accordance with Sections 201, 202, 205, 206, 208 and 209;
- All necessary grading and drainage (All proposed pipes shall be concrete) to construct the subgrades, including the removal and replacement of unsuitable material, shoulders and incidental work to include furnishing borrow pits, waste disposal areas and hauling borrow and waste materials as required. The removal and replacement of unsuitable material is the responsibility of the Contractor;
- All necessary base construction, milling and paving to construct the pavement structure;
- Removal of all curbs, drainage structures, pavements, bases and subbases, or other obstructions within the rights of way as necessary to construct the roadway section;
- All signing, signalization, pavement marking, raised pavement markers and guardrail;
- All equipment and materials stored on the project will be stored outside the clear zone. Equipment and material shall not be stored the median;
- No construction will occur outside of the existing right of way/proposed limits as determined in the concept report/concept layout;
- Errors and omissions are the responsibility of the Design/Build Contractor to correct and at the expense of the Contractor;
- All salvageable material from this project will become the property of the Georgia Department of Transportation.
- Preparation of As-Built Construction Plans

999.5 MEASUREMENT AND PAYMENT

The Work required under the Specification will not be measured separately for payment unless otherwise specified in the detailed estimate. Payment for the items listed below, complete and accepted, will be made at the Lump Sum price bid. Payment will be full compensation for furnishing all materials, labor, tools, equipment, superintendence, mailing charges, removal and replacement of unsuitable material and other incidentals. It will also be made for performing all work specified, including but not limited to, designing, detailing, producing construction plans (preliminary and final, electronic and hard copy), meeting with the Department, processing the NOI and complete construction. For all asphalt concrete, when materials or construction are not within the tolerances specified in Section 400, deductions will be made in accordance with the applicable requirements of Sub-Sections 106.03 and 400.07.

Partial payments of the Lump Sum price will be made on monthly statements based on an approved schedule of payment. The Contractor will develop a schedule for payment for each of the following items:

- DESIGN COMPLETE

- CONSTRUCTION COMPLETE

The schedule for payment will include a rational basis for partial payments of the Lump Sum bid based on the completed portion of the item and definitive activities. The schedule for payment will be submitted to the Engineer and no payments will be made until the plan is approved. No construction will begin prior to said schedule being approved by the Engineer.

At the end of each calendar month, the Contractor will provide the Department with a certification showing the percent complete for each Pay Item. The Contractor should include a breakdown and supporting documentation, to include the Design Consultant's monthly invoice, in sufficient detail to substantiate the percent complete certified.

Payment will be made under:

Item 999, DESIGN COMPLETE ..... per Lump Sum
Item 999, CONSTRUCTION COMPLETE ..... per Lump Sum

Contact:
OFFICE OF URBAN DESIGN
Albert V. Shelby, III
Design Group Manager

August 8, 2007

AMENDMENT TO ADVERTISED CONTRACT

CONTRACT I.D. NUMBER: B12937-07-000-0

GEORGIA PROJECT NUMBER: CSNHS-0008-00(274)01

PCN: 0008274010000

COUNTY: HENRY

AMENDMENT NUMBER: 1

LETTING DATE: SEPTEMBER 21, 2007

LETTING NUMBER: 001

THE FOLLOWING CHANGES ARE HEREBY MADE TO THIS CONTRACT. THE BIDDER IS RESPONSIBLE FOR MAKING ANY NECESSARY CHANGES IN INK IN THE PROPOSAL. BIDDER SHALL ACKNOWLEDGE THIS AMENDMENT BY CHECKING THE APPROPRIATE SPACE ON THE PROPOSAL SIGNATURE PAGE.

****

1. **Add** the following attached “Memoranda of Understanding” to the proposal:

   A. Between the Georgia Department of Transportation and Henry County Water and Sewage Authority, 4 pages.

   B. Between the Georgia Department of Transportation and Clayton County Water Authority, 4 pages.

   C. Between the Georgia Department of Transportation and Charter Communications, 4 pages.

   D. Between the Georgia Department of Transportation and BellSouth Telecommunications, Inc, 4 pages.

   E. Between the Georgia Department of Transportation and Atlanta Gas Light Company, 4 pages.

   F. Between the Georgia Department of Transportation and Georgia Power Distribution, 4 pages.

2. **Delete** Proposal Pages 77 through 82 from the proposal.
3. **Add** the attached Special Provision Section 102-Bidding Requirements and Conditions, 5 pages, with a revised date of August 1, 2007, in the proposal.
4. **Add** the attached revised/added pages 475A and 475B to the proposal.

DAVID E. HOGE
STATE TRANSPORTATION OFFICE ENGINEER

RECEIVED
JUL 09 2007
BY:

Georgia DOT Project: CSNHS-0008-00(274) Henry County
GDOT P.I. 0008274

MEMORANDUM OF UNDERSTANDING

between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
Henry County Water and Sewerage Authority (hereafter the OWNER)

Whereas the DEPARTMENT proposes to undertake a design-build project to construct an auxiliary lane on I-75 southbound from I-675 to Eagles Landing Parkway in the existing right of way in Henry County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the design-build project through a Design Consultant, Design Consultant Team and/or Contractor hereafter referred to as CONTRACTOR; and,

Whereas the OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed contract:

Type of facility or facilities of the OWNER:

- ✓ Domestic water mains and distribution lines and associated appurtenances.
- ✓ Sanitary Sewer facilities and/or Storm Drainage System
- _____ Electrical Distribution (overhead and underground) wires, poles, etc.
- _____ Electrical Transmission (overhead and underground) wires, poles, etc.
- _____ Natural Gas Distribution Facilities (underground)
- _____ Telecommunications facilities and equipment
- _____ Cable TV facilities.
- _____ Street Lighting
- _____ Internet Data Service

Whereas the OWNER desires the following to be installed as new additional facilities during the proposed contract.

Insert detailed description of proposed new additional utility installations:

NONE

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of base maps plans will be accomplished by the DEPARTMENT prior to award of the project contract and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the project contract (list any work not included in the project in space provided above). If the preliminary plans indicate that no conflict exists, and the OWNER accepts this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. The CONTRACTOR will research the property interest of each OWNER and present the findings to the DEPARTMENT and OWNER for approval. The CONTRACTOR will coordinate resolution of any disputed items. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to include the subject utility work in the project construction and the research indicates that no property interest exists, and the OWNER cannot refute this finding with evidence that would substantiate the property interest in legal proceedings, the OWNER shall provide confirmation in writing that OWNER will reimburse the DEPARTMENT for any adjustment or relocations necessary; and an agreement will be prepared and executed in accordance with the DEPARTMENT'S "Utility Accommodation Policy and Standards Manual". If the OWNER chooses to perform it own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT and the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to assure that all utility work included in the project contract is accomplished in accordance with plans and specifications and to consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential problems. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

6. Upon completion of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within public right of way subject to the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR.

7. For the purpose of utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if directly with the DEPARTMENT in accordance with the

Design Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1a) Whereas the OWNER does not have adequate staff to perform the design functions for the adjustment or relocation of its facilities and is willing to have this design work included in the contract to be let by the DEPARTMENT.

__✓__(2a) Whereas the OWNER is willing to have this design work included in the contract to be let by the DEPARTMENT.

_____(3a) Whereas the OWNER will perform its own relocation or adjustment design.

If method (1a) or (2a) for the adjustment, relocation or installation of new facilities is selected, all design necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items:_____.

Construction Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1b) Whereas the OWNER does not have adequate equipment and staff to adjust its facilities and is willing to have this work included in the contract to be let by the DEPARTMENT.

__✓__(2b) Whereas the OWNER is willing to have this work included in the contract to be let by the DEPARTMENT.

_____(3b) Whereas the OWNER will perform its own relocations or adjustments.

If method (1b) or (2b) for the adjustment, relocation or installation of new facilities is selected, all work necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items:_____.

laws of Georgia, the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

Tony V. Carter — 7/6/07

(Signature) (Date)

DIV. MGR-ENG. & INSPECTIONS

(Title)

APPROVED FOR THE DEPARTMENT BY:

[signature] — 7-23-2007

(Signature) (Date)

STATE UTILITIES ENGINEER

RECEIVED
JUL 24 2007
BY:

Georgia DOT Project: CSNHS-0008-00(274) Henry County
GDOT P.I. 0008274

MEMORANDUM OF UNDERSTANDING

between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
Clayton County Water Authority (hereafter the OWNER)

Whereas the DEPARTMENT proposes to undertake a design-build project to construct an auxiliary lane on I-75 southbound from I-675 to Eagles Landing Parkway in the existing right of way in Henry County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the design-build project through a Design Consultant, Design Consultant Team and/or Contractor hereafter referred to as CONTRACTOR; and,

Whereas the OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed contract:

Type of facility or facilities of the OWNER:

- ✓ Domestic water mains and distribution lines and associated appurtenances.
- _____ Sanitary Sewer facilities and/or Storm Drainage System
- _____ Electrical Distribution (overhead and underground) wires, poles, etc.
- _____ Electrical Transmission (overhead and underground) wires, poles, etc.
- _____ Natural Gas Distribution Facilities (underground)
- _____ Telecommunications facilities and equipment
- _____ Cable TV facilities.
- _____ Street Lighting
- _____ Internet Data Service

Whereas the OWNER desires the following to be installed as new additional facilities during the proposed contract.

Insert detailed description of proposed new additional utility installations:

_____

_____

_____

Design Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1a) Whereas the OWNER does not have adequate staff to perform the design functions for the adjustment or relocation of its facilities and is willing to have this design work included in the contract to be let by the DEPARTMENT.

✓ (2a) Whereas the OWNER is willing to have this design work included in the contract to be let by the DEPARTMENT.

_____(3a) Whereas the OWNER will perform its own relocation or adjustment design.

If method (1a) or (2a) for the adjustment, relocation or installation of new facilities is selected, all design necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items:_____.

Construction Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1b) Whereas the OWNER does not have adequate equipment and staff to adjust its facilities and is willing to have this work included in the contract to be let by the DEPARTMENT.

✓ (2b) Whereas the OWNER is willing to have this work included in the contract to be let by the DEPARTMENT.

_____(3b) Whereas the OWNER will perform its own relocations or adjustments.

If method (1b) or (2b) for the adjustment, relocation or installation of new facilities is selected, all work necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items:_____.

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of base maps plans will be accomplished by the DEPARTMENT prior to award of the project contract and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the project contract (list any work not included in the project in space provided above). If the preliminary plans indicate that no conflict exists, and the OWNER accepts this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. The CONTRACTOR will research the property interest of each OWNER and present the findings to the DEPARTMENT and OWNER for approval. The CONTRACTOR will coordinate resolution of any disputed items. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to include the subject utility work in the project construction and the research indicates that no property interest exists, and the OWNER cannot refute this finding with evidence that would substantiate the property interest in legal proceedings, the OWNER shall provide confirmation in writing that OWNER will reimburse the DEPARTMENT for any adjustment or relocations necessary; and an agreement will be prepared and executed in accordance with the DEPARTMENT'S "Utility Accommodation Policy and Standards Manual". If the OWNER chooses to perform it own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT and the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to assure that all utility work included in the project contract is accomplished in accordance with plans and specifications and to consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential problems. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

6. Upon completion of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within public right of way subject to the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR.

7. For the purpose of utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if directly with the DEPARTMENT in accordance with the

laws of Georgia, the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

P. Michael Powers — July 19, 2007

(Signature) (Date)

GENERAL MANAGER

(Title)

APPROVED FOR THE DEPARTMENT BY:

7/31/07

(Signature) (Date)

STATE UTILITIES ENGINEER

Georgia DOT Project: CSNHS-0008-00(274) Henry County
GDOT P.I. 0008274

MEMORANDUM OF UNDERSTANDING

between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
Charter Communications (hereafter the OWNER)

Whereas the DEPARTMENT proposes to undertake a design-build project to construct an auxiliary lane on I-75 southbound from I-675 to Eagles Landing Parkway in the existing right of way in Henry County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the design-build project through a Design Consultant, Design Consultant Team and/or Contractor hereafter referred to as CONTRACTOR; and,

Whereas the OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed contract:

Type of facility or facilities of the OWNER:

_____Domestic water mains and distribution lines and associated appurtenances.
_____Sanitary Sewer facilities and/or Storm Drainage System
_____Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
_____Natural Gas Distribution Facilities (underground)
_____Telecommunications facilities and equipment
__✓__Cable TV facilities.
_____Street Lighting
_____Internet Data Service

Whereas the OWNER desires the following to be installed as new additional facilities during the proposed contract.

Insert detailed description of proposed new additional utility installations:

Charter will relocate facilities to new relocated Ga. Power poles

Design Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1a) Whereas the OWNER does not have adequate staff to perform the design functions for the adjustment or relocation of its facilities and is willing to have this design work included in the contract to be let by the DEPARTMENT.

_____(2a) Whereas the OWNER is willing to have this design work included in the contract to be let by the DEPARTMENT.

__✓__(3a) Whereas the OWNER will perform its own relocation or adjustment design.

If method (1a) or (2a) for the adjustment, relocation or installation of new facilities is selected, all design necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items:_____.

Construction Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1b) Whereas the OWNER does not have adequate equipment and staff to adjust its facilities and is willing to have this work included in the contract to be let by the DEPARTMENT.

_____(2b) Whereas the OWNER is willing to have this work included in the contract to be let by the DEPARTMENT.

__✓__(3b) Whereas the OWNER will perform its own relocations or adjustments.

If method (1b) or (2b) for the adjustment, relocation or installation of new facilities is selected, all work necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items:_____.

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of base maps plans will be accomplished by the DEPARTMENT prior to award of the project contract and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the project contract (list any work not included in the project in space provided above). If the preliminary plans indicate that no conflict exists, and the OWNER accepts this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. The CONTRACTOR will research the property interest of each OWNER and present the findings to the DEPARTMENT and OWNER for approval. The CONTRACTOR will coordinate resolution of any disputed items. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to include the subject utility work in the project construction and the research indicates that no property interest exists, and the OWNER cannot refute this finding with evidence that would substantiate the property interest in legal proceedings, the OWNER shall provide confirmation in writing that OWNER will reimburse the DEPARTMENT for any adjustment or relocations necessary; and an agreement will be prepared and executed in accordance with the DEPARTMENT'S "Utility Accommodation Policy and Standards Manual". If the OWNER chooses to perform it own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT and the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to assure that all utility work included in the project contract is accomplished in accordance with plans and specifications and to consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential problems. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

6. Upon completion of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within public right of way subject to the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR.

7. For the purpose of utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if directly with the DEPARTMENT in accordance with the

laws of Georgia, the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

(Signature) 7-13-07 (Date)

Construction Supervisor

(Title)

APPROVED FOR THE DEPARTMENT BY:

(Signature) 7-23-2007 (Date)

STATE UTILITIES ENGINEER

Georgia DOT Project: CSNHS-0008-00(274) Henry County
GDOT P.I. 0008274

MEMORANDUM OF UNDERSTANDING

between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
BellSouth Telecommunications, Inc. (hereafter the OWNER)

Whereas the DEPARTMENT proposes to undertake a design-build project to construct an auxiliary lane on I-75 southbound from I-675 to Eagles Landing Parkway in the existing right of way in Henry County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the design-build project through a Design Consultant, Design Consultant Team and/or Contractor hereafter referred to as CONTRACTOR; and,

Whereas the OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed contract:

Type of facility or facilities of the OWNER:

_____ Domestic water mains and distribution lines and associated appurtenances.
_____ Sanitary Sewer facilities and/or Storm Drainage System
_____ Electrical Distribution (overhead and underground) wires, poles, etc.
_____ Electrical Transmission (overhead and underground) wires, poles, etc.
_____ Natural Gas Distribution Facilities (underground)
__X__ Telecommunications facilities and equipment
_____ Cable TV facilities.
_____ Street Lighting
_____ Internet Data Service

Whereas the OWNER desires the following to be installed as new additional facilities during the proposed contract.

Insert detailed description of proposed new additional utility installations:

_____

_____

_____

Design Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1a) Whereas the OWNER does not have adequate staff to perform the design functions for the adjustment or relocation of its facilities and is willing to have this design work included in the contract to be let by the DEPARTMENT.

_____(2a) Whereas the OWNER is willing to have this design work included in the contract to be let by the DEPARTMENT.

__X__(3a) Whereas the OWNER will perform its own relocation or adjustment design.

If method (1a) or (2a) for the adjustment, relocation or installation of new facilities is selected, all design necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items:_____.

Construction Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1b) Whereas the OWNER does not have adequate equipment and staff to adjust its facilities and is willing to have this work included in the contract to be let by the DEPARTMENT.

_____(2b) Whereas the OWNER is willing to have this work included in the contract to be let by the DEPARTMENT.

__X__(3b) Whereas the OWNER will perform its own relocations or adjustments.

If method (1b) or (2b) for the adjustment, relocation or installation of new facilities is selected, all work necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items:_____.

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of base maps plans will be accomplished by the DEPARTMENT prior to award of the project contract and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the project contract (list any work not included in the project in space provided above). If the preliminary plans indicate that no conflict exists, and the OWNER accepts this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. The CONTRACTOR will research the property interest of each OWNER and present the findings to the DEPARTMENT and OWNER for approval. The CONTRACTOR will coordinate resolution of any disputed items. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to include the subject utility work in the project construction and the research indicates that no property interest exists, and the OWNER cannot refute this finding with evidence that would substantiate the property interest in legal proceedings, the OWNER shall provide confirmation in writing that OWNER will reimburse the DEPARTMENT for any adjustment or relocations necessary; and an agreement will be prepared and executed in accordance with the DEPARTMENT'S "Utility Accommodation Policy and Standards Manual". If the OWNER chooses to perform it own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT and the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to assure that all utility work included in the project contract is accomplished in accordance with plans and specifications and to consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential problems. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

6. Upon completion of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within public right of way subject to the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR.

7. For the purpose of utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if directly with the DEPARTMENT in accordance with the

laws of Georgia, the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

(Signature) 7/12/07 (Date)

(Title)

APPROVED FOR THE DEPARTMENT BY:

(Signature) 7-13-2007 (Date)

STATE UTILITIES ENGINEER

RECEIVED
JUL 06 2007

Georgia DOT Project: CSNHS-0008-00(274) Henry County
GDOT P.I. 0008274

MEMORANDUM OF UNDERSTANDING

between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
Atlanta Gas Light Company (hereafter the OWNER)

Whereas the DEPARTMENT proposes to undertake a design-build project to construct an auxiliary lane on I-75 southbound from I-675 to Eagles Landing Parkway in the existing right of way in Henry County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the design-build project through a Design Consultant, Design Consultant Team and/or Contractor hereafter referred to as CONTRACTOR; and,

Whereas the OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed contract:

Type of facility or facilities of the OWNER:

_____Domestic water mains and distribution lines and associated appurtenances.
_____Sanitary Sewer facilities and/or Storm Drainage System
_____Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
__X__Natural Gas Distribution Facilities (underground)
_____Telecommunications facilities and equipment
_____Cable TV facilities.
_____Street Lighting
_____Internet Data Service

Whereas the OWNER desires the following to be installed as new additional facilities during the proposed contract.

Insert detailed description of proposed new additional utility installations:

_____

_____

_____

Design Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1a) Whereas the OWNER does not have adequate staff to perform the design functions for the adjustment or relocation of its facilities and is willing to have this design work included in the contract to be let by the DEPARTMENT.

_____(2a) Whereas the OWNER is willing to have this design work included in the contract to be let by the DEPARTMENT.

__X__(3a) Whereas the OWNER will perform its own relocation or adjustment design.

If method (1a) or (2a) for the adjustment, relocation or installation of new facilities is selected, all design necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items:_____.

Construction Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1b) Whereas the OWNER does not have adequate equipment and staff to adjust its facilities and is willing to have this work included in the contract to be let by the DEPARTMENT.

_____(2b) Whereas the OWNER is willing to have this work included in the contract to be let by the DEPARTMENT.

__X__(3b) Whereas the OWNER will perform its own relocations or adjustments.

If method (1b) or (2b) for the adjustment, relocation or installation of new facilities is selected, all work necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items:_____.

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of base maps plans will be accomplished by the DEPARTMENT prior to award of the project contract and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the project contract (list any work not included in the project in space provided above). If the preliminary plans indicate that no conflict exists, and the OWNER accepts this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. The CONTRACTOR will research the property interest of each OWNER and present the findings to the DEPARTMENT and OWNER for approval. The CONTRACTOR will coordinate resolution of any disputed items. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to include the subject utility work in the project construction and the research indicates that no property interest exists, and the OWNER cannot refute this finding with evidence that would substantiate the property interest in legal proceedings, the OWNER shall provide confirmation in writing that OWNER will reimburse the DEPARTMENT for any adjustment or relocations necessary; and an agreement will be prepared and executed in accordance with the DEPARTMENT'S "Utility Accommodation Policy and Standards Manual". If the OWNER chooses to perform it own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT and the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to assure that all utility work included in the project contract is accomplished in accordance with plans and specifications and to consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential problems. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

6. Upon completion of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within public right of way subject to the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR.

7. For the purpose of utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if directly with the DEPARTMENT in accordance with the

laws of Georgia, the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

(Signature) July 2, 2007 (Date)

MANAGER, ENGINEERING DESIGN

(Title)

APPROVED FOR THE DEPARTMENT BY:

(Signature) 7-13-2007 (Date)

STATE UTILITIES ENGINEER

RECEIVED
JUL 13 2007
BY:

Georgia DOT Project: CSNHS-0008-00(274) Henry County
GDOT P.I. 0008274

MEMORANDUM OF UNDERSTANDING

between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
Georgia Power Distribution (hereafter the OWNER)

Whereas the DEPARTMENT proposes to undertake a design-build project to construct an auxiliary lane on I-75 southbound from I-675 to Eagles Landing Parkway in the existing right of way in Henry County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the design-build project through a Design Consultant, Design Consultant Team and/or Contractor hereafter referred to as CONTRACTOR; and,

Whereas the OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed contract:

Type of facility or facilities of the OWNER:

_____Domestic water mains and distribution lines and associated appurtenances.
_____Sanitary Sewer facilities and/or Storm Drainage System
__x__Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
_____Natural Gas Distribution Facilities (underground)
_____Telecommunications facilities and equipment
_____Cable TV facilities.
_____Street Lighting
_____Internet Data Service

Whereas the OWNER desires the following to be installed as new additional facilities during the proposed contract.

Insert detailed description of proposed new additional utility installations:

_____

_____

_____

Design Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1a) Whereas the OWNER does not have adequate staff to perform the design functions for the adjustment or relocation of its facilities and is willing to have this design work included in the contract to be let by the DEPARTMENT.

_____(2a) Whereas the OWNER is willing to have this design work included in the contract to be let by the DEPARTMENT.

___x__(3a) Whereas the OWNER will perform its own relocation or adjustment design.

If method (1a) or (2a) for the adjustment, relocation or installation of new facilities is selected, all design necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items: All GPC Distribution facilities.

Construction Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1b) Whereas the OWNER does not have adequate equipment and staff to adjust its facilities and is willing to have this work included in the contract to be let by the DEPARTMENT.

_____(2b) Whereas the OWNER is willing to have this work included in the contract to be let by the DEPARTMENT.

___x__(3b) Whereas the OWNER will perform its own relocations or adjustments.

If method (1b) or (2b) for the adjustment, relocation or installation of new facilities is selected, all work necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items: All GPC Distribution facilities.

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of base maps plans will be accomplished by the DEPARTMENT prior to award of the project contract and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the project contract (list any work not included in the project in space provided above). If the preliminary plans indicate that no conflict exists, and the OWNER accepts this information, the OWNER shall provide a letter of "no conflict" to the DEPARTMENT.

3. The CONTRACTOR will research the property interest of each OWNER and present the findings to the DEPARTMENT and OWNER for approval. The CONTRACTOR will coordinate resolution of any disputed items. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to include the subject utility work in the project construction and the research indicates that no property interest exists, and the OWNER cannot refute this finding with evidence that would substantiate the property interest in legal proceedings, the OWNER shall provide confirmation in writing that OWNER will reimburse the DEPARTMENT for any adjustment or relocations necessary; and an agreement will be prepared and executed in accordance with the DEPARTMENT'S "Utility Accommodation Policy and Standards Manual". If the OWNER chooses to perform it own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT and the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to assure that all utility work included in the project contract is accomplished in accordance with plans and specifications and to consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential problems. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

6. Upon completion of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within public right of way subject to the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR.

7. For the purpose of utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if directly with the DEPARTMENT in accordance with the

laws of Georgia, the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

Mark Tilden
(Signature)

7-9-07
(Date)

Project Manager - DOT/JU
(Title)

APPROVED FOR THE DEPARTMENT BY:

Jeff Bak
(Signature)

7-23-2007
(Date)

STATE UTILITIES ENGINEER

First use date: November 1, 2004
Revised August 1, 2007

Georgia Department of Transportation

State of Georgia

Special Provision

Project Number: CSNHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 102—Bidding Requirements and Conditions

Delete Subsection 102.01 and Substitute the following:

102.01 Prequalification of Bidders

Before submitting a bid in excess of $2,000,000, the Bidder shall have been prequalified with the Department and received a Certificate of Qualification in accordance with the Rules and Regulations approved and adopted by the State Transportation Board. Bidders submitting bids of $2,000,000 or less may be exempt from prequalification requirements. In addition, the aggregate total amount a Non-prequalified Bidder may have under contract shall not exceed $4,000,000.

Bidders intending to consistently submit Proposals shall prequalify at least once a year. However, qualifications may be changed during that period upon the submission of additional favorable reports or upon unsatisfactory performance. In addition, the Department reserves the right at any time to require the Contractor to furnish a current financial and experience statement.

Delete Subsection 102.03 and Substitute the following:

102.03 Contents of Proposal Forms

Upon request, the Department will furnish the prospective Bidder with a Proposal Form. This form will state the location and description of the contemplated construction and will show the approximate estimate of the various quantities and kinds of work to be performed or materials to be furnished, and will have a schedule of Items for which Unit Bid prices are invited. The Proposal Form will state the time in which The Work must be completed, the amount of the Proposal Guaranty, and the date of the opening of Proposals. The Form will also include any Special Provisions or requirements that vary from or are not contained in the *Standard Specifications*. Also included with each Proposal Form will be a Non-Collusion Certificate. All papers bound with or attached to the Proposal Form are considered a part thereof and must not be detached or altered when the Proposal is submitted. The Plans, Specifications, and other documents designated in the Proposal Form will be considered a part of the Proposal whether attached or not. The prospective Bidder will be required to pay the Department the sum stated in the Notice to Contractors for each copy of the Proposal Form and each set of Plans.

Delete Subsection 102.06 and Substitute the following:

102.06 Preparation of Proposal

The Bidder shall submit its Proposal on the form furnished by the Department (GADOT). The blank spaces on the Proposal shall be filled in correctly for each Pay Item (except alternate items) and the Bidder shall write in ink the Unit Price or a Lump

Sum Price as called for in the Proposal for each Pay Item listed therein. In addition, the Bidder shall also show the products of the respective Unit Prices and quantities and the total amount of the Bid by adding the amounts of all Bid Items. In the event of a discrepancy in any of the figures, the Unit Price will govern and the Bid will be recalculated.

In addition, the Bidder shall submit a technical proposal which shall include, but is not limited to, the design build firm's detailed project schedule (including those submittals and estimated review periods shown in Table A-1 of the attached Special Provision 999, and in other areas of Special Provision 999 where due dates are mentioned), total contract time, mobilization assumptions, construction staging assumptions, as well as, a detailed estimate with all material quantities and price assumptions used to form the basis of the bid. **The Bidder shall clearly document all assumptions in this technical proposal**. There are no page limit restrictions for the technical proposal.

These items listed above are the minimum requirements of what shall be included in the technical proposal. The intent of the technical proposal is to provide some insight into the Contractor's approach both with schedule and with the assumed quantities and costs used to formulate the bid. As noted in section 999.1.A.2 "Bids on this project shall reflect designing and constructing the project as shown in the Scope (999.1..A.3) and applicable portions of the Plans Package. No exceptions shall be assumed by the Contractor. However, alternative proposals on portions of the work will be entertained once the project is awarded." Therefore, no deviations shall be included in the bid or technical proposal.

In the case of Alternate items, Unit Prices shall be entered for only one alternate.

The Non-Collusion Certificate on the Department's standard form included in the Proposal shall be executed.

The Certificate of Current Capacity shall be executed under oath and substantiated by the report of Status of Contracts on Hand.

The Bidder shall purchase from the GADOT Office of Contract Administration, a Proposal Form for each Letting Call Order Number in which the Bidder intends to submit a bid.

If the Proposal is made by an individual, its name and post office address shall be shown; if by a partnership, the name and post office address of one member of the partnership shall be shown; if by a corporation, the Proposal shall show the name, title and business address of the officer signing the Proposal. The Bidder's Proposal shall be signed in ink or by Digital Signature by the individual, by one or more members of a partnership, or by one or more of the officers of a corporation, whichever is applicable. In the event of a joint venture, the Proposal shall be signed in ink or by Digital Signature by each individual involved, by each partnership through one or more of its members, or by each corporation through one or more officers of the corporation, whichever is applicable. Proposals not properly signed may be disqualified and rejected.

All bids in excess of $500,000 shall be submitted using the GADOT/AASHTO (American Association of State Highway and Transportation Officials) Electronic Bidding System (Expedite). When submitting a bid electronically, the Bidder's Proposal shall consist of the Bid pages generated by the Expedite software including the Cover page, Bid Item pages, Disadvantaged Business Enterprise (DBE) pages (if applicable), Miscellaneous Data pages and the Signature page. By submitting a bid electronically, the Bidder acknowledges that all requirements included in the hard copy proposal, amendments, plans, Standard Specifications, and Supplemental Specifications are a part of the Bid and Contract.

The electronic bid shall be submitted by one of the following methods:

A. Hand delivery of the electronic bid to the Department at the place specified in the Notice To Contractors.

The bid shall include the 3 ½ inch (90 mm) electronic diskette and the Bid pages described in paragraph eight, above.

B. Electronic Bid Submission via the Internet and Bid Express™.

(Note: The Bidder shall secure an account and a valid Digital Signature from Bid Express™ (www.bidx.com) in order to use this method.

Instructions for preparing and submitting bids by these two methods are as follows:

A. Hand Delivery of Bid to the Department

1. Access to the electronic bidding information is available on Bid Express™ at www.bidx.com and the GADOT Contract Administration Internet Web Site at www.dot.state.ga.us/dot/construction/contractsadm/index.shtml.
2. Electronic bids shall be prepared through the use of a computer controlled printer.

3. The Bidder shall sign the electronic bid in the appropriate areas.
4. When installing the Bid program the Bidder shall enter the vendor code in the following format: 2DO900. Before running the electronic bidding programs, the Bidder shall read the on-line help documentation for the Expedite software.
5. **Zero (0) is considered to be a valid bid. The Bidder shall not enter 0 in any Unit Price field unless zero is the intended bid for that item.**
6. All addenda shall be included in the electronic bid submitted.
7. For "Joint Bids" the Bidder shall select **tools** from the Windows Expedite menu and mark the electronic bid as **"Joint Bid".**
8. The Bidder shall select **tools** and then **check bid** to check the bid and assure there are no errors prior to printing the electronic bid. After final printing, the Bidder may make changes to the electronic bid by indicating the changes in ink and initialing prior to submitting the bid.
9. Once the Bidder has completed the bid and made all desired changes, the diskette, a printout of the Cover sheet, Bid Item pages, DBE pages (if applicable), Miscellaneous Data pages, and Signature page shall be submitted to the Department. In case of a discrepancy between the diskette and the hard copy of the Bid Item pages, the hard copy will govern.
10. Electronic Bid pages shall be 8 ½ inch (216 mm) horizontal by 11 inches (279 mm) vertical. Bid information shall be placed across the horizontal width on each page.
11. The paper used for an electronic bid shall be of sufficient quality and durability to maintain clear and concise images and to withstand frequent handling.
12. If originally printed on continuous roll paper, electronic bids shall be separated before submitting the Bid to the Department.
13. All computer printed characters shall be legible. The Electronic Bid pages shall be submitted in the bid envelope provided.
14. The diskette shall be submitted in a separate sealed envelope from the Bid pages. The Bidder shall submit all electronic bids on one diskette. The envelope containing the diskette shall include the Bidders name and the Letting Call Order Numbers for which electronic bids are submitted.

B. Electronic Bid Submission Via The Internet And Bid Express™

1. Access to the electronic bidding information is available on Bid Express™ at www.bidx.com and the GADOT Contract Administration Internet Web Site at www.dot.state.ga.us/dot/construction/contractsadm/index.shtml.
2. When installing the Bid program the Bidder shall enter the vendor code in the following format: 2DO900. Before running the electronic bidding programs, the Bidder shall read the on-line help documentation for the Expedite software.
3. **Zero (0) is considered to be a valid bid. The Bidder shall not enter 0 in any Unit Price field unless zero is the intended bid for that item.**
4. All addenda shall be included in the electronic bid submitted.
5. **"Joint Bids" are allowed with Electronic Bid Submission via the Internet and Bid Express™**
6. The Bidder shall select **tools** and then **check bid** from the Windows Expedite menu to check the bid and assure there are no errors prior to submitting the electronic bid. The electronic bid may be changed and resubmitted electronically to Bid Express™ as many times as desired prior to the advertised cutoff time specified in the Notice To Contractors. The last bid submitted for a given Letting Call Order Number prior to the cutoff time will be the Bid.
7. The Bidder shall make no claim against the Department in the event it is unable to submit its bid to Bid Express™ and/or Bid Express™ is unable to submit the bid(s) to the Department. The Department reserves the right to postpone the public reading of bids in the event of technical difficulties.
8. A fully executed Proposal Guaranty and Power of Attorney for each Letting Call Order Number bid shall be submitted by one of the following methods:
   A. Delivery to the GADOT Office of Contract Administration, Room 223, in a sealed envelope by 12:00 noon on the day prior to the Bid Opening. Each Proposal Guaranty shall be clearly and legibly marked with the Letting Call Order Number.
   B. Electronic submission via the Internet and Bid Express™ by the time and date set in the Notice To Contractors for submission of Proposals.

The Proposal Guaranty for a "Joint Bid" shall include the names of all Joint Venture parties involved in the bid.

Delete Subsection 102.07 and Substitute the following:

102.07 Rejection of Proposals

Proposals may be rejected as irregular if their consideration is conditioned upon the acceptance or rejection of other Proposals submitted by the same Bidder, if the Certificate of Current Capacity is not executed under Oath and substantiated, if a Unit Price is not shown for each Pay Item, or if they fail to comply with the EBS bidding requirements. In the case of alternate items, Unit Prices shall be entered for only one alternate. The Department reserves the right to disqualify and reject any Proposal that is not properly signed in accordance with the requisite of Subsection 102.06.

A. Collusion

Any and all Proposals will be rejected if the Department believes that collusion exists among the Bidders and no participant in such collusion may submit future Proposals for the same work. The Department reserves the right to review and to refuse to consider any Proposal if the Bidder fails to execute the Non-Collusion Certificate.

B. Single Proposals

Only one Proposal from any person, partnership, or corporation under the same or different names shall be submitted on any Project.

C. Unbalanced Bids

Proposals may be rejected if any of the Unit Prices are obviously unbalanced. The Department will decide whether any Unit Prices are unbalanced either excessively above or below a reasonable cost analysis value determined by the Engineer, particularly if these unbalanced amounts are substantial and contrary to the interest of the Department.

D. Omissions and Alterations

Proposals may be rejected as irregular if they show any omissions, alterations of form, additions or conditions not called for, unauthorized alternate bids, erasures or changes not initialed, or other irregularities.

E. Debts

The Department reserves the right to reject Proposals from Bidders who have not paid or satisfactorily settled all legal debts due on other Contracts at the time Proposals are received.

F. Technicalities

The Department reserves the right to reject any and all Proposals and to waive technicalities at any time before the Contract has been signed by the Department.

G. Non-Prequalified Bidders

Proposals submitted in excess of $2,000,000 by non-prequalified contractors under Rule 672-5 of the Department's Rules and Regulations Governing the Prequalification of Prospective Bidders will be disqualified and rejected.

H. Failure to List Disadvantaged Business Enterprise (DBE) Participants

If the contract has an established DBE goal, the Department reserves the right to reject and disqualify any proposal if the bidder has failed to list bona fide DBE participants with sufficient participation to achieve at least the established goal. The Department may consider for award a proposal with less participation than the established goal if both:

- The bidder can demonstrate that no greater participation could be obtained and;
- The participation proposed by the low bidder is not substantially less than the participation proposed by the other bidders on the same contract.

I. Pavement Alternate Selection Declaration

The Proposal will be rejected if the Bidder fails to submit or properly complete the Pavement Alternate Selection Declaration.

J. Non-responsive technical proposal

A proposal will only be considered non-responsive if it does not contain the information noted in paragraph 2 of section 102.06, and any other information necessary to clearly demonstrate those assumptions used to form the basis of the bid.

The technical proposal may be considered non-responsive if the bid or technical proposal contains any deviations from those items shown in the Scope (999.1.03) and applicable portions of the Plans Package.

Delete Subsection 102.09 and Substitute the following:

102.09 Delivery of Proposals

The Bidder's Proposal and the Proposal Guaranty, unless submitted electronically, shall be submitted in a sealed envelope so marked as to identify its contents without being opened. Six (6) copies of the Bidder's technical proposal shall be submitted in a sealed envelope so marked as to identify its contents without being opened. Proposal forms are not transferable. Proposals will be received until the time and date set in the Notice To Contractors and shall be in the hands of the officials indicated by that time. Proposals received after the advertised cutoff time established for submission of Proposals will be returned unopened to the Bidder.

Delete Subsection 102.10 and Substitute the following:

102.10 Withdrawal or Revision of Proposals

Any Bidder may withdraw his Proposal by submitting, by telegram, letter, or facsimile transmission received prior to the advertised cutoff time specified in the Notice To Contractors and verified by the Department, a DEPARTMENT OF TRANSPORTATION BID PROPOSAL WITHDRAWAL FORM, completed by an authorized officer of the company, whose signature is legally binding upon said company.

Any Bidder may submit a Bid change, by telegram, letter, or facsimile transmission received prior to the advertised cutoff time specified in the Notice To Contractors and verified by the Department, completed by an authorized officer of the company, whose signature is legally binding upon said company. In which case, the Department will change the Bid at the time of opening and at such time will announce that a change was received.

Add the following:

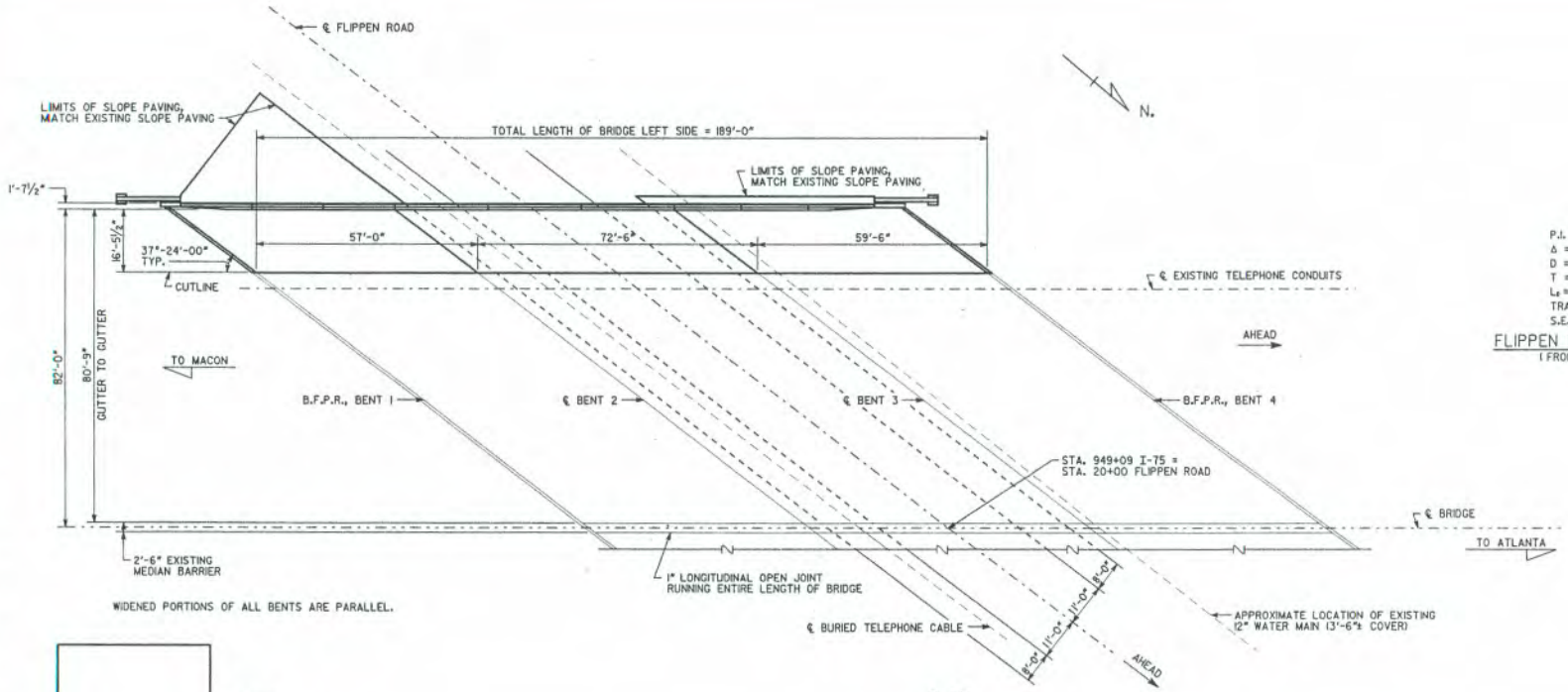
102.15 Submittal of "Certificate of Current Capacity" and "Status of Contracts on Hand"

The apparent low Bidder for each Letting Call Number shall submit the executed "Certificate of Current Capacity" and the "Status of Contracts on Hand" to the GADOT Office of Contract Administration, Room 223, in a sealed envelope by 12:00 noon on the first working day after the Bid Opening.

If the "Certificate of Current Capacity" and the 'Status of Contracts on Hand" are not delivered to the GADOT Office of Contract Administration, Room 223, in a sealed envelope by 12:00 noon on the first working day after the Bid Opening, the Bid may be subject to disqualification.

REVISED/ADDED
475564

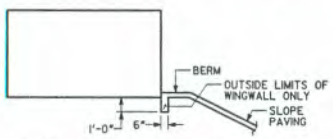
STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			



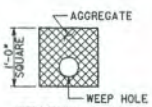
PLAN

P.I. STA. = 21+09.82
Δ = 4°-59'
D = 1°-00'
T = 249.32
L_s = 498.33
TRANS. = 150 FT.
S.E. = 0.02 FT./FT.

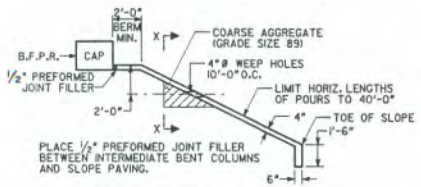
FLIPPEN ROAD CURVE DATA
(FROM EXISTING PLANS)



SLOPE PAVING DETAIL AT WINGS

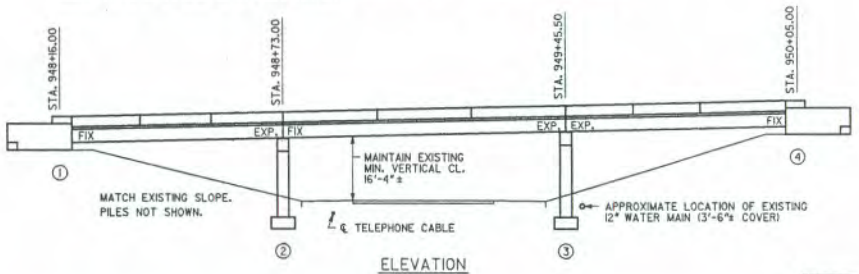


SECTION X-X



SLOPE PAVING DETAIL

SHOWN AT THE INTERSECTION OF THE ℄ BRIDGE AND B.F.P.R. OR ℄ OF WIDENED PORTION OF BENTS.
ELEVATION TO BE DETERMINED BY FIELD SURVEY.



ELEVATION

EXISTING BRIDGE SERIAL NO. 151-0042-0
EXISTING BRIDGE I.D. NO. 151-0040ID-225.22N
PROJECT P.I. NO. 0008274

GEORGIA
DEPARTMENT OF TRANSPORTATION
PRECONSTRUCTION DIVISION-OFFICE OF BRIDGE DESIGN

PRELIMINARY LAYOUT
I-75 OVER FLIPPEN ROAD (CR 165)
HENRY COUNTY NHS-0008-00(274)

NO SCALE JULY 2007

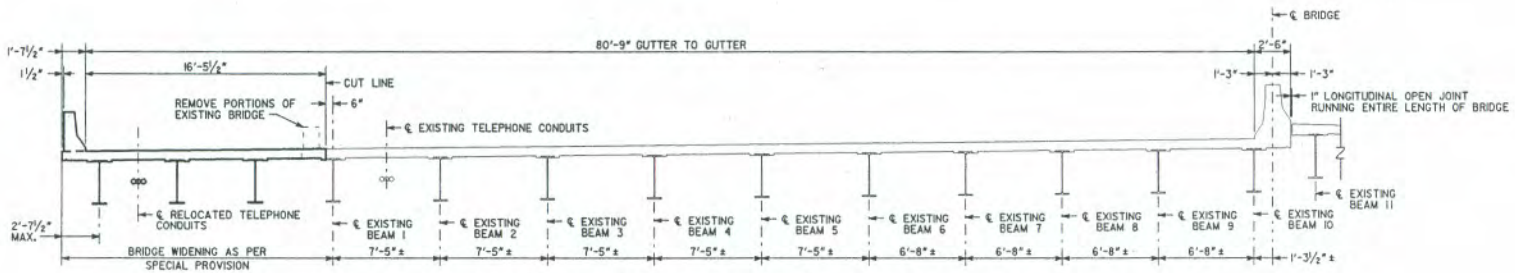
DESIGNED EJC	CHECKED	REVIEWED WEL/ WMD
DRAWN KWK	DESIGN GROUP EJC	APPROVED PVL

BY	REVISIONS	DATE

BRIDGE SHEET 1 OF 2

H0008274.DGN

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			



TRANSVERSE SECTION THRU BRIDGE

REVISED/A0020
4555 B

GEORGIA
DEPARTMENT OF TRANSPORTATION
PRECONSTRUCTION DIVISION-OFFICE OF BRIDGE DESIGN

PRELIMINARY LAYOUT

I-75 OVER FLIPPEN ROAD (CR 165)

HENRY COUNTY NHS-0008-00(274)

NO SCALE JULY 2007

DESIGNED EJC	CHECKED	REVIEWED WEI/ WMD
DRAWN KWL	DESIGN GROUP EJC	APPROVED PVL

BRIDGE SHEET 2 OF 2

BY	REVISIONS	DATE

H0008274.DGN

August 10, 2007

AMENDMENT TO ADVERTISED CONTRACT

CONTRACT I.D. NUMBER: B12937-07-000-0

GEORGIA PROJECT NUMBER: CSNHS-0008-00(274)01

PCN: 0008274010000

COUNTY: HENRY

AMENDMENT NUMBER: 2

LETTING DATE: SEPTEMBER 21, 2007

LETTING NUMBER: 001

THE FOLLOWING CHANGES ARE HEREBY MADE TO THIS CONTRACT. THE BIDDER IS RESPONSIBLE FOR MAKING ANY NECESSARY CHANGES IN INK IN THE PROPOSAL. BIDDER SHALL ACKNOWLEDGE THIS AMENDMENT BY CHECKING THE APPROPRIATE SPACE ON THE PROPOSAL SIGNATURE PAGE.

****

1. Proposal Page 145, Special Provision Section 150-Traffic Control, Subsection 150.10; **Delete** the following sentence from the Proposal: “The Contractor shall include 2500 hours in the estimate and a rate of $50/hour shall be used.”
2. **Delete** Proposal Pages 365 through 369, 476, and 491 through 523 from the proposal.
3. **Add** the following attached Special Provisions to the Proposal:
   A. Section 108-Prosecution and Progress, 1 page, with a revised date of August 8, 2007.
   B. Special Provision Section 150-Traffic Control, 2 pages, with a revised date of August 8, 2007.
   C. Special Provision Section 999-Design Build, 29 pages, with a revised date of August 9, 2007.

DAVID E. HOGE
STATE TRANSPORTATION OFFICE ENGINEER

September 10, 2004
Revised August 8, 2007

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION
SECTION 108—PROSECUTION AND PROGRESS

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Add the following to Subsection 108.08:

In order to minimize the disruption of normal traffic flow, separate completion times are specified for those portions of the work that require closing of lanes as specified in Subsection 150.11.

Failure to reopen the lanes as specified in Subsection 150.11 will result in the assessment of liquidated damages at the rate of $5,000.00 per hour.

These rates are cumulative and in addition to the Liquidated Damages which may be assessed in accordance with Subsection 108.08 for failure to complete the overall project on time.

As specified in the Special Provision 999, the ITS system shall not be taken out of service for more than 30 calendar days during construction. Failure to reconnect service after this time period will result in the assessment of liquated damages at the rate of $1,000.00 per day or portion thereof.

Date: March 2, 2007

Revised August 8, 2007

DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

SECTION 150 - TRAFFIC CONTROL

Retain Section 150 and add the following:

150.11 Special Conditions:

For I-75 and I-675 Mainline

A. Perform no work or move equipment or materials on the traveled way that interferes with traffic flow between the hours of 6:00 AM to 9:00 AM and 4:00 PM to 6:00 PM Monday thru Friday. Single lane closures are allowed as follows: I-75 southbound and I-675 southbound, 9:00 pm to 5:30 am. Double lane closures are allowed as follows: I-75 southbound, 11:00 pm to 5:00 am. In the four lane section the contractor shall maintain two lanes at all times. The contractor shall maintain one lane at all times on the ramp from I-675 to I-75 southbound.Failure to adhere to these requirements will result in deductions as specified in Special Provision Section 108.08.

B. Work Zone Law Enforcement consist of utilizing a uniformed police officer equipped with patrol vehicle and blue flashing lights to enforce traffic laws in construction work zones and the administration of the service. Payment for Work Zone Law Enforcement will be made only for the utilization in work zones during lane closures, traffic pacing, or other activities that occur within travel lanes. The Contractor shall be responsible for coordinating and scheduling the utilization of the Work Zone Law Enforcement.

Work Zone Law Enforcement will be measured for payment by the hour up to the maximum number of hours included in the contract. The Department will not pay for any Work Zone Law Enforcement beyond the number of hours set up in the contract. The cost for utilization above the number of hours set up in the contract shall be included in the Lump Sum price bid for Traffic Control.

The Contractor shall provide a daily work record containing the actual number of hours charged by the police officer. The daily work record shall be compiled on a form provided by the Department, signed by the police officer, signed by the Contractor's Worksite Traffic Control Supervisor attesting that the police was utilized during the time recorded, and then submitted to the Engineer.

Payment shall be full compensation for reimbursing the law enforcement agency, and for all other cost incurred by the Contractor in coordinating, scheduling, and administering the item Work Zone Law Enforcement.

Payment shall be made under:
ITEM NO. 150-9011 Traffic Control Work Zone Law Enforcement (Contractor Bids)

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project: CSNHS-0008-00(274) Henry County
P.I. No. 0008274

SECTION 999 – DESIGN-BUILD

999.1 DESCRIPTION

A. General

1. **Project Location:** The location of the construction work included in this Project is shown in the Concept Report. This Project is located in Henry County.

2. **Design-Build Concept:** The Contractor and a design consultant (or design consultant team) will work together to design and build the Project. The design consultant will either be acting as a subcontractor to the Contractor or as a joint-venture member with whom this agreement has been executed. In this document, the words "design consultant" or "design consultant team" shall refer to the consultant firm or consultant team acting as a subcontractor or joint-venture team member to the Contractor. The Department will have oversight responsibilities only, which include performing official reviews and granting approvals of design work.

The Contractor shall not begin any ground-breaking activities until the following have been approved by the Engineer:
- **Basis of the design**
- **Erosion and Sediment Control Plan**
- **Traffic Control Plan**
- **Utility Agreements, Utility Encroachment Permits, Utility Relocation Plans (Non anticipated), and Contractor Certification of "No-Conflict"**

3. **Project Scope:** This Project involves the addition of an auxiliary lane along the southbound lanes of I-75 in Henry County. The project contains the following features:
   - Begin Project occurs at the end of the taper to the I-75 SB Exit Ramp for Eagles Landing Parkway
   - End Project occurs at the beginning of the taper to the I-675 SB Entrance Ramp to I-75 SB
   - Project length is approximately 1.48 miles
   - All construction work will occur within the Existing Right of Way
   - The proposed Auxiliary Lane is to be located adjacent to the existing outside travel lane for the first 0.89 miles of the project
   - The entire I-75 SB is to be deflected toward the median, requiring an alignment change, for the remaining 0.59 miles of the project, due to insufficient horizontal clearance on the outside at the Walt Stephens Road over I-75 bridge
   - A single lane widening is proposed for the I-75 over CR 165 Flippen Road bridge
   - Guardrail is proposed on the outside, for the first 1.05 miles of the project
   - Noise barriers are proposed in two locations

- Type S-2/S-3 median barrier is proposed for a length of approximately 2800'
- All proposed pavement is to be full-depth asphalt
- A minimum of three lanes of traffic in each direction shall be maintained. Temporary lane closures shall be in accordance with section 150.

The work covered under this Specification includes the furnishing of all materials, labor, tools, equipment, and other incidental items for the designing, detailing, and construction of the Project contained in the Project Scope and Concept Report. The Contractor will make all the improvements for this Project within the limits of the provided construction plans. Advanced signing relative to proposed work, to be placed outside the limits shown on the Project Concept Report, shall be included in the work and paid for under CONSTRUCTION COMPLETE. All proposal materials will become the property of the Department.

The Contractor will restore or replace existing facilities in kind or upgrade. Possible affected resources includes, but not limited to the following: GDOT ITS system, signing and marking, and utilities.

GDOT ITS System in Conflict with project:

Video detection cameras
CCTV surveillance cameras
ITS communication fiber and conduit
Variable Message signs
Utilities for powering ITS System

Note: The GDOT ITS System is a vital part of traffic management in metro Atlanta and shall not be taken out of service for more than 30 calendar days during construction. See special provision section 108.

Utilities

The Contractor shall have the responsibility of coordinating the project construction with all utilities that may be affected. Coordinating responsibilities shall include but not be limited to the following:

a. The Contractor shall be responsible for the cost of utility coordination. Coordination shall include, but shall not be limited to, contacting each Utility Owner to advise of the proposed project; supplemental verification of the locations of existing utility facilities (including the employment of additional Overhead/Underground Subsurface Utility Engineering investigations (SUE) as described in section 999.3.B.1.S of this specification); and determining requirements for the relocation or adjustment of facilities.

b. The Department and/or the Utility Owner shall be responsible for the cost of utility relocation (this may change according to the details contained in the MOUs), where they hold a property interest, and in accordance with the Department's "Utility Accommodation Policy and Standards Manual". Details are provided in the attached Memorandum of Understanding (MOU) executed between the Department and each Utility Owner.

c. The Contractor shall design the project to avoid conflicts with utilities when feasible, and minimize impacts where conflicts cannot be avoided (See Section 999.3.B.1.S). The Contractor shall submit to the Department a Utility Conflict Matrix in the Department's prescribed format within 180 days of notice to proceed.

d. The Contractor shall initiate early coordination with all Utility Owners located within the project limits.

e. The Contractor shall coordinate and conduct a preliminary review meeting with the Utility Owners to assess and explain the impact of the project. The Department's Project Manager, District Construction Engineer (or designee), and District Utilities Engineer (or designee) shall be included in this meeting. The Contractor shall record the minutes for this meeting and distribute to all attendees for their review and concurrence.

f. The Contractor shall research the property interests of each Utility Owner's facilities. If there is a dispute over property interests with a Utility Owner, the Contractor shall be responsible for resolving the dispute. The Contractor shall meet with the Department's District Utilities Engineer (or designee) to present the property interests information gathered. This information must be sufficient for the District Utilities Engineer (or designee) to certify the extent of the Utility Owner's property interests. The Department shall have final approval authority as to the Contractor's determination of whether the Utility Owner has property interests.

g. The Contractor shall prepare and submit to the Department a Preliminary Utility Status Report within 120 days after the Notice to Proceed has been given for the contract. This report shall include a listing of all Utility Owners located within the project limits and a recommendation as to the extent of each Utility Owner's property interests. This report shall include copies of easements, plans, or other supporting documentation that substantiates any property interests of the Utility Owners. The report shall also include a preliminary assessment of the impact to each Utility Owner.

h. Depending on the provisions stipulated in the Memorandum of Understanding (MOU – See Attached) between the Department and each Utility Owner the Contractor shall be responsible for one of the following Design Activities:

- The Contractor shall provide Utility Owners with design plans and Preliminary Utility Plans as soon as the plans have reached a level of completeness adequate to allow them to fully understand the project impacts. The Utility Owner will use the Contractor's design plan for preparing Utility Relocation Plans, cost estimates, and respective Utility Adjustment Schedules (UAS). If a party other than the Utility Owner prepares Utility Relocation Plans, there shall be a concurrence box on the plans where the Utility Owner signs and accepts the Utility Relocation Plans as shown.

- The Contractor shall prepare all engineering design, plans, technical specifications, cost estimates, and utility adjustment schedules required to perform the necessary utility relocations. The Contractor shall certify to the Department that the design package listed above has been reviewed and accepted by the each respective Utility Owner.

i. The Contractor shall be responsible for collecting the following from each Utility Owner that is located within the project limits: Certified Utility Relocation Plans including a letter of "no cost" where the Utility Owner does not have a prior right; Utility Agreements, certificates of eligibility, including cost estimate and Utility Relocation plans where the Utility Owner has a property interest; Letters of "no conflict" where the Utility Owner's facilities will not be impacted by the Project.

j. The Contractor shall be responsible for determining if the Department has agreed to be pay for in-kind relocations according to any approved Utility-Aid assistance package for publicly (government) owned utilities found within the project's limits (See the Department's TOPPS Policy #6863-11 for additional information regarding Utility-

Aid). If the Department has approved Utility-Aid; it is the Contractor's responsibility to assemble the necessary information including any Utility Agreements in a final and complete form and in such a manner that the Department may approve the submittals with minimal review. Failure to submit such required Utility Agreements prior to the beginning of construction shall fully transfer the utility owner's obligations, as stated in the subject Utility-Aid assistance package, to the Contractor. Deductions to reimburse the Department for such obligations may be made from any current partial payment of the Lump Sum price.

k. The Contractor shall review all Utility Relocation Plans and Utility Agreements and certificates of eligibility to ensure that relocations comply with the Departments "Utility Accommodation Policy and Standards Manual". The Contractor shall also ensure that there are no conflicts with the proposed highway improvements, and ensure that there are no conflicts between each of the Utility Owner's relocation plans.

l. The Contractor shall compile, and submit to the Department all Utility Relocation Plans, Utility Conflict Matrix, Utility Adjustment Schedules, Utility Agreements, Utility Estimates, and Letters of "no conflict," as set forth above for the project. The Contractor is expected to assemble the information included in the Utility Agreements and Utility Relocation Plans in a final and complete form and in such a manner that the Department may approve the submittals with minimal review. The Contractor is expected to meet with the Department's District Utilities Office within 15 days of the Notice to Proceed to gain a full understanding of what is required with each submittal. The Utility Owners shall not begin their Utility Relocation work until authorized in writing by the Department.

m. Each Utility Agreement and Utility Relocation Plan submitted must be accompanied by a certification from the Contractor stating that the proposed relocation will not conflict with the proposed highway improvement and will not conflict with another Utility Owner's relocation plan.

n. Depending on the provisions stipulated in the Memorandum of Understanding (MOU – See Attached) between the Department and each Utility Owner the Contractor shall be responsible for one of the following construction activities:

- The Contractor shall be responsible for coordinating the work of its subcontractors and the various Utility Owners. The resolution of any conflicts between Utilities and the construction of the project shall be the responsibility of the Contractor. No additional compensation will be allowed for any delays, inconveniences, or damage sustained by the Contractor or its subcontractors due to interference from utilities or the operation of relocating utilities.

- The Contractor shall be responsible for performing all utility removal, relocation, and adjustments required to accommodate the proposed project. This shall include any required inspection, permitting, testing and monitoring to ensure that the work is properly performed to the certified design package. The resolution of any conflicts between Utilities and the construction of the project shall be the responsibility of the Contractor. No additional compensation will be allowed for any delays, inconveniences, or damage sustained by the Contractor or its subcontractors due to interference from utilities or the operation of relocating utilities.

o. During the construction of the project, The Contractor shall designate, prior to beginning any work, a Worksite Utility Coordination Supervisor (WUCS) who shall be responsible for initiating and conducting utility coordination meetings and accurately

recording and reporting the progress of utility relocations and adjustment work. Also, the WUCS shall prepare an Emergency Response Plan for the purpose of planning, training, and communicating among the agencies responding to the emergency. The WUCS shall be the primary point of contact between all of the Utility companies, the Contractor and the Department. The WUCS shall recommend the rate of reoccurrence for utility coordination meetings and the Engineer will have the final decision on the regularity for utility coordination meetings. In no case will utility coordination meetings occur less than monthly until controlling items of utility relocations and adjustment milestones are completed. The WUCS shall contact each of the utility companies for the purpose of obtaining information including, but not limited to, a Utility Adjustment Schedule for the controlling items of utility relocations and adjustments. The WUCS shall notify the appropriate utility company and/or utility subcontractors and the Department of the status of controlling items of relocations and adjustment milestones as they are completed. The WUCS shall furnish the Engineer, for approval, a Progress Schedule Chart, immediately prior to beginning Construction unless otherwise specified, which includes the utility companies controlling items of work and other information in accordance with Section 108.03 or elsewhere in the Contract documents.

1. Qualifications

The WUCS shall be an employee of the Prime Contractor, shall have at least one year experience directly related to highway and utility construction in a supervisory capacity and have a complete understanding of the Georgia Utilities Protection Center operations, and shall be knowledgeable of the High-voltage Safety Act and shall be trained on the Georgia Utility Facility Protection Act (GUFPA). The Department does not provide any training on GUFPA but will maintain a list of the Georgia Public Service Commission certified training programs developed by other agencies. Currently the following companies offer approved GUFPA training programs:

Associated Damage Consultants
Phone: 706.234.8218 or 706.853.1362

Georgia Utility Contractors Association
Phone: 404.362.9995

Georgia Utilities Protection Center
Phone: 678.291.0631 or 404.375.6209

H B Training & Consulting
Phone: 706.619.1669 or 877.442.4282 (Toll Free)

The Prime Contractor is responsible for obtaining the GUFPA training for their employees.

Questions concerning the Georgia Public Service Commission GUFPA training program should be directed to:

Georgia Public Service Commission
244 Washington St. SW
Atlanta, GA 30334-5701

404.463.9784

2. Ticket Status

During the utility coordination meetings the WUCS shall collect and maintain the Ticket Status information to determine the status of all locate requests within the project limits. This information will be used to assure those planning to use mechanized equipment to excavate or work within the project limits are prepared to begin work when they have reported or estimated beginning work. At points where the Contractor's or utility company's operations are adjacent to or conflict with overhead or underground utility facilities, or are adjacent to other property, damage to which might result in considerable expense, loss, or inconvenience, work shall not commence until all arrangements necessary for the protection thereof have been made.

3. Notice

The names of known utility companies and the location of known utility facilities will be shown on the Plans, or listed in the Subsurface Utility Engineering Investigation if performed or in the Special Provisions; and the WUCS shall give 24-hour notice to such utility companies before commencing work adjacent to said utility facilities which may result in damage thereto. The WUCS shall further notify utility companies of any changes in the Contractor's work schedules affecting required action by the utility company to protect or adjust their facilities. Notice to the utility companies by the Department of the Award of Contract, under Subsection 105.06, shall not be deemed to satisfy the notice required by this paragraph. Furthermore, this 24-hour notice shall not satisfy or fulfill the requirements of the Contractor as stated in Chapter 9 of Title 25 of the Official Code of Georgia Annotated, known as the "Georgia Utility Facility Protection Act".

4. Agenda

The WUCS shall cooperate with the companies of any underground or overhead utility facilities in their removal and relocations or adjustment work in order that these operations may progress in a reasonable manner, that duplication of their removal and relocations or adjustment work may be reduced to a minimum, and services rendered by those parties will not be unnecessarily interrupted. To promote this effort the WUCS shall prepare an agenda for the utility coordination meetings and circulate same in advance of the meeting to encourage input and participation from all of the utility companies. The agenda will be prepared by an examination of the project site and may include photographs of potential/actual utility conflicts.

5. Emergency Response Plan

The WUCS shall prepare and submit to the Department an Emergency Response Plan no later than 30 days prior to beginning construction. The WUCS shall clearly mark and highlight the gas, water and other pressurized pipeline shut-off valves and other utility services including overhead switch locations on the utility plans; and prepare a chart to indicate the location of each site (Street address or intersections), the utility company or operator of the facility with emergency contact information and the working condition of the device to facilitate prompt shut-off. The WUCS shall post the Emergency Response Plan in an area readily accessible to the Department. In the event of interruption to gas, water or other utility services as a result of accidental

breakage or as a result of being exposed or unsupported, the WUCS shall promptly notify the appropriate emergency officials, the Georgia Utilities Protection Center and the appropriate utility facility company or operator, if known. Until such time as the damage has been repaired, no person shall engage in excavating or blasting activities that may cause further damage to the utility facility.

6. Submission

Provisions for reporting all utility coordination meetings, the progress of utility relocation and adjustment work milestones and ticket status information will be reported on a form developed by the WUCS and will be distributed by the WUCS to all of the utility companies as milestones are met and shall be included as part of the project records. These reports shall be delivered to the Engineer for review, on a monthly basis. The WUCS shall immediately report to the Engineer any delay between the utility relocation and adjustment work, the existing Utility Adjustment Schedule, or the proposed Utility Adjustment Schedule so that these differences can be reconciled.

7. Utility Adjustment Schedule

The purpose of the Utility Adjustment Schedule is to provide the Contractor with the pertinent information, including any utility staging required, dependent activities, or joint-use coordination that is required for the creation of a progress schedule chart that is feasible. A suitable Utility Adjustment Schedule form is available from the Department for the WUCS to circulate to utility companies for any proposed project construction staging. The WUCS shall submit the Progress Schedule Chart in accordance with Section 108.03 and the proposed Utility Adjustment Schedules from all utility companies to the Engineer for review and approval.

p. At the time the Contractor notifies the Department that the Contractor deems the Project to have reached Final Completion, the Contractor shall certify to the Department that all Utilities have been identified and that those Utility Owners with property interests or other claims related to relocation or coordination with the project have been relocated or their claims otherwise satisfied or will be satisfied by the Contractor.

q. The Contractor shall show the final location of all utilities on the as-built drawings for the project as stated in Section 999.3.A.2.

r. In addition to the above, the Contractor shall comply with all provisions set forth under subsection 107.21 of the Georgia Department of Transportation's Specifications, Construction of Transportation Systems, current edition.

4. Design Consultant: The Contractor will engage the services of a design consultant that is prequalified in all applicable area classes.

999.2 PLANS

The Department has not developed any preliminary plans for this project. The Department is making the following resources available for the design and construction of this project:

a. Approved Concept Report including concept layouts, concept typical sections and design exception
b. Approved Environmental Document
c. Aerial Mapping
d. Existing Digital Terrain Model (DTM)
e. Approved Traffic Study
f. Approved Soil Survey
g. Existing ITS Information
h. Microstation files showing proposed improvements
i. Overhead/Subsurface Utility Engineering Investigation Plans (See Section 999.03.B.1.S for details)
j. Preliminary Bridge Layout

Note: It is expected that this project will require borrow material. Locating and acquiring borrow pits and ensuring that only suitable material is used in the embankments, is the responsibility of the Contractor. All applicable requirements for borrow pits in the Specifications are to be met, including but not limited to the appropriate environmental approvals and permits. **The Contractor shall not use borrow material within the existing right of way that is beyond the proposed construction limits.**

999.3 DESIGN

A. General

1. **Measuring Units:** The project will be designed in **English** units of measurement.

2. **Design Software:** Microstation and CAiCE software is required. On completion of the Project, a complete as-built set of plans will be provided to the Department in the following formats: two (2) sets of CD-ROMs with all electronic design files, design notes and calculations; one (1) set of full-size mylar reproducibles; one (1) full-size set of paper prints; and one (1) half-size set of paper prints. In addition, paper prints will be required throughout the design period for the Department's reviews as noted herein. All files are to conform to the criteria found in the Electronic Data Guidelines dated March 15, 2004, Current Revision March 15, 2006. This information can be found at the Department's web site: http://www.dot.state.ga.us/dot/preconstruction/adds/edg/index.shtml.

3. **Design Scope of Services:** Plans will be prepared in accordance with the Georgia Department of Transportation's instructions as to design criteria, procedures, and format as contained in this Special Provision and the following: Current Manual on Uniform Traffic Control Devices; Current Draft Georgia Manual on Drainage Design for Highways; Current Utility Accommodation Policy and Standards Manual; GDOT Bridge Design Memos and the Bridge and Structural Design Manual; and the Department's Current Plan Preparation Guide. Project designers will adequately consider all elements of the design, including but not limited to roadway geometry, drainage requirements, traffic control during construction, erosion control, structural design, utility conflicts, signing and marking, and future maintenance requirements. Roadway lighting will not be required.

4. **Design Reviews:** The design is to be prepared under the direct supervision of licensed design professionals. A Professional Engineer licensed to practice engineering in the State of Georgia on the design team will seal the final plans. Their seal on the drawing shall represent certification that the design meets all applicable codes and is of good engineering

practice and standards. It shall be the responsibility of the Contractor to check and certify the design.

The Department may establish dates and times for cursory reviews and may comment on design work, but will not require hold points, review periods, or comment responses, except noted otherwise. If at any time the Department determines that the design work is not in conformance with the Department's standards, specifications, or good engineering practice, the Department reserves the right to stop work, at the Contractor's expense until a resolution of the issue(s) has occurred. Monthly progress meetings are to be held for the duration of the project.

Construction documents (plans and specifications) relating to the construction phases shown in Table A-1 will be submitted to the Department for review and approval. Approvals, disapprovals, or comments made by the Department will be provided in writing to the Contractor within the appropriate timeframes shown in the table below. No construction is to begin prior to receiving approval from the Engineer. Other items will be submitted to the Department if requested.

TABLE A-1: REVIEWS

Submission	Review Type	Comments
QC/QA plan	Plan approved by Engineer	See 999.3.A.6
Preliminary Roadway Plans	Review by Office of Urban Design	14 day review period
Preliminary Bridge Layouts	Plans Reviewed by Office of Bridge Design	See 999.3.C
Bridge Foundation Investigation	Report approved by Office of Materials and Research	N/A
Bridge Construction Plans	Plans Reviewed by Office of Bridge Design	See 999.3.C
Construction Traffic Control Plan	See Specification 150	N/A
Utility Plans / Agreements Agreements: 3 hard copy 1 electronic pdf Plans: 1 for each Utility Owner + 3 for Dept. and Microstation files	Relocation Plans and Agreements reviewed by Department Utilities Office. Agreements also reviewed by Utility Owner.	Concurrently w/ Construction Traffic Control Plans Agreements: 30 days for Dept. + 120 days for each Utility Owner Plans: 30 days

Relocated Utility Plans Plans: 1 for each Utility Owner + 3 for Dept. and Microstation files	Plans approved by Engineer	Concurrently w/ Construction Traffic Control Plan Plans: 30 days
Bridge related Shop Drawings	Shop Drawings	30 day review period
Signing and Marking	Signing and Marking Complete	See criteria within this Special Provision
Control of Soil Erosion and Sedimentation Plan	Plan reviewed by the Environmental Compliance Bureau	14 day review period

Note: Roadway Plans and Bridge Plans will be submitted from the Contractor to the Engineer and the reviewing office simultaneously.

Note: Unless a different review time is specified elsewhere in the contract, a period of thirty (30) calendar days from receipt to release of the submittal by the Department is to be allowed for the Department's review of all drawings and Bridge Foundation Investigations. The review time for structural plans is thiry (30) calendar days. All Contractor schedules shall reflect said review times. All submittals must be directly submitted to the Engineer. The Engineer's receipt of submittals will mark the beginning of the review period. **All submittals by the Contractor will be required to contain a statement certifying that no unapproved design exceptions have been incorporated in the submittal**. Monthly progress meetings will be held on site. Attendees will include the Contractor, design consultant, and the Department's project engineer and design liaison.

Errors and omissions are the responsibility of the Contractor to correct and will be at the Contractor's expense.

5. Field Surveys: The Contractor will verify all provided survey data. The Contractor is to provide terrain and drainage cross sections, pavement elevations, and drainage structure information for this project. All survey data will be noted in English units. The following is only a guideline for data collection and is not intended to be comprehensive:

a. Provide cross sections of the terrain and pavement at mainline stations as follows:
   (1.) These cross sections will be provided at intervals adequate enough to accurately design and construct the Project, but not to exceed 100 feet.
   (2.) The cross sections are to extend from the centerline to existing right of way line.
   (3.) In addition to all terrain breaks, the cross sections will include all applicable edges of pavement (emergency, outside edges of travel lanes, and curb and gutter sections).
b. Use the Department feature codes when collecting the data in accordance with CAiCE Survey Data Guidelines.
c. Locate all existing mainline drainage structures (X,Y, and Z) within the right of way and provide their size, type, condition, and flow line elevations at each end.
d. Gather inlet elevations for all drop inlets and catch basins.
e. Develop terrain profile at each drainage structure showing the skew of the structure.

f. Develop terrain profile of the drainage outfall from the end of each structure to the right of way.
g. Provide any additional necessary survey control.
h. Stake centerlines.
i. Prepare Survey control Packet.
j. Perform sign surveys
k. Perform bridge surveys
l. Perform surface utility surveys
m. Perform supplemental topo surveys
n. Perform right of way surveys
o. Perform stream surveys
p. Perform surveys of ITS items
q. The accuracy for all survey data will be as follows:

Horizontal:	Additional control =	1:10,000
Topography:	=	0.4’
Vertical:	Additional control =	NOAA 3rd Order
Pavement:	=	0.03’
Ground Terrain:	=	0.25’

6. **Quality Control/Quality Assurance for Design**: The Department, except where noted otherwise, will have oversight responsibilities only and will not perform official reviews and approvals of design work. The Department will not take any approval or formal review actions on design issues except as noted herein or for deviations from the intended scope of the project.

   The Contractor is to employ only persons duly registered in Georgia in the appropriate category in responsible charge of supervision and design of the work; and further, will employ only qualified, State of Georgia registered land surveyors in responsible charge of any survey work.

   The Contractor will use only a consultant design team that is prequalified by the Department in all applicable area classes for this Contract (see Section 999.1.A.4). Approval of any replacements within the team should occur prior to the letting of the project. Failure to secure approval of the replacements prior to letting may result in the disqualification of the Contractor’s bid.

   The Contractor will endorse all final reports, contract plans and survey data. These endorsements will be made by a person(s) duly registered in the appropriate category by the Georgia State Board of Registration for Professional Engineers and Land Surveyors, being in the full employ of the Contractor and responsible for the work prescribed by this agreement.

   Authorized representatives of the Department and Federal Highway Administration may review and inspect the Project activities and data collected at all times. All reports, drawings, studies, specification estimates, maps and computations prepared by or for the Contractor will be available to authorized representatives of both the Department and the Federal Highway Administration for inspection and review in the General Office of the Department or at another location as determined by the Department. The Department’s review comments are to be incorporated into the plans by the Contractor or as agreed. These changes will not result in an increase in cost.

   Before the start of the contracted design effort, the Contractor will develop and acquire the Department’s approval for a QC/QA Plan to ensure that all design documents are prepared in accordance with the Department’s Plan Presentation Guide (www.dot.state.ga.us, search for keyword “PPG”) using good, prudent and generally accepted design and engineering

practice. Also see the Manual of Quality Standards for Consultant Services with the Georgia Department of Transportation.

The QC/QA Plan shall include the following:

a. Quality control and quality assurance procedures for design documents will specify measures to be taken by the Contractor (A) to ensure that appropriate quality standards are specified and included in the design documents and to control deviations from such standards, being understood and agreed that no deviations from such standards shall be made unless they have been previously approved by the Department, and (B) for the selection of suitable materials and elements of the Work that are included in the Project.

b. Quality control and quality assurance procedures for preparing and checking all plans, calculations, drawings and other items submitted ensure that they are independently checked and back-checked in accordance with generally accepted engineering practices, by experienced engineers. The originator, checker and back-checker should be clearly identified on the cover of all submittals. Specific procedures for verifying the computer programs used will be included as well. Plans, reports and other documents will be stamped, signed and dated by the responsible Georgia registered engineer where required under the contract documents, generally accepted engineering practices or by applicable laws. It is required that the Contractor also submit a statement that all reviews have been completed.

c. Procedures for coordinating work performed by different persons within the same area, in an adjacent area or in related tasks must ensure that conflicts, omissions or misalignments do not occur between drawings or between the drawing and specifications. These procedures must also allow for the coordination of the review, approval, release, distribution and revision of documents involving such persons.

   All the persons proposed to be responsible for design Quality Control and Assurance are to be listed as follows:

   - Discipline
   - Name
   - Qualifications
   - Duties
   - Responsibilities
   - Authorities

   All key personnel performing Quality Control and Assurance functions will be exclusively designated as such and shall not be assigned to perform conflicting duties.

   All documents are to be maintained by the Contractor for the duration of the Contract and shall be organized, indexed and delivered to the Department (1) upon Final Acceptance or (2) even if incomplete, within seven (7) days of receipt of request from the Department. These documents shall include, but not be limited to, the following items: design criteria, reports and notes, calculations, drawings, schematics, supporting materials, statement regarding accomplishment of reviews and others.

7. **Ownership of Documents**: The Contractor agrees that all reports, drawings, studies, specifications, survey notes, estimates, maps, computations, computer files and other data, prepared by or for it under the terms of this agreement will be delivered to the Department to become and remain the property of the Department upon termination or completion of the work. The Department will have the right to use this information without restriction or

limitation and without compensation to the Contractor other than that provided for in this agreement.

Any use of these documents by the Department on any project other than this one will be done without warranty by the Contractor.

8. **Insurance:** In addition to the insurance requirements covered elsewhere in this Proposal, the Contractor must have insurance coverage of the following types and amounts:

    a. Valuable Papers: Insurance in an amount sufficient to assure the restoration of any plans, drawings, field notes or other similar data relating to the work covered by the project is required. Insurance is to be maintained in full force and effect during the life of the agreement.
    b. Professional Liability (Errors and Omissions): Insurance in an amount not less than one million dollars ($1,000,000) per claim (with a maximum of $250,000 deductible per claim) during the agreement term and for a period of at least five (5) years after the agreement is closed is required. Such a policy is to cover all of the Contractor's professional liabilities, whether occasioned by the Contractor, his employees, subcontractors or other agents, arising out of services performed under or in accordance with this agreement.

9. **Publication and Publicity:** Articles, papers, bulletins, reports or other materials reporting the plans, progress, analyses or results and findings of the work conducted under this Agreement shall not be presented publicly or published without prior approval in writing from the Department. All releases of information, findings and recommendations shall include a disclaimer provision to be included in all published reports on the cover and title page in the following form:

    > "The opinions, findings and conclusions in the publication are those of the author(s) and not necessarily those of the Department of Transportation, State of Georgia or the Federal Highway Administration."

    Any information concerning the project, including conduct, results or data gathered or processed, released by the Contractor without prior approval from the Department will constitute grounds for termination of this Agreement without indemnity to the Contractor. Information released by the Department or by the Contractor with prior written approval is to be regarded as public information and no longer subject to the restrictions of this Agreement. Information required to be released by the Department under the Georgia Open Records Act, Section 50-18-70, et seq., O.C.G.A., the restrictions and penalties mentioned set forth herein shall not apply. Any request for information directed to the Contractor, pursuant to the Georgia Open Records Act, by the public is to be redirected to the Department for further action.

10. **Copyrighting:** The Contractor and the Department agree that any papers, interim reports, forms and other material which are a part of work under this Agreement are to be deemed a "work made for hire", as such term is defined in the Copyright Laws of the United States. As a "work made for hire", all copyright interests in said works will vest in the Department upon creation of the copyrightable work. If any papers, interim reports, forms or other material which are a part of work under the Agreement are deemed by law not to be a "work made for hire", any copyright interests of the Contractor are hereby assigned completely and solely to the Department. Publication rights to any works produced under this Agreement are reserved by the Department.

11. **Patent Rights**: If patentable discoveries or inventions should result from work described herein, all rights accruing from such discoveries or inventions will be the sole property of the

Contractor. However, the Contractor agrees to and does hereby grant to the Department, an irrevocable, non-exclusive, non-transferable and royalty-free license to practice each invention in the manufacture, use and disposition according to law of any article or material and in use of any method that may be developed as a part of the work under this Agreement.

B. Roadway

1. Preparation of Construction Plans

a. **Criteria:** The Contractor is to become familiar with and use the latest, as determined by the Department, American Association of State Highway and Transportation Officials (AASHTO) Design Manuals for Arterial Streets, Rural, Urban and Interstate Highways, including those standards adopted by the AASHTO and approved by the Secretary of Commerce, as provided by Title 23, United States Code, Section 109 (b), with the Department's Standards, Procedures, Plans, Specifications and Methods, with Federal Highway Administration procedures relating to plan review and approval, and will produce plans in accordance therewith. The Project is to be designed and constructed utilizing guidelines found in the American Association of State Highway and Transportation Officials (AASHTO) Design Manuals for Arterial Streets, Rural, Urban and Interstate Highways (including but not limited to the "Green Book"), unless otherwise approved by the Department.

b. **Design Specifications and Guidelines:** Design for roadways and intersections will be in accordance with the current edition of AASHTO Design Specifications; AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals; and AASHTO Roadside Design Guide and the Department of Transportation Standard Specifications for Construction of Roads and Bridges, 2001 Edition, and current editions of Special Provisions. Design and plan preparation will also be in accordance with the FHWA Federal-Aid Policy Guide. Plan and specifications will conform to the requirements of the Highway Capacity Manual, current edition (T.R.B. Report No. 2). Design work for inside interstate rights of way will conform to the interstate standards. Design for work outside interstate right of way shall conform to AASHTO design standards for the appropriate classification and speed design. Any deviation will also require a written design exception or variance to be approved prior to incorporating it into the work. The Contractor will prepare the required design exception request for approval by the Department and/or the FHWA. A design exception request will justify fully why the guideline cannot be reasonable met considering such items as right of way impacts, cost, mitigation measures taken, and accident history and should include the recommendation. The Contractor will meet the current ADA guidelines. In addition to the references listed above, the following references will be used in the development of this project:

- Electronic Data Guidelines – March 15, 2004, Revised March 15, 2006
- Plan Presentation Guide – November 2002
- Current Manual on Uniform Traffic Control Devices "MUTCD" by the U.S. Department of Transportation, Federal Highway Administration "FHWA"
- Draft Manual of Drainage Design for Highways by the Georgia Department of Transportation
- Roadway and Bridge Standard Plans as of July, 2006 by the GDOT Road and Airport Design Office. Design and plan preparation will also be in accordance with the Certification Acceptance authorized by 23 USC 117(a) for Administering Federal Aid Projects Not On Interstate System, dated June 1, 1990.
- Guidelines for Processing Design Data in CAiCE – http://www.dot.state.ga.us – search for keyword "CAiCE".

- Construction Details by the GDOT Road and Airport Design Office
- Pay Item Index by the GDOT State Transportation Office Engineer
- Utility Accommodation Policy and Standards by the GDOT Utilities Office

This List is not intended to be all-inclusive. All references are to be the current editions accepted by the GDOT. Any current editions that are written in metric units should be "soft converted" to U.S. Standards Units. Any rounding will be to the dimension that will increase safety.

c. **Plan Sizes:** Plans for roadway, drainage and utilities will be reproducible quality ink drawings on bond paper. They should have outside dimensions of 36" by 24" with a 2" margin on the left and a ½" margin elsewhere and be produced by a Microstation CADD system. Review sets of plans may be on paper with the same dimensions as above.

d. **Construction Plan Requirements and Scale:** The Plans will be fully dimensioned in English units; all elevations necessary for construction will be shown similar to the Department's normal practice. All plans are to be prepared on the scales listed below, unless otherwise approved by the Department. Drawings and lettering will be such as to produce clear and legible reproductions when reduced to half-size. The scale of sheets are to be as follows:

(1.) 1" = 10'

(a) Roadway cross sections 1" = 10' horizontal and 1" = 10' vertical
NOTE: Cross sections may have to be plotted lengthwise on the sheet to avoid folded sections

(b) Staging cross sections 1" = 10' horizontal and 1" = 10' vertical
NOTE: Cross sections may have to be plotted lengthwise on the sheet to avoid folded sections

(2.) 1" = 50'

(a) Roadway plan sheets for interstate type projects
(b) Roadway profile sheets for interstate-type projects 1" = 50' horizontal and 1" = 10' vertical
(c) Drainage profile sheets 1" = 50' horizontal, 1" = 10' vertical (include location of existing and proposed utility crossings.)
(d) Staging plans for interstate projects
(e) Bridge plan and elevation sheet
(f) Utility relocation plans

(3.) 1" = 100'

(a) Stake out sheet

(4.) 1" = 400' or 500'

(a) Cover sheet
(b) Drainage area map

The Contractor will check all details and dimensions shown on the plans before they are submitted to the Department for review. Topography will remain fully legible when plans are reduced in size, but will be less prominent and readily distinguishable from the proposed work. Profile sheets should have the existing ground line dashed and the required profile in a solid line. All other plan sheets (utility, erosion control, lighting, signing & marking, signal, etc.) will be the same scale as its corresponding roadway plan sheet.

e. **Construction Plans Organization and Sheet Index**: Construction plans will be assembled according to the Electronic Data Guidelines.

The total sheets shown in the Index will be the total number of sheets in the plans. The total sheets shown in the upper right hand corner of each sheet will be the total number of sheets submitted for the final plan submission. Any preliminary plans will be assigned temporary sheet numbers by using the sequence prefix followed by a two-digit number per the Electronic Data Guidelines. These numbers are to be placed in small blocks in the lower right corner of the sheet.

f. **Computations:** All design computations and computer printouts will be neatly recorded on 8 ½" by 11", fully titled, numbered, indexed, dated and signed by the designer/project manager and checker. Project quantity computations will be done in electronic spreadsheet format or directly processed from the CAiCE software. The computer files and two copies of the computations fully checked and appropriately bound, should be submitted to the Department with the plans. A complete tabulation of the drainage analysis along with the calculations used to determine the size of drainage structures will be submitted to the Department with the construction plans.

g. **Plan Print Requirements**: The Contractor will furnish all the prints necessary for the development of the preliminary and final construction plans and specifications. All prints will be clear and legible.

h. **Supplementary Information on Construction Plan Preparation**: All of the following sheet descriptions and others required for completeness of the plans should conform to the Department's Plan Presentation Guide.

i. **Traffic Flow Diagrams**: These sheets provide the traffic data information to determine design criteria. The Contractor shall use traffic volumes from the May 2006 "Traffic Operations Analysis I-75 Auxiliary Lane Project" Technical Memorandum to prepare the Traffic Flow Diagram sheets. The sheets are not required to be to a scale, but the drawing should show and represent the alignment of the overall project. Two sets of diagram shall be prepared, one which shows the Average Daily Traffic (ADT) and the other showing the peak Design Hourly Volumes (DHV).

j. **Typical Sections**:

(1.) Typical sections will show exact dimensions (medians, travel-lanes, shoulders, slopes, ditches, etc.) from the construction centerline. Locate and label the roadway profile grade line for both existing and proposed. Label appropriate items as to type and thickness. All slope controls should be specified on each typical section. Preliminary typical sections will be provided by the Department.

(2.) Typical sections will indicate the spread rates for Asphaltic Concrete and thickness for Graded Aggregate Base to be used on the project. The pavement structures described in the typical sections are those already approved by the Department.

(3.) Any special conditions will be shown as details on the typical section sheets. However, if these items are covered by a Georgia Standard or a construction detail, then a note should be included referring to the standard or detail.

(4.) The scale of each typical section may differ between the horizontal and the vertical in order to more clearly show the division between separate layers of the structure of the pavement.

(5.) Roadway plans will meet the posted speed design within the limits of this project as shown in the 2002 Roadside Design Guide and the MUTCD.

(6.) Any substandard guardrail within the limits of construction is to be replaced under this contract. Where construction exists only on one side, only the guardrail on construction side adheres to this requirement.

k. **Construction Plan Sheets**: Construction plan sheets shall be in accordance with the Plan Presentation Guide including, but not limited to, the following: existing

topography, construction centerline, curve data, edge of pavements, medians, drainage, bridges, and project limits.

l. **Roadway Profile Sheets:** The roadway profiles shall be in accordance with the Plan Presentation Guide including, but not be limited to, the following: existing ground line, existing elevations , proposed ground line, proposed elevations, PVC, PVT, PVI, LVC, K Value, high points, low points, existing structures, and proposed structures.

m. **Staging Plan Sheets:** Staging plan sheets shall be in accordance with the Plan Presentation Guide including, but not limited to, the following: existing topography, construction centerline, curve data, edge of pavements, medians, drainage, bridges, and project limits

n. **Staging Profile Sheets:** The staging profiles shall in accordance with the Plan Presentation Guide including, but not be limited to, the following: existing ground line, existing elevations , proposed ground line, proposed elevations, PVC, PVT, PVI, LVC, K Value, high points, low points, existing structures, and proposed structures.

o. **Drainage Profile Sheets:** Drainage profiles should be shown for all proposed drainage structures except side drains. Existing drainage profiles will be shown if pipe and structures are to be retained and when a proposed drainage system connects to it. Drainage structures will be fully detailed and dimensioned.

   All cross drain structures will be sized by the P.C. computer program HY-8. The Allowable Highwater will be the existing 100-year elevation plus 1.0 foot.

   All drainage structures located in a designated floodway shall be sized to comply with FEMA regulations. FEMA structures require the computer analysis from FEMA, usually HEC-2 analysis. Remodel the floodway and do not increase the 100-year storm more than 1.0 foot total. If the floodway must be altered, all the necessary maps and computer printouts should be included in the drainage analysis and the Contractor will ensure that all FEMA and Local Government requirements are satisfied. When changing sizes of pipes, the top elevation of the pipes should be the same and the flow lines will change. All other guidelines and computation sheets are in the “Draft Manual on Drainage Design for Highways”. The Contractor will submit all final drainage computations.

p. **Sound Barrier Envelopes and Plans:** Sound barrier envelopes and plans sheets shall be in accordance with the Plan Presentation Guide.

q. **Erosion and Sediment Control Sheets**:

Note: The Contractor will not begin work until the Control of Soil Erosion and Sedimentation Plan has been accepted and approved by the Engineer. See 999.1.A.2 and Specification 161.

Erosion and Sediment Control Plans detail the temporary erosion control devices to be used during construction. These devices include, but are not limited to, sediment traps, silt control gates, floating silt retention barriers, check dams, silt fence (types A, B & C), bailed straw ditch checks, brush barriers and slope drains. Additional plan sheets are required for each stage of construction. The criteria listed below will be required as a minimum for the plans:

Item Title	Includes / Comment
Erosion and Sediment Control Cover Sheet	• Project Description • Certification Statements • Project information • Note: Must be signed by GDOT Chief Engineer
General Notes	Miscellaneous Statements

Drainage Area Map	• Runoff Coefficients – before & after • Peak Flow – before & after • Drainage Patterns – flow arrows • Delineated Wetlands • Drainage to lakes within ½ mile • Disturbed Area • Pipe Sizes • Construction Limits
Best Management Practices	Actual Plans – including erosion and sediment control for any staging plans
NOI Form	Current form will be provided to successful Contractor by the Department after review and approval of erosion control

Note: Sediment and Erosion Control Items will be paid for under CONSTRUCTION COMPLETE.

Fill Slopes: Mats are to be used on all fill slopes for all heights that:

(1.) Cross a drainage structure (*minimum of 50 feet on either side of the centerline of the drainage structure*)
(2.) Adjacent to sensitive areas (i.e. wetlands, waterways, lakes, developed property)
(3.) Are unusually difficult to maintain
(4.) Are steeper than 2.5:1
(5.) Are planted with permanent grass (*It is not the intent to use mats as temporary slope protection.*)
(6.) Other conditions deemed appropriate by the Engineer

Cut Slopes: Mats will be used on all cut slopes that:

(1.) Are steeper than 2:1, regardless of height
(2.) Are on slopes of highly erodible soils (*Erosion Index greater than 9*)
(3.) Are adjacent to sensitive areas (i.e. wetlands, waterways, lakes, developed property)

r. **Signing and Marking Requirements**

General

Prepare signing, signalization and marking plans in accordance with the Manual of Uniform Traffic Control Devices (MUTCD) and any applicable AASHTO or Department standards and guidelines.

Prepare plan sheets to show all permanent roadway signs and pavement markings as they appear upon completion of the project. Place emphasis on designing clear directional signage and coordinating sign placement with roadway features, structures, sight distances and driver awareness. All signs are to be replaced unless they meet the current reflectivity and design policy requirements.

s. **Utilities**:

(1) General

By Georgia Statues, utilities whether public or privately owned, aerial or underground, are permitted by the Department and local governments to be accommodated within the public right of way. To this end, the Contractor needs to make every effort to design/build a project that will accommodate (and minimize impacts to) all existing utilities and new utilities to be constructed concurrently with the project.

The selection of typical section features, horizontal alignment, and location of storm sewer lines are design elements that can sometimes be varied without violating safety standards, and accepted design principles. Design/construction techniques that minimize or avoid utility conflicts may involve increased upfront costs; however, those costs are offset by savings during construction, in addition to the total cost savings for the project owner (the Department or local government) and the respective utility owners.

Additional guidance for accommodating utilities within the right of way are given in the AASHTO publications: A Guide for Accommodating Utilities within Highway Right of Way, A Policy on Geometric Design of Highways and Streets; the TRB publication: Policies for Accommodation of Utilities on Highway Rights-of-Way; and in GDOT's Utility Accommodation Policy and Standards, current edition.

The Utility Plans are used as the primary tool to identify and resolve utility related conflicts/issues prior to beginning the construction of a project. Also, when these plans are properly prepared as indicated in this manual; they will support the vital coordination required between the Contractor and the Utility Owner during construction.

Existing utility information shown on the Utility Plans for this project have been obtained from an Overhead / Subsurface Utility Engineering (SUE) Investigation (please refer to Section 2.C. for more information on SUE). This existing utility information has been provided by the Department for the Contractor's use in the design and construction of this project. However, the Contractor shall be responsible for supplementing this utility information for utilities that have been installed after the Overhead / Subsurface Utility Engineering (SUE) Investigation was performed. Known utilities and contacts are shown in the plans package. This information shall be verified by the Contractor.

Utility plan sheets are comprised of completed roadway plan sheets but will contain more detailed information featuring existing and proposed utility facilities. Specific requirements for Utility Plans are detailed below.

(2) Required Information

(a) Preliminary Utility Plans

Preliminary Utility Plan sheets are typically comprised of preliminary roadway plan sheets with the inclusion of all existing utility facility locations (overhead & underground) found within a project's limits. Determining the location of the existing utilities was accomplished through an Overhead/Subsurface Utility Engineering Investigation. The "degree of effort" exerted on the part of the Department and the Utility Owner varies with the type and location of the utility. The Department has classified these "degrees of effort" into different Quality Levels of information. Please refer to Section 2.C. for definitions of these Quality Levels.

Preliminary Utility Plans shall be produced and used by the Contractor in the utility coordination/relocation design activities outlined here and under Section 999.1.3. The following minimum information shall be shown on the Preliminary Utility Plans:

1. Construction centerline with project stations and begin/end project limits.
2. Curb and gutter or edge of pavement (proposed and existing)
3. Road and street names
4. Existing and Required Right of Way limits, property lines, environmentally sensitive area limits, and property owners.

5. All proposed and existing easements (including existing utility easements)
6. Proposed and existing drainage structures/features (excluding drainage text)
7. Proposed construction limits (C/F lines)
7. Topographical planimetrics (i.e. existing buildings / structures, existing tree/vegetation limits)
8. All proposed bridges, walls, other structures and landscape hardscapes.
9. All proposed and existing strain poles (signal, sign, lighting)
10. Utilities Legend
11. Miscellaneous General Notes
12. Existing overhead and underground utilities found within the project's limits. Including size and material if known.
13. Sanitary sewer manhole top, and invert elevations. Sanitary Sewer pipe flow directions
14. Railroad mainline and spur tracks with their respective property/easement limits
15. Project Survey control point locations
16. SUE specific General Notes
17. Utility Pole Data Table
18. SUE investigation Limit of study
19. SUE Quality Level A information

(b) Final Utility Plans

Final Utility Plans consist of all the elements provided for in the Preliminary Utility Plans, but also show all proposed utility adjustments required to accommodate the project.

The proposed utility information will either be provided to the Contractor by each of the respective Utility Owners, or included in the Design Scope for this project. Refer to Section 999.1.A.3 to determine how proposed utility relocation design information is to be provided. In either case, the Contractor shall compile and incorporate this information into the project's Final Utility Plans.

The proposed utility work for this project shall either be performed by the Utility Owner or their designated contractor, or included as part of the project's construction contract. Refer to Section 999.1.A.3 to determine who is responsible for the proposed utility relocation work for this project.

In either case, the Final Utility Plans shall clearly show all existing, proposed, temporary, and relocated utilities on the plans and clearly indicate the disposition of all existing utilities: for example, "To be removed", "To be Adjusted", "To be Abandoned", "To Remain", "To be Relocated", etc. The plans shall also clearly define utility work as to which is to be done by the Contractor and which is to be done by others. Utilities to be relocated (or removed, or installed) prior to construction should be labeled on the plans as "To be relocated (or removed or installed) by others prior to project construction".

When proposed utility work is included as part of the project's contract, it is necessary for a Summary of Quantities to be included within the Final Utility Plans. The Summary of Quantities shown in the Final Utility plans shall be prepared in the same basic format as indicated in Section 999.3.B.1.q.

Where extensive or complex utility work is proposed to be performed, separate Utility Relocation Plan Sheets for that specific utility may be required to ensure plan legibility/constructability. The Contractor shall determine whether separate Utility

Relocation Plans are needed. However, after review of the plans, the Engineer may require these additional sheets be included in the project plan package.

In addition to the information required for the Preliminary Utility Plans, the Final Utility Plans shall include the following:

1. All proposed and temporary utility facilities with annotation describing nature of work.
2. Miscellaneous General Notes required for coordination of utility facilities with roadway construction.
3. Proposed water and sanitary sewer plan/profiles.
4. Summary of Quantities for contract items (if applicable).
5. Any proposed utility easements.
6. Any miscellaneous proposed utility details.

c. Overhead/Subsurface Utility Engineering (SUE) Investigations (Provided by the Department):

(c) Overhead/Subsurface Utility Engineering (Sue) Investigations (Provided by the Department)
Employ an established engineering technology that can provide precise horizontal and vertical locations of underground and overhead utilities to produce an accurate picture of the underground and overhead utility infrastructure. The existing utility information provided in these investigations includes a description of what “degree of confidence” there is in its accuracy. The Department has classified these “degrees of confidence” into different Quality Levels of information:

Quality Level "D" lnformation - Information obtained solely from a review of utility records. The comprehensiveness and accuracy of such information is highly limited. Even when existing information for a utility in a particular area is accurate, there are often other underground systems that are not shown on any records. Quality Level “D” may be appropriately used early in the development of a project to determine the presence of utilities.

Quality Level "C" lnformation - Information obtained to augment Quality Level “D” information. This involves topographic surveying of visible, above-ground utility features (e.g., poles, hydrants, valve boxes, circuit breakers, etc.) and entering the topographic data into the CADD system. Since aerial utility lines are not surveyed, information provided for these facilities is considered Quality Level “C” also. Quality Level “C” may be appropriately used early in the development of a project and will provide better data than Quality Level “D” information alone. Designers must be very cautious when working on projects using information for underground utilities that is based only on Quality Levels “D” and “C” locates.

Quality Level "B" lnformation - Information obtained through the use of designating technologies (e.g., geophysical prospecting technologies). This is an application using scanning technologies, most of which have very specific capabilities. Applying a variety of techniques is essential to the process of preparing a comprehensive horizontal map of utilities and other underground structures on the site. Designating technologies are capable of providing good horizontal information.

Quality Level "A" (Test Hole) Information (not provided by the Department) - Provides the highest level of accuracy of utility locations in three dimensions. This level may apply manual, mechanical or nondestructive (e.g., vacuum excavation) methods to physically expose utilities for measurement and data recording. Quality Levels “B”, “C”, and “D” locates are incorporated in Quality Level “A” locates.

The Contractor shall identify all utility conflict points where verified existing utility information is necessary to avoid the respective utility conflict. The Contractor shall obtain Quality Level “A” locates at these project/utility conflict points, and shall coordinate with the Utility Owners and make every effort to avoid existing utility facilities and thereby reduce utility relocations.

This Quality Level A information shall be performed to GDOT standards by a prequalified firm in Subsurface Utility Engineering (SUE). Refer to the following website for a list of current prequalified firms:

http://www.dot.state.ga.us/dot/preconstruction/consultantdesign/byclass/I508.htm

(3) Sheet Layout

The Contractor needs to ensure that any information and graphic data that is not necessary to depict the disposition of utilities found within the project’s limits is removed by turning off the appropriate CADD levels(s) on which the data is stored. This will help ensure that information pertinent to utility facilities can be clearly seen in the Utility Plan sheets. Examples of extraneous information would be items such as horizontal curve data, superelevation data, roadway dimensions, misc. text, etc. All background information such as pavement limits, existing structures, etc. should be screened back. Also, the Contractor must ensure all text, line work, details, and symbols are clear and legible when plans are reduced to ½ size.

In order to maintain plan clarity all applicable general notes, tables, Summary of Quantities, and the Utility Legend shall be placed separately from the Utility Plan sheets. This Utility Plan “Cover Sheet” shall be provided for both preliminary and final Utility Plans. A recommended example utility sheet schedule is provided below:

- Utility Sheet 1 (Cover Sheet) – Utility General Notes, Utility Legend, Miscellaneous Details

- Utility Sheet 2 (required as needed) – Additional Miscellaneous Details, Summary of Quantities, Pole Data Table

- Utility Plan Sheets – Utilities shown in plan view with respect to project.

- Utility Profile and Cross Sections Sheets - Proposed Utility facility profiles and cross sections (as required)

- Miscellaneous Utilities Sheets – Miscellaneous proposed utility details (as required).

The above sheet schedule should also be generally followed for all separate utility relocation plans (i.e. water & sewer plans) included in the project plans.

(4) Miscellaneous Notes and Other Information

State on the Utility Plans whose responsibility it is for utility adjustment. If the Contractor is to adjust utilities, those items are to be summarized and the appropriate pay items are to be included on the detailed estimate.

For bridge plans required, the Contractor is to make sure the plans have made accommodations for utility crossings and attachments, if applicable. Any new utility crossings requests must include the size, weight, and type of utility. In addition, the method of attachment to the bridge must be fully detailed. Such requests shall be reviewed by the Contractor to ensure adequacy and constructability and final approval shall be obtained by the Contractor from the Department. The Contractor shall follow the approval process within this specification.

The Contractor is responsible to ensure that all proposed and existing utilities are coordinated with the respective project's Construction Staging and Erosion Control Plans.

Upon completion of the Utility Relocation Plans, the Contractor needs to ensure that any additional environmental impacts due to utilities are addressed in the project's environmental document/permit.

t. **Detailed Estimate Sheet**: Prepare the Detailed Estimate Sheet in accordance with the Plan Presentation Guide.

C. Bridges

1. General

DESIGN SPECIFICATIONS AND GUIDELINES: Design bridges in accordance with the 2002 AASHTO Standard Specifications for Highway Bridges, 17th Edition. Use GDOT Bridge Design Manual and Memos for information regarding bridge design practice located at the internet address:
http://www.dot.state.ga.us/dot/preconstruction/bridgedesign/index.shtml
Use "Basic Drawings where possible. Basic drawings and cells can be downloaded at the following internet address:
http://www.dot.state.ga.us/dot/preconstruction/adds/bridge/index.shtml
Use MicroStation/J to prepare plans in accordance with the Office of Bridge and Structural Design's MicroStation Customization. These files include a folder structure that is required to be on C:\Drive along with the "Bentley" folder. Access the Bridge MicroStation Customization files at the internet address:
http://www.dot.state.ga.us/dot/preconstruction/adds/microstation/customization.shtml

BRIDGE FOUNDATION INVESTIGATION:
A Bridge Foundation Investigation is being supplied to the contractor for information purposes.

2. Plan Submittals:

a. Preliminary Plans.
b. Construction Plans: Submit complete bridge plans
c. Shop Drawings.
d. Submit two (2) full size paper copies and two (2) half size paper copies of Plans and one (1) copy of the calculations for each scheduled submittal.
e. Do not proceed with the final design of bridge plans until the preliminary plans have been approved by the Department.

3. Preliminary Bridge Plans

The existing bridge carrying I-75 southbound over Flippen Road shall be widened to provide 80'-9" from existing median barrier gutter to proposed outside barrier gutter. The following information is to be used in the development of the final plans:

a. The Preliminary Layout for the I-75 bridge over Flippen Road is included in the contract documents.

b. Existing bridge plans may be purchased by contacting the plans reproduction office at (404) 656-5401. The original bridge was built under project number I-75-2 (37) 218 and was widened under project number IR-75-2 (138).

c. The Contractor shall verify all dimensions and elevations in the field prior to preparing plans, ordering materials or building forms.

d. Design the bridge widening using structural steel W-beams or welded plate girders. Cover plates will not be allowed.

e. Design the steel beams or girders as composite with the concrete deck.

f. Do not increase stresses on existing bridge elements.

g. Design the widening using a simple span beam arrangement to match the existing bridge.

h. Design the substructure end bents and intermediate bents with concrete columns, caps, or walls with footings having their top a minimum of two feet below ground.

i. Provide a minimum vertical clearance from bottom of proposed superstructure to roadway beneath greater than or equal to the existing vertical clearance. GDOT records indicate that the existing minimum vertical clearance to Flippen Road is 16'-4". Contractor shall field survey the existing clearance over all travel lanes and submit the survey results to the Bridge Office along with the Preliminary Layout.

j. Except as noted herein, widen the bridge using bents and joints which are collinear with the existing bridge bents and joints. Provide a minimum horizontal clearance from edge of travel lane on Flippen Road to face of bent which is equal to or greater than the existing horizontal clearance.

k. Provide a typical section which indicates the following information:

- Center to center spacing of girders: limit this dimension to a maximum spacing of 9'-0".
- Overhang or distance from outside edge of slab to center of exterior girder: This distance (overhang) shall meet AASHTO requirements, but shall not exceed 2'-7 1/2" for this structure.
- Cross slope of the deck.
- Deck thickness between girders and deck thickness at the centerline of girder measured from the top surface of deck to top of the flange.
- Provide a slab with a minimum thickness determined by the Georgia DOT computer program, BRSLAB07, Service Load Design of Concrete Bridge Slabs proportioned to provide 2.75 inches of concrete cover over the top mat of reinforcing and 1 inch cover to the bottom mat of reinforcement (minimum deck thickness is 7 inches). Use the slab thickness determined for the portion of the bridge supporting the highway loading at all locations.
- Thickness of the top and bottom flange and depth of web for steel plate girders or the AISC steel beam section designation.
- Barrier location, height and width.
- Gutter to gutter and out-to-out dimensions.

- Location of the profile grade.

l. In addition to the requirements above, provide the following:

- A plan view of the proposed structure indicating beginning and end bridge stations, construction centerline, profile grade line, bent skew angles, joint locations, station and skew of roadways crossing under the structure, width of roadways beneath the structure, gutter to gutter width of the bridge, out to out width of the bridge, distance from gutter to outside edge of deck, taper control stations, location of point of minimum vertical clearance, and location and magnitude of the horizontal clearances from edge of travel way beneath the structure to the face of intermediate bents.
- Stations and elevations along the centerline of construction at the intersection of the centerline of construction and the back face paving rest and centerline of bents. Provide profile grade elevations corresponding to the above stations.
- An elevation view of the proposed structure indicating the span length, location of fixed and expansion joints, profile of roadways beneath structures, vertical clearance from bottom of structure to roadway beneath, proposed bent locations, and existing ground profile.
- All horizontal and vertical curve data for the bridge and the roadway beneath the bridge.
- The location and elevation of the nearest bench mark. The nearest benchmark shall be within 300 feet of the bridge.
- A brief description of the proposed structure indicating span lengths, and type of end bents.
- Any drawing and/or narrative description of the construction scheme necessary to indicate how the bridge is to be built, including traffic handling sketches and temporary barrier locations.

4. Final Bridge Design

Additional bridge design criteria shall be as follows:

a. Design the bridge widening for seismic performance category “A”.
b. Use ASTM A 615 Grade 60 reinforcement. Use epoxy coated reinforcement in the top mat of the deck and the traffic side of the barriers.
c. Use Class AA Concrete with a minimum 28 day concrete strength of 3,500 psi for the deck, barriers, endposts and substructure.
d. Include 30 pounds per square foot in the design loads to allow for future paving.
e. If metal deck forms are used, include 16 pounds per square foot in the non-composite design loads.
f. Design and detail 1’-0” wide edge beams where the deck is to be discontinuous. Extend edge beams a minimum of 18 inches below the bottom of the top slab.
g. Place slab transverse and longitudinal reinforcing steel 2 inches from the edge of the slab and place the top mat of edge beam bars below the top mat of the deck steel. Do not use truss shaped bars in the edge beam. Extend stirrups from the edge beam into the slab.
h. Use protective platforms over Flippen Road.
i. For structural steel beams and plate girders, meet the following:

- Use ASTM A 709 Grade 36 or Grade 50 structural steel.
- Design beams and girders as simple span beams, composite with the concrete deck.
- Provide concealment plates attached to the exterior girders exposed to traffic at the intermediate bent.

- Provide steel channel diaphragms in accordance with AASHTO guidelines and GDOT standard practice.
- Provide bearing assemblies at the girder ends. Design bearing assemblies using steel sole and base plates and bronze lubricated plates that account for transverse and longitudinal expansion and contraction. Provide stainless steel anchor bolts.
- Indicate on the plans the main load carrying members that are subject to tension and state that they shall meet Charpy V-notch test requirements found in the Georgia DOT Specifications. Designate such member with "(CVN)".
- For fatigue, design all welds for Category C or better as defined by the AASHTO Specifications.
- Provide web stiffeners on each side of field web splices. Locate web stiffeners between six and twelve inches from centerline of web splices.
- Design and detail the bridge ends with a paving rest to accommodate full width approach slabs.
- Paint all new structural steel in accordance with Section 535 of the Georgia DOT Specifications using System VII.

j. Use the following in the design and construction of the bridge foundations:

- Foundation Type:

  Bents 1 & 4: Steel H-pile, Pile Bent
  Bents 2 & 3: Steel H-pile, Pile Footing

- Maximum Design Loads:

  10 BP 42 = 55 Tons
  12 BP 53 = 70 Tons
  14 BP 73 = 96 Tons

- Plan Driving Objective – At each bent, drive all piles to the design driving resistance after achieving the minimum pile tip elevation as follows:

Bent Number	Minimum Pile Tip Elevation
1	702
2	702
3	710
4	705

- Use a minimum of one pile per beam location at end bents. Use a minimum of one pile at each wingwall and pile size equivalent to piles supporting beams within the end bent.

5. Bridge Construction Plans:

The Contractor shall meet with the Department and discuss how the plans will be prepared prior to beginning plan preparation on the project.

a. Prepare construction plans with all dimensions, notes and details necessary to construct the structure. As a minimum, include the following sheets:

- Plan and Elevation sheets that include:
  - (1.) Plan view of the bridge,
  - (2.) Elevation view of the bridge,
  - (3.) Beginning and ending stations,
  - (4.) North arrow,
  - (5.) Location of fixed and expansion bearings,
  - (6.) Location of the minimum vertical clearance above Flippen Road,
  - (7.) Existing Bridge Serial No., Existing Bridge ID No., Project No. Project PI No., and construction ID No. supplied by the Department.
- General Notes sheets that include:
  - (1.) Notes for the following; Specifications, Reinforcing Steel, Chamfer, Existing Bridge Plans, Welding, Salvage Material, and others as necessary,
  - (2.) Bridge Design Data,
  - (3.) A summary of Bridge Consists Of (for information),
  - (4.) A summary of Traffic Data,
  - (5.) A summary of Quantities (for information only)
  - (6.) A list of Existing Utilities (if applicable),
  - (7.) A list of Utilities (if applicable)
- Deck Plan sheets,
- Deck Cross-Section sheets,
- Bearing assembly sheets,
- Beam sheets,
- Miscellaneous sheets,
- Framing Plan and Substructure Layout sheets,
- End Bent/Abutment sheets,
- Intermediate Bent sheets,
- As Built Foundation sheets, and
- Bar Bending Detail sheets.

Additional sheets may be necessary to show the details required for construction. Provide additional sheets at no additional cost when deemed necessary by the Department.

b. Provide the following details

- On deck section sheets, provide one full-width section across the structure which indicates, at least, all the horizontal dimensions necessary to construct the bridge. Provide sufficient deck cross-sections to indicate the staging, location of the existing structure and location of any temporary barriers on the structure. Show as many sections as are necessary to detail the placement of reinforcing in the deck and barrier. Also, draw deck sections indicating edge beams, back walls, diaphragms or cross-frames, and end walls. Cut sections radially across the structure.
- Detail deck plan sheets with all longitudinal and transverse dimensions necessary to construct the bridge, including edge beam width, expansion joint widths, back wall or

end wall locations, location of construction and expansion joints, and any other items that are necessary to construct the structure.

- All views, sections and details, except those in GDOT's standard bridge cell library, are to be drawn to scale. Draw deck cross-sections and intermediate bent sheets "Looking Ahead". If the end bents or abutments are drawn separately, draw bent/abutment one "Looking Back", and draw the other end bent/abutment "Looking Ahead".
- All details on the Plans shall be clear and legible. The Department will have the final say as to how a Project is to be drawn and will have the right to require additional drawings at no increase in Contract cost. Fully check the plans for completeness of content and accuracy before submittal to the Department for review.

c. Maintain and protect all utilities supported and in the area of the bridge during construction.

d. Groove the widened portion of the bridge deck in accordance with Section 500 of the Georgia Specifications.

SHOP DRAWINGS:

Provide shop drawings in accordance with Georgia DOT Specifications. The Contractor's Design Engineer shall review and stamp approved all shop drawings as the Engineer of Record. After being stamped by the Contractor's Design Engineer, the Department will review the shop drawings for conformance with the plans and specifications. Allow the Department a 30 day review period upon receipt of the shop drawings for each submittal.

BRIDGE REMOVAL

No material removed from the existing structure is to be salvaged for use by the Georgia DOT. The Contractor is responsible for the removal and disposal of all material removed from the existing bridge.

999.4 CONSTRUCTION

The Contractor will construct the project as per the project scope and as per the approved final plans in accordance with the Specifications.

Construction includes, but is not limited to, the following:

- All clearing and grubbing and grading required in accordance with Sections 201, 202, 205, 206, 208 and 209;
- All necessary grading and drainage (All proposed pipes shall be concrete) to construct the subgrades, including the removal and replacement of unsuitable material, shoulders and incidental work to include furnishing borrow pits, waste disposal areas and hauling borrow and waste materials as required. The removal and replacement of unsuitable material is the responsibility of the Contractor;
- All necessary base construction, milling and paving to construct the pavement structure;
- Removal of all curbs, drainage structures, pavements, bases and subbases, or other obstructions within the rights of way as necessary to construct the roadway section;
- All signing, signalization, pavement marking, raised pavement markers and guardrail;

- All equipment and materials stored on the project will be stored outside the clear zone. Equipment and material shall not be stored the median;

- No construction will occur outside of the existing right of way/proposed limits as determined in the concept report/concept layout;

- Errors and omissions are the responsibility of the Design/Build Contractor to correct and at the expense of the Contractor;

- All salvageable material from this project will become the property of the Georgia Department of Transportation.

- Preparation of As-Built Construction Plans

999.5 MEASUREMENT AND PAYMENT

The Work required under the Specification will not be measured separately for payment unless otherwise specified in the detailed estimate. Payment for the items listed below, complete and accepted, will be made at the Lump Sum price bid. Payment will be full compensation for furnishing all materials, labor, tools, equipment, superintendence, mailing charges, removal and replacement of unsuitable material and other incidentals. It will also be made for performing all work specified, including but not limited to, designing, detailing, producing construction plans (preliminary and final, electronic and hard copy), meeting with the Department, processing the NOI and complete construction. For all asphalt concrete, when materials or construction are not within the tolerances specified in Section 400, deductions will be made in accordance with the applicable requirements of Sub-Sections 106.03 and 400.07.

Partial payments of the Lump Sum price will be made on monthly statements based on an approved schedule of payment. The Contractor will develop a schedule for payment for each of the following items:

- DESIGN COMPLETE
- CONSTRUCTION COMPLETE

The schedule for payment will include a rational basis for partial payments of the Lump Sum bid based on the completed portion of the item and definitive activities. The schedule for payment will be submitted to the Engineer and no payments will be made until the plan is approved. No construction will begin prior to said schedule being approved by the Engineer.

At the end of each calendar month, the Contractor will provide the Department with a certification showing the percent complete for each Pay Item. The Contractor should include a breakdown and supporting documentation, to include the Design Consultant's monthly invoice, in sufficient detail to substantiate the percent complete certified.

Payment will be made under:

Item 999, DESIGN COMPLETE …….. per Lump Sum
Item 999, CONSTRUCTION COMPLETE …….. per Lump Sum

August 15, 2007

AMENDMENT TO ADVERTISED CONTRACT

CONTRACT I.D. NUMBER:	B12937-07-000-0
GEORGIA PROJECT NUMBER:	CSNHS-0008-00(274)01
PCN:	0008274010000
COUNTY:	HENRY
AMENDMENT NUMBER:	3
LETTING DATE:	SEPTEMBER 21, 2007
LETTING NUMBER:	001

THE FOLLOWING CHANGES ARE HEREBY MADE TO THIS CONTRACT. THE BIDDER IS RESPONSIBLE FOR MAKING ANY NECESSARY CHANGES IN INK IN THE PROPOSAL. BIDDER SHALL ACKNOWLEDGE THIS AMENDMENT BY CHECKING THE APPROPRIATE SPACE ON THE PROPOSAL SIGNATURE PAGE.

****

1. **Delete** Proposal Pages 162, 163 and 164 from the proposal.

2. **Add** the following attached Special Provisions to the Proposal:

   A. Section 161-Control of Soil Erosion and Sedimentation, 9 pages, with a revised date of November 7, 2006.

   B. Section 167-Water Quality Monitoring, 4 pages, with a revised date of March 21, 2007.

DAVID E. HOGE
STATE TRANSPORTATION OFFICE ENGINEER

Revised November 8, 2005
Revised November 7, 2006

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Section 161—Control of Soil Erosion and Sedimentation

Add the following:

161.1 General Description

This Work includes using control measures shown on the Plans, ordered by the Engineer, or as required during the life of the Contract to control soil erosion and sedimentation through the use of any of the devices or methods referred to in this Section.

161.1.01 Definitions

Certified Personnel— certified personnel are defined as persons who have successfully completed the Georgia Soil and Water Conservation Commission erosion control certification program (Level IA), possess a current certification card from the Commission, and a current WECS certification card.

161.1.02 Related References

A. Standard Specifications

Section 105—Control of Work

Section 106—Control of Materials

Section 107—Legal Regulations and Responsibility to the Public

Section 109—Measurement and Payment

Section 160—Reclamation of Material Pits and Waste Areas

Section 162—Erosion Control Check Dams

Section 163—Miscellaneous Erosion Control Items

Section 166—Restoration or Alteration of Lakes and Ponds

Section 170—Silt Retention Barrier

Section 171—Temporary Silt Fence

Section 205—Roadway Excavation

Section 434—Sand Asphalt Paved Ditches

Section 441—Miscellaneous Concrete

Section 603—Rip Rap

Section 700—Grassing

Section 710—Permanent Soil Reinforcing Mat

Section 715—Bituminous Treated Roving

Section 716—Erosion Control Mats (Blankets)

Erosion control measures contained in the Specifications include:

Erosion Control Measure	Section
Baled Straw Erosion Checks	163.3.05.D
Bituminous Treated Mulch	700.3.05.G
Concrete Paved Ditches	441
Bituminous Treated Roving	715
Erosion Control Mats (Blankets)	716
Erosion Control Check Dams	162
Grassing	700
Maintenance of Temporary Erosion Control Devices	165
Permanent Soil Reinforcing Mat	710
Reclamation of Material Pits and Waste Areas	160
Rip Rap	603
Restoration or Alteration of Lakes and Ponds	166
Sand-Asphalt Ditch Paving	434
Sediment Basin	163.3.05.C
Silt Control Gate	163.3.05.A
Silt Retention Barrier	170
Sod	700.3.05.H & 700.3.05.I
Mulch	163
Temporary Grassing	163.3.05.F
Temporary Silt Fence	171
Temporary Slope Drains	163.3.05.B
Triangular Sediment Barrier	720
Silt Filter Bag	719
Organic & Synthetic Material Fiber Blanket	713

B. Referenced Documents

Erosion and Sedimentation Control Plans

161.1.03 Submittals

A. Status of Erosion Control Devices

The Worksite Erosion Control Supervisor (WECS) or certified personnel will inspect the installation and maintenance of the Erosion Control Devices according to Subsection 167.3.05.B and the plan.

1. Submit all reports to the Engineer within 24 hours of the inspection. Refer to Subsection 167.3.05.C for report requirements.
2. The Engineer will review the reports and inspect the Project for compliance and concurrence with the submitted reports.

3. The Engineer will notify the WECS or certified personnel of any additional items that should be added to the reports.
4. Items listed in the report requiring routine maintenance or correction shall be corrected within 24 hours.

B. Erosion and Sedimentation Control Plan

1. Project Plans

   Erosion and sedimentation control plans for the construction of the project will be provided by the Department. The erosion and sedimentation control plans will be prepared for the various stages of construction necessary to complete the project.

   If the Contractor elects to alter the stage construction from that shown in the plans, it will be the responsibility of the Contractor to have the plans revised by a Licensed Professional to reflect all changes in Staging. This will also include any revisions to erosion and sedimentation control item quantities. If the changes affect the Comprehensive Monitoring Program (CMP), the Contractor is responsible for any revisions to the CMP.

   Submit revised plans and quantities to the Engineer for review prior to land disturbing activities.

2. Haul Roads, Borrow Pits, Excess Material Pits, etc.

   The Contractor is responsible for preparing erosion and sedimentation control plans for construction access roads and or haul roads (inside the Right of Way), borrow pits, excess material pits, etc. Prepare these plans for all stages of construction and include the appropriate items and quantities. Submit these plans to the Engineer for review prior to land disturbing activities. These plans are to be prepared by a Licensed Professional.

   If construction access roads, haul roads, borrow pits, excess material pits, etc., (inside the Right of Way) encroach within the 25 foot (7.6 m) buffer along the banks of all state waters or within the 50 ft. (15 m) buffer along the banks of any state waters classified as a "trout stream", a stream buffer variance must be obtained by the Contractor prior to beginning any land disturbing activity in the stream buffer.

3. Erosion Control for Borrow and Excess Material Pits Outside the Right-of-Way

   Erosion control for borrow pits and excess material pits outside the right of way is the responsibility of the Contractor. All costs associated with complying with local, state, and federal laws and regulations is the responsibility of the Contractor. If borrow or excess material pits require coverage under the National Pollutant Discharge Elimination System permit (NPDES), submit a copy of all documentation required by the NPDES permit to the Engineer.

4. Culverts and Pipes

   Prior to construction on new or existing culverts or pipes submit the proposed methods of construction including the method of erosion and sediment control, to the Engineer for review. Proposed methods to include if streams are to be piped, pumped or diverted.

161.2 Materials

General Provisions 101 through 150.161.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

161.3 Construction Requirements

161.3.01 Personnel

A. Duties of the Worksite Erosion Control Supervisor

Before beginning Work, designate a Worksite Erosion Control Supervisor (WECS) to initiate, install, maintain, inspect, and report the condition of all erosion control devices as described in Sections 160 through 171 or in the Contract documents.

The WECS and alternate (if necessary) shall:

- Be an employee of the Prime Contractor.
- Have at least one year of experience directly related to roadway construction in a supervisory capacity.
- Successfully completed the Georgia Soil and Water Conservation Commission Certification Course Level IA and the Department's WECS Certification Course.
- Provide phone numbers where the WECS can be located 24 hours a day.

The WECS' duties include the following:

1. Be available or have an approved representative available 24 hours a day and have access to the equipment, personnel, and materials needed to maintain erosion control and flooding control.
2. Inform the Engineer in writing whenever the alternate WECS assumes project responsibilities.
3. Ensure that erosion control deficiencies are corrected within 24 hours or immediately during emergencies.
4. During heavy rain, have the construction area patrolled day or night, any day of the week to quickly detect and correct erosion or flooding problems before they interfere with traffic flow, safety, or downstream turbidity.
5. Be on the site 45 minutes after receiving notification of an emergency. The Department may handle emergencies without notifying the Contractor. The Department will recover costs for emergency maintenance work according to Subsection 105.15, "Failure to Maintain Roadway or Structures."
6. Maintain and submit for project record, "As-built" Erosion and Sedimentation Control Plans that supplement and graphically depict EC-1 reported additions and deletions of BMPs.
7. Ensure that both the WECS and the alternate meet the criteria of this Subsection.
8. The WECS shall maintain a current certification card for the duration of the project. Recertification of the WECS will be required prior to the expiration date shown on the Certification card in order to remain as the Certified Personnel and the WECS for the project.

Failure of the WECS or alternate to perform the duties specified in the Contract, or whose performance, has resulted in a citation being received from a State or Federal Regulatory Agency, e.g. the Georgia Environmental Protection Division, shall result in one or more of the following;

- Suspension of the WECS' certification for a period of not less than 30 days
- Removal of the Contractor's project superintendent in accordance with Sections 105.05 and 108.05 for a period not less than 14 days
- Department wide revocation of the WECS certification for a period of 12 months
- Removal of the Contractor's project superintendent in accordance with Sections 105.05 and 108.05

161.3.02 Equipment

General Provisions 101 through 150.

161.3.03 Preparation

General Provisions 101 through 150.

161.3.04 Fabrication

General Provisions 101 through 150.

161.3.05 Construction

Coordinate the temporary and permanent erosion control provisions in this Specification with the permanent erosion control provisions in the Contract to ensure economical, effective, and continuous erosion control throughout the construction and post-construction periods.

At all times that land disturbing activity is underway, a person meeting the requirements of, "certified personnel" (Level IA certified) who also possesses a current WECS certification card must be on the project. This person may be an employee of the prime contractor or the sub contractor. If the WECS is not on the project, someone that has received the Level IA certification from the Georgia Soil and Water Conservation Commission must be on the project. If the sub-contractor is the only entity on the project and they are engaged in land disturbing activity, there must be a Level IA certified person on site.

A. Control Dust Pollution

Keep dust pollution to a minimum during any of the activities. The Engineer may direct roadways or other areas to be sprinkled with water to reduce pollution.

B. Perform Permanent or Temporary Grassing

Perform permanent grassing, temporary grassing, or mulching on cut and fill slopes weekly (unless a shorter period is required by Subsection 107.23) during grading operations. Projects with grassing of 3 acres (1 ha) or less may be treated every 2 weeks (unless a shorter period is required by Subsection 107.23). When conditions warrant, the Engineer may require more frequent intervals.

Under no circumstances shall the grading (height of cut) exceed the height operating range of the grassing equipment. It is extremely important to obtain a cover, whether it is mulch, temporary grass or permanent grass. Adequate mulch is a must.

When grading operations or other soil disturbing activities have stopped, perform grassing or erosion control as shown in the Plans, as shown in an approved Plan submitted by the Contractor, or as directed by the Engineer.

Implement permanent or temporary erosion control as follows:

1. Incorporate permanent erosion control features into the Project at the earliest practicable time. Use temporary erosion control measures under these conditions:
    - To correct conditions that develop during construction but were unforeseen during the design stage.
    - To use as needed before installing permanent erosion control features.
    - To temporarily control erosion that develops during normal construction practices but are not associated with permanent control features on the Project.

C. Seed and Mulch

Refer to Subsection 161.3.05.B, "Perform Permanent or Temporary Grassing".

D. Implement Permanent or Temporary Erosion Control

The Engineer has the authority to:

- Limit the surface area of erodible earth material exposed by clearing and grubbing.
- Limit the surface area of erodible earth material exposed by excavation and borrow and fill operations.
- Direct the Contractor to provide immediate permanent or temporary erosion control to prevent contamination of adjacent streams or water courses, lakes, ponds, or other areas of water impoundment.

Such Work may include constructing items listed in the table in Subsection 161.1.02.A, "Related References" or other control devices or methods to control erosion.

E. Erodible Area

1. Schedule and perform operations to complete temporary silt fence installation, sediment basin construction, and other temporary erosion control devices concurrently with clearing and grubbing.
2. Perform grading operations and implement permanent erosion control features immediately after installing temporary erosion control devices.

   The Engineer will limit the area of excavation, and embankment operations in progress to correspond with the Contractor's ability to keep the finish grading, mulching, seeding, and other permanent erosion control measures current.

   If seasonal limitations make coordination unrealistic, implement temporary erosion control measures immediately.
3. After installing temporary erosion control devices, grassing, mulching, stabilizing the area, and having it approved by the Engineer, release the area from the 17 acres (7 ha) limit.

   NOTE: Never allow the surface area of erodible earth material exposed at one time to exceed 17 acres (7 ha) except as approved by the State Construction Engineer.

   After analyzing Project conditions, the State Construction Engineer may increase the 17 acres (7 ha) limit of surface area of erodible earth material exposed at one time.

The maximum of 17 acres (7 ha) of exposed erodible earth applies to the entire Project and to all combined operations. The maximum of 17 acres (7 ha) does not apply to exposed erodible earth for each operation. If the 17 acre limitation is increased by the State Construction Engineer, the WECS shall not be assigned to another project in that capacity and should remain on site at all times the exposed acreage exceeds 17 acres.

F. Perform Grading Operations

Perform the following grading operations:

1. Complete each roadway cut and embankment continuously, unless otherwise specified in the Contract or ordered by the Engineer.
2. Maintain the top of the earthwork in roadway sections throughout the construction stages to allow water to run off to the outer edges. .
3 Provide temporary slope drain facilities with inlets and velocity dissipaters (straw bales, silt fence, aprons, etc.) to carry the runoff water to the bottom of the slopes. Place drains at intervals to handle the accumulated water.
4. Continue temporary erosion control measures until permanent drainage facilities have been constructed, pavement placed, and the grass on planted slopes stabilized to deter erosion.

G. Perform Construction in Stream Beds

Perform construction in stream beds as follows:

1. Unless otherwise approved in writing by the Engineer, restrict construction operations in rivers, streams, and impoundments to:
   - Areas where channel changes are shown on the Plans
   - Areas that must be entered to construct temporary or permanent structures
2. If channel changes are not shown on the Plans, the Contractor may construct diversion channels as appropriate to protect the stream from erosion.
3. Clear rivers, streams, and impoundments of the following as soon as conditions permit:
   - Falsework
   - Piling that is to be removed
   - Debris
   - Other obstructions placed or caused by construction operations

4. Do not ford live streams with construction equipment.
5. Use temporary bridges or other structures that are adequate for a 25-year storm for stream crossings. Include costs in the price bid for the overall contract.
6. Do not operate mechanized equipment in live streams except to construct channel changes or temporary or permanent structures, and to remove temporary structures, unless otherwise approved in writing by the Engineer.

H. General Requirements

Projects that consist of asphalt resurfacing, shoulder reconstruction and/or shoulder widening; schedule and perform the construction of the project to comply with the following:

After temporary and permanent erosion control devices are installed and the area permanently stabilized (temporary or permanent) and approved by the Engineer, the area may be released from the 1 acre (0.4 ha) limit.

The maximum of 1 acre (0.4 ha) of erodible earth applies to the entire project and to all combined operations, including borrow and excess material operations that are within the right of way, not 1 acre (0.4 ha) of exposed erodible earth for each operation.

NOTE: Never allow the surface area of erodible earth material exposed at one time to exceed 1 acre (0.4 ha).

1. Do not allow the disturbed exposed erodible area to exceed 1 acres (0.4 ha). This 1 acre (0.4 ha) limit includes all disturbed areas relating to the construction of the project including but not limited to slope and shoulder construction.

2. At the end of each working day, permanently stabilize all of the area disturbed by slope and shoulder reconstruction to prevent any contamination of adjacent streams or other watercourses, lakes, ponds or other areas of water impoundment. For purposes of this Specification, the end of the working day is defined as when the construction operations cease. For example, 6:00 a.m. is the end of the working day on a project that allows work only between 9:00 p.m. and 6:00 a.m.)

3. Stabilize the cut and fill slopes and shoulder with permanent or temporary grassing and a Wood Fiber Blanket (Section 713,Type II). Mulching is not allowed. Borrow pits, soil disposal sites and haul roads will not require daily applications of wood fiber blanket. The application rate for the Wood Fiber Blanket on shoulder reconstruction is the rate specified for Shoulders. For shoulder reconstruction, the ground preparation requirements of Subsection 700.3.05.A.1 are waived. Preparation consists of scarifying the existing shoulders 4 to 6 in (100 to 150 mm) deep and leaving the area in a smooth uniform condition free from stones, lumps, roots or other material.

4. If a sudden rain event occurs that would not allow the Contractor to apply the Type II Wood Fiber Blanket per Section 713, install Wood Fiber Blanket Type I per Section 713 if directed by the Engineer. Wood Fiber Blanket Type I application is for emergency use only.

Install temporary grass or permanent grass according to seasonal limitations and Specifications. When temporary grass is used, use the overseeding method (Subsection 700.3.05.E.4) when planting permanent grass.

3. Remove and dispose of all material excavated for the trench widening operation at an approved soil disposal site by the end of each working day. When shoulder reconstruction is required, this material may be used to reconstruct the graded shoulder after all asphaltic concrete pavement has been placed.

4. Provide immediate permanent and/or temporary erosion control measures for borrow pits, soil disposal sites and haul roads to prevent any contamination of adjacent streams or other watercourses, lakes, ponds or other areas of water impoundment.

5. Place asphalt in the trench the same day as the excavation occurs. Place asphalt or concrete in driveways and side roads being re-graded the same day as the excavation occurs. Stabilize any disturbed or exposed soil that is not covered with asphalt with a Wood Fiber Blanket (and grass seed). Payment will be made for the Wood Fiber Blanket and grass seed only if the shoulder has been constructed to final dimensions and grade and no further grading will be required.

6. Do not allow the grading (height of cut or fill) to exceed the operating range of the grassing equipment.

7. When grading operations or other soil disturbing activities are suspended, regardless of the reason, promptly perform all necessary permanent stabilization and/or erosion control work.

8. Use temporary erosion control measures to:

   To correct conditions that develop during construction but were unforeseen during the design stage.

   To use as needed before installing permanent erosion control features.

   To temporarily control erosion that develops during normal construction practices but are not associated with permanent control features on the Project.

9. When conditions warrant, such as unfavorable weather (rain event), the Engineer may require more frequent intervals for this work.

161.3.06 Quality Acceptance

Before Final Acceptance of the Work, clean drainage structures within the project limits, both existing and newly constructed, and ensure that they are functioning properly. Costs to accomplish this work are incidental and shall be included in the overall bid for the Contract.

161.3.07 Contractor Warranty and Maintenance

Maintain the erosion control features installed to:

- Contain erosion within the limits of the right-of-way
- Control storm water discharges from disturbed areas

Effectively install and maintain the erosion control features. Ensure these features contain the erosion and sediment within the limits of the rights of way and control the discharges of storm-water from disturbed areas to meet all local, state, and federal requirements on water quality.

If a construction Project has separate contractors, the Prime Contractor shall maintain the erosion control features at grading sites as acceptable to the Engineer until the Contract is accepted. If any erosion control devices are damaged by any contractor either by neglect, by construction methods, or any other reasons, including acts of nature, they shall be repaired within 24 hours by the Prime Contractor at no cost to the Department.

161.4 Measurement

Control of soil erosion and sedimentation is not measured separately for payment.

161.4.01 Limits

General Provisions 101 through 150.

161.5 Payment

When no pay item is shown in the Contract, the requirements of this Specification and the Erosion Control Plan shall be in full effect. The cost of complying with these requirements will not be paid for separately, but shall be included in the overall bid submitted with the exception of inspections performed by qualified personnel which will be included in Section 167.

When listed as a pay item in the Contract, payment will be made at the unit price bid for each particular item.

No payment will be made for erosion control outside the Right-of-Way or construction easements except as provided for by the Plans.

161.5.01 Enforcement and Adjustments

A. Failure to Provide a WECS

If a designated WECS is not maintained or if the Contractor does not comply with this Specification, cease activities except traffic control and erosion control work. Monies that are due or that may become due also may be withheld according to the Specifications

B. Failure to Comply with Specifications

If the Contractor fails to comply with any of the requirements of this Specification, all activities shall cease immediately except traffic control and erosion control related work.

Monies that are currently due or that may become due shall be withheld according to the specifications. In addition, nonrefundable monies shall be deducted from the contract as shown in the Schedule of Deductions table below. These deductions are in addition to any actions taken in the above subsections. Deductions assessed for uncorrected deficiencies shall continue until all corrections are completed to the satisfaction of the Engineer. Receipt of a Consent Order or Notice of Violation, etc from any Regulatory Agency will also result in the assessment of Deductions from the table below.

Schedule of Deductions for Each Calendar Day of Erosion Control Deficiencies Initial Occurrence* Original Total Contract Amount		
From More Than	To and Including	Daily Charge
0	$100,000	$750
$100,000	$1,000,000	$1125
$1,000,000	$5,000,000	$2000
$5,000,000	$15,000,000	$3000
$15,000,000	-	$5000

*Continued non-compliance with the requirements of this specification may result in the doubling of the above tabulated Daily Charge.

Upon written request from the Contractor, the Engineer may allow, limited activities to concurrently proceed once significant portions of the corrective work have been completed. This authorization may be similarly rescinded if in the opinion of the Engineer corrective work is not being diligently pursued.

Date: August 26, 2002
First Use Date 2001 Specifications: November 1, 2002
Revised: January 16, 2003
Revised: August 1, 2003
Revised: February 1, 2004
Revised October 15, 2005
Revised March 21, 2007

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Section 167—Water Quality Monitoring

Add the following:

167.1 General Description

This Specification establishes the Contractor's responsibility to meet the requirements of the National Pollutant Discharge Elimination System (NPDES) Infrastructure Permit No. GAR 100002 as it pertains to Part IV. Erosion, Sedimentation and Pollution Control Plan.

167.1.01 Definitions

Certified Personnel— certified personnel are defined as persons who have successfully completed the Georgia Soil and Water Conservation Commission Course Level IA, possess a current certification card from the Commission, and have attended the Department's WECS seminar.

167.1.02 Related References

A. Standard Specifications

Section 161—Control of Soil Erosion and Sedimentation

B. Referenced Documents

NPDES Infrastructure Permit No. GAR 100002, Part IV

GDOT WECS seminar.

Environmental Protection Divisions Rules and Regulations (Chapter 391-3-26)

Georgia Soil and Water Conservation Commission Certification Level IA course.

OCGA 12-7

167.1.03 Submittals

General Provisions 101 through 150

167.2 Materials

General Provisions 101 through 150.

167.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

167.3 Construction Requirements

167.3.01 Personnel

Use certified personnel to perform all monitoring, sampling, inspections, and rainfall data collection.

Use the Contractor designated WECS or select a prequalified consultant from the Qualified Consultant List (QCL) to perform water quality monitoring.

Ensure that monitoring consultants' employees who perform monitoring, sampling, inspections, and rainfall data collection are GASWCC Certified.

167.3.02 Equipment

Provide equipment necessary to complete the Work or as directed.

167.3.03 Preparation

General Provisions 101 through 150.

167.3.04 Fabrication

General Provisions 101 through 150.

167.3.05 Construction

A. General

Perform inspections, rainfall data collection, testing of samples, and reporting the test results on the project according to the requirements in Part IV of the NPDES Infrastructure permit and this Specification.

Take samples manually or with the use of automatic samplers, according to the permit. Analyze all according to the permit, regardless of the method used to collect the samples.

If samples are analyzed in the field using portable turbidemeters, the monitoring results shall state that they are being used and a digital readout of NTUs is what is provided.

Submit bench sheets, work sheets, etc., when using portable turbidemeters. There are no exceptions to this requirement.

Perform required inspections and submit all reports required by this Specification within the time frames specified. Failure to perform the inspections or submit the required reports within the time specified will result in the cessation of all construction activities with the exception of traffic control and erosion control. Continued failure to perform inspections or submit the required reports within the times specified will result in non-refundable deductions as specified in Subsection 161.5.01.B.

B. Inspections

Have the Engineer inspect the installation and condition of each erosion control device required by the erosion control plan within seven days after initial installation. Have this inspection performed for each stage of construction when new devices are installed. Correct all deficiencies reported by the Engineer within two business days.

Ensure inspections are conducted by certified personnel on the areas and at the frequencies listed below. Document all inspections on form DOT-EC-1.

1. Daily:
   a. Petroleum product storage, usage and handling areas
   b. All locations where vehicles enter/exit the site
2. Weekly and after Rainfall Events:

   Conduct inspections on these areas every seven calendar days and within twenty-four hours after the end of a rainfall event that is 0.5 in (13 mm) or greater:
   a. Disturbed areas not permanently stabilized
   b. Material storage areas
   c. Structural control measures, Best Management Practices (BMPs)
   d. Water quality monitoring locations and equipment
3. Monthly:

   Once per month, inspect all areas where final stabilization has been completed. Look for evidence of sediments or pollutants entering the drainage system and or receiving waters. Inspect all erosion control devices that remain in place to verify the maintenance status and that the devices are functioning properly.

   Continue these inspections until the Notice of Termination is submitted.

C. Reports:

1. Inspection Reports:

   Summarize the results of inspections noted above in writing on form DOT-EC-1. Include the following information:

   - Date(s) of inspection
   - Name of personnel making inspection
   - Status of devices
   - Observations
   - Action taken
   - Signature of personnel making the inspection
   - Any incidents of non-compliance

   The EC-1 form shall be signed by the project WECS.

   Submit all inspection reports to the Engineer within twenty-four hours of the inspection.

   The Engineer will review the reports, inspect the project for compliance, and issue concurrence with the submitted reports provided the inspection reports are satisfactory.

   The Engineer will notify the certified personnel of any additional items that should be added to the inspection report.

   Correct any items listed in the inspection report requiring routine maintenance or correction within twenty-four hours of notification.

   Assume responsibility for all costs associated with additional sampling as specified in Part IV.D.5.d.3.(c) and Part IV.D.5.d.3.(c), of the NPDES GAR 100002 permit if either of these conditions arise:

   - BMPs shown in the Plans are not properly installed and maintained, or
   - BMPs designed by the Contractor are not properly designed, installed and maintained.

2. Monitoring Reports

   a. Report Requirements

      Include in all reports, the following certification statement, signed by the WECS or consultant providing monitoring on the project:

      > "I certify under penalty of law that this document and all attachments were prepared under my direct supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

      When a rainfall event requires a sample to be taken, submit a report of the monitoring results to the Engineer within seven working days of the date the sample was obtained. Include the following information:

      1) Date of sampling
      2) Rainfall amount on sample date (sample date only)
      3) NTU of sample & analysis method
      4) Location where sample was taken (station number, etc.)
      5) Receiving water or outfall sample
      6) Project number and county
      7) Whether the sample was taken by automatic sampler or manually (grab sample)

b. Test Results

Provide monitoring test results to the Engineer within 48 hours of the samples being analyzed. This notification may be verbal or written. This notification does not replace the monitoring summary.

3. Rainfall Data Reports

Record the measurement of rainfall once each twenty-four hour period. Measure rainfall data at the active phase of construction on the site.

Project rain gauges and those used to trigger the automatic samplers are to be emptied after every rainfall event. This will prevent a cumulative effect and prevent automatic samplers from taking samples even though the rainfall event was not a qualifying event.

Submit a written weekly report, signed by the WECS, to the Engineer showing the rainfall data for each day. The daily rainfall data supplied by the WECS to the Engineer will be the official rainfall data for the project.

167.3.06 Quality Acceptance

General Provisions 101 through 150.

167.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

167.4 Measurement

This item will not be measured separately for payment. Water Quality Inspections in accordance with the inspections and reports sub-sections shall take place up to the time the Notice of Termination is submitted or Contract Time expires.

167.4.01 Limits

General Provisions 101 through 150. Submit the report to the Engineer within 7 working days

167.5 Payment

This item will be paid for under CONSTRUCTION COMPLETE:

Includes meeting the requirements of the monitoring sections of the NPDES permit and this Specification, obtaining samples, analyzing samples, any and all necessary incidentals, and providing results of turbidity tests to the Engineer, within the time frame required by the NPDES Infrastructure permit, and this Specification. This item is based on the rainfall events that require sampling as described in Part IV.D.5 of the permit.

Also includes performing the requirements of the inspection section of the NPDES permit and this Specification, any and all necessary incidentals, and providing results of inspections to the Engineer, within the time frame required by the NPDES Infrastructure permit, and this Specification.

167.5.01 Adjustments

General Provisions 101 through 150.

September 13, 2007

AMENDMENT TO ADVERTISED CONTRACT

CONTRACT I.D. NUMBER:	B12937-07-000-0
GEORGIA PROJECT NUMBER:	CSNHS-0008-00(274)01
PCN:	0008274010000
COUNTY:	HENRY
AMENDMENT NUMBER:	4
LETTING DATE:	SEPTEMBER 21, 2007
LETTING NUMBER:	001

THE FOLLOWING CHANGES ARE HEREBY MADE TO THIS CONTRACT. THE BIDDER IS RESPONSIBLE FOR MAKING ANY NECESSARY CHANGES IN INK IN THE PROPOSAL. BIDDER SHALL ACKNOWLEDGE THIS AMENDMENT BY CHECKING THE APPROPRIATE SPACE ON THE PROPOSAL SIGNATURE PAGE.

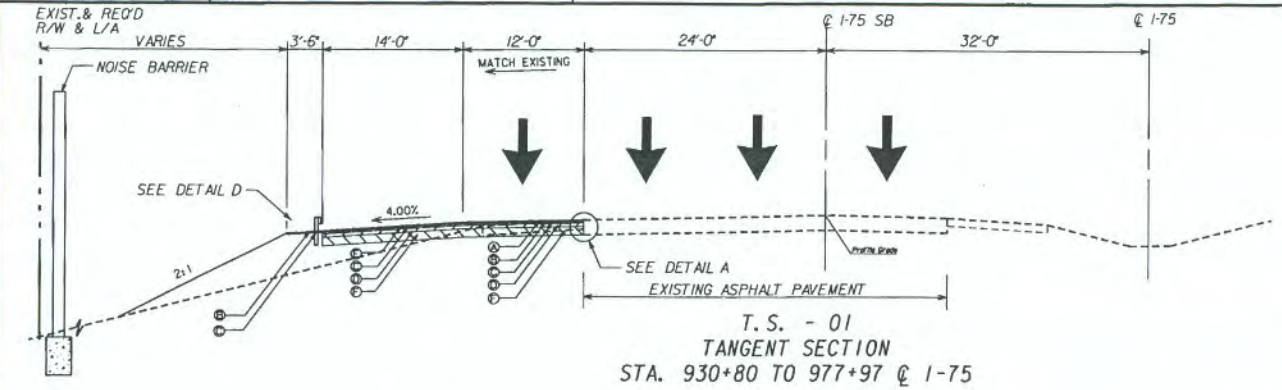
****

1. Special Provision Section 999-Design-Build, Subsection 999.2.i.; **Change** the referenced section **From** “999.03.B.1.S” **To** “999.3.B.1.S”.

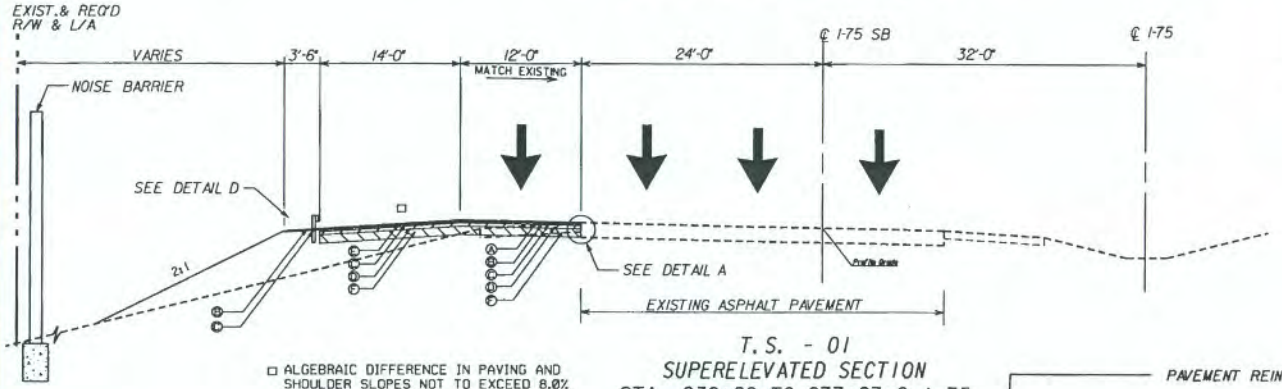
2. **Delete** Proposal Pages 472 through 475 from the proposal, **and Substitute** the attached revised/added pages 472 through 475, in the proposal.

DAVID E. HOGE
STATE TRANSPORTATION OFFICE ENGINEER

DATETIME###	TIME###	#DGN#	COUNTY	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
USER	##PENTABLE##		HENRY	CSNHS-0008-00(274)		

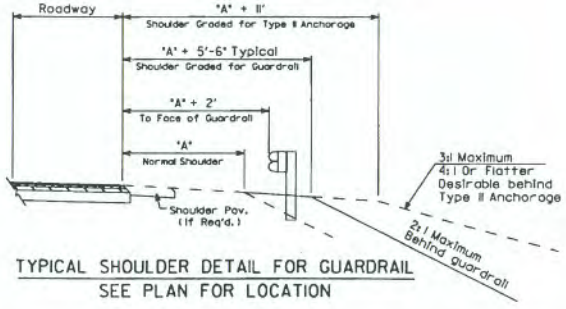


T. S. - 01
TANGENT SECTION
STA. 930+80 TO 977+97 ℄ I-75



□ ALGEBRAIC DIFFERENCE IN PAVING AND SHOULDER SLOPES NOT TO EXCEED 8.0%

T. S. - 01
SUPERELEVATED SECTION
STA. 930+80 TO 977+97 ℄ I-75

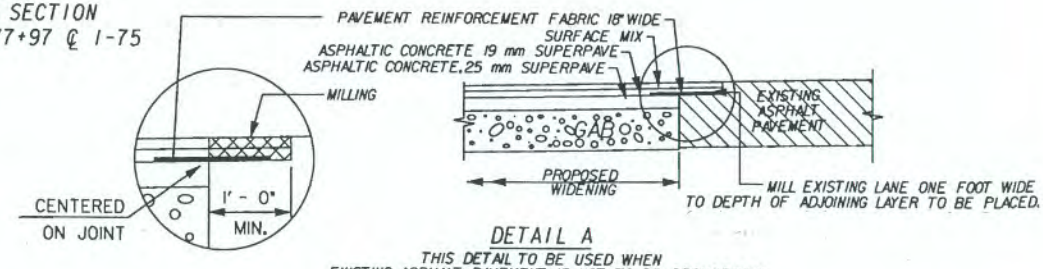


TYPICAL SHOULDER DETAIL FOR GUARDRAIL
SEE PLAN FOR LOCATION

DETAIL D

REQUIRED PAVEMENT

- Ⓐ 135 LBS/SY RECYCLED ASPH CONC 12.5 MM PEM, GP 1 OR 2, INCL BITUM & H LIME
- Ⓑ 165 LBS/SY RECYCLED ASPH CONC 12.5 MM SMA, GP 1 OR 2, INCL BITUM & H LIME
- Ⓒ 220 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
- Ⓓ 1430 LBS/SY RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
- Ⓔ 165 LBS/SY RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
- Ⓕ GRADED AGGREGATE BASE, 12"
- Ⓖ MILLING, 2" DEPTH
- Ⓗ LEVELING AS NEEDED
- Ⓘ 440 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
- Ⓙ 12" CONTINUOSLY REINF CONC PVM'T
- Ⓚ 330 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME



DETAIL A
THIS DETAIL TO BE USED WHEN EXISTING ASPHALT PAVEMENT IS NOT TO BE RESURFACED

REVISED/ADDED
472

604

JBT J.B. TRIMBLE, INC.
6445 Powers Ferry Road, Suite 100
Atlanta, GA 30339

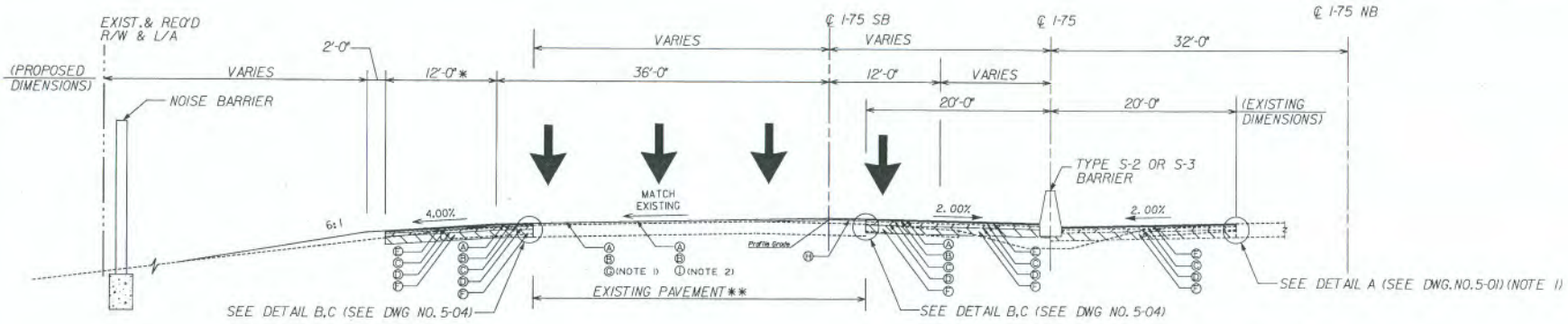
REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: URBAN DESIGN
TYPICAL SECTIONS

DRAWING No. 5-01

DATE TIME###	TIME###	#DGN#	COUNTY	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
#USER#	##PENTABLE##		HENRY	CSNHS-0008-00(274)		

REVISED/ADDED 6053



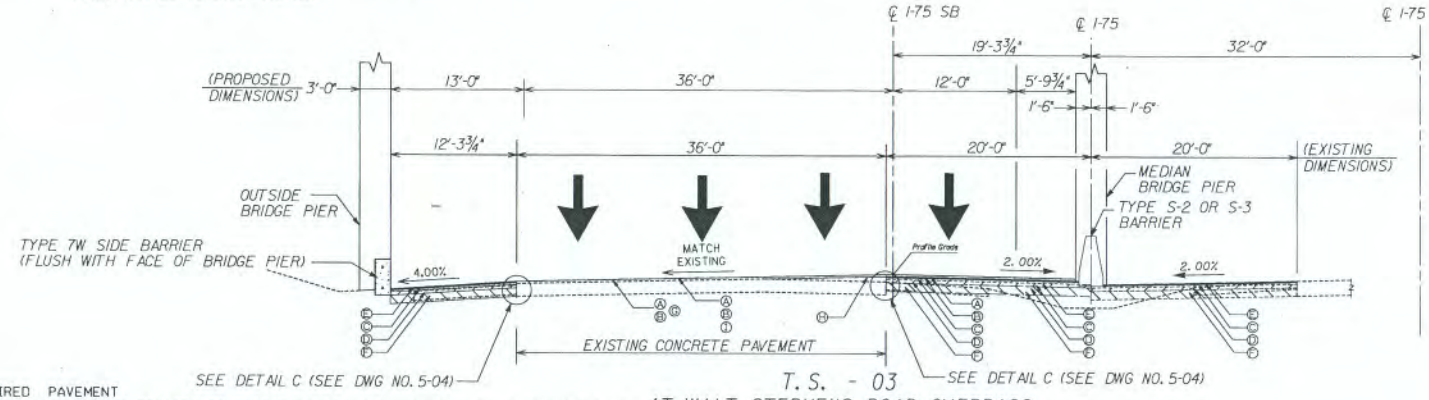
T. S. - 02
STA. 977+97 TO 990+86 ℄ I-75

*VARIES - STA. 990+35 TO STA. 990+86

**EXISTING ASPHALT PAVEMENT: STA. 977+97 TO 990+28
EXISTING CONCRETE PAVEMENT: STA. 990+28 TO 1005+97

NOTE 1: TO BE USED FOR EXISTING ASPHALT PAVEMENT (STA. 977+97 TO STA. 990+28)

NOTE 2: TO BE USED FOR EXISTING CONCRETE PAVEMENT (STA. 990+28 TO STA. 990+86)



T. S. - 03
AT WALT STEPHENS ROAD OVERPASS
STA. 990+86 TO 991+14 ℄ I-75

REQUIRED PAVEMENT

Ⓐ 135 LBS/SY RECYCLED ASPH CONC 12.5 MM PEM, GP 1 OR 2, INCL BITUM & H LIME
Ⓑ 165 LBS/SY RECYCLED ASPH CONC 12.5 MM SMA, GP 1 OR 2, INCL BITUM & H LIME
Ⓒ 220 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
Ⓓ 1430 LBS/SY RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
Ⓔ 165 LBS/SY RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
Ⓕ GRADED AGGREGATE BASE, 12"
Ⓖ MILLING, 2" DEPTH
Ⓗ LEVELING AS NEEDED
Ⓘ 440 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
Ⓙ 12" CONTINUOSLY REINF CONC PVM'T
Ⓚ 330 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME

JBT J.B. TRIMBLE, INC.
6445 Powers Ferry Road,
Suite 100
Atlanta, GA 30339

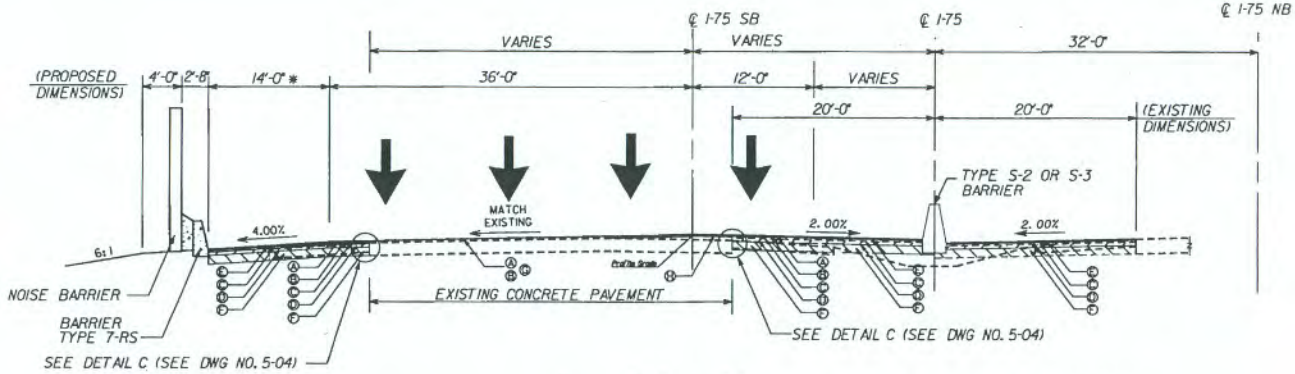
REVISION DATES		

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: URBAN DESIGN

TYPICAL SECTIONS

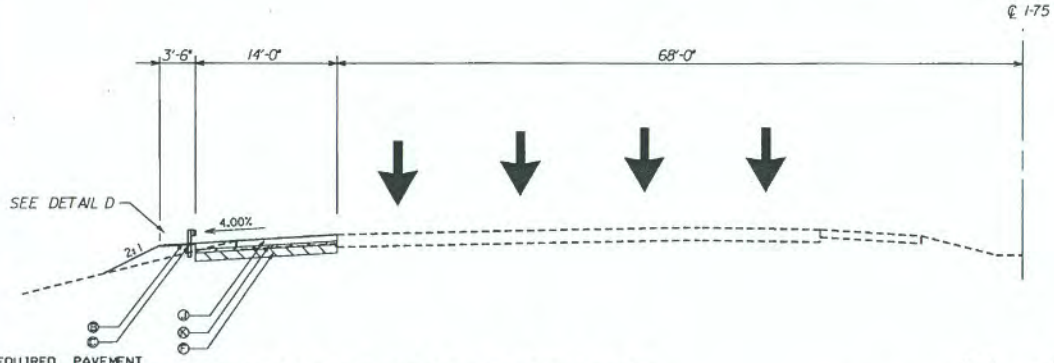
DRAWING No. 5-02

DATETIME$$$	TIME$$$	DGN	COUNTY	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
USER	$$PENTABLE$$		HENRY	CSNHS-0008-00(274)		



T.S. - 04
STA. 991+14 TO 1005+97 ℄ I-75

*VARIES - STA.991+14 TO STA.991+70



T.S. - 05
STA. 1005+97 TO 1008+81 ℄ I-75

REQUIRED PAVEMENT

- Ⓐ 135 LBS/SY RECYCLED ASPH CONC 12.5 MM PEM, GP 1 OR 2, INCL BITUM & H LIME
- Ⓑ 165 LBS/SY RECYCLED ASPH CONC 12.5 MM SMA, GP 1 OR 2, INCL BITUM & H LIME
- Ⓒ 220 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
- Ⓓ 1430 LBS/SY RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
- Ⓔ 165 LBS/SY RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
- Ⓕ GRADED AGGREGATE BASE, 12"
- Ⓖ MILLING, 2" DEPTH
- Ⓗ LEVELING AS NEEDED
- Ⓘ 440 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
- Ⓙ 12" CONTINUOSLY REINF CONC PVM'T
- Ⓚ 330 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME

REVISED/ADDED
474
606

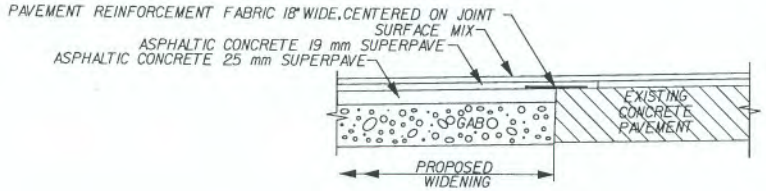
JBT J.B. TRIMBLE, INC.
6445 Powers Ferry Road,
Suite 100
Atlanta, GA 30339

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: URBAN DESIGN
TYPICAL SECTIONS

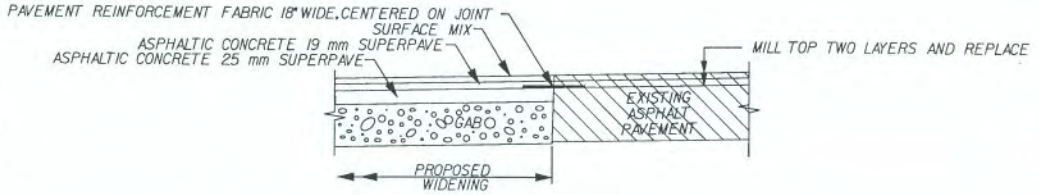
DRAWING NO. 5-03

DATETIME$$$	TIME$$$	$$PENTABLE$$	DGN	COUNTY	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
$USER$				HENRY	CSNHS-0008-00(274)		



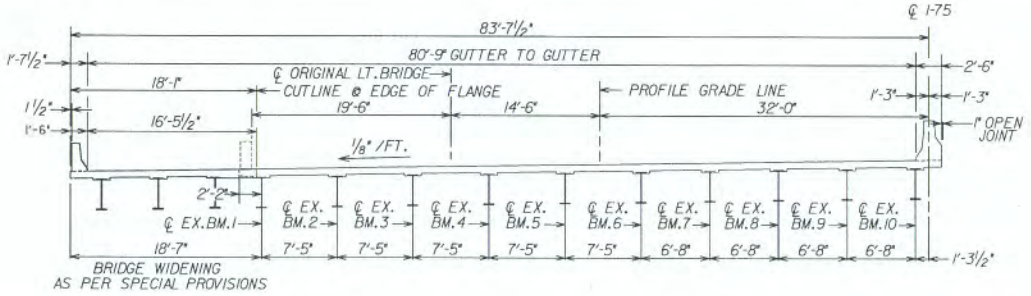
DETAIL C

THIS DETAIL TO BE USED WHEN EXISTING CONCRETE PAVEMENT IS TO BE RETAINED AND OVERLAID



DETAIL B

THIS DETAIL TO BE USED WHEN TWO INCHES OR MORE OF EXISTING ASPHALT PAVEMENT IS TO BE MILLED AND OVERLAYED



FLIPPEN ROAD UNDERPASS WIDENING

REVISED /ADDED

605

				REVISION DATES	STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION
		JBT J.B. TRIMBLE, INC. 6445 Powers Ferry Road, Suite 100 Atlanta, GA 30339			OFFICE: URBAN DESIGN
					TYPICAL SECTIONS
					DRAWING No. 5-04

September 19, 2007

AMENDMENT TO ADVERTISED CONTRACT

CONTRACT I.D. NUMBER: B12937-07-000-0

GEORGIA PROJECT NUMBER: CSNHS-0008-00(274)01

PCN: 0008274010000

COUNTY: HENRY

AMENDMENT NUMBER: 5

LETTING DATE: SEPTEMBER 21, 2007

LETTING NUMBER: 001

THE FOLLOWING CHANGES ARE HEREBY MADE TO THIS CONTRACT. THE BIDDER IS RESPONSIBLE FOR MAKING ANY NECESSARY CHANGES IN INK IN THE PROPOSAL. BIDDER SHALL ACKNOWLEDGE THIS AMENDMENT BY CHECKING THE APPROPRIATE SPACE ON THE PROPOSAL SIGNATURE PAGE.
****

1. Special Provision Section 999-Design-Build, Subsection 999.3.A.4.; **Revise** the second note to read as follows:

   "Note: Unless a different review time is specified elsewhere in the contract, a period of thirty (30) calendar days from receipt to release of the submittals by the Department shall be allowed for the Department's reviews. The review time for all drawings, Bridge Foundation Investigations and structural plans is thirty (30) calendar days. All Contractor schedules shall reflect said review times. All submittals must be directly submitted to the Engineer. The Engineer's receipt of submittals will mark the beginning of the review period. **All submittals by the Contractor will be required to contain a statement certifying that no unapproved design exceptions have been incorporated in the submittal**. Monthly progress meetings will be held on site. Attendees will include the Contractor, design consultant, and the Department's project engineer and design liaison."

DAVID E. HOGE
STATE TRANSPORTATION OFFICE ENGINEER

DEPARTMENT OF TRANSPORTATION | STATE OF GEORGIA

CONTRACT

CONTRACT IDENTIFICATION NUMBER	DATE CONTRACT EXECUTED
B12937-07-000-0	
PROJECT NUMBER(S)	COUNTY(IES)
CSNHS-0008-00(274) 01	HENRY

CONTRACTOR

C. W. MATTHEWS CONTRACTING CO., INC.

DESCRIPTION OF IMPROVEMENTS AND FACILITY

DESIGN BUILD PROJECT COVERING 1.420 MILES OF CONSTRUCTION CONSISTING OF WIDENING FOR ADDITIONAL LANE, GRADING, DRAINAGE, BASE AND PLANT MIX RESURFACING ON I-75/SR 401 SB BEGINNING AT I-675/SR 413 AND EXTENDING TO EAGLES LANDING PKWY. (FOS)

AMOUNT OF CONTRACT

$11,541,886.06

THIS AGREEMENT, made and entered into on the Date Contract Executed, specified above, by and between the Department of Transportation, an agency of the State of Georgia, hereinafter called the “Department”, party of the first part; and the Contractor named above, hereinafter called the “Contractor”, party of the second part;

WITNESSETH THAT:

WHEREAS, the Department desires to construct or improve the Facility described and identified above, and the Contractor desires to furnish and deliver material and to do and perform all the work and labor necessary to construct or improve this Facility;

NOW, THEREFORE, THE PARTIES HERETO, in consideration of ONE DOLLAR ($1.00) in hand paid by the Department to the Contractor, receipt of which is hereby acknowledged, and in consideration of the premises and of the covenants of the other as hereinafter expressed and contained, do hereby agree each with the other as follows:

1. The Contractor promises and agrees to furnish and deliver all the material and to do and perform all the work and labor required to be furnished and delivered, done and performed in and about the improvement or construction of the Facility described above in strict and entire conformity with the provisions of this contract, and the Advertisement, Notice to Contractors, and proposal, copies of which are hereto attached, and the plans and specifications prepared or approved for the project specified above by the Chief Engineer, or his authorized representative, the originals of which are on file in the Offices of the Department of Transportation, and which Advertisement, Notice to Contractors, Proposals and the plans and specifications are hereby made a part of this agreement as fully and to the same effect as if the same had been set forth at length in the body of this agreement.

2. The Department agrees and promises to pay the Contractor for said work, when completed in accordance with the provisions of this contract, the prices set forth in the Proposal, amounting approximately to the Amount of Contract stated above, payments to be made as provided in said specifications Proposal.

3. This work shall be done in accordance with the laws of the State of Georgia under the direct supervision and to the entire satisfaction of the Department of Transportation. All projects financed in whole or in part with Federal funds are subject at all times to the inspection and approval of the U.S. Secretary of Transportation, or his agents, and work thereon shall be done in accordance with Title 23, U. S. Code and the rules and regulations of the U. S. Department of Transportation and the Federal Highway Administration.

4. The decision of the Chief Engineer or his authorized representative upon any questions connected with the execution and fulfillment of this agreement or any failure or delay in the prosecution of the work by the Contractor will be final and conclusive.

ALL REFERENCES in this document, which include all papers, writings, documents, drawings, or photographs used, or to be used, in connection with this document, to “State Highway Department of Georgia”, “State Highway Department”, “Georgia State Highway Department”, “Highway Department”, or "Department” when the context thereof means the State Highway Department of Georgia, mean, and shall be deemed to mean, the Department of Transportation.

THIS AGREEMENT is being executed on the Date Contract Executed, specified above, in Fulton County, Georgia.

IN WITNESS WHEREOF THE PARTIES HAVE SET THEIR HANDS AND AFFIXED THEIR SEALS:

PARTY OF THE FIRST PART

DEPARTMENT OF TRANSPORTATION, STATE OF GEORGIA

WITNESS

RECOMMENDED BY CHIEF ENGINEER, GEORGIA DOT

WITNESS

BY COMMISSIONER

PARTY OF THE SECOND PART

I attest that the seal imprinted hereon is the corporate seal of the Contractor named above and that the signature which appears hereon is genuine and is that of the President (Vice President) of the corporation who is duly authorized to execute the foregoing document on behalf of the corporation; and that the execution of the foregoing document on behalf of the corporation of the foregoing document on behalf of the corporation has been duly authorized.

CORPORATE CONTRACTOR (1)

C. W. MATTHEWS CONTRACTING CO., INC..

(SEAL)

BY PRESIDENT OR VICE PRESIDENT

THIS DAY OF ,

BY SECRETARY OR ASSISTANT SECRETARY (1)

(SEAL) (SEAL)

CORPORATE CONTRACTOR (2)

I attest that the seal imprinted hereon is the corporate seal of the Contractor named above and that the signature which appears hereon is genuine and is that of the President (Vice President) of the corporation who is duly authorized to execute the foregoing document on behalf of the corporation; and that the execution of the foregoing document on behalf of the corporation of the foregoing document on behalf of the corporation has been duly authorized.

(SEAL)

BY PRESIDENT OR VICE PRESIDENT (2)

THIS DAY OF ,

BY SECRETARY OR ASSISTANT SECRETARY (2)

{SEAL) (SEAL)

WITNESS (1)

INDIVIDUAL OR PARTNERSHIP CONTRACTOR (1)

{SEAL}

WITNESS (1)

BY OWNER OR PARTNER (1)

(SEAL)

WITNESS (2)

INDIVIDUAL OR PARTNERSHIP CONTRACTOR (2)

(SEAL)

WITNESS (2)

BY OWNER OR PARTNER (2)

(SEAL)

DEPARTMENT OF TRANSPORTATION

PERFORMANCE AND PAYMENT BONDS

(GEORGIA RESIDENT CONTRACTOR)

KNOW ALL MEN BY THESE PRESENTS, That we,

C. W. MATTHEWS CONTRACTING CO., INC.
MARIETTA, GA

as Principal, and the Corporation or Corporations hereinafter designated as Surety A or Surety A to Surety _____ inclusive, as Surety or Sureties, are held and firmly bound, both "jointly and severally" as well as "severally" only, unto the Department of Transportation in the penal sum of 120% of the Original Contract Amount of:

Eleven Million Five Hundred Forty One Thousand Eight Hundred Eighty Six Dollars And Six Cents ($11,541,886.06)

for the use of the obligee herein named and of all persons doing work or furnishing skill, tools, machinery, or materials under or for the purpose of this contract hereinafter described; Provided, that it is mutually understood and agreed between the Principal and Surety and/or Sureties and the Obligee herein named that this bond is to be construed as being in compliance with and subject to the provisions of Sections 13-10-1 and 36-82-101 of the Official Code of Georgia Annotated, as well as the other applicable provisions, and that in compliance with the aforesaid sections this instrument is intended and is to be construed as two separate bonds, namely, as a "performance bond" in the full penal sum heretofore set forth, and as a "payment bond", in an amount equal to 110 percent of the full penal sum heretofore named and that both bonds shall be construed to be in full force and effect at the same time, as the case may be, and that the obligations shall be several, in the full amount of said penal sum, as to each type of bond; and for the payment of which sums well and truly to be made we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents; Provided, that the Sureties bind themselves in such sums "jointly and severally", as well as "severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, and with each other, for 210 percent of the penal sum of this bond, and provided further that, while each Surety binds itself, jointly and severally with the Principal, for 210 percent of the penal sum herein provided for, the total liability of all Sureties shall not exceed the total penal sum heretofore provided for as to each of the respective obligations herein provided for.

Signed and sealed this the _____ day of _____ , _____ .

Surety	Name and State of Incorporation	Name and Address of Georgia Resident Agent
A		
B		
C		
D		

Note: The Surety Company for Performance and Payment Bonds shall be a company acceptable as Surety on Federal Bonds and listed in the current Federal Register and licensed in the State of Georgia.

THE CONDITIONS OF THE FOREGOING OBLIGATIONS is such that whereas the above named Principal has entered into a contract with said Department of Transportation bearing even date herewith for the Construction of:

DESIGN BUILD PROJECT COVERING 1.420 MILES OF CONSTRUCTION CONSISTING OF WIDENING FOR ADDITIONAL LANE, GRADING, DRAINAGE, BASE AND PLANT MIX RESURFACING ON I-75/SR 401 SB BEGINNING AT I-675/SR 413 AND EXTENDING TO EAGLES LANDING PKWY. (FOS), OTHERWISE KNOWN AS FEDERAL AID PROJECT No. CSNHS-0008-00(274) 01 IN HENRY County.

The surety hereby binds itself to provide performance bond and payment bond for work added by Supplemental Agreement(s) and/or Extension Agreement(s), whereby the original Contract amount or the total Project length may be increased by as much as twenty (20) percent without the written assent of the Surety.

Now, THEREFORE, the condition of these obligations is such that if the above named bound Principal shall in all respects comply with the terms and conditions of said contract, including all modifications or extensions thereof, and his obligations thereunder, including the notice to contractors, the plans, general conditions, specifications, special provisions and proposals, therein referred to and made a part thereof, and shall complete the said contract in accordance with its terms and shall save obligee free from all cost and charge that may accrue on account of the doing of the work specified, then this bond, construed as a "performance bond" shall be void, otherwise of full force and effect.

Provided further, that upon the failure of the said Principal to promptly and efficiently prosecute said work, in any respect, in accordance with the contract, the above bound Surety or Sureties shall take charge of said work and complete the contracts at its own expense, pursuant to its terms, receiving, however, any balance of funds in the hands of said Department of Transportation under said contract.

And, further, the condition of these obligations is such that if the above bound Principal shall make prompt payment to all subcontractors and all other persons supplying labor, materials, machinery and equipment furnished for the performance of the work provided for in said contract, as well as all duly authorized modifications thereof which may hereafter be made, including any extension of time to complete the same, then this bond, as a "payment bond", shall be void, otherwise of full force and effect.

It is agreed that, in the event that this bond is executed by more than one surety company, the term "Surety" as used in this bond shall be construed to mean any one or all of such surety companies executing this bond. It is further agreed that such surety companies herein named and executing this bond as surety for the Principal, by mutual agreement between themselves, and with the Principal, and with the obligee herein named, do hereby designate and authorize:

_____

as the "controlling surety".

It is further agreed that the term, "controlling surety", shall be defined as that one of such sureties herein designated and authorized by all of such sureties, upon whom any notice or other demand may be made by the obligee herein named, or other person having a claim against the Principal under the provisions of this bond, or with whom such obligee, or other such person, may negotiate or deal as to any matter pertaining to the obligations of this bond, and against whom any right of action growing out of this bond may be enforced, as provided for by Sections 36-82-102 through 36-82-105 of the Official Code of Georgia Annotated as fully and effectively as though the same were had or done with each of such named sureties individually, and with the right upon the part of such "controlling surety" to vouch such co-sureties into court to defend any action against it or them arising out of the obligations of this bond, as provided by Section 9-10-13 of the Official Code of Georgia Annotated, or to call upon such co-sureties, in accordance with the terms of any notice, demand, suit, suit at law, or other action, commenced or brought against it by the obligee named herein, or any other person having a claim against the Principal under the conditions and provisions of this bond, or in accordance with any private contract between the sureties executing this bond on behalf of said Principal, it being the purpose and intent of this contract that the obligee named in this bond, or such other person having a claim under the provisions of this bond, may enforce any right that it or they may have growing out of this bond by notice, demand, negotiation, suit, or other appropriate action against the controlling surety only, and such action shall be deemed to be binding upon all the sureties named herein; Provided however, the foregoing notwithstanding, the obligee, or such other person having a claim under this bond, at its or their option, may take such action against any or all of said surety companies.

It is agreed by the parties hereto that in the event the Department of Transportation in making the contract with the Principal herein shall be acting as Agent for the United States Government, or for the County of

HENRY

or for both, as well as for itself, then the said Department of Transportation shall have the right in the event of a breach of the contract resulting in loss to the said County or to the United States Government; or to itself, to maintain a suit hereon for the use of itself, or the United States Government, or said County as well as for itself; or said County and said United States Government shall have the right in their own names to maintain a suit herein in the same manner and to the same extent as the Department of Transportation has by virtue of Sections 36-82-104 and 36-82-105 of the Official Code of Georgia Annotated.

IN WITNESS WHEREOF, the said "Principal" and the said "Surety" have duly executed this bond under seal this the _____ day of _____ ,_____ .

Signed, Sealed, and Delivered in the presence of us.

Witness for Contractor (1)

(1) _____ C. W. MATTHEWS CONTRACTING CO., INC. (Seal)

_____ _____

Witness for Contractor (2)

(1) _____ _____ (Seal)

(2) _____ _____ (Seal)

Witness for Surety Co. A

(1) _____ _____ (Seal)

(2) _____ _____ (Seal)
Attorney-In-Fact & Georgia Resident Agent

Witness for Surety Co. B

(1) _____ _____ (Seal)

(2) _____ _____ (Seal)
Attorney-In-Fact & Georgia Resident Agent

Witness for Surety Co. C

(1) _____ _____ (Seal)

(2) _____ _____ (Seal)
Attorney-In-Fact & Georgia Resident Agent

Witness for Surety Co. D

(1) _____ _____ (Seal)

(2) _____ _____ (Seal)
Attorney-In-Fact & Georgia Resident Agent

If this Bond is made by an Out of State Agent, It must be Countersigned by a Georgia Agent.

COUNTERSIGNED

By: _____ (Seal)
Attorney-In-Fact & Georgia Resident Agent

INSTRUCTIONS:

This Bond is so drawn that it may be executed by a single surety or a multiple surety. In the event of multiple sureties they should be listed in the space provided for Surety "A", "B", "C" and "D". In the event of a single surety, set out this surety as Surety "A" together with the name and address of the Resident Agent.

DEPARTMENT OF TRANSPORTATION
PERFORMANCE, PAYMENT, AND NONRESIDENT CONTRACTOR'S TAX BONDS

(NONRESIDENT CONTRACTOR)

KNOW ALL MEN BY THESE PRESENTS, That we,

C. W. MATTHEWS CONTRACTING CO., INC.
MARIETTA, GA

as Principal, and the Corporation or Corporations hereinafter designated as Surety A or Surety A to Surety _____ inclusive, as Surety or Sureties, are held and firmly bound, both "jointly and severally" as well as "severally" only, unto the Department of Transportation in the penal sum of 120% of the Original Contract Amount of:

Eleven Million Five Hundred Forty One Thousand Eight Hundred Eighty Six Dollars And Six Cents ($11,541,886.06)

for the use of the obligee herein named and of all persons doing work or furnishing skill, tools, machinery, or materials under or for the purpose of this contract hereinafter described, and for the use of the State and all political subdivisions thereof for all taxes (including contributions due under the employment security law), together with penalties and interest collectible as taxes, which may accrue during the period of this bond on account of the execution and performance of this contract hereinafter described; Provided, that it is mutually understood and agreed between the Principal and Surety and/or Sureties and the Obligee herein named that this bond is to be construed as being in compliance with and subject to the provisions of Sections 13-10-1, 36-82-101, and 48-13-30 through 48-13-38 of the Official Code of Georgia Annotated, as well as the other applicable provisions, and that in compliance with the aforesaid sections this instrument is intended and is to be construed as three separate bonds, namely, as a "performance bond" in the full penal sum heretofore set forth, and as a "payment bond", in the full penal sum heretofore named, and as a "tax bond" in the amount of ten percent of the full penal sum heretofore named and that all bonds shall be construed to be in full force and effect at the same time, as the case may be, and that the obligations shall be several as to each type of bond; and for the payment of which sums well and truly to be made we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents; Provided, that the Sureties bind themselves in such sums "jointly and severally", as well as "severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, and with each other, for 210 percent of the penal sum of this bond, and provided further that, while each Surety binds itself, jointly and severally with the Principal, for 210 percent of penal sum herein provided for, the total liability of all Sureties shall not exceed the total penal sum heretofore provided for as to each of the respective obligations herein provided for.

Signed and sealed this the _____ day of _____ , _____

Surety	Name and State of Incorporation	Name and Address of Georgia Resident Agent
A		
B		
C		
D		

Note: The Surety Company for Performance and Payment Bonds shall be a company acceptable as Surety on Federal Bonds and listed in the current Federal Register and licensed in the State of Georgia.

THE CONDITIONS OF THE FOREGOING OBLIGATIONS is such that whereas the above named Principal has entered into a contract with said Department of Transportation bearing even date herewith for the Construction of:

DESIGN BUILD PROJECT COVERING 1.420 MILES OF CONSTRUCTION CONSISTING OF WIDENING FOR ADDITIONAL LANE, GRADING, DRAINAGE, BASE AND PLANT MIX RESURFACING ON I-75/SR 401 SB BEGINNING AT I-675/SR 413 AND EXTENDING TO EAGLES LANDING PKWY. (FOS), OTHERWISE KNOWN AS FEDERAL AID PROJECT NO. CSNHS-0008-00(274) 01 IN HENRY County .

The surety hereby binds itself to provide performance bond and payment bond for work added by Supplemental Agreement(s) and/or Extension Agreement(s), whereby the original Contract amount or the total Project length may be increased by as much as twenty (20) percent without the written assent of the Surety.

Now, THEREFORE, the condition of these obligations is such that if the above named bound Principal shall in all respects comply with the terms and conditions of said contract, including all modifications or extensions thereof, and his obligations thereunder, including the notice to contractors, the plans, general conditions, specifications, special provisions and proposals, therein referred to and made a part thereof, and shall complete the said contract in accordance with its terms and shall save obligee free from all cost and charge that may accrue on account of the doing of the work specified, then this bond, construed as a "performance bond" shall be void, otherwise of full force and effect.

Provided further, that upon the failure of the said Principal to promptly and efficiently prosecute said work, in any respect, in accordance with the contract, the above bound Surety or Sureties shall take charge of said work and complete the contracts at its own expense, pursuant to its terms, receiving, however, any balance of funds in the hands of said Department of Transportation under said contract.

And, further, the condition of these obligations is such that if the above bound Principal shall make prompt payment to all subcontractors and all other persons supplying labor, materials, machinery and equipment furnished for the performance of the work provided for in said contract, as well as all duly authorized modifications thereof which may hereafter be made, including any extension of time to complete the same, then this bond, as a "payment bond", shall be void, otherwise of full force and effect.

And, further, the condition of these obligations is such that if the above bound Principal shall promptly pay to the State of Georgia and the political subdivisions thereof all taxes, including contributions due under the employment security law, together with penalties and interest collectible as taxes, which may accrue during the period of this bond on account of the execution by the Principal of the contract described herein, then this bond, as a "tax bond", shall be void; otherwise it shall remain in full force and effect.

It is agreed that, in the event that this bond is executed by more than one surety company, the term "Surety" as used in this bond shall be construed to mean any one or all of such surety companies executing this bond. It is further agreed that such surety companies herein named and executing this bond as surety for the Principal, by mutual agreement between themselves, and with the Principal, and with the obligee herein named, do hereby designate and authorize:

_____

as the "controlling surety".

It is further agreed that the term, “controlling surety”, shall be defined as that one of such sureties herein designated and authorized by all of such sureties, upon whom any notice or other demand may be made by the obligee herein named, or other person having a claim against the Principal under the provisions of this bond, or with whom such obligee, or other such person, may negotiate or deal as to any matter pertaining to the obligations of this bond, and against whom any right of action growing out of this bond may be enforced, as provided for by Sections 36-82-102 through 36-82-105 of the Official Code of Georgia Annotated as fully and effectively as though the same were had or done with each of such named sureties individually, and with the right upon the part of such “controlling surety” to vouch such co-sureties into court to defend any action against it or them arising out of the obligations of this bond, as provided by Section 9-10-13 of the Official Code of Georgia Annotated, or to call upon such co-sureties, in accordance with the terms of any notice, demand, suit, suit at law, or other action, commenced or brought against it by the obligee named herein, or any other person having a claim against the Principal under the conditions and provisions of this bond, or in accordance with any private contract between the sureties executing this bond on behalf of said Principal, it being the purpose and intent of this contract that the obligee named in this bond, or such other person having a claim under the provisions of this bond, may enforce any right that it or they may have growing out of this bond by notice, demand, negotiation, suit, or other appropriate action against the controlling surety only, and such action shall be deemed to be binding upon all the sureties named herein; Provided however, the foregoing notwithstanding, the obligee, or such other person having a claim under this bond, at its or their option, may take such action against any or all of said surety companies.

It is agreed by the parties hereto that in the event the Department of Transportation in making the contract with the Principal herein shall be acting as Agent for the United States Government, or for the County of:

HENRY

or for both, as well as for itself, then the said Department of Transportation shall have the right in the event of a breach of the contract resulting in loss to the said County or to the United States Government; or to itself, to maintain a suit hereon for the use of itself, or the United States Government, or said County as well as for itself; or said County and said United States Government shall have the right in their own names to maintain a suit herein in the same manner and to the same extent as the Department of Transportation has by virtue of Sections 36-82-104 and 36-82-105 of the Official Code of Georgia Annotated.

IN WITNESS WHEREOF, the said "Principal" and the said "Surety" have duly executed this bond under seal this the _____ day of _____ ,_____ .

Signed, Sealed, and Delivered in the presence of us.

Witness for Contractor (1)

(1) _____ C. W. MATTHEWS CONTRACTING CO., INC. (Seal)

_____ _____

Witness for Contractor (2)

(1) _____ _____ (Seal)

(2) _____ _____ (Seal)

Witness for Surety Co. A

(1) _____ _____ (Seal)

(2) _____ _____ (Seal)
Attorney-In-Fact & Georgia Resident Agent

Witness for Surety Co. B

(1) _____ _____ (Seal)

(2) _____ _____ (Seal)
Attorney-In-Fact & Georgia Resident Agent

Witness for Surety Co. C

(1) _____ _____ (Seal)

(2) _____ _____ (Seal)
Attorney-In-Fact & Georgia Resident Agent

Witness for Surety Co. D

(1) _____ _____ (Seal)

(2) _____ _____ (Seal)
Attorney-In-Fact & Georgia Resident Agent

If this Bond is made by an Out of State Agent, It must be Countersigned by a Georgia Agent.

COUNTERSIGNED

By: _____ (Seal)
Attorney-In-Fact & Georgia Resident Agent

INSTRUCTIONS:

This Bond is so drawn that it may be executed by a single surety or a multiple surety. In the event of multiple sureties they should be listed in the space provided for Surety "A", "B", "C" and "D". In the event of a single surety, set out this surety as Surety "A" together with the name and address of the Resident Agent.

PRIME CONTRACTOR'S WORK AUTHORIZATION CERTIFICATION

Pursuant to O.C.G.A. § 13-10-91, all qualifying contractors and sub-contractors performing work within the State of Georgia on a contract with a public employer must register and participate in a federal work authorization program. Prime contractors may participate in any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or any equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 ("IRCA").

The date by which a prime contractor must register and participate in a qualifying federal work authorization program depends on the number of employees in the prime contractor's company. If the prime contractor's company has 500 or more employees, it is required to register and participate in a qualifying federal work authorization program by July 1, 2007. If the prime contractor's company has 100 or more employees, it is required to register for and participate in a qualifying federal work authorization program by July 1, 2008. If the prime contractor's company has 99 employees or fewer, it is required to register for and participate in a qualifying federal work authorization program by July 1, 2009.

Certify compliance with O.C.G.A. § 13-10-91 by checking the appropriate line below:

_____ The undersigned has registered for and is participating in a qualifying federal work authorization program;

or,

_____ The undersigned is not required to register for or participate in a qualifying federal work authorization program at this time. But, if the undersigned becomes a qualifying prime contractor in the future, the undersigned agrees to register for and participate in a qualifying federal work authorization program.

The undersigned further agrees that, should it employ or contract with any subcontractor(s) in connection with the physical performance of services within this state pursuant to this contract with a public employer, the undersigned will secure from such subcontractor(s) a verification of compliance with O.C.G.A. § 13-10-91 using the form "Subcontractor's Work Authorization Certification" or a substantially similar form. The undersigned will maintain records of compliance and provide a copy of each sub-contractor's verification to the public employer at the time the sub-contractor is retained to perform such service.

[SIGNATURE ON NEXT PAGE]

_____	_____
BY: Authorized Officer or Agent	Date
_____	_____
Title of Authorized Officer or Agent	Basic Pilot User Identification Number (if applicable)

_____
Printed Name of Authorized Officer or Agent

With express authority on behalf of:

_____
Printed Name of Prime Contractor

SUBSCRIBED AND SWORN
BEFORE ME ON THIS THE
_____ DAY OF _____, 20__.

_____
Notary Public

My Commission Expires: _____

NOTICE

As per the mutual agreement reached between the Federal Highway Administration, The Georgia Department of Revenue and the Georgia Department of Transportation, we have now incorporated the Nonresident Contractor's Tax Bond (10 Percent) into our Contract Bond for Nonresident Contractors.

Also the Contract Bond for Resident Contractors has been revised to Include the same aggregate penal sum as for Nonresidential Contractors.

The Contractor is responsible for signing the appropriate Contract Bonds, either Georgia Residential Contractor or Nonresidential Contractor. The other bond is to be left blank in the document.

August 8, 2007

AMENDMENT TO ADVERTISED CONTRACT

CONTRACT I.D. NUMBER: B12937-07-000-0

GEORGIA PROJECT NUMBER: CSNHS-0008-00(274)01

PCN: 0008274010000

COUNTY: HENRY

AMENDMENT NUMBER: 1

LETTING DATE: SEPTEMBER 21, 2007

LETTING NUMBER: 001

THE FOLLOWING CHANGES ARE HEREBY MADE TO THIS CONTRACT. THE BIDDER IS RESPONSIBLE FOR MAKING ANY NECESSARY CHANGES IN INK IN THE PROPOSAL. BIDDER SHALL ACKNOWLEDGE THIS AMENDMENT BY CHECKING THE APPROPRIATE SPACE ON THE PROPOSAL SIGNATURE PAGE.

****

1. **Add** the following attached "Memoranda of Understanding" to the proposal:

   A. Between the Georgia Department of Transportation and Henry County Water and Sewage Authority, 4 pages.

   B. Between the Georgia Department of Transportation and Clayton County Water Authority, 4 pages.

   C. Between the Georgia Department of Transportation and Charter Communications, 4 pages.

   D. Between the Georgia Department of Transportation and BellSouth Telecommunications, Inc, 4 pages.

   E. Between the Georgia Department of Transportation and Atlanta Gas Light Company, 4 pages.

   F. Between the Georgia Department of Transportation and Georgia Power Distribution, 4 pages.

2. **Delete** Proposal Pages 77 through 82 from the proposal.
3. **Add** the attached Special Provision Section 102-Bidding Requirements and Conditions, 5 pages, with a revised date of August 1, 2007, in the proposal.
4. **Add** the attached revised/added pages 475A and 475B to the proposal.

DAVID E. HOGE
STATE TRANSPORTATION OFFICE ENGINEER

RECEIVED
JUL 09 2007
BY:

Georgia DOT Project: CSNHS-0008-00(274) Henry County
GDOT P.I. 0008274

MEMORANDUM OF UNDERSTANDING

between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
Henry County Water and Sewerage Authority (hereafter the OWNER)

Whereas the DEPARTMENT proposes to undertake a design-build project to construct an auxiliary lane on I-75 southbound from I-675 to Eagles Landing Parkway in the existing right of way in Henry County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the design-build project through a Design Consultant, Design Consultant Team and/or Contractor hereafter referred to as CONTRACTOR; and,

Whereas the OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed contract:

Type of facility or facilities of the OWNER:

- ✓ Domestic water mains and distribution lines and associated appurtenances.
- ✓ Sanitary Sewer facilities and/or Storm Drainage System
- _____ Electrical Distribution (overhead and underground) wires, poles, etc.
- _____ Electrical Transmission (overhead and underground) wires, poles, etc.
- _____ Natural Gas Distribution Facilities (underground)
- _____ Telecommunications facilities and equipment
- _____ Cable TV facilities.
- _____ Street Lighting
- _____ Internet Data Service

Whereas the OWNER desires the following to be installed as new additional facilities during the proposed contract.

Insert detailed description of proposed new additional utility installations:

NONE

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of base maps plans will be accomplished by the DEPARTMENT prior to award of the project contract and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the project contract (list any work not included in the project in space provided above). If the preliminary plans indicate that no conflict exists, and the OWNER accepts this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. The CONTRACTOR will research the property interest of each OWNER and present the findings to the DEPARTMENT and OWNER for approval. The CONTRACTOR will coordinate resolution of any disputed items. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to include the subject utility work in the project construction and the research indicates that no property interest exists, and the OWNER cannot refute this finding with evidence that would substantiate the property interest in legal proceedings, the OWNER shall provide confirmation in writing that OWNER will reimburse the DEPARTMENT for any adjustment or relocations necessary; and an agreement will be prepared and executed in accordance with the DEPARTMENT'S "Utility Accommodation Policy and Standards Manual". If the OWNER chooses to perform it own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT and the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to assure that all utility work included in the project contract is accomplished in accordance with plans and specifications and to consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential problems. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

6. Upon completion of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within public right of way subject to the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR.

7. For the purpose of utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if directly with the DEPARTMENT in accordance with the

Design Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1a) Whereas the OWNER does not have adequate staff to perform the design functions for the adjustment or relocation of its facilities and is willing to have this design work included in the contract to be let by the DEPARTMENT.

__✓__(2a) Whereas the OWNER is willing to have this design work included in the contract to be let by the DEPARTMENT.

_____(3a) Whereas the OWNER will perform its own relocation or adjustment design.

If method (1a) or (2a) for the adjustment, relocation or installation of new facilities is selected, all design necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items:_____.

Construction Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1b) Whereas the OWNER does not have adequate equipment and staff to adjust its facilities and is willing to have this work included in the contract to be let by the DEPARTMENT.

__✓__(2b) Whereas the OWNER is willing to have this work included in the contract to be let by the DEPARTMENT.

_____(3b) Whereas the OWNER will perform its own relocations or adjustments.

If method (1b) or (2b) for the adjustment, relocation or installation of new facilities is selected, all work necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items:_____.

laws of Georgia, the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

Tony V. Carter — 7/6/07

(Signature) (Date)

DIV. MGR-ENG. & INSPECTIONS

(Title)

APPROVED FOR THE DEPARTMENT BY:

[signature] — 7-23-2007

(Signature) (Date)

STATE UTILITIES ENGINEER

RECEIVED
JUL 24 2007
BY:

Georgia DOT Project: CSNHS-0008-00(274) Henry County
GDOT P.I. 0008274

MEMORANDUM OF UNDERSTANDING

between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
Clayton County Water Authority (hereafter the OWNER)

Whereas the DEPARTMENT proposes to undertake a design-build project to construct an auxiliary lane on I-75 southbound from I-675 to Eagles Landing Parkway in the existing right of way in Henry County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the design-build project through a Design Consultant, Design Consultant Team and/or Contractor hereafter referred to as CONTRACTOR; and,

Whereas the OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed contract:

Type of facility or facilities of the OWNER:
✓ Domestic water mains and distribution lines and associated appurtenances.
_____ Sanitary Sewer facilities and/or Storm Drainage System
_____ Electrical Distribution (overhead and underground) wires, poles, etc.
_____ Electrical Transmission (overhead and underground) wires, poles, etc.
_____ Natural Gas Distribution Facilities (underground)
_____ Telecommunications facilities and equipment
_____ Cable TV facilities.
_____ Street Lighting
_____ Internet Data Service

Whereas the OWNER desires the following to be installed as new additional facilities during the proposed contract.

Insert detailed description of proposed new additional utility installations:

_____

_____

_____

Design Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1a) Whereas the OWNER does not have adequate staff to perform the design functions for the adjustment or relocation of its facilities and is willing to have this design work included in the contract to be let by the DEPARTMENT.

✓ (2a) Whereas the OWNER is willing to have this design work included in the contract to be let by the DEPARTMENT.

_____(3a) Whereas the OWNER will perform its own relocation or adjustment design.

If method (1a) or (2a) for the adjustment, relocation or installation of new facilities is selected, all design necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items:_____.

Construction Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1b) Whereas the OWNER does not have adequate equipment and staff to adjust its facilities and is willing to have this work included in the contract to be let by the DEPARTMENT.

✓ (2b) Whereas the OWNER is willing to have this work included in the contract to be let by the DEPARTMENT.

_____(3b) Whereas the OWNER will perform its own relocations or adjustments.

If method (1b) or (2b) for the adjustment, relocation or installation of new facilities is selected, all work necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items:_____.

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of base maps plans will be accomplished by the DEPARTMENT prior to award of the project contract and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the project contract (list any work not included in the project in space provided above). If the preliminary plans indicate that no conflict exists, and the OWNER accepts this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. The CONTRACTOR will research the property interest of each OWNER and present the findings to the DEPARTMENT and OWNER for approval. The CONTRACTOR will coordinate resolution of any disputed items. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to include the subject utility work in the project construction and the research indicates that no property interest exists, and the OWNER cannot refute this finding with evidence that would substantiate the property interest in legal proceedings, the OWNER shall provide confirmation in writing that OWNER will reimburse the DEPARTMENT for any adjustment or relocations necessary; and an agreement will be prepared and executed in accordance with the DEPARTMENT'S "Utility Accommodation Policy and Standards Manual". If the OWNER chooses to perform it own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT and the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to assure that all utility work included in the project contract is accomplished in accordance with plans and specifications and to consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential problems. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

6. Upon completion of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within public right of way subject to the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR.

7. For the purpose of utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if directly with the DEPARTMENT in accordance with the

laws of Georgia, the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

P. Michael Powers — July 19, 2007

(Signature) (Date)

GENERAL MANAGER

(Title)

APPROVED FOR THE DEPARTMENT BY:

7/31/07

(Signature) (Date)

STATE UTILITIES ENGINEER

Georgia DOT Project: CSNHS-0008-00(274) Henry County
GDOT P.I. 0008274

MEMORANDUM OF UNDERSTANDING

between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
Charter Communications (hereafter the OWNER)

Whereas the DEPARTMENT proposes to undertake a design-build project to construct an auxiliary lane on I-75 southbound from I-675 to Eagles Landing Parkway in the existing right of way in Henry County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the design-build project through a Design Consultant, Design Consultant Team and/or Contractor hereafter referred to as CONTRACTOR; and,

Whereas the OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed contract:

Type of facility or facilities of the OWNER:

_____Domestic water mains and distribution lines and associated appurtenances.
_____Sanitary Sewer facilities and/or Storm Drainage System
_____Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
_____Natural Gas Distribution Facilities (underground)
_____Telecommunications facilities and equipment
__✓__Cable TV facilities.
_____Street Lighting
_____Internet Data Service

Whereas the OWNER desires the following to be installed as new additional facilities during the proposed contract.

Insert detailed description of proposed new additional utility installations:

Charter will relocate facilities to new relocated Ga. Power poles

Design Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1a) Whereas the OWNER does not have adequate staff to perform the design functions for the adjustment or relocation of its facilities and is willing to have this design work included in the contract to be let by the DEPARTMENT.

_____(2a) Whereas the OWNER is willing to have this design work included in the contract to be let by the DEPARTMENT.

__✓__(3a) Whereas the OWNER will perform its own relocation or adjustment design.

If method (1a) or (2a) for the adjustment, relocation or installation of new facilities is selected, all design necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items:_____.

Construction Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1b) Whereas the OWNER does not have adequate equipment and staff to adjust its facilities and is willing to have this work included in the contract to be let by the DEPARTMENT.

_____(2b) Whereas the OWNER is willing to have this work included in the contract to be let by the DEPARTMENT.

__✓__(3b) Whereas the OWNER will perform its own relocations or adjustments.

If method (1b) or (2b) for the adjustment, relocation or installation of new facilities is selected, all work necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items:_____.

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of base maps plans will be accomplished by the DEPARTMENT prior to award of the project contract and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the project contract (list any work not included in the project in space provided above). If the preliminary plans indicate that no conflict exists, and the OWNER accepts this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. The CONTRACTOR will research the property interest of each OWNER and present the findings to the DEPARTMENT and OWNER for approval. The CONTRACTOR will coordinate resolution of any disputed items. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to include the subject utility work in the project construction and the research indicates that no property interest exists, and the OWNER cannot refute this finding with evidence that would substantiate the property interest in legal proceedings, the OWNER shall provide confirmation in writing that OWNER will reimburse the DEPARTMENT for any adjustment or relocations necessary; and an agreement will be prepared and executed in accordance with the DEPARTMENT'S "Utility Accommodation Policy and Standards Manual". If the OWNER chooses to perform it own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT and the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to assure that all utility work included in the project contract is accomplished in accordance with plans and specifications and to consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential problems. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

6. Upon completion of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within public right of way subject to the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR.

7. For the purpose of utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if directly with the DEPARTMENT in accordance with the

laws of Georgia, the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

(Signature) 7-13-07 (Date)

Construction Supervisor

(Title)

APPROVED FOR THE DEPARTMENT BY:

(Signature) 7-23-2007 (Date)

STATE UTILITIES ENGINEER

Georgia DOT Project: CSNHS-0008-00(274) Henry County
GDOT P.I. 0008274

MEMORANDUM OF UNDERSTANDING

between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
BellSouth Telecommunications, Inc. (hereafter the OWNER)

Whereas the DEPARTMENT proposes to undertake a design-build project to construct an auxiliary lane on I-75 southbound from I-675 to Eagles Landing Parkway in the existing right of way in Henry County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the design-build project through a Design Consultant, Design Consultant Team and/or Contractor hereafter referred to as CONTRACTOR; and,

Whereas the OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed contract:

Type of facility or facilities of the OWNER:

_____Domestic water mains and distribution lines and associated appurtenances.
_____Sanitary Sewer facilities and/or Storm Drainage System
_____Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
_____Natural Gas Distribution Facilities (underground)
__X__Telecommunications facilities and equipment
_____Cable TV facilities.
_____Street Lighting
_____Internet Data Service

Whereas the OWNER desires the following to be installed as new additional facilities during the proposed contract.

Insert detailed description of proposed new additional utility installations:

_____

_____

_____

Design Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1a) Whereas the OWNER does not have adequate staff to perform the design functions for the adjustment or relocation of its facilities and is willing to have this design work included in the contract to be let by the DEPARTMENT.

_____(2a) Whereas the OWNER is willing to have this design work included in the contract to be let by the DEPARTMENT.

__X__(3a) Whereas the OWNER will perform its own relocation or adjustment design.

If method (1a) or (2a) for the adjustment, relocation or installation of new facilities is selected, all design necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items:_____.

Construction Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1b) Whereas the OWNER does not have adequate equipment and staff to adjust its facilities and is willing to have this work included in the contract to be let by the DEPARTMENT.

_____(2b) Whereas the OWNER is willing to have this work included in the contract to be let by the DEPARTMENT.

__X__(3b) Whereas the OWNER will perform its own relocations or adjustments.

If method (1b) or (2b) for the adjustment, relocation or installation of new facilities is selected, all work necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items:_____.

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of base maps plans will be accomplished by the DEPARTMENT prior to award of the project contract and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the project contract (list any work not included in the project in space provided above). If the preliminary plans indicate that no conflict exists, and the OWNER accepts this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. The CONTRACTOR will research the property interest of each OWNER and present the findings to the DEPARTMENT and OWNER for approval. The CONTRACTOR will coordinate resolution of any disputed items. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to include the subject utility work in the project construction and the research indicates that no property interest exists, and the OWNER cannot refute this finding with evidence that would substantiate the property interest in legal proceedings, the OWNER shall provide confirmation in writing that OWNER will reimburse the DEPARTMENT for any adjustment or relocations necessary; and an agreement will be prepared and executed in accordance with the DEPARTMENT'S "Utility Accommodation Policy and Standards Manual". If the OWNER chooses to perform it own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT and the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to assure that all utility work included in the project contract is accomplished in accordance with plans and specifications and to consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential problems. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

6. Upon completion of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within public right of way subject to the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR.

7. For the purpose of utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if directly with the DEPARTMENT in accordance with the

laws of Georgia, the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

(Signature) 7/12/07 (Date)

(Title)

APPROVED FOR THE DEPARTMENT BY:

(Signature) 7-13-2007 (Date)

STATE UTILITIES ENGINEER

RECEIVED
JUL 06 2007

Georgia DOT Project: CSNHS-0008-00(274) Henry County
GDOT P.I. 0008274

MEMORANDUM OF UNDERSTANDING

between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
Atlanta Gas Light Company (hereafter the OWNER)

Whereas the DEPARTMENT proposes to undertake a design-build project to construct an auxiliary lane on I-75 southbound from I-675 to Eagles Landing Parkway in the existing right of way in Henry County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the design-build project through a Design Consultant, Design Consultant Team and/or Contractor hereafter referred to as CONTRACTOR; and,

Whereas the OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed contract:

Type of facility or facilities of the OWNER:
_____Domestic water mains and distribution lines and associated appurtenances.
_____Sanitary Sewer facilities and/or Storm Drainage System
_____Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
__X__Natural Gas Distribution Facilities (underground)
_____Telecommunications facilities and equipment
_____Cable TV facilities.
_____Street Lighting
_____Internet Data Service

Whereas the OWNER desires the following to be installed as new additional facilities during the proposed contract.

Insert detailed description of proposed new additional utility installations:

_____

_____

_____

Design Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1a) Whereas the OWNER does not have adequate staff to perform the design functions for the adjustment or relocation of its facilities and is willing to have this design work included in the contract to be let by the DEPARTMENT.

_____(2a) Whereas the OWNER is willing to have this design work included in the contract to be let by the DEPARTMENT.

__X__(3a) Whereas the OWNER will perform its own relocation or adjustment design.

If method (1a) or (2a) for the adjustment, relocation or installation of new facilities is selected, all design necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items:_____.

Construction Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1b) Whereas the OWNER does not have adequate equipment and staff to adjust its facilities and is willing to have this work included in the contract to be let by the DEPARTMENT.

_____(2b) Whereas the OWNER is willing to have this work included in the contract to be let by the DEPARTMENT.

__X__(3b) Whereas the OWNER will perform its own relocations or adjustments.

If method (1b) or (2b) for the adjustment, relocation or installation of new facilities is selected, all work necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items:_____.

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of base maps plans will be accomplished by the DEPARTMENT prior to award of the project contract and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the project contract (list any work not included in the project in space provided above). If the preliminary plans indicate that no conflict exists, and the OWNER accepts this information, the OWNER shall provide a letter of "no conflict" to the CONTRACTOR.

3. The CONTRACTOR will research the property interest of each OWNER and present the findings to the DEPARTMENT and OWNER for approval. The CONTRACTOR will coordinate resolution of any disputed items. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to include the subject utility work in the project construction and the research indicates that no property interest exists, and the OWNER cannot refute this finding with evidence that would substantiate the property interest in legal proceedings, the OWNER shall provide confirmation in writing that OWNER will reimburse the DEPARTMENT for any adjustment or relocations necessary; and an agreement will be prepared and executed in accordance with the DEPARTMENT'S "Utility Accommodation Policy and Standards Manual". If the OWNER chooses to perform it own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT and the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to assure that all utility work included in the project contract is accomplished in accordance with plans and specifications and to consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential problems. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

6. Upon completion of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within public right of way subject to the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR.

7. For the purpose of utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if directly with the DEPARTMENT in accordance with the

laws of Georgia, the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

(Signature) July 2, 2007 (Date)

MANAGER, ENGINEERING DESIGN

(Title)

APPROVED FOR THE DEPARTMENT BY:

(Signature) 7-13-2007 (Date)

STATE UTILITIES ENGINEER

RECEIVED
JUL 13 2007
BY:

Georgia DOT Project: CSNHS-0008-00(274) Henry County
GDOT P.I. 0008274

MEMORANDUM OF UNDERSTANDING

between the
Georgia Department of Transportation (hereafter the DEPARTMENT)
and
Georgia Power Distribution (hereafter the OWNER)

Whereas the DEPARTMENT proposes to undertake a design-build project to construct an auxiliary lane on I-75 southbound from I-675 to Eagles Landing Parkway in the existing right of way in Henry County, Georgia by contract through competitive bidding procedures; and,

Whereas the DEPARTMENT will accomplish the design-build project through a Design Consultant, Design Consultant Team and/or Contractor hereafter referred to as CONTRACTOR; and,

Whereas the OWNER has the following utility facilities which may need to be adjusted or relocated as a result of the proposed contract:

Type of facility or facilities of the OWNER:

_____Domestic water mains and distribution lines and associated appurtenances.
_____Sanitary Sewer facilities and/or Storm Drainage System
__x__Electrical Distribution (overhead and underground) wires, poles, etc.
_____Electrical Transmission (overhead and underground) wires, poles, etc.
_____Natural Gas Distribution Facilities (underground)
_____Telecommunications facilities and equipment
_____Cable TV facilities.
_____Street Lighting
_____Internet Data Service

Whereas the OWNER desires the following to be installed as new additional facilities during the proposed contract.

Insert detailed description of proposed new additional utility installations:

_____

_____

_____

Design Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1a) Whereas the OWNER does not have adequate staff to perform the design functions for the adjustment or relocation of its facilities and is willing to have this design work included in the contract to be let by the DEPARTMENT.

_____(2a) Whereas the OWNER is willing to have this design work included in the contract to be let by the DEPARTMENT.

___x__(3a) Whereas the OWNER will perform its own relocation or adjustment design.

If method (1a) or (2a) for the adjustment, relocation or installation of new facilities is selected, all design necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items: All GPC Distribution facilities.

Construction Responsibilities for adjusted, relocated, and new additional utility facilities:

_____(1b) Whereas the OWNER does not have adequate equipment and staff to adjust its facilities and is willing to have this work included in the contract to be let by the DEPARTMENT.

_____(2b) Whereas the OWNER is willing to have this work included in the contract to be let by the DEPARTMENT.

___x__(3b) Whereas the OWNER will perform its own relocations or adjustments.

If method (1b) or (2b) for the adjustment, relocation or installation of new facilities is selected, all work necessary for the adjustment or relocation of the described utilities in accordance with the plans when approved shall be included in the project contract and accomplished by the CONTRACTOR except as follows (check none or list any work items to be performed by the OWNER):

_____None.

Excluded Items: All GPC Distribution facilities.

The following is hereby mutually agreed to and understood by both parties:

1. The identification of existing facilities including preparation of base maps plans will be accomplished by the DEPARTMENT prior to award of the project contract and thereafter supplemented by the CONTRACTOR.

2. The CONTRACTOR shall coordinate reviews of the information and obtain acceptance from the OWNER and DEPARTMENT when required. However; the OWNER shall apply for and obtain any required permits from the DEPARTMENT and perform any final design or proprietary design needed to administer its own relocation work if the work will not be included in the project contract (list any work not included in the project in space provided above). If the preliminary plans indicate that no conflict exists, and the OWNER accepts this information, the OWNER shall provide a letter of "no conflict" to the DEPARTMENT.

3. The CONTRACTOR will research the property interest of each OWNER and present the findings to the DEPARTMENT and OWNER for approval. The CONTRACTOR will coordinate resolution of any disputed items. The plans and estimate for the utility work shall be subject to approval of both the DEPARTMENT and the OWNER prior to construction. If the OWNER chooses to include the subject utility work in the project construction and the research indicates that no property interest exists, and the OWNER cannot refute this finding with evidence that would substantiate the property interest in legal proceedings, the OWNER shall provide confirmation in writing that OWNER will reimburse the DEPARTMENT for any adjustment or relocations necessary; and an agreement will be prepared and executed in accordance with the DEPARTMENT'S "Utility Accommodation Policy and Standards Manual". If the OWNER chooses to perform it own relocations and the OWNER holds no property interest as stated above; the OWNER shall confirm in writing that the OWNER will relocate its own facilities at no cost to the DEPARTMENT and the CONTRACTOR.

4. All construction engineering and contract supervision shall be the responsibility of the DEPARTMENT and the CONTRACTOR to assure that all utility work included in the project contract is accomplished in accordance with plans and specifications and to consult with the OWNER before authorizing any changes or deviations which affect the OWNER's facility.

5. For Utility work included in the contract, the OWNER or the OWNER's Consultant shall have the right to visit and inspect the work at any time and advise the CONTRACTOR and the DEPARTMENT'S Engineer of any observed discrepancies or potential problems. The DEPARTMENT agrees to notify the OWNER when all utility work is completed and ready for final inspection by the OWNER.

6. Upon completion of the utility work included in the contract and upon certification by the DEPARTMENT'S Engineer that the work has been completed in accordance with the plans and specifications, the OWNER will accept the adjusted, relocated, and additional facilities and will thereafter operate and maintain said facilities located within public right of way subject to the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect without further cost to the DEPARTMENT or it's CONTRACTOR.

7. For the purpose of utility coordination, relocation and reimbursement matters, the OWNER shall cooperate with the CONTRACTOR in the same manner as if directly with the DEPARTMENT in accordance with the

laws of Georgia, the DEPARTMENT'S "Utility Accommodation Policy and Standards, 1988 edition" and any agreements in effect between the DEPARTMENT and OWNER. The OWNER agrees to cooperate in good faith with the CONTRACTOR and to respond to all requests for information or meetings required to reach a resolution of any disputed items.

The Memorandum of Understanding will be incorporated into the project contract by reference or Exhibit.

APPROVED FOR THE OWNER BY:

Mark Tilden
(Signature)

7-9-07
(Date)

Project Manager - DOT/JU
(Title)

APPROVED FOR THE DEPARTMENT BY:

(Signature)

7-23-2007
(Date)

STATE UTILITIES ENGINEER

First use date: November 1, 2004
Revised August 1, 2007

Georgia Department of Transportation

State of Georgia

Special Provision

Project Number: CSNHS-0008-00(274)
P.I. Number: 0008274
Henry County

Section 102—Bidding Requirements and Conditions

Delete Subsection 102.01 and Substitute the following:

102.01 Prequalification of Bidders

Before submitting a bid in excess of $2,000,000, the Bidder shall have been prequalified with the Department and received a Certificate of Qualification in accordance with the Rules and Regulations approved and adopted by the State Transportation Board. Bidders submitting bids of $2,000,000 or less may be exempt from prequalification requirements. In addition, the aggregate total amount a Non-prequalified Bidder may have under contract shall not exceed $4,000,000.

Bidders intending to consistently submit Proposals shall prequalify at least once a year. However, qualifications may be changed during that period upon the submission of additional favorable reports or upon unsatisfactory performance. In addition, the Department reserves the right at any time to require the Contractor to furnish a current financial and experience statement.

Delete Subsection 102.03 and Substitute the following:

102.03 Contents of Proposal Forms

Upon request, the Department will furnish the prospective Bidder with a Proposal Form. This form will state the location and description of the contemplated construction and will show the approximate estimate of the various quantities and kinds of work to be performed or materials to be furnished, and will have a schedule of Items for which Unit Bid prices are invited. The Proposal Form will state the time in which The Work must be completed, the amount of the Proposal Guaranty, and the date of the opening of Proposals. The Form will also include any Special Provisions or requirements that vary from or are not contained in the *Standard Specifications*. Also included with each Proposal Form will be a Non-Collusion Certificate. All papers bound with or attached to the Proposal Form are considered a part thereof and must not be detached or altered when the Proposal is submitted. The Plans, Specifications, and other documents designated in the Proposal Form will be considered a part of the Proposal whether attached or not. The prospective Bidder will be required to pay the Department the sum stated in the Notice to Contractors for each copy of the Proposal Form and each set of Plans.

Delete Subsection 102.06 and Substitute the following:

102.06 Preparation of Proposal

The Bidder shall submit its Proposal on the form furnished by the Department (GADOT). The blank spaces on the Proposal shall be filled in correctly for each Pay Item (except alternate items) and the Bidder shall write in ink the Unit Price or a Lump

Sum Price as called for in the Proposal for each Pay Item listed therein. In addition, the Bidder shall also show the products of the respective Unit Prices and quantities and the total amount of the Bid by adding the amounts of all Bid Items. In the event of a discrepancy in any of the figures, the Unit Price will govern and the Bid will be recalculated.

In addition, the Bidder shall submit a technical proposal which shall include, but is not limited to, the design build firm's detailed project schedule (including those submittals and estimated review periods shown in Table A-1 of the attached Special Provision 999, and in other areas of Special Provision 999 where due dates are mentioned), total contract time, mobilization assumptions, construction staging assumptions, as well as, a detailed estimate with all material quantities and price assumptions used to form the basis of the bid. **The Bidder shall clearly document all assumptions in this technical proposal**. There are no page limit restrictions for the technical proposal.

These items listed above are the minimum requirements of what shall be included in the technical proposal. The intent of the technical proposal is to provide some insight into the Contractor's approach both with schedule and with the assumed quantities and costs used to formulate the bid. As noted in section 999.1.A.2 "Bids on this project shall reflect designing and constructing the project as shown in the Scope (999.1..A.3) and applicable portions of the Plans Package. No exceptions shall be assumed by the Contractor. However, alternative proposals on portions of the work will be entertained once the project is awarded." Therefore, no deviations shall be included in the bid or technical proposal.

In the case of Alternate items, Unit Prices shall be entered for only one alternate.

The Non-Collusion Certificate on the Department's standard form included in the Proposal shall be executed.

The Certificate of Current Capacity shall be executed under oath and substantiated by the report of Status of Contracts on Hand.

The Bidder shall purchase from the GADOT Office of Contract Administration, a Proposal Form for each Letting Call Order Number in which the Bidder intends to submit a bid.

If the Proposal is made by an individual, its name and post office address shall be shown; if by a partnership, the name and post office address of one member of the partnership shall be shown; if by a corporation, the Proposal shall show the name, title and business address of the officer signing the Proposal. The Bidder's Proposal shall be signed in ink or by Digital Signature by the individual, by one or more members of a partnership, or by one or more of the officers of a corporation, whichever is applicable. In the event of a joint venture, the Proposal shall be signed in ink or by Digital Signature by each individual involved, by each partnership through one or more of its members, or by each corporation through one or more officers of the corporation, whichever is applicable. Proposals not properly signed may be disqualified and rejected.

All bids in excess of $500,000 shall be submitted using the GADOT/AASHTO (American Association of State Highway and Transportation Officials) Electronic Bidding System (Expedite). When submitting a bid electronically, the Bidder's Proposal shall consist of the Bid pages generated by the Expedite software including the Cover page, Bid Item pages, Disadvantaged Business Enterprise (DBE) pages (if applicable), Miscellaneous Data pages and the Signature page. By submitting a bid electronically, the Bidder acknowledges that all requirements included in the hard copy proposal, amendments, plans, Standard Specifications, and Supplemental Specifications are a part of the Bid and Contract.

The electronic bid shall be submitted by one of the following methods:

A. Hand delivery of the electronic bid to the Department at the place specified in the Notice To Contractors.

The bid shall include the 3 ½ inch (90 mm) electronic diskette and the Bid pages described in paragraph eight, above.

B. Electronic Bid Submission via the Internet and Bid Express™.

(Note: The Bidder shall secure an account and a valid Digital Signature from Bid Express™ (www.bidx.com) in order to use this method.

Instructions for preparing and submitting bids by these two methods are as follows:

A. Hand Delivery of Bid to the Department

1. Access to the electronic bidding information is available on Bid Express™ at www.bidx.com and the GADOT Contract Administration Internet Web Site at www.dot.state.ga.us/dot/construction/contractsadm/index.shtml.
2. Electronic bids shall be prepared through the use of a computer controlled printer.

3. The Bidder shall sign the electronic bid in the appropriate areas.
4. When installing the Bid program the Bidder shall enter the vendor code in the following format: 2DO900. Before running the electronic bidding programs, the Bidder shall read the on-line help documentation for the Expedite software.
5. **Zero (0) is considered to be a valid bid. The Bidder shall not enter 0 in any Unit Price field unless zero is the intended bid for that item.**
6. All addenda shall be included in the electronic bid submitted.
7. For "Joint Bids" the Bidder shall select **tools** from the Windows Expedite menu and mark the electronic bid as **"Joint Bid".**
8. The Bidder shall select **tools** and then **check bid** to check the bid and assure there are no errors prior to printing the electronic bid. After final printing, the Bidder may make changes to the electronic bid by indicating the changes in ink and initialing prior to submitting the bid.
9. Once the Bidder has completed the bid and made all desired changes, the diskette, a printout of the Cover sheet, Bid Item pages, DBE pages (if applicable), Miscellaneous Data pages, and Signature page shall be submitted to the Department. In case of a discrepancy between the diskette and the hard copy of the Bid Item pages, the hard copy will govern.
10. Electronic Bid pages shall be 8 ½ inch (216 mm) horizontal by 11 inches (279 mm) vertical. Bid information shall be placed across the horizontal width on each page.
11. The paper used for an electronic bid shall be of sufficient quality and durability to maintain clear and concise images and to withstand frequent handling.
12. If originally printed on continuous roll paper, electronic bids shall be separated before submitting the Bid to the Department.
13. All computer printed characters shall be legible. The Electronic Bid pages shall be submitted in the bid envelope provided.
14. The diskette shall be submitted in a separate sealed envelope from the Bid pages. The Bidder shall submit all electronic bids on one diskette. The envelope containing the diskette shall include the Bidders name and the Letting Call Order Numbers for which electronic bids are submitted.

B. Electronic Bid Submission Via The Internet And Bid Express™

1. Access to the electronic bidding information is available on Bid Express™ at www.bidx.com and the GADOT Contract Administration Internet Web Site at www.dot.state.ga.us/dot/construction/contractsadm/index.shtml.
2. When installing the Bid program the Bidder shall enter the vendor code in the following format: 2DO900. Before running the electronic bidding programs, the Bidder shall read the on-line help documentation for the Expedite software.
3. **Zero (0) is considered to be a valid bid. The Bidder shall not enter 0 in any Unit Price field unless zero is the intended bid for that item.**
4. All addenda shall be included in the electronic bid submitted.
5. **"Joint Bids" are allowed with Electronic Bid Submission via the Internet and Bid Express™**
6. The Bidder shall select **tools** and then **check bid** from the Windows Expedite menu to check the bid and assure there are no errors prior to submitting the electronic bid. The electronic bid may be changed and resubmitted electronically to Bid Express™ as many times as desired prior to the advertised cutoff time specified in the Notice To Contractors. The last bid submitted for a given Letting Call Order Number prior to the cutoff time will be the Bid.
7. The Bidder shall make no claim against the Department in the event it is unable to submit its bid to Bid Express™ and/or Bid Express™ is unable to submit the bid(s) to the Department. The Department reserves the right to postpone the public reading of bids in the event of technical difficulties.
8. A fully executed Proposal Guaranty and Power of Attorney for each Letting Call Order Number bid shall be submitted by one of the following methods:
   A. Delivery to the GADOT Office of Contract Administration, Room 223, in a sealed envelope by 12:00 noon on the day prior to the Bid Opening. Each Proposal Guaranty shall be clearly and legibly marked with the Letting Call Order Number.
   B. Electronic submission via the Internet and Bid Express™ by the time and date set in the Notice To Contractors for submission of Proposals.

The Proposal Guaranty for a "Joint Bid" shall include the names of all Joint Venture parties involved in the bid.

Delete Subsection 102.07 and Substitute the following:

102.07 Rejection of Proposals

Proposals may be rejected as irregular if their consideration is conditioned upon the acceptance or rejection of other Proposals submitted by the same Bidder, if the Certificate of Current Capacity is not executed under Oath and substantiated, if a Unit Price is not shown for each Pay Item, or if they fail to comply with the EBS bidding requirements. In the case of alternate items, Unit Prices shall be entered for only one alternate. The Department reserves the right to disqualify and reject any Proposal that is not properly signed in accordance with the requisite of Subsection 102.06.

A. Collusion

Any and all Proposals will be rejected if the Department believes that collusion exists among the Bidders and no participant in such collusion may submit future Proposals for the same work. The Department reserves the right to review and to refuse to consider any Proposal if the Bidder fails to execute the Non-Collusion Certificate.

B. Single Proposals

Only one Proposal from any person, partnership, or corporation under the same or different names shall be submitted on any Project.

C. Unbalanced Bids

Proposals may be rejected if any of the Unit Prices are obviously unbalanced. The Department will decide whether any Unit Prices are unbalanced either excessively above or below a reasonable cost analysis value determined by the Engineer, particularly if these unbalanced amounts are substantial and contrary to the interest of the Department.

D. Omissions and Alterations

Proposals may be rejected as irregular if they show any omissions, alterations of form, additions or conditions not called for, unauthorized alternate bids, erasures or changes not initialed, or other irregularities.

E. Debts

The Department reserves the right to reject Proposals from Bidders who have not paid or satisfactorily settled all legal debts due on other Contracts at the time Proposals are received.

F. Technicalities

The Department reserves the right to reject any and all Proposals and to waive technicalities at any time before the Contract has been signed by the Department.

G. Non-Prequalified Bidders

Proposals submitted in excess of $2,000,000 by non-prequalified contractors under Rule 672-5 of the Department's Rules and Regulations Governing the Prequalification of Prospective Bidders will be disqualified and rejected.

H. Failure to List Disadvantaged Business Enterprise (DBE) Participants

If the contract has an established DBE goal, the Department reserves the right to reject and disqualify any proposal if the bidder has failed to list bona fide DBE participants with sufficient participation to achieve at least the established goal. The Department may consider for award a proposal with less participation than the established goal if both:

- The bidder can demonstrate that no greater participation could be obtained and;
- The participation proposed by the low bidder is not substantially less than the participation proposed by the other bidders on the same contract.

I. Pavement Alternate Selection Declaration

The Proposal will be rejected if the Bidder fails to submit or properly complete the Pavement Alternate Selection Declaration.

J. Non-responsive technical proposal

A proposal will only be considered non-responsive if it does not contain the information noted in paragraph 2 of section 102.06, and any other information necessary to clearly demonstrate those assumptions used to form the basis of the bid.

The technical proposal may be considered non-responsive if the bid or technical proposal contains any deviations from those items shown in the Scope (999.1.03) and applicable portions of the Plans Package.

Delete Subsection 102.09 and Substitute the following:

102.09 Delivery of Proposals

The Bidder's Proposal and the Proposal Guaranty, unless submitted electronically, shall be submitted in a sealed envelope so marked as to identify its contents without being opened. Six (6) copies of the Bidder's technical proposal shall be submitted in a sealed envelope so marked as to identify its contents without being opened. Proposal forms are not transferable. Proposals will be received until the time and date set in the Notice To Contractors and shall be in the hands of the officials indicated by that time. Proposals received after the advertised cutoff time established for submission of Proposals will be returned unopened to the Bidder.

Delete Subsection 102.10 and Substitute the following:

102.10 Withdrawal or Revision of Proposals

Any Bidder may withdraw his Proposal by submitting, by telegram, letter, or facsimile transmission received prior to the advertised cutoff time specified in the Notice To Contractors and verified by the Department, a DEPARTMENT OF TRANSPORTATION BID PROPOSAL WITHDRAWAL FORM, completed by an authorized officer of the company, whose signature is legally binding upon said company.

Any Bidder may submit a Bid change, by telegram, letter, or facsimile transmission received prior to the advertised cutoff time specified in the Notice To Contractors and verified by the Department, completed by an authorized officer of the company, whose signature is legally binding upon said company. In which case, the Department will change the Bid at the time of opening and at such time will announce that a change was received.

Add the following:

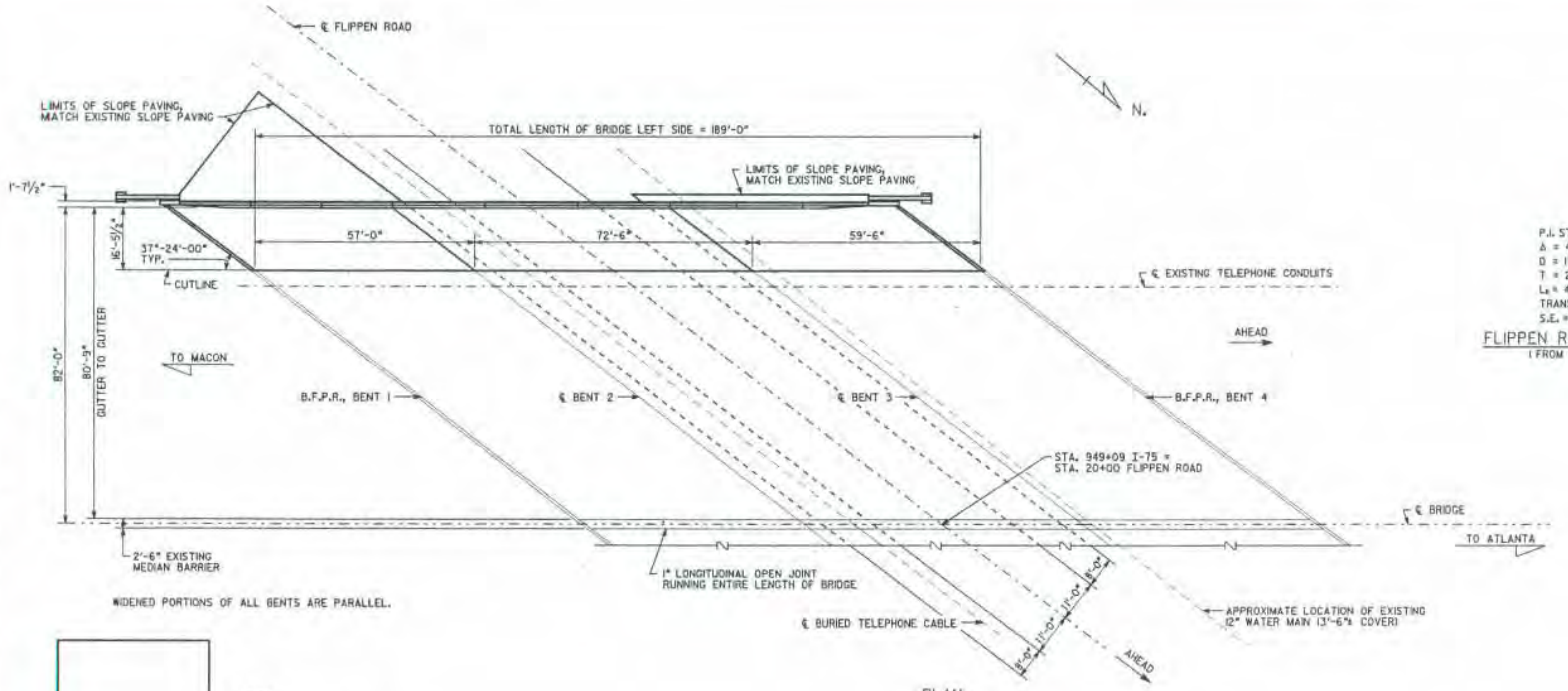
102.15 Submittal of "Certificate of Current Capacity" and "Status of Contracts on Hand"

The apparent low Bidder for each Letting Call Number shall submit the executed "Certificate of Current Capacity" and the "Status of Contracts on Hand" to the GADOT Office of Contract Administration, Room 223, in a sealed envelope by 12:00 noon on the first working day after the Bid Opening.

If the "Certificate of Current Capacity" and the 'Status of Contracts on Hand" are not delivered to the GADOT Office of Contract Administration, Room 223, in a sealed envelope by 12:00 noon on the first working day after the Bid Opening, the Bid may be subject to disqualification.

REVISED/ADDED
475554

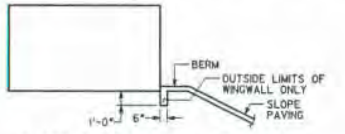
STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			



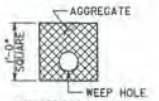
PLAN

P.I. STA. = 21+09.82
Δ = 4°-59'
D = 1°-00'
T = 249.32
L_R = 498.33
TRANS. = 150 FT.
S.E. = 0.02 FT./FT.

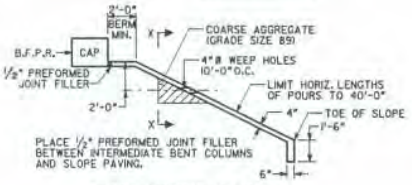
FLIPPEN ROAD CURVE DATA
(FROM EXISTING PLANS)



SLOPE PAVING DETAIL AT WINGS

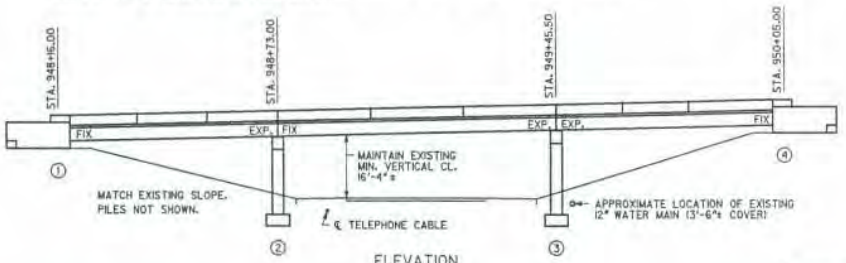


SECTION X-X



SLOPE PAVING DETAIL

SHOWN AT THE INTERSECTION OF THE ℄ BRIDGE AND B.F.P.R. OR ℄ OF WIDENED PORTION OF BENTS. ELEVATION TO BE DETERMINED BY FIELD SURVEY.



ELEVATION

EXISTING BRIDGE SERIAL NO. 151-0042-0
EXISTING BRIDGE I.D. NO. 151-0040D-225.22N
PROJECT P.I. NO. 0008274

GEORGIA
DEPARTMENT OF TRANSPORTATION
PRECONSTRUCTION DIVISION-OFFICE OF BRIDGE DESIGN

PRELIMINARY LAYOUT
I-75 OVER FLIPPEN ROAD (CR 165)
HENRY COUNTY NHS-0008-00(274)

NO SCALE JULY 2007

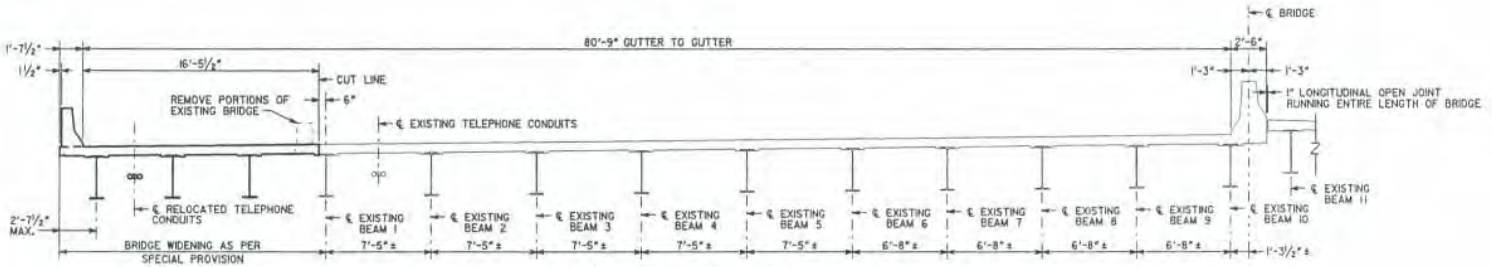
DESIGNED EJC	CHECKED	REVIEWED WEL/ WMD
DRAWN KWK	DESIGN GROUP EJC	APPROVED PVL

BRIDGE SHEET 1 OF 2

BY	REVISIONS	DATE

H0008274.DGN

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			



TRANSVERSE SECTION THRU BRIDGE

REVISED/ADDED
4555 B

GEORGIA
DEPARTMENT OF TRANSPORTATION
PRECONSTRUCTION DIVISION-OFFICE OF BRIDGE DESIGN

PRELIMINARY LAYOUT

I-75 OVER FLIPPEN ROAD (CR 165)

HENRY COUNTY NHS-0008-00(274)

NO SCALE JULY 2007

BRIDGE SHEET 2 OF 2

DESIGNED EJC CHECKED REVIEWED WEI/ WMD
DRAWN KWE DESIGN GROUP EJC APPROVED PVL

DATE | BY | REVISIONS

H0008274.DGN

August 10, 2007

AMENDMENT TO ADVERTISED CONTRACT

CONTRACT I.D. NUMBER: B12937-07-000-0

GEORGIA PROJECT NUMBER: CSNHS-0008-00(274)01

PCN: 0008274010000

COUNTY: HENRY

AMENDMENT NUMBER: 2

LETTING DATE: SEPTEMBER 21, 2007

LETTING NUMBER: 001

THE FOLLOWING CHANGES ARE HEREBY MADE TO THIS CONTRACT. THE BIDDER IS RESPONSIBLE FOR MAKING ANY NECESSARY CHANGES IN INK IN THE PROPOSAL. BIDDER SHALL ACKNOWLEDGE THIS AMENDMENT BY CHECKING THE APPROPRIATE SPACE ON THE PROPOSAL SIGNATURE PAGE.

****

1. Proposal Page 145, Special Provision Section 150-Traffic Control, Subsection 150.10; **Delete** the following sentence from the Proposal: "The Contractor shall include 2500 hours in the estimate and a rate of $50/hour shall be used."
2. **Delete** Proposal Pages 365 through 369, 476, and 491 through 523 from the proposal.
3. **Add** the following attached Special Provisions to the Proposal:
   A. Section 108-Prosecution and Progress, 1 page, with a revised date of August 8, 2007.
   B. Special Provision Section 150-Traffic Control, 2 pages, with a revised date of August 8, 2007.
   C. Special Provision Section 999-Design Build, 29 pages, with a revised date of August 9, 2007.

DAVID E. HOGE
STATE TRANSPORTATION OFFICE ENGINEER

September 10, 2004
Revised August 8, 2007

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION
SECTION 108—PROSECUTION AND PROGRESS

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

Add the following to Subsection 108.08:

In order to minimize the disruption of normal traffic flow, separate completion times are specified for those portions of the work that require closing of lanes as specified in Subsection 150.11.

Failure to reopen the lanes as specified in Subsection 150.11 will result in the assessment of liquidated damages at the rate of $5,000.00 per hour.

These rates are cumulative and in addition to the Liquidated Damages which may be assessed in accordance with Subsection 108.08 for failure to complete the overall project on time.

As specified in the Special Provision 999, the ITS system shall not be taken out of service for more than 30 calendar days during construction. Failure to reconnect service after this time period will result in the assessment of liquated damages at the rate of $1,000.00 per day or portion thereof.

Date: March 2, 2007

Revised August 8, 2007

DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

SPECIAL PROVISION

Project Number: NHS-0008-00(274)
P.I. Number: 0008274
Henry County

SECTION 150 - TRAFFIC CONTROL

Retain Section 150 and add the following:

150.11 Special Conditions:

For I-75 and I-675 Mainline

A. Perform no work or move equipment or materials on the traveled way that interferes with traffic flow between the hours of 6:00 AM to 9:00 AM and 4:00 PM to 6:00 PM Monday thru Friday. Single lane closures are allowed as follows: I-75 southbound and I-675 southbound, 9:00 pm to 5:30 am. Double lane closures are allowed as follows: I-75 southbound, 11:00 pm to 5:00 am. In the four lane section the contractor shall maintain two lanes at all times. The contractor shall maintain one lane at all times on the ramp from I-675 to I-75 southbound.Failure to adhere to these requirements will result in deductions as specified in Special Provision Section 108.08.

B. Work Zone Law Enforcement consist of utilizing a uniformed police officer equipped with patrol vehicle and blue flashing lights to enforce traffic laws in construction work zones and the administration of the service. Payment for Work Zone Law Enforcement will be made only for the utilization in work zones during lane closures, traffic pacing, or other activities that occur within travel lanes. The Contractor shall be responsible for coordinating and scheduling the utilization of the Work Zone Law Enforcement.

Work Zone Law Enforcement will be measured for payment by the hour up to the maximum number of hours included in the contract. The Department will not pay for any Work Zone Law Enforcement beyond the number of hours set up in the contract. The cost for utilization above the number of hours set up in the contract shall be included in the Lump Sum price bid for Traffic Control.

The Contractor shall provide a daily work record containing the actual number of hours charged by the police officer. The daily work record shall be compiled on a form provided by the Department, signed by the police officer, signed by the Contractor's Worksite Traffic Control Supervisor attesting that the police was utilized during the time recorded, and then submitted to the Engineer.

Payment shall be full compensation for reimbursing the law enforcement agency, and for all other cost incurred by the Contractor in coordinating, scheduling, and administering the item Work Zone Law Enforcement.

Payment shall be made under:
ITEM NO. 150-9011 Traffic Control Work Zone Law Enforcement (Contractor Bids)

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Project: CSNHS-0008-00(274) Henry County
P.I. No. 0008274

SECTION 999 – DESIGN-BUILD

999.1 DESCRIPTION

A. General

1. **Project Location:** The location of the construction work included in this Project is shown in the Concept Report. This Project is located in Henry County.

2. **Design-Build Concept:** The Contractor and a design consultant (or design consultant team) will work together to design and build the Project. The design consultant will either be acting as a subcontractor to the Contractor or as a joint-venture member with whom this agreement has been executed. In this document, the words "design consultant" or "design consultant team" shall refer to the consultant firm or consultant team acting as a subcontractor or joint-venture team member to the Contractor. The Department will have oversight responsibilities only, which include performing official reviews and granting approvals of design work.

The Contractor shall not begin any ground-breaking activities until the following have been approved by the Engineer:
- **Basis of the design**
- **Erosion and Sediment Control Plan**
- **Traffic Control Plan**
- **Utility Agreements, Utility Encroachment Permits, Utility Relocation Plans (Non anticipated), and Contractor Certification of "No-Conflict"**

3. **Project Scope:** This Project involves the addition of an auxiliary lane along the southbound lanes of I-75 in Henry County. The project contains the following features:
   - Begin Project occurs at the end of the taper to the I-75 SB Exit Ramp for Eagles Landing Parkway
   - End Project occurs at the beginning of the taper to the I-675 SB Entrance Ramp to I-75 SB
   - Project length is approximately 1.48 miles
   - All construction work will occur within the Existing Right of Way
   - The proposed Auxiliary Lane is to be located adjacent to the existing outside travel lane for the first 0.89 miles of the project
   - The entire I-75 SB is to be deflected toward the median, requiring an alignment change, for the remaining 0.59 miles of the project, due to insufficient horizontal clearance on the outside at the Walt Stephens Road over I-75 bridge
   - A single lane widening is proposed for the I-75 over CR 165 Flippen Road bridge
   - Guardrail is proposed on the outside, for the first 1.05 miles of the project
   - Noise barriers are proposed in two locations

- Type S-2/S-3 median barrier is proposed for a length of approximately 2800'
- All proposed pavement is to be full-depth asphalt
- A minimum of three lanes of traffic in each direction shall be maintained. Temporary lane closures shall be in accordance with section 150.

The work covered under this Specification includes the furnishing of all materials, labor, tools, equipment, and other incidental items for the designing, detailing, and construction of the Project contained in the Project Scope and Concept Report. The Contractor will make all the improvements for this Project within the limits of the provided construction plans. Advanced signing relative to proposed work, to be placed outside the limits shown on the Project Concept Report, shall be included in the work and paid for under CONSTRUCTION COMPLETE. All proposal materials will become the property of the Department.

The Contractor will restore or replace existing facilities in kind or upgrade. Possible affected resources includes, but not limited to the following: GDOT ITS system, signing and marking, and utilities.

GDOT ITS System in Conflict with project:

Video detection cameras
CCTV surveillance cameras
ITS communication fiber and conduit
Variable Message signs
Utilities for powering ITS System

Note: The GDOT ITS System is a vital part of traffic management in metro Atlanta and shall not be taken out of service for more than 30 calendar days during construction. See special provision section 108.

Utilities

The Contractor shall have the responsibility of coordinating the project construction with all utilities that may be affected. Coordinating responsibilities shall include but not be limited to the following:

a. The Contractor shall be responsible for the cost of utility coordination. Coordination shall include, but shall not be limited to, contacting each Utility Owner to advise of the proposed project; supplemental verification of the locations of existing utility facilities (including the employment of additional Overhead/Underground Subsurface Utility Engineering investigations (SUE) as described in section 999.3.B.1.S of this specification); and determining requirements for the relocation or adjustment of facilities.

b. The Department and/or the Utility Owner shall be responsible for the cost of utility relocation (this may change according to the details contained in the MOUs), where they hold a property interest, and in accordance with the Department's "Utility Accommodation Policy and Standards Manual". Details are provided in the attached Memorandum of Understanding (MOU) executed between the Department and each Utility Owner.

c. The Contractor shall design the project to avoid conflicts with utilities when feasible, and minimize impacts where conflicts cannot be avoided (See Section 999.3.B.1.S). The Contractor shall submit to the Department a Utility Conflict Matrix in the Department's prescribed format within 180 days of notice to proceed.

d. The Contractor shall initiate early coordination with all Utility Owners located within the project limits.

e. The Contractor shall coordinate and conduct a preliminary review meeting with the Utility Owners to assess and explain the impact of the project. The Department's Project Manager, District Construction Engineer (or designee), and District Utilities Engineer (or designee) shall be included in this meeting. The Contractor shall record the minutes for this meeting and distribute to all attendees for their review and concurrence.

f. The Contractor shall research the property interests of each Utility Owner's facilities. If there is a dispute over property interests with a Utility Owner, the Contractor shall be responsible for resolving the dispute. The Contractor shall meet with the Department's District Utilities Engineer (or designee) to present the property interests information gathered. This information must be sufficient for the District Utilities Engineer (or designee) to certify the extent of the Utility Owner's property interests. The Department shall have final approval authority as to the Contractor's determination of whether the Utility Owner has property interests.

g. The Contractor shall prepare and submit to the Department a Preliminary Utility Status Report within 120 days after the Notice to Proceed has been given for the contract. This report shall include a listing of all Utility Owners located within the project limits and a recommendation as to the extent of each Utility Owner's property interests. This report shall include copies of easements, plans, or other supporting documentation that substantiates any property interests of the Utility Owners. The report shall also include a preliminary assessment of the impact to each Utility Owner.

h. Depending on the provisions stipulated in the Memorandum of Understanding (MOU – See Attached) between the Department and each Utility Owner the Contractor shall be responsible for one of the following Design Activities:

- The Contractor shall provide Utility Owners with design plans and Preliminary Utility Plans as soon as the plans have reached a level of completeness adequate to allow them to fully understand the project impacts. The Utility Owner will use the Contractor’s design plan for preparing Utility Relocation Plans, cost estimates, and respective Utility Adjustment Schedules (UAS). If a party other than the Utility Owner prepares Utility Relocation Plans, there shall be a concurrence box on the plans where the Utility Owner signs and accepts the Utility Relocation Plans as shown.

- The Contractor shall prepare all engineering design, plans, technical specifications, cost estimates, and utility adjustment schedules required to perform the necessary utility relocations. The Contractor shall certify to the Department that the design package listed above has been reviewed and accepted by the each respective Utility Owner.

i. The Contractor shall be responsible for collecting the following from each Utility Owner that is located within the project limits: Certified Utility Relocation Plans including a letter of "no cost" where the Utility Owner does not have a prior right; Utility Agreements, certificates of eligibility, including cost estimate and Utility Relocation plans where the Utility Owner has a property interest; Letters of "no conflict" where the Utility Owner's facilities will not be impacted by the Project.

j. The Contractor shall be responsible for determining if the Department has agreed to be pay for in-kind relocations according to any approved Utility-Aid assistance package for publicly (government) owned utilities found within the project’s limits (See the Department’s TOPPS Policy #6863-11 for additional information regarding Utility-

Aid). If the Department has approved Utility-Aid; it is the Contractor's responsibility to assemble the necessary information including any Utility Agreements in a final and complete form and in such a manner that the Department may approve the submittals with minimal review. Failure to submit such required Utility Agreements prior to the beginning of construction shall fully transfer the utility owner's obligations, as stated in the subject Utility-Aid assistance package, to the Contractor. Deductions to reimburse the Department for such obligations may be made from any current partial payment of the Lump Sum price.

k. The Contractor shall review all Utility Relocation Plans and Utility Agreements and certificates of eligibility to ensure that relocations comply with the Departments "Utility Accommodation Policy and Standards Manual". The Contractor shall also ensure that there are no conflicts with the proposed highway improvements, and ensure that there are no conflicts between each of the Utility Owner's relocation plans.

l. The Contractor shall compile, and submit to the Department all Utility Relocation Plans, Utility Conflict Matrix, Utility Adjustment Schedules, Utility Agreements, Utility Estimates, and Letters of "no conflict," as set forth above for the project. The Contractor is expected to assemble the information included in the Utility Agreements and Utility Relocation Plans in a final and complete form and in such a manner that the Department may approve the submittals with minimal review. The Contractor is expected to meet with the Department's District Utilities Office within 15 days of the Notice to Proceed to gain a full understanding of what is required with each submittal. The Utility Owners shall not begin their Utility Relocation work until authorized in writing by the Department.

m. Each Utility Agreement and Utility Relocation Plan submitted must be accompanied by a certification from the Contractor stating that the proposed relocation will not conflict with the proposed highway improvement and will not conflict with another Utility Owner's relocation plan.

n. Depending on the provisions stipulated in the Memorandum of Understanding (MOU – See Attached) between the Department and each Utility Owner the Contractor shall be responsible for one of the following construction activities:

    • The Contractor shall be responsible for coordinating the work of its subcontractors and the various Utility Owners. The resolution of any conflicts between Utilities and the construction of the project shall be the responsibility of the Contractor. No additional compensation will be allowed for any delays, inconveniences, or damage sustained by the Contractor or its subcontractors due to interference from utilities or the operation of relocating utilities.

    • The Contractor shall be responsible for performing all utility removal, relocation, and adjustments required to accommodate the proposed project. This shall include any required inspection, permitting, testing and monitoring to ensure that the work is properly performed to the certified design package. The resolution of any conflicts between Utilities and the construction of the project shall be the responsibility of the Contractor. No additional compensation will be allowed for any delays, inconveniences, or damage sustained by the Contractor or its subcontractors due to interference from utilities or the operation of relocating utilities.

o. During the construction of the project, The Contractor shall designate, prior to beginning any work, a Worksite Utility Coordination Supervisor (WUCS) who shall be responsible for initiating and conducting utility coordination meetings and accurately

recording and reporting the progress of utility relocations and adjustment work. Also, the WUCS shall prepare an Emergency Response Plan for the purpose of planning, training, and communicating among the agencies responding to the emergency. The WUCS shall be the primary point of contact between all of the Utility companies, the Contractor and the Department. The WUCS shall recommend the rate of reoccurrence for utility coordination meetings and the Engineer will have the final decision on the regularity for utility coordination meetings. In no case will utility coordination meetings occur less than monthly until controlling items of utility relocations and adjustment milestones are completed. The WUCS shall contact each of the utility companies for the purpose of obtaining information including, but not limited to, a Utility Adjustment Schedule for the controlling items of utility relocations and adjustments. The WUCS shall notify the appropriate utility company and/or utility subcontractors and the Department of the status of controlling items of relocations and adjustment milestones as they are completed. The WUCS shall furnish the Engineer, for approval, a Progress Schedule Chart, immediately prior to beginning Construction unless otherwise specified, which includes the utility companies controlling items of work and other information in accordance with Section 108.03 or elsewhere in the Contract documents.

1. Qualifications

The WUCS shall be an employee of the Prime Contractor, shall have at least one year experience directly related to highway and utility construction in a supervisory capacity and have a complete understanding of the Georgia Utilities Protection Center operations, and shall be knowledgeable of the High-voltage Safety Act and shall be trained on the Georgia Utility Facility Protection Act (GUFPA). The Department does not provide any training on GUFPA but will maintain a list of the Georgia Public Service Commission certified training programs developed by other agencies. Currently the following companies offer approved GUFPA training programs:

Associated Damage Consultants
Phone: 706.234.8218 or 706.853.1362

Georgia Utility Contractors Association
Phone: 404.362.9995

Georgia Utilities Protection Center
Phone: 678.291.0631 or 404.375.6209

H B Training & Consulting
Phone: 706.619.1669 or 877.442.4282 (Toll Free)

The Prime Contractor is responsible for obtaining the GUFPA training for their employees.

Questions concerning the Georgia Public Service Commission GUFPA training program should be directed to:

Georgia Public Service Commission
244 Washington St. SW
Atlanta, GA 30334-5701

404.463.9784

2. Ticket Status

During the utility coordination meetings the WUCS shall collect and maintain the Ticket Status information to determine the status of all locate requests within the project limits. This information will be used to assure those planning to use mechanized equipment to excavate or work within the project limits are prepared to begin work when they have reported or estimated beginning work. At points where the Contractor's or utility company's operations are adjacent to or conflict with overhead or underground utility facilities, or are adjacent to other property, damage to which might result in considerable expense, loss, or inconvenience, work shall not commence until all arrangements necessary for the protection thereof have been made.

3. Notice

The names of known utility companies and the location of known utility facilities will be shown on the Plans, or listed in the Subsurface Utility Engineering Investigation if performed or in the Special Provisions; and the WUCS shall give 24-hour notice to such utility companies before commencing work adjacent to said utility facilities which may result in damage thereto. The WUCS shall further notify utility companies of any changes in the Contractor's work schedules affecting required action by the utility company to protect or adjust their facilities. Notice to the utility companies by the Department of the Award of Contract, under Subsection 105.06, shall not be deemed to satisfy the notice required by this paragraph. Furthermore, this 24-hour notice shall not satisfy or fulfill the requirements of the Contractor as stated in Chapter 9 of Title 25 of the Official Code of Georgia Annotated, known as the "Georgia Utility Facility Protection Act".

4. Agenda

The WUCS shall cooperate with the companies of any underground or overhead utility facilities in their removal and relocations or adjustment work in order that these operations may progress in a reasonable manner, that duplication of their removal and relocations or adjustment work may be reduced to a minimum, and services rendered by those parties will not be unnecessarily interrupted. To promote this effort the WUCS shall prepare an agenda for the utility coordination meetings and circulate same in advance of the meeting to encourage input and participation from all of the utility companies. The agenda will be prepared by an examination of the project site and may include photographs of potential/actual utility conflicts.

5. Emergency Response Plan

The WUCS shall prepare and submit to the Department an Emergency Response Plan no later than 30 days prior to beginning construction. The WUCS shall clearly mark and highlight the gas, water and other pressurized pipeline shut-off valves and other utility services including overhead switch locations on the utility plans; and prepare a chart to indicate the location of each site (Street address or intersections), the utility company or operator of the facility with emergency contact information and the working condition of the device to facilitate prompt shut-off. The WUCS shall post the Emergency Response Plan in an area readily accessible to the Department. In the event of interruption to gas, water or other utility services as a result of accidental

breakage or as a result of being exposed or unsupported, the WUCS shall promptly notify the appropriate emergency officials, the Georgia Utilities Protection Center and the appropriate utility facility company or operator, if known. Until such time as the damage has been repaired, no person shall engage in excavating or blasting activities that may cause further damage to the utility facility.

6. Submission

Provisions for reporting all utility coordination meetings, the progress of utility relocation and adjustment work milestones and ticket status information will be reported on a form developed by the WUCS and will be distributed by the WUCS to all of the utility companies as milestones are met and shall be included as part of the project records. These reports shall be delivered to the Engineer for review, on a monthly basis. The WUCS shall immediately report to the Engineer any delay between the utility relocation and adjustment work, the existing Utility Adjustment Schedule, or the proposed Utility Adjustment Schedule so that these differences can be reconciled.

7. Utility Adjustment Schedule

The purpose of the Utility Adjustment Schedule is to provide the Contractor with the pertinent information, including any utility staging required, dependent activities, or joint-use coordination that is required for the creation of a progress schedule chart that is feasible. A suitable Utility Adjustment Schedule form is available from the Department for the WUCS to circulate to utility companies for any proposed project construction staging. The WUCS shall submit the Progress Schedule Chart in accordance with Section 108.03 and the proposed Utility Adjustment Schedules from all utility companies to the Engineer for review and approval.

p. At the time the Contractor notifies the Department that the Contractor deems the Project to have reached Final Completion, the Contractor shall certify to the Department that all Utilities have been identified and that those Utility Owners with property interests or other claims related to relocation or coordination with the project have been relocated or their claims otherwise satisfied or will be satisfied by the Contractor.

q. The Contractor shall show the final location of all utilities on the as-built drawings for the project as stated in Section 999.3.A.2.

r. In addition to the above, the Contractor shall comply with all provisions set forth under subsection 107.21 of the Georgia Department of Transportation's Specifications, Construction of Transportation Systems, current edition.

4. Design Consultant: The Contractor will engage the services of a design consultant that is prequalified in all applicable area classes.

999.2 PLANS

The Department has not developed any preliminary plans for this project. The Department is making the following resources available for the design and construction of this project:

a. Approved Concept Report including concept layouts, concept typical sections and design exception
b. Approved Environmental Document
c. Aerial Mapping
d. Existing Digital Terrain Model (DTM)
e. Approved Traffic Study
f. Approved Soil Survey
g. Existing ITS Information
h. Microstation files showing proposed improvements
i. Overhead/Subsurface Utility Engineering Investigation Plans (See Section 999.03.B.1.S for details)
j. Preliminary Bridge Layout

Note: It is expected that this project will require borrow material. Locating and acquiring borrow pits and ensuring that only suitable material is used in the embankments, is the responsibility of the Contractor. All applicable requirements for borrow pits in the Specifications are to be met, including but not limited to the appropriate environmental approvals and permits. **The Contractor shall not use borrow material within the existing right of way that is beyond the proposed construction limits.**

999.3 DESIGN

A. General

1. **Measuring Units:** The project will be designed in **English** units of measurement.

2. **Design Software:** Microstation and CAiCE software is required. On completion of the Project, a complete as-built set of plans will be provided to the Department in the following formats: two (2) sets of CD-ROMs with all electronic design files, design notes and calculations; one (1) set of full-size mylar reproducibles; one (1) full-size set of paper prints; and one (1) half-size set of paper prints. In addition, paper prints will be required throughout the design period for the Department's reviews as noted herein. All files are to conform to the criteria found in the Electronic Data Guidelines dated March 15, 2004, Current Revision March 15, 2006. This information can be found at the Department's web site: http://www.dot.state.ga.us/dot/preconstruction/adds/edg/index.shtml.

3. **Design Scope of Services:** Plans will be prepared in accordance with the Georgia Department of Transportation's instructions as to design criteria, procedures, and format as contained in this Special Provision and the following: Current Manual on Uniform Traffic Control Devices; Current Draft Georgia Manual on Drainage Design for Highways; Current Utility Accommodation Policy and Standards Manual; GDOT Bridge Design Memos and the Bridge and Structural Design Manual; and the Department's Current Plan Preparation Guide. Project designers will adequately consider all elements of the design, including but not limited to roadway geometry, drainage requirements, traffic control during construction, erosion control, structural design, utility conflicts, signing and marking, and future maintenance requirements. Roadway lighting will not be required.

4. **Design Reviews:** The design is to be prepared under the direct supervision of licensed design professionals. A Professional Engineer licensed to practice engineering in the State of Georgia on the design team will seal the final plans. Their seal on the drawing shall represent certification that the design meets all applicable codes and is of good engineering

practice and standards. It shall be the responsibility of the Contractor to check and certify the design.

The Department may establish dates and times for cursory reviews and may comment on design work, but will not require hold points, review periods, or comment responses, except noted otherwise. If at any time the Department determines that the design work is not in conformance with the Department's standards, specifications, or good engineering practice, the Department reserves the right to stop work, at the Contractor's expense until a resolution of the issue(s) has occurred. Monthly progress meetings are to be held for the duration of the project.

Construction documents (plans and specifications) relating to the construction phases shown in Table A-1 will be submitted to the Department for review and approval. Approvals, disapprovals, or comments made by the Department will be provided in writing to the Contractor within the appropriate timeframes shown in the table below. No construction is to begin prior to receiving approval from the Engineer. Other items will be submitted to the Department if requested.

TABLE A-1: REVIEWS

Submission	Review Type	Comments
QC/QA plan	Plan approved by Engineer	See 999.3.A.6
Preliminary Roadway Plans	Review by Office of Urban Design	14 day review period
Preliminary Bridge Layouts	Plans Reviewed by Office of Bridge Design	See 999.3.C
Bridge Foundation Investigation	Report approved by Office of Materials and Research	N/A
Bridge Construction Plans	Plans Reviewed by Office of Bridge Design	See 999.3.C
Construction Traffic Control Plan	See Specification 150	N/A
Utility Plans / Agreements Agreements: 3 hard copy 1 electronic pdf Plans: 1 for each Utility Owner + 3 for Dept. and Microstation files	Relocation Plans and Agreements reviewed by Department Utilities Office. Agreements also reviewed by Utility Owner.	Concurrently w/ Construction Traffic Control Plans Agreements: 30 days for Dept. + 120 days for each Utility Owner Plans: 30 days

Relocated Utility Plans Plans: 1 for each Utility Owner + 3 for Dept. and Microstation files	Plans approved by Engineer	Concurrently w/ Construction Traffic Control Plan Plans: 30 days
Bridge related Shop Drawings	Shop Drawings	30 day review period
Signing and Marking	Signing and Marking Complete	See criteria within this Special Provision
Control of Soil Erosion and Sedimentation Plan	Plan reviewed by the Environmental Compliance Bureau	14 day review period

Note: Roadway Plans and Bridge Plans will be submitted from the Contractor to the Engineer and the reviewing office simultaneously.

Note: Unless a different review time is specified elsewhere in the contract, a period of thirty (30) calendar days from receipt to release of the submittal by the Department is to be allowed for the Department's review of all drawings and Bridge Foundation Investigations. The review time for structural plans is thiry (30) calendar days. All Contractor schedules shall reflect said review times. All submittals must be directly submitted to the Engineer. The Engineer's receipt of submittals will mark the beginning of the review period. **All submittals by the Contractor will be required to contain a statement certifying that no unapproved design exceptions have been incorporated in the submittal**. Monthly progress meetings will be held on site. Attendees will include the Contractor, design consultant, and the Department's project engineer and design liaison.

Errors and omissions are the responsibility of the Contractor to correct and will be at the Contractor's expense.

5. **Field Surveys**: The Contractor will verify all provided survey data. The Contractor is to provide terrain and drainage cross sections, pavement elevations, and drainage structure information for this project. All survey data will be noted in English units. The following is only a guideline for data collection and is not intended to be comprehensive:

    a. Provide cross sections of the terrain and pavement at mainline stations as follows:
        (1.) These cross sections will be provided at intervals adequate enough to accurately design and construct the Project, but not to exceed 100 feet.
        (2.) The cross sections are to extend from the centerline to existing right of way line.
        (3.) In addition to all terrain breaks, the cross sections will include all applicable edges of pavement (emergency, outside edges of travel lanes, and curb and gutter sections).
    b. Use the Department feature codes when collecting the data in accordance with CAiCE Survey Data Guidelines.
    c. Locate all existing mainline drainage structures (X,Y, and Z) within the right of way and provide their size, type, condition, and flow line elevations at each end.
    d. Gather inlet elevations for all drop inlets and catch basins.
    e. Develop terrain profile at each drainage structure showing the skew of the structure.

f. Develop terrain profile of the drainage outfall from the end of each structure to the right of way.
g. Provide any additional necessary survey control.
h. Stake centerlines.
i. Prepare Survey control Packet.
j. Perform sign surveys
k. Perform bridge surveys
l. Perform surface utility surveys
m. Perform supplemental topo surveys
n. Perform right of way surveys
o. Perform stream surveys
p. Perform surveys of ITS items
q. The accuracy for all survey data will be as follows:

Horizontal:	Additional control	= 1:10,000
Topography:	=	0.4’
Vertical:	Additional control	= NOAA 3rd Order
Pavement:	=	0.03’
Ground Terrain:	=	0.25’

6. **Quality Control/Quality Assurance for Design**: The Department, except where noted otherwise, will have oversight responsibilities only and will not perform official reviews and approvals of design work. The Department will not take any approval or formal review actions on design issues except as noted herein or for deviations from the intended scope of the project.

   The Contractor is to employ only persons duly registered in Georgia in the appropriate category in responsible charge of supervision and design of the work; and further, will employ only qualified, State of Georgia registered land surveyors in responsible charge of any survey work.

   The Contractor will use only a consultant design team that is prequalified by the Department in all applicable area classes for this Contract (see Section 999.1.A.4). Approval of any replacements within the team should occur prior to the letting of the project. Failure to secure approval of the replacements prior to letting may result in the disqualification of the Contractor’s bid.

   The Contractor will endorse all final reports, contract plans and survey data. These endorsements will be made by a person(s) duly registered in the appropriate category by the Georgia State Board of Registration for Professional Engineers and Land Surveyors, being in the full employ of the Contractor and responsible for the work prescribed by this agreement.

   Authorized representatives of the Department and Federal Highway Administration may review and inspect the Project activities and data collected at all times. All reports, drawings, studies, specification estimates, maps and computations prepared by or for the Contractor will be available to authorized representatives of both the Department and the Federal Highway Administration for inspection and review in the General Office of the Department or at another location as determined by the Department. The Department’s review comments are to be incorporated into the plans by the Contractor or as agreed. These changes will not result in an increase in cost.

   Before the start of the contracted design effort, the Contractor will develop and acquire the Department’s approval for a QC/QA Plan to ensure that all design documents are prepared in accordance with the Department’s Plan Presentation Guide (www.dot.state.ga.us, search for keyword “PPG”) using good, prudent and generally accepted design and engineering

practice. Also see the Manual of Quality Standards for Consultant Services with the Georgia Department of Transportation.

The QC/QA Plan shall include the following:

a. Quality control and quality assurance procedures for design documents will specify measures to be taken by the Contractor (A) to ensure that appropriate quality standards are specified and included in the design documents and to control deviations from such standards, being understood and agreed that no deviations from such standards shall be made unless they have been previously approved by the Department, and (B) for the selection of suitable materials and elements of the Work that are included in the Project.
b. Quality control and quality assurance procedures for preparing and checking all plans, calculations, drawings and other items submitted ensure that they are independently checked and back-checked in accordance with generally accepted engineering practices, by experienced engineers. The originator, checker and back-checker should be clearly identified on the cover of all submittals. Specific procedures for verifying the computer programs used will be included as well. Plans, reports and other documents will be stamped, signed and dated by the responsible Georgia registered engineer where required under the contract documents, generally accepted engineering practices or by applicable laws. It is required that the Contractor also submit a statement that all reviews have been completed.
c. Procedures for coordinating work performed by different persons within the same area, in an adjacent area or in related tasks must ensure that conflicts, omissions or misalignments do not occur between drawings or between the drawing and specifications. These procedures must also allow for the coordination of the review, approval, release, distribution and revision of documents involving such persons.

   All the persons proposed to be responsible for design Quality Control and Assurance are to be listed as follows:

   - Discipline
   - Name
   - Qualifications
   - Duties
   - Responsibilities
   - Authorities

   All key personnel performing Quality Control and Assurance functions will be exclusively designated as such and shall not be assigned to perform conflicting duties.

   All documents are to be maintained by the Contractor for the duration of the Contract and shall be organized, indexed and delivered to the Department (1) upon Final Acceptance or (2) even if incomplete, within seven (7) days of receipt of request from the Department. These documents shall include, but not be limited to, the following items: design criteria, reports and notes, calculations, drawings, schematics, supporting materials, statement regarding accomplishment of reviews and others.

7. **Ownership of Documents**: The Contractor agrees that all reports, drawings, studies, specifications, survey notes, estimates, maps, computations, computer files and other data, prepared by or for it under the terms of this agreement will be delivered to the Department to become and remain the property of the Department upon termination or completion of the work. The Department will have the right to use this information without restriction or

limitation and without compensation to the Contractor other than that provided for in this agreement.

Any use of these documents by the Department on any project other than this one will be done without warranty by the Contractor.

8. **Insurance:** In addition to the insurance requirements covered elsewhere in this Proposal, the Contractor must have insurance coverage of the following types and amounts:

    a. Valuable Papers: Insurance in an amount sufficient to assure the restoration of any plans, drawings, field notes or other similar data relating to the work covered by the project is required. Insurance is to be maintained in full force and effect during the life of the agreement.
    b. Professional Liability (Errors and Omissions): Insurance in an amount not less than one million dollars ($1,000,000) per claim (with a maximum of $250,000 deductible per claim) during the agreement term and for a period of at least five (5) years after the agreement is closed is required. Such a policy is to cover all of the Contractor's professional liabilities, whether occasioned by the Contractor, his employees, subcontractors or other agents, arising out of services performed under or in accordance with this agreement.

9. **Publication and Publicity:** Articles, papers, bulletins, reports or other materials reporting the plans, progress, analyses or results and findings of the work conducted under this Agreement shall not be presented publicly or published without prior approval in writing from the Department. All releases of information, findings and recommendations shall include a disclaimer provision to be included in all published reports on the cover and title page in the following form:

    > "The opinions, findings and conclusions in the publication are those of the author(s) and not necessarily those of the Department of Transportation, State of Georgia or the Federal Highway Administration."

    Any information concerning the project, including conduct, results or data gathered or processed, released by the Contractor without prior approval from the Department will constitute grounds for termination of this Agreement without indemnity to the Contractor. Information released by the Department or by the Contractor with prior written approval is to be regarded as public information and no longer subject to the restrictions of this Agreement. Information required to be released by the Department under the Georgia Open Records Act, Section 50-18-70, et seq., O.C.G.A., the restrictions and penalties mentioned set forth herein shall not apply. Any request for information directed to the Contractor, pursuant to the Georgia Open Records Act, by the public is to be redirected to the Department for further action.

10. **Copyrighting:** The Contractor and the Department agree that any papers, interim reports, forms and other material which are a part of work under this Agreement are to be deemed a "work made for hire", as such term is defined in the Copyright Laws of the United States. As a "work made for hire", all copyright interests in said works will vest in the Department upon creation of the copyrightable work. If any papers, interim reports, forms or other material which are a part of work under the Agreement are deemed by law not to be a "work made for hire", any copyright interests of the Contractor are hereby assigned completely and solely to the Department. Publication rights to any works produced under this Agreement are reserved by the Department.

11. **Patent Rights**: If patentable discoveries or inventions should result from work described herein, all rights accruing from such discoveries or inventions will be the sole property of the

Contractor. However, the Contractor agrees to and does hereby grant to the Department, an irrevocable, non-exclusive, non-transferable and royalty-free license to practice each invention in the manufacture, use and disposition according to law of any article or material and in use of any method that may be developed as a part of the work under this Agreement.

B. Roadway

1. Preparation of Construction Plans

a. **Criteria:** The Contractor is to become familiar with and use the latest, as determined by the Department, American Association of State Highway and Transportation Officials (AASHTO) Design Manuals for Arterial Streets, Rural, Urban and Interstate Highways, including those standards adopted by the AASHTO and approved by the Secretary of Commerce, as provided by Title 23, United States Code, Section 109 (b), with the Department's Standards, Procedures, Plans, Specifications and Methods, with Federal Highway Administration procedures relating to plan review and approval, and will produce plans in accordance therewith. The Project is to be designed and constructed utilizing guidelines found in the American Association of State Highway and Transportation Officials (AASHTO) Design Manuals for Arterial Streets, Rural, Urban and Interstate Highways (including but not limited to the "Green Book"), unless otherwise approved by the Department.

b. **Design Specifications and Guidelines:** Design for roadways and intersections will be in accordance with the current edition of AASHTO Design Specifications; AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals; and AASHTO Roadside Design Guide and the Department of Transportation Standard Specifications for Construction of Roads and Bridges, 2001 Edition, and current editions of Special Provisions. Design and plan preparation will also be in accordance with the FHWA Federal-Aid Policy Guide. Plan and specifications will conform to the requirements of the Highway Capacity Manual, current edition (T.R.B. Report No. 2). Design work for inside interstate rights of way will conform to the interstate standards. Design for work outside interstate right of way shall conform to AASHTO design standards for the appropriate classification and speed design. Any deviation will also require a written design exception or variance to be approved prior to incorporating it into the work. The Contractor will prepare the required design exception request for approval by the Department and/or the FHWA. A design exception request will justify fully why the guideline cannot be reasonable met considering such items as right of way impacts, cost, mitigation measures taken, and accident history and should include the recommendation. The Contractor will meet the current ADA guidelines. In addition to the references listed above, the following references will be used in the development of this project:

- Electronic Data Guidelines – March 15, 2004, Revised March 15, 2006
- Plan Presentation Guide – November 2002
- Current Manual on Uniform Traffic Control Devices "MUTCD" by the U.S. Department of Transportation, Federal Highway Administration "FHWA"
- Draft Manual of Drainage Design for Highways by the Georgia Department of Transportation
- Roadway and Bridge Standard Plans as of July, 2006 by the GDOT Road and Airport Design Office. Design and plan preparation will also be in accordance with the Certification Acceptance authorized by 23 USC 117(a) for Administering Federal Aid Projects Not On Interstate System, dated June 1, 1990.
- Guidelines for Processing Design Data in CAiCE – http://www.dot.state.ga.us – search for keyword "CAiCE".

- Construction Details by the GDOT Road and Airport Design Office
- Pay Item Index by the GDOT State Transportation Office Engineer
- Utility Accommodation Policy and Standards by the GDOT Utilities Office

This List is not intended to be all-inclusive. All references are to be the current editions accepted by the GDOT. Any current editions that are written in metric units should be "soft converted" to U.S. Standards Units. Any rounding will be to the dimension that will increase safety.

c. **Plan Sizes:** Plans for roadway, drainage and utilities will be reproducible quality ink drawings on bond paper. They should have outside dimensions of 36" by 24" with a 2" margin on the left and a ½" margin elsewhere and be produced by a Microstation CADD system. Review sets of plans may be on paper with the same dimensions as above.

d. **Construction Plan Requirements and Scale:** The Plans will be fully dimensioned in English units; all elevations necessary for construction will be shown similar to the Department's normal practice. All plans are to be prepared on the scales listed below, unless otherwise approved by the Department. Drawings and lettering will be such as to produce clear and legible reproductions when reduced to half-size. The scale of sheets are to be as follows:

(1.) 1" = 10'
- (a) Roadway cross sections 1" = 10' horizontal and 1" = 10' vertical
  NOTE: Cross sections may have to be plotted lengthwise on the sheet to avoid folded sections
- (b) Staging cross sections 1" = 10' horizontal and 1" = 10' vertical
  NOTE: Cross sections may have to be plotted lengthwise on the sheet to avoid folded sections

(2.) 1" = 50'
- (a) Roadway plan sheets for interstate type projects
- (b) Roadway profile sheets for interstate-type projects 1" = 50' horizontal and 1" = 10' vertical
- (c) Drainage profile sheets 1" = 50' horizontal, 1" = 10' vertical (include location of existing and proposed utility crossings.)
- (d) Staging plans for interstate projects
- (e) Bridge plan and elevation sheet
- (f) Utility relocation plans

(3.) 1" = 100'
- (a) Stake out sheet

(4.) 1" = 400' or 500'
- (a) Cover sheet
- (b) Drainage area map

The Contractor will check all details and dimensions shown on the plans before they are submitted to the Department for review. Topography will remain fully legible when plans are reduced in size, but will be less prominent and readily distinguishable from the proposed work. Profile sheets should have the existing ground line dashed and the required profile in a solid line. All other plan sheets (utility, erosion control, lighting, signing & marking, signal, etc.) will be the same scale as its corresponding roadway plan sheet.

e. **Construction Plans Organization and Sheet Index**: Construction plans will be assembled according to the Electronic Data Guidelines.

The total sheets shown in the Index will be the total number of sheets in the plans. The total sheets shown in the upper right hand corner of each sheet will be the total number of sheets submitted for the final plan submission. Any preliminary plans will be assigned temporary sheet numbers by using the sequence prefix followed by a two-digit number per the Electronic Data Guidelines. These numbers are to be placed in small blocks in the lower right corner of the sheet.

f. **Computations:** All design computations and computer printouts will be neatly recorded on 8 ½" by 11", fully titled, numbered, indexed, dated and signed by the designer/project manager and checker. Project quantity computations will be done in electronic spreadsheet format or directly processed from the CAiCE software. The computer files and two copies of the computations fully checked and appropriately bound, should be submitted to the Department with the plans. A complete tabulation of the drainage analysis along with the calculations used to determine the size of drainage structures will be submitted to the Department with the construction plans.

g. **Plan Print Requirements**: The Contractor will furnish all the prints necessary for the development of the preliminary and final construction plans and specifications. All prints will be clear and legible.

h. **Supplementary Information on Construction Plan Preparation**: All of the following sheet descriptions and others required for completeness of the plans should conform to the Department's Plan Presentation Guide.

i. **Traffic Flow Diagrams**: These sheets provide the traffic data information to determine design criteria. The Contractor shall use traffic volumes from the May 2006 "Traffic Operations Analysis I-75 Auxiliary Lane Project" Technical Memorandum to prepare the Traffic Flow Diagram sheets. The sheets are not required to be to a scale, but the drawing should show and represent the alignment of the overall project. Two sets of diagram shall be prepared, one which shows the Average Daily Traffic (ADT) and the other showing the peak Design Hourly Volumes (DHV).

j. **Typical Sections**:

(1.) Typical sections will show exact dimensions (medians, travel-lanes, shoulders, slopes, ditches, etc.) from the construction centerline. Locate and label the roadway profile grade line for both existing and proposed. Label appropriate items as to type and thickness. All slope controls should be specified on each typical section. Preliminary typical sections will be provided by the Department.

(2.) Typical sections will indicate the spread rates for Asphaltic Concrete and thickness for Graded Aggregate Base to be used on the project. The pavement structures described in the typical sections are those already approved by the Department.

(3.) Any special conditions will be shown as details on the typical section sheets. However, if these items are covered by a Georgia Standard or a construction detail, then a note should be included referring to the standard or detail.

(4.) The scale of each typical section may differ between the horizontal and the vertical in order to more clearly show the division between separate layers of the structure of the pavement.

(5.) Roadway plans will meet the posted speed design within the limits of this project as shown in the 2002 Roadside Design Guide and the MUTCD.

(6.) Any substandard guardrail within the limits of construction is to be replaced under this contract. Where construction exists only on one side, only the guardrail on construction side adheres to this requirement.

k. **Construction Plan Sheets**: Construction plan sheets shall be in accordance with the Plan Presentation Guide including, but not limited to, the following: existing

topography, construction centerline, curve data, edge of pavements, medians, drainage, bridges, and project limits.

l. **Roadway Profile Sheets:** The roadway profiles shall be in accordance with the Plan Presentation Guide including, but not be limited to, the following: existing ground line, existing elevations , proposed ground line, proposed elevations, PVC, PVT, PVI, LVC, K Value, high points, low points, existing structures, and proposed structures.

m. **Staging Plan Sheets:** Staging plan sheets shall be in accordance with the Plan Presentation Guide including, but not limited to, the following: existing topography, construction centerline, curve data, edge of pavements, medians, drainage, bridges, and project limits

n. **Staging Profile Sheets:** The staging profiles shall in accordance with the Plan Presentation Guide including, but not be limited to, the following: existing ground line, existing elevations , proposed ground line, proposed elevations, PVC, PVT, PVI, LVC, K Value, high points, low points, existing structures, and proposed structures.

o. **Drainage Profile Sheets:** Drainage profiles should be shown for all proposed drainage structures except side drains. Existing drainage profiles will be shown if pipe and structures are to be retained and when a proposed drainage system connects to it. Drainage structures will be fully detailed and dimensioned.

   All cross drain structures will be sized by the P.C. computer program HY-8. The Allowable Highwater will be the existing 100-year elevation plus 1.0 foot.

   All drainage structures located in a designated floodway shall be sized to comply with FEMA regulations. FEMA structures require the computer analysis from FEMA, usually HEC-2 analysis. Remodel the floodway and do not increase the 100-year storm more than 1.0 foot total. If the floodway must be altered, all the necessary maps and computer printouts should be included in the drainage analysis and the Contractor will ensure that all FEMA and Local Government requirements are satisfied. When changing sizes of pipes, the top elevation of the pipes should be the same and the flow lines will change. All other guidelines and computation sheets are in the "Draft Manual on Drainage Design for Highways". The Contractor will submit all final drainage computations.

p. **Sound Barrier Envelopes and Plans:** Sound barrier envelopes and plans sheets shall be in accordance with the Plan Presentation Guide.

q. **Erosion and Sediment Control Sheets**:

Note: The Contractor will not begin work until the Control of Soil Erosion and Sedimentation Plan has been accepted and approved by the Engineer. See 999.1.A.2 and Specification 161.

Erosion and Sediment Control Plans detail the temporary erosion control devices to be used during construction. These devices include, but are not limited to, sediment traps, silt control gates, floating silt retention barriers, check dams, silt fence (types A, B & C), bailed straw ditch checks, brush barriers and slope drains. Additional plan sheets are required for each stage of construction. The criteria listed below will be required as a minimum for the plans:

Item Title	Includes / Comment
Erosion and Sediment Control Cover Sheet	• Project Description • Certification Statements • Project information • Note: Must be signed by GDOT Chief Engineer
General Notes	Miscellaneous Statements

Drainage Area Map	• Runoff Coefficients – before & after • Peak Flow – before & after • Drainage Patterns – flow arrows • Delineated Wetlands • Drainage to lakes within ½ mile • Disturbed Area • Pipe Sizes • Construction Limits
Best Management Practices	Actual Plans – including erosion and sediment control for any staging plans
NOI Form	Current form will be provided to successful Contractor by the Department after review and approval of erosion control

Note: Sediment and Erosion Control Items will be paid for under CONSTRUCTION COMPLETE.

Fill Slopes: Mats are to be used on all fill slopes for all heights that:

(1.) Cross a drainage structure (*minimum of 50 feet on either side of the centerline of the drainage structure*)
(2.) Adjacent to sensitive areas (i.e. wetlands, waterways, lakes, developed property)
(3.) Are unusually difficult to maintain
(4.) Are steeper than 2.5:1
(5.) Are planted with permanent grass (*It is not the intent to use mats as temporary slope protection.*)
(6.) Other conditions deemed appropriate by the Engineer

Cut Slopes: Mats will be used on all cut slopes that:

(1.) Are steeper than 2:1, regardless of height
(2.) Are on slopes of highly erodible soils (*Erosion Index greater than 9*)
(3.) Are adjacent to sensitive areas (i.e. wetlands, waterways, lakes, developed property)

r. **Signing and Marking Requirements**

General

Prepare signing, signalization and marking plans in accordance with the Manual of Uniform Traffic Control Devices (MUTCD) and any applicable AASHTO or Department standards and guidelines.

Prepare plan sheets to show all permanent roadway signs and pavement markings as they appear upon completion of the project. Place emphasis on designing clear directional signage and coordinating sign placement with roadway features, structures, sight distances and driver awareness. All signs are to be replaced unless they meet the current reflectivity and design policy requirements.

s. **Utilities**:

(1) General

By Georgia Statues, utilities whether public or privately owned, aerial or underground, are permitted by the Department and local governments to be accommodated within the public right of way. To this end, the Contractor needs to make every effort to design/build a project that will accommodate (and minimize impacts to) all existing utilities and new utilities to be constructed concurrently with the project.

The selection of typical section features, horizontal alignment, and location of storm sewer lines are design elements that can sometimes be varied without violating safety standards, and accepted design principles. Design/construction techniques that minimize or avoid utility conflicts may involve increased upfront costs; however, those costs are offset by savings during construction, in addition to the total cost savings for the project owner (the Department or local government) and the respective utility owners.

Additional guidance for accommodating utilities within the right of way are given in the AASHTO publications: A Guide for Accommodating Utilities within Highway Right of Way, A Policy on Geometric Design of Highways and Streets; the TRB publication: Policies for Accommodation of Utilities on Highway Rights-of-Way; and in GDOT's Utility Accommodation Policy and Standards, current edition.

The Utility Plans are used as the primary tool to identify and resolve utility related conflicts/issues prior to beginning the construction of a project. Also, when these plans are properly prepared as indicated in this manual; they will support the vital coordination required between the Contractor and the Utility Owner during construction.

Existing utility information shown on the Utility Plans for this project have been obtained from an Overhead / Subsurface Utility Engineering (SUE) Investigation (please refer to Section 2.C. for more information on SUE). This existing utility information has been provided by the Department for the Contractor's use in the design and construction of this project. However, the Contractor shall be responsible for supplementing this utility information for utilities that have been installed after the Overhead / Subsurface Utility Engineering (SUE) Investigation was performed. Known utilities and contacts are shown in the plans package. This information shall be verified by the Contractor.

Utility plan sheets are comprised of completed roadway plan sheets but will contain more detailed information featuring existing and proposed utility facilities. Specific requirements for Utility Plans are detailed below.

(2) Required Information

(a) Preliminary Utility Plans

Preliminary Utility Plan sheets are typically comprised of preliminary roadway plan sheets with the inclusion of all existing utility facility locations (overhead & underground) found within a project's limits. Determining the location of the existing utilities was accomplished through an Overhead/Subsurface Utility Engineering Investigation. The "degree of effort" exerted on the part of the Department and the Utility Owner varies with the type and location of the utility. The Department has classified these "degrees of effort" into different Quality Levels of information. Please refer to Section 2.C. for definitions of these Quality Levels.

Preliminary Utility Plans shall be produced and used by the Contractor in the utility coordination/relocation design activities outlined here and under Section 999.1.3. The following minimum information shall be shown on the Preliminary Utility Plans:

1. Construction centerline with project stations and begin/end project limits.
2. Curb and gutter or edge of pavement (proposed and existing)
3. Road and street names
4. Existing and Required Right of Way limits, property lines, environmentally sensitive area limits, and property owners.

5. All proposed and existing easements (including existing utility easements)
6. Proposed and existing drainage structures/features (excluding drainage text)
7. Proposed construction limits (C/F lines)
7. Topographical planimetrics (i.e. existing buildings / structures, existing tree/vegetation limits)
8. All proposed bridges, walls, other structures and landscape hardscapes.
9. All proposed and existing strain poles (signal, sign, lighting)
10. Utilities Legend
11. Miscellaneous General Notes
12. Existing overhead and underground utilities found within the project's limits. Including size and material if known.
13. Sanitary sewer manhole top, and invert elevations. Sanitary Sewer pipe flow directions
14. Railroad mainline and spur tracks with their respective property/easement limits
15. Project Survey control point locations
16. SUE specific General Notes
17. Utility Pole Data Table
18. SUE investigation Limit of study
19. SUE Quality Level A information

(b) Final Utility Plans

Final Utility Plans consist of all the elements provided for in the Preliminary Utility Plans, but also show all proposed utility adjustments required to accommodate the project.

The proposed utility information will either be provided to the Contractor by each of the respective Utility Owners, or included in the Design Scope for this project. Refer to Section 999.1.A.3 to determine how proposed utility relocation design information is to be provided. In either case, the Contractor shall compile and incorporate this information into the project's Final Utility Plans.

The proposed utility work for this project shall either be performed by the Utility Owner or their designated contractor, or included as part of the project's construction contract. Refer to Section 999.1.A.3 to determine who is responsible for the proposed utility relocation work for this project.

In either case, the Final Utility Plans shall clearly show all existing, proposed, temporary, and relocated utilities on the plans and clearly indicate the disposition of all existing utilities: for example, "To be removed", "To be Adjusted", "To be Abandoned", "To Remain", "To be Relocated", etc. The plans shall also clearly define utility work as to which is to be done by the Contractor and which is to be done by others. Utilities to be relocated (or removed, or installed) prior to construction should be labeled on the plans as "To be relocated (or removed or installed) by others prior to project construction".

When proposed utility work is included as part of the project's contract, it is necessary for a Summary of Quantities to be included within the Final Utility Plans. The Summary of Quantities shown in the Final Utility plans shall be prepared in the same basic format as indicated in Section 999.3.B.1.q.

Where extensive or complex utility work is proposed to be performed, separate Utility Relocation Plan Sheets for that specific utility may be required to ensure plan legibility/constructability. The Contractor shall determine whether separate Utility

Relocation Plans are needed. However, after review of the plans, the Engineer may require these additional sheets be included in the project plan package.

In addition to the information required for the Preliminary Utility Plans, the Final Utility Plans shall include the following:

1. All proposed and temporary utility facilities with annotation describing nature of work.
2. Miscellaneous General Notes required for coordination of utility facilities with roadway construction.
3. Proposed water and sanitary sewer plan/profiles.
4. Summary of Quantities for contract items (if applicable).
5. Any proposed utility easements.
6. Any miscellaneous proposed utility details.

c. Overhead/Subsurface Utility Engineering (SUE) Investigations (Provided by the Department):

(c) Overhead/Subsurface Utility Engineering (Sue) Investigations (Provided by the Department)
Employ an established engineering technology that can provide precise horizontal and vertical locations of underground and overhead utilities to produce an accurate picture of the underground and overhead utility infrastructure. The existing utility information provided in these investigations includes a description of what “degree of confidence” there is in its accuracy. The Department has classified these “degrees of confidence” into different Quality Levels of information:

Quality Level "D" Information - Information obtained solely from a review of utility records. The comprehensiveness and accuracy of such information is highly limited. Even when existing information for a utility in a particular area is accurate, there are often other underground systems that are not shown on any records. Quality Level “D” may be appropriately used early in the development of a project to determine the presence of utilities.

Quality Level "C" Information - Information obtained to augment Quality Level “D” information. This involves topographic surveying of visible, above-ground utility features (e.g., poles, hydrants, valve boxes, circuit breakers, etc.) and entering the topographic data into the CADD system. Since aerial utility lines are not surveyed, information provided for these facilities is considered Quality Level “C” also. Quality Level “C” may be appropriately used early in the development of a project and will provide better data than Quality Level “D” information alone. Designers must be very cautious when working on projects using information for underground utilities that is based only on Quality Levels “D” and “C” locates.

Quality Level "B" Information - Information obtained through the use of designating technologies (e.g., geophysical prospecting technologies). This is an application using scanning technologies, most of which have very specific capabilities. Applying a variety of techniques is essential to the process of preparing a comprehensive horizontal map of utilities and other underground structures on the site. Designating technologies are capable of providing good horizontal information.

Quality Level "A" (Test Hole) Information (not provided by the Department) - Provides the highest level of accuracy of utility locations in three dimensions. This level may apply manual, mechanical or nondestructive (e.g., vacuum excavation) methods to physically expose utilities for measurement and data recording. Quality Levels “B”, “C”, and “D” locates are incorporated in Quality Level “A” locates.

The Contractor shall identify all utility conflict points where verified existing utility information is necessary to avoid the respective utility conflict. The Contractor shall obtain Quality Level “A” locates at these project/utility conflict points, and shall coordinate with the Utility Owners and make every effort to avoid existing utility facilities and thereby reduce utility relocations.

This Quality Level A information shall be performed to GDOT standards by a prequalified firm in Subsurface Utility Engineering (SUE). Refer to the following website for a list of current prequalified firms:

http://www.dot.state.ga.us/dot/preconstruction/consultantdesign/byclass/I508.htm

(3) Sheet Layout

The Contractor needs to ensure that any information and graphic data that is not necessary to depict the disposition of utilities found within the project’s limits is removed by turning off the appropriate CADD levels(s) on which the data is stored. This will help ensure that information pertinent to utility facilities can be clearly seen in the Utility Plan sheets. Examples of extraneous information would be items such as horizontal curve data, superelevation data, roadway dimensions, misc. text, etc. All background information such as pavement limits, existing structures, etc. should be screened back. Also, the Contractor must ensure all text, line work, details, and symbols are clear and legible when plans are reduced to ½ size.

In order to maintain plan clarity all applicable general notes, tables, Summary of Quantities, and the Utility Legend shall be placed separately from the Utility Plan sheets. This Utility Plan “Cover Sheet” shall be provided for both preliminary and final Utility Plans. A recommended example utility sheet schedule is provided below:

- Utility Sheet 1 (Cover Sheet) – Utility General Notes, Utility Legend, Miscellaneous Details

- Utility Sheet 2 (required as needed) – Additional Miscellaneous Details, Summary of Quantities, Pole Data Table

- Utility Plan Sheets – Utilities shown in plan view with respect to project.

- Utility Profile and Cross Sections Sheets - Proposed Utility facility profiles and cross sections (as required)

- Miscellaneous Utilities Sheets – Miscellaneous proposed utility details (as required).

The above sheet schedule should also be generally followed for all separate utility relocation plans (i.e. water & sewer plans) included in the project plans.

(4) Miscellaneous Notes and Other Information

State on the Utility Plans whose responsibility it is for utility adjustment. If the Contractor is to adjust utilities, those items are to be summarized and the appropriate pay items are to be included on the detailed estimate.

For bridge plans required, the Contractor is to make sure the plans have made accommodations for utility crossings and attachments, if applicable. Any new utility crossings requests must include the size, weight, and type of utility. In addition, the method of attachment to the bridge must be fully detailed. Such requests shall be reviewed by the Contractor to ensure adequacy and constructability and final approval shall be obtained by the Contractor from the Department. The Contractor shall follow the approval process within this specification.

The Contractor is responsible to ensure that all proposed and existing utilities are coordinated with the respective project's Construction Staging and Erosion Control Plans.

Upon completion of the Utility Relocation Plans, the Contractor needs to ensure that any additional environmental impacts due to utilities are addressed in the project's environmental document/permit.

t. **Detailed Estimate Sheet**: Prepare the Detailed Estimate Sheet in accordance with the Plan Presentation Guide.

C. Bridges

1. General

DESIGN SPECIFICATIONS AND GUIDELINES: Design bridges in accordance with the 2002 AASHTO Standard Specifications for Highway Bridges, 17th Edition. Use GDOT Bridge Design Manual and Memos for information regarding bridge design practice located at the internet address:
http://www.dot.state.ga.us/dot/preconstruction/bridgedesign/index.shtml
Use "Basic Drawings where possible. Basic drawings and cells can be downloaded at the following internet address:
http://www.dot.state.ga.us/dot/preconstruction/adds/bridge/index.shtml
Use MicroStation/J to prepare plans in accordance with the Office of Bridge and Structural Design's MicroStation Customization. These files include a folder structure that is required to be on C:\Drive along with the "Bentley" folder. Access the Bridge MicroStation Customization files at the internet address:
http://www.dot.state.ga.us/dot/preconstruction/adds/microstation/customization.shtml

BRIDGE FOUNDATION INVESTIGATION:
A Bridge Foundation Investigation is being supplied to the contractor for information purposes.

2. Plan Submittals:

a. Preliminary Plans.
b. Construction Plans: Submit complete bridge plans
c. Shop Drawings.
d. Submit two (2) full size paper copies and two (2) half size paper copies of Plans and one (1) copy of the calculations for each scheduled submittal.
e. Do not proceed with the final design of bridge plans until the preliminary plans have been approved by the Department.

3. Preliminary Bridge Plans

The existing bridge carrying I-75 southbound over Flippen Road shall be widened to provide 80'-9" from existing median barrier gutter to proposed outside barrier gutter. The following information is to be used in the development of the final plans:

a. The Preliminary Layout for the I-75 bridge over Flippen Road is included in the contract documents.

b. Existing bridge plans may be purchased by contacting the plans reproduction office at (404) 656-5401. The original bridge was built under project number I-75-2 (37) 218 and was widened under project number IR-75-2 (138).

c. The Contractor shall verify all dimensions and elevations in the field prior to preparing plans, ordering materials or building forms.

d. Design the bridge widening using structural steel W-beams or welded plate girders. Cover plates will not be allowed.

e. Design the steel beams or girders as composite with the concrete deck.

f. Do not increase stresses on existing bridge elements.

g. Design the widening using a simple span beam arrangement to match the existing bridge.

h. Design the substructure end bents and intermediate bents with concrete columns, caps, or walls with footings having their top a minimum of two feet below ground.

i. Provide a minimum vertical clearance from bottom of proposed superstructure to roadway beneath greater than or equal to the existing vertical clearance. GDOT records indicate that the existing minimum vertical clearance to Flippen Road is 16'-4". Contractor shall field survey the existing clearance over all travel lanes and submit the survey results to the Bridge Office along with the Preliminary Layout.

j. Except as noted herein, widen the bridge using bents and joints which are collinear with the existing bridge bents and joints. Provide a minimum horizontal clearance from edge of travel lane on Flippen Road to face of bent which is equal to or greater than the existing horizontal clearance.

k. Provide a typical section which indicates the following information:

- Center to center spacing of girders: limit this dimension to a maximum spacing of 9'-0".
- Overhang or distance from outside edge of slab to center of exterior girder: This distance (overhang) shall meet AASHTO requirements, but shall not exceed 2'-7 1/2" for this structure.
- Cross slope of the deck.
- Deck thickness between girders and deck thickness at the centerline of girder measured from the top surface of deck to top of the flange.
- Provide a slab with a minimum thickness determined by the Georgia DOT computer program, BRSLAB07, Service Load Design of Concrete Bridge Slabs proportioned to provide 2.75 inches of concrete cover over the top mat of reinforcing and 1 inch cover to the bottom mat of reinforcement (minimum deck thickness is 7 inches). Use the slab thickness determined for the portion of the bridge supporting the highway loading at all locations.
- Thickness of the top and bottom flange and depth of web for steel plate girders or the AISC steel beam section designation.
- Barrier location, height and width.
- Gutter to gutter and out-to-out dimensions.

- Location of the profile grade.

l. In addition to the requirements above, provide the following:

- A plan view of the proposed structure indicating beginning and end bridge stations, construction centerline, profile grade line, bent skew angles, joint locations, station and skew of roadways crossing under the structure, width of roadways beneath the structure, gutter to gutter width of the bridge, out to out width of the bridge, distance from gutter to outside edge of deck, taper control stations, location of point of minimum vertical clearance, and location and magnitude of the horizontal clearances from edge of travel way beneath the structure to the face of intermediate bents.
- Stations and elevations along the centerline of construction at the intersection of the centerline of construction and the back face paving rest and centerline of bents. Provide profile grade elevations corresponding to the above stations.
- An elevation view of the proposed structure indicating the span length, location of fixed and expansion joints, profile of roadways beneath structures, vertical clearance from bottom of structure to roadway beneath, proposed bent locations, and existing ground profile.
- All horizontal and vertical curve data for the bridge and the roadway beneath the bridge.
- The location and elevation of the nearest bench mark. The nearest benchmark shall be within 300 feet of the bridge.
- A brief description of the proposed structure indicating span lengths, and type of end bents.
- Any drawing and/or narrative description of the construction scheme necessary to indicate how the bridge is to be built, including traffic handling sketches and temporary barrier locations.

4. Final Bridge Design

Additional bridge design criteria shall be as follows:

a. Design the bridge widening for seismic performance category “A”.
b. Use ASTM A 615 Grade 60 reinforcement. Use epoxy coated reinforcement in the top mat of the deck and the traffic side of the barriers.
c. Use Class AA Concrete with a minimum 28 day concrete strength of 3,500 psi for the deck, barriers, endposts and substructure.
d. Include 30 pounds per square foot in the design loads to allow for future paving.
e. If metal deck forms are used, include 16 pounds per square foot in the non-composite design loads.
f. Design and detail 1’-0” wide edge beams where the deck is to be discontinuous. Extend edge beams a minimum of 18 inches below the bottom of the top slab.
g. Place slab transverse and longitudinal reinforcing steel 2 inches from the edge of the slab and place the top mat of edge beam bars below the top mat of the deck steel. Do not use truss shaped bars in the edge beam. Extend stirrups from the edge beam into the slab.
h. Use protective platforms over Flippen Road.
i. For structural steel beams and plate girders, meet the following:

- Use ASTM A 709 Grade 36 or Grade 50 structural steel.
- Design beams and girders as simple span beams, composite with the concrete deck.
- Provide concealment plates attached to the exterior girders exposed to traffic at the intermediate bent.

- Provide steel channel diaphragms in accordance with AASHTO guidelines and GDOT standard practice.
- Provide bearing assemblies at the girder ends. Design bearing assemblies using steel sole and base plates and bronze lubricated plates that account for transverse and longitudinal expansion and contraction. Provide stainless steel anchor bolts.
- Indicate on the plans the main load carrying members that are subject to tension and state that they shall meet Charpy V-notch test requirements found in the Georgia DOT Specifications. Designate such member with "(CVN)".
- For fatigue, design all welds for Category C or better as defined by the AASHTO Specifications.
- Provide web stiffeners on each side of field web splices. Locate web stiffeners between six and twelve inches from centerline of web splices.
- Design and detail the bridge ends with a paving rest to accommodate full width approach slabs.
- Paint all new structural steel in accordance with Section 535 of the Georgia DOT Specifications using System VII.

j. Use the following in the design and construction of the bridge foundations:

- Foundation Type:

  Bents 1 & 4: Steel H-pile, Pile Bent
  Bents 2 & 3: Steel H-pile, Pile Footing

- Maximum Design Loads:

  10 BP 42 = 55 Tons
  12 BP 53 = 70 Tons
  14 BP 73 = 96 Tons

- Plan Driving Objective – At each bent, drive all piles to the design driving resistance after achieving the minimum pile tip elevation as follows:

Bent Number	Minimum Pile Tip Elevation
1	702
2	702
3	710
4	705

- Use a minimum of one pile per beam location at end bents. Use a minimum of one pile at each wingwall and pile size equivalent to piles supporting beams within the end bent.

5. Bridge Construction Plans:

The Contractor shall meet with the Department and discuss how the plans will be prepared prior to beginning plan preparation on the project.

a. Prepare construction plans with all dimensions, notes and details necessary to construct the structure. As a minimum, include the following sheets:

- Plan and Elevation sheets that include:
  - (1.) Plan view of the bridge,
  - (2.) Elevation view of the bridge,
  - (3.) Beginning and ending stations,
  - (4.) North arrow,
  - (5.) Location of fixed and expansion bearings,
  - (6.) Location of the minimum vertical clearance above Flippen Road,
  - (7.) Existing Bridge Serial No., Existing Bridge ID No., Project No. Project PI No., and construction ID No. supplied by the Department.
- General Notes sheets that include:
  - (1.) Notes for the following; Specifications, Reinforcing Steel, Chamfer, Existing Bridge Plans, Welding, Salvage Material, and others as necessary,
  - (2.) Bridge Design Data,
  - (3.) A summary of Bridge Consists Of (for information),
  - (4.) A summary of Traffic Data,
  - (5.) A summary of Quantities (for information only)
  - (6.) A list of Existing Utilities (if applicable),
  - (7.) A list of Utilities (if applicable)
- Deck Plan sheets,
- Deck Cross-Section sheets,
- Bearing assembly sheets,
- Beam sheets,
- Miscellaneous sheets,
- Framing Plan and Substructure Layout sheets,
- End Bent/Abutment sheets,
- Intermediate Bent sheets,
- As Built Foundation sheets, and
- Bar Bending Detail sheets.

Additional sheets may be necessary to show the details required for construction. Provide additional sheets at no additional cost when deemed necessary by the Department.

b. Provide the following details

- On deck section sheets, provide one full-width section across the structure which indicates, at least, all the horizontal dimensions necessary to construct the bridge. Provide sufficient deck cross-sections to indicate the staging, location of the existing structure and location of any temporary barriers on the structure. Show as many sections as are necessary to detail the placement of reinforcing in the deck and barrier. Also, draw deck sections indicating edge beams, back walls, diaphragms or cross-frames, and end walls. Cut sections radially across the structure.
- Detail deck plan sheets with all longitudinal and transverse dimensions necessary to construct the bridge, including edge beam width, expansion joint widths, back wall or

end wall locations, location of construction and expansion joints, and any other items that are necessary to construct the structure.

- All views, sections and details, except those in GDOT's standard bridge cell library, are to be drawn to scale. Draw deck cross-sections and intermediate bent sheets "Looking Ahead". If the end bents or abutments are drawn separately, draw bent/abutment one "Looking Back", and draw the other end bent/abutment "Looking Ahead".
- All details on the Plans shall be clear and legible. The Department will have the final say as to how a Project is to be drawn and will have the right to require additional drawings at no increase in Contract cost. Fully check the plans for completeness of content and accuracy before submittal to the Department for review.

c. Maintain and protect all utilities supported and in the area of the bridge during construction.

d. Groove the widened portion of the bridge deck in accordance with Section 500 of the Georgia Specifications.

SHOP DRAWINGS:

Provide shop drawings in accordance with Georgia DOT Specifications. The Contractor's Design Engineer shall review and stamp approved all shop drawings as the Engineer of Record. After being stamped by the Contractor's Design Engineer, the Department will review the shop drawings for conformance with the plans and specifications. Allow the Department a 30 day review period upon receipt of the shop drawings for each submittal.

BRIDGE REMOVAL

No material removed from the existing structure is to be salvaged for use by the Georgia DOT. The Contractor is responsible for the removal and disposal of all material removed from the existing bridge.

999.4 CONSTRUCTION

The Contractor will construct the project as per the project scope and as per the approved final plans in accordance with the Specifications.

Construction includes, but is not limited to, the following:

- All clearing and grubbing and grading required in accordance with Sections 201, 202, 205, 206, 208 and 209;
- All necessary grading and drainage (All proposed pipes shall be concrete) to construct the subgrades, including the removal and replacement of unsuitable material, shoulders and incidental work to include furnishing borrow pits, waste disposal areas and hauling borrow and waste materials as required. The removal and replacement of unsuitable material is the responsibility of the Contractor;
- All necessary base construction, milling and paving to construct the pavement structure;
- Removal of all curbs, drainage structures, pavements, bases and subbases, or other obstructions within the rights of way as necessary to construct the roadway section;
- All signing, signalization, pavement marking, raised pavement markers and guardrail;

- All equipment and materials stored on the project will be stored outside the clear zone. Equipment and material shall not be stored the median;

- No construction will occur outside of the existing right of way/proposed limits as determined in the concept report/concept layout;

- Errors and omissions are the responsibility of the Design/Build Contractor to correct and at the expense of the Contractor;

- All salvageable material from this project will become the property of the Georgia Department of Transportation.

- Preparation of As-Built Construction Plans

999.5 MEASUREMENT AND PAYMENT

The Work required under the Specification will not be measured separately for payment unless otherwise specified in the detailed estimate. Payment for the items listed below, complete and accepted, will be made at the Lump Sum price bid. Payment will be full compensation for furnishing all materials, labor, tools, equipment, superintendence, mailing charges, removal and replacement of unsuitable material and other incidentals. It will also be made for performing all work specified, including but not limited to, designing, detailing, producing construction plans (preliminary and final, electronic and hard copy), meeting with the Department, processing the NOI and complete construction. For all asphalt concrete, when materials or construction are not within the tolerances specified in Section 400, deductions will be made in accordance with the applicable requirements of Sub-Sections 106.03 and 400.07.

Partial payments of the Lump Sum price will be made on monthly statements based on an approved schedule of payment. The Contractor will develop a schedule for payment for each of the following items:

- DESIGN COMPLETE
- CONSTRUCTION COMPLETE

The schedule for payment will include a rational basis for partial payments of the Lump Sum bid based on the completed portion of the item and definitive activities. The schedule for payment will be submitted to the Engineer and no payments will be made until the plan is approved. No construction will begin prior to said schedule being approved by the Engineer.

At the end of each calendar month, the Contractor will provide the Department with a certification showing the percent complete for each Pay Item. The Contractor should include a breakdown and supporting documentation, to include the Design Consultant's monthly invoice, in sufficient detail to substantiate the percent complete certified.

Payment will be made under:

Item 999, DESIGN COMPLETE …….. per Lump Sum
Item 999, CONSTRUCTION COMPLETE …….. per Lump Sum

August 15, 2007

AMENDMENT TO ADVERTISED CONTRACT

CONTRACT I.D. NUMBER: B12937-07-000-0

GEORGIA PROJECT NUMBER: CSNHS-0008-00(274)01

PCN: 0008274010000

COUNTY: HENRY

AMENDMENT NUMBER: 3

LETTING DATE: SEPTEMBER 21, 2007

LETTING NUMBER: 001

THE FOLLOWING CHANGES ARE HEREBY MADE TO THIS CONTRACT. THE BIDDER IS RESPONSIBLE FOR MAKING ANY NECESSARY CHANGES IN INK IN THE PROPOSAL. BIDDER SHALL ACKNOWLEDGE THIS AMENDMENT BY CHECKING THE APPROPRIATE SPACE ON THE PROPOSAL SIGNATURE PAGE.

****

1. **Delete** Proposal Pages 162, 163 and 164 from the proposal.

2. **Add** the following attached Special Provisions to the Proposal:

   A. Section 161-Control of Soil Erosion and Sedimentation, 9 pages, with a revised date of November 7, 2006.

   B. Section 167-Water Quality Monitoring, 4 pages, with a revised date of March 21, 2007.

DAVID E. HOGE
STATE TRANSPORTATION OFFICE ENGINEER

Revised November 8, 2005
Revised November 7, 2006

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Section 161—Control of Soil Erosion and Sedimentation

Add the following:

161.1 General Description

This Work includes using control measures shown on the Plans, ordered by the Engineer, or as required during the life of the Contract to control soil erosion and sedimentation through the use of any of the devices or methods referred to in this Section.

161.1.01 Definitions

Certified Personnel— certified personnel are defined as persons who have successfully completed the Georgia Soil and Water Conservation Commission erosion control certification program (Level IA), possess a current certification card from the Commission, and a current WECS certification card.

161.1.02 Related References

A. Standard Specifications

Section 105—Control of Work

Section 106—Control of Materials

Section 107—Legal Regulations and Responsibility to the Public

Section 109—Measurement and Payment

Section 160—Reclamation of Material Pits and Waste Areas

Section 162—Erosion Control Check Dams

Section 163—Miscellaneous Erosion Control Items

Section 166—Restoration or Alteration of Lakes and Ponds

Section 170—Silt Retention Barrier

Section 171—Temporary Silt Fence

Section 205—Roadway Excavation

Section 434—Sand Asphalt Paved Ditches

Section 441—Miscellaneous Concrete

Section 603—Rip Rap

Section 700—Grassing

Section 710—Permanent Soil Reinforcing Mat

Section 715—Bituminous Treated Roving

Section 716—Erosion Control Mats (Blankets)

Erosion control measures contained in the Specifications include:

Erosion Control Measure	Section
Baled Straw Erosion Checks	163.3.05.D
Bituminous Treated Mulch	700.3.05.G
Concrete Paved Ditches	441
Bituminous Treated Roving	715
Erosion Control Mats (Blankets)	716
Erosion Control Check Dams	162
Grassing	700
Maintenance of Temporary Erosion Control Devices	165
Permanent Soil Reinforcing Mat	710
Reclamation of Material Pits and Waste Areas	160
Rip Rap	603
Restoration or Alteration of Lakes and Ponds	166
Sand-Asphalt Ditch Paving	434
Sediment Basin	163.3.05.C
Silt Control Gate	163.3.05.A
Silt Retention Barrier	170
Sod	700.3.05.H & 700.3.05.I
Mulch	163
Temporary Grassing	163.3.05.F
Temporary Silt Fence	171
Temporary Slope Drains	163.3.05.B
Triangular Sediment Barrier	720
Silt Filter Bag	719
Organic & Synthetic Material Fiber Blanket	713

B. Referenced Documents

Erosion and Sedimentation Control Plans

161.1.03 Submittals

A. Status of Erosion Control Devices

The Worksite Erosion Control Supervisor (WECS) or certified personnel will inspect the installation and maintenance of the Erosion Control Devices according to Subsection 167.3.05.B and the plan.

1. Submit all reports to the Engineer within 24 hours of the inspection. Refer to Subsection 167.3.05.C for report requirements.
2. The Engineer will review the reports and inspect the Project for compliance and concurrence with the submitted reports.

3. The Engineer will notify the WECS or certified personnel of any additional items that should be added to the reports.
4. Items listed in the report requiring routine maintenance or correction shall be corrected within 24 hours.

B. Erosion and Sedimentation Control Plan

1. Project Plans

   Erosion and sedimentation control plans for the construction of the project will be provided by the Department. The erosion and sedimentation control plans will be prepared for the various stages of construction necessary to complete the project.

   If the Contractor elects to alter the stage construction from that shown in the plans, it will be the responsibility of the Contractor to have the plans revised by a Licensed Professional to reflect all changes in Staging. This will also include any revisions to erosion and sedimentation control item quantities. If the changes affect the Comprehensive Monitoring Program (CMP), the Contractor is responsible for any revisions to the CMP.

   Submit revised plans and quantities to the Engineer for review prior to land disturbing activities.

2. Haul Roads, Borrow Pits, Excess Material Pits, etc.

   The Contractor is responsible for preparing erosion and sedimentation control plans for construction access roads and or haul roads (inside the Right of Way), borrow pits, excess material pits, etc. Prepare these plans for all stages of construction and include the appropriate items and quantities. Submit these plans to the Engineer for review prior to land disturbing activities. These plans are to be prepared by a Licensed Professional.

   If construction access roads, haul roads, borrow pits, excess material pits, etc., (inside the Right of Way) encroach within the 25 foot (7.6 m) buffer along the banks of all state waters or within the 50 ft. (15 m) buffer along the banks of any state waters classified as a "trout stream", a stream buffer variance must be obtained by the Contractor prior to beginning any land disturbing activity in the stream buffer.

3. Erosion Control for Borrow and Excess Material Pits Outside the Right-of-Way

   Erosion control for borrow pits and excess material pits outside the right of way is the responsibility of the Contractor. All costs associated with complying with local, state, and federal laws and regulations is the responsibility of the Contractor. If borrow or excess material pits require coverage under the National Pollutant Discharge Elimination System permit (NPDES), submit a copy of all documentation required by the NPDES permit to the Engineer.

4. Culverts and Pipes

   Prior to construction on new or existing culverts or pipes submit the proposed methods of construction including the method of erosion and sediment control, to the Engineer for review. Proposed methods to include if streams are to be piped, pumped or diverted.

161.2 Materials

General Provisions 101 through 150.161.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

161.3 Construction Requirements

161.3.01 Personnel

A. Duties of the Worksite Erosion Control Supervisor

Before beginning Work, designate a Worksite Erosion Control Supervisor (WECS) to initiate, install, maintain, inspect, and report the condition of all erosion control devices as described in Sections 160 through 171 or in the Contract documents.

The WECS and alternate (if necessary) shall:

- Be an employee of the Prime Contractor.
- Have at least one year of experience directly related to roadway construction in a supervisory capacity.
- Successfully completed the Georgia Soil and Water Conservation Commission Certification Course Level IA and the Department's WECS Certification Course.
- Provide phone numbers where the WECS can be located 24 hours a day.

The WECS' duties include the following:

1. Be available or have an approved representative available 24 hours a day and have access to the equipment, personnel, and materials needed to maintain erosion control and flooding control.
2. Inform the Engineer in writing whenever the alternate WECS assumes project responsibilities.
3. Ensure that erosion control deficiencies are corrected within 24 hours or immediately during emergencies.
4. During heavy rain, have the construction area patrolled day or night, any day of the week to quickly detect and correct erosion or flooding problems before they interfere with traffic flow, safety, or downstream turbidity.
5. Be on the site 45 minutes after receiving notification of an emergency. The Department may handle emergencies without notifying the Contractor. The Department will recover costs for emergency maintenance work according to Subsection 105.15, "Failure to Maintain Roadway or Structures."
6. Maintain and submit for project record, "As-built" Erosion and Sedimentation Control Plans that supplement and graphically depict EC-1 reported additions and deletions of BMPs.
7. Ensure that both the WECS and the alternate meet the criteria of this Subsection.
8. The WECS shall maintain a current certification card for the duration of the project. Recertification of the WECS will be required prior to the expiration date shown on the Certification card in order to remain as the Certified Personnel and the WECS for the project.

Failure of the WECS or alternate to perform the duties specified in the Contract, or whose performance, has resulted in a citation being received from a State or Federal Regulatory Agency, e.g. the Georgia Environmental Protection Division, shall result in one or more of the following;

- Suspension of the WECS' certification for a period of not less than 30 days
- Removal of the Contractor's project superintendent in accordance with Sections 105.05 and 108.05 for a period not less than 14 days
- Department wide revocation of the WECS certification for a period of 12 months
- Removal of the Contractor's project superintendent in accordance with Sections 105.05 and 108.05

161.3.02 Equipment

General Provisions 101 through 150.

161.3.03 Preparation

General Provisions 101 through 150.

161.3.04 Fabrication

General Provisions 101 through 150.

161.3.05 Construction

Coordinate the temporary and permanent erosion control provisions in this Specification with the permanent erosion control provisions in the Contract to ensure economical, effective, and continuous erosion control throughout the construction and post-construction periods.

At all times that land disturbing activity is underway, a person meeting the requirements of, "certified personnel" (Level IA certified) who also possesses a current WECS certification card must be on the project. This person may be an employee of the prime contractor or the sub contractor. If the WECS is not on the project, someone that has received the Level IA certification from the Georgia Soil and Water Conservation Commission must be on the project. If the sub-contractor is the only entity on the project and they are engaged in land disturbing activity, there must be a Level IA certified person on site.

A. Control Dust Pollution

Keep dust pollution to a minimum during any of the activities. The Engineer may direct roadways or other areas to be sprinkled with water to reduce pollution.

B. Perform Permanent or Temporary Grassing

Perform permanent grassing, temporary grassing, or mulching on cut and fill slopes weekly (unless a shorter period is required by Subsection 107.23) during grading operations. Projects with grassing of 3 acres (1 ha) or less may be treated every 2 weeks (unless a shorter period is required by Subsection 107.23). When conditions warrant, the Engineer may require more frequent intervals.

Under no circumstances shall the grading (height of cut) exceed the height operating range of the grassing equipment. It is extremely important to obtain a cover, whether it is mulch, temporary grass or permanent grass. Adequate mulch is a must.

When grading operations or other soil disturbing activities have stopped, perform grassing or erosion control as shown in the Plans, as shown in an approved Plan submitted by the Contractor, or as directed by the Engineer.

Implement permanent or temporary erosion control as follows:

1. Incorporate permanent erosion control features into the Project at the earliest practicable time. Use temporary erosion control measures under these conditions:
    - To correct conditions that develop during construction but were unforeseen during the design stage.
    - To use as needed before installing permanent erosion control features.
    - To temporarily control erosion that develops during normal construction practices but are not associated with permanent control features on the Project.

C. Seed and Mulch

Refer to Subsection 161.3.05.B, "Perform Permanent or Temporary Grassing".

D. Implement Permanent or Temporary Erosion Control

The Engineer has the authority to:

- Limit the surface area of erodible earth material exposed by clearing and grubbing.
- Limit the surface area of erodible earth material exposed by excavation and borrow and fill operations.
- Direct the Contractor to provide immediate permanent or temporary erosion control to prevent contamination of adjacent streams or water courses, lakes, ponds, or other areas of water impoundment.

Such Work may include constructing items listed in the table in Subsection 161.1.02.A, "Related References" or other control devices or methods to control erosion.

E. Erodible Area

1. Schedule and perform operations to complete temporary silt fence installation, sediment basin construction, and other temporary erosion control devices concurrently with clearing and grubbing.
2. Perform grading operations and implement permanent erosion control features immediately after installing temporary erosion control devices.

   The Engineer will limit the area of excavation, and embankment operations in progress to correspond with the Contractor's ability to keep the finish grading, mulching, seeding, and other permanent erosion control measures current.

   If seasonal limitations make coordination unrealistic, implement temporary erosion control measures immediately.
3. After installing temporary erosion control devices, grassing, mulching, stabilizing the area, and having it approved by the Engineer, release the area from the 17 acres (7 ha) limit.

   NOTE: Never allow the surface area of erodible earth material exposed at one time to exceed 17 acres (7 ha) except as approved by the State Construction Engineer.

   After analyzing Project conditions, the State Construction Engineer may increase the 17 acres (7 ha) limit of surface area of erodible earth material exposed at one time.

The maximum of 17 acres (7 ha) of exposed erodible earth applies to the entire Project and to all combined operations. The maximum of 17 acres (7 ha) does not apply to exposed erodible earth for each operation. If the 17 acre limitation is increased by the State Construction Engineer, the WECS shall not be assigned to another project in that capacity and should remain on site at all times the exposed acreage exceeds 17 acres.

F. Perform Grading Operations

Perform the following grading operations:

1. Complete each roadway cut and embankment continuously, unless otherwise specified in the Contract or ordered by the Engineer.
2. Maintain the top of the earthwork in roadway sections throughout the construction stages to allow water to run off to the outer edges. .
3 Provide temporary slope drain facilities with inlets and velocity dissipaters (straw bales, silt fence, aprons, etc.) to carry the runoff water to the bottom of the slopes. Place drains at intervals to handle the accumulated water.
4. Continue temporary erosion control measures until permanent drainage facilities have been constructed, pavement placed, and the grass on planted slopes stabilized to deter erosion.

G. Perform Construction in Stream Beds

Perform construction in stream beds as follows:

1. Unless otherwise approved in writing by the Engineer, restrict construction operations in rivers, streams, and impoundments to:
   - Areas where channel changes are shown on the Plans
   - Areas that must be entered to construct temporary or permanent structures
2. If channel changes are not shown on the Plans, the Contractor may construct diversion channels as appropriate to protect the stream from erosion.
3. Clear rivers, streams, and impoundments of the following as soon as conditions permit:
   - Falsework
   - Piling that is to be removed
   - Debris
   - Other obstructions placed or caused by construction operations

4. Do not ford live streams with construction equipment.
5. Use temporary bridges or other structures that are adequate for a 25-year storm for stream crossings. Include costs in the price bid for the overall contract.
6. Do not operate mechanized equipment in live streams except to construct channel changes or temporary or permanent structures, and to remove temporary structures, unless otherwise approved in writing by the Engineer.

H. General Requirements

Projects that consist of asphalt resurfacing, shoulder reconstruction and/or shoulder widening; schedule and perform the construction of the project to comply with the following:

After temporary and permanent erosion control devices are installed and the area permanently stabilized (temporary or permanent) and approved by the Engineer, the area may be released from the 1 acre (0.4 ha) limit.

The maximum of 1 acre (0.4 ha) of erodible earth applies to the entire project and to all combined operations, including borrow and excess material operations that are within the right of way, not 1 acre (0.4 ha) of exposed erodible earth for each operation.

NOTE: Never allow the surface area of erodible earth material exposed at one time to exceed 1 acre (0.4 ha).

1. Do not allow the disturbed exposed erodible area to exceed 1 acres (0.4 ha). This 1 acre (0.4 ha) limit includes all disturbed areas relating to the construction of the project including but not limited to slope and shoulder construction.

2. At the end of each working day, permanently stabilize all of the area disturbed by slope and shoulder reconstruction to prevent any contamination of adjacent streams or other watercourses, lakes, ponds or other areas of water impoundment. For purposes of this Specification, the end of the working day is defined as when the construction operations cease. For example, 6:00 a.m. is the end of the working day on a project that allows work only between 9:00 p.m. and 6:00 a.m.)

3. Stabilize the cut and fill slopes and shoulder with permanent or temporary grassing and a Wood Fiber Blanket (Section 713,Type II). Mulching is not allowed. Borrow pits, soil disposal sites and haul roads will not require daily applications of wood fiber blanket. The application rate for the Wood Fiber Blanket on shoulder reconstruction is the rate specified for Shoulders. For shoulder reconstruction, the ground preparation requirements of Subsection 700.3.05.A.1 are waived. Preparation consists of scarifying the existing shoulders 4 to 6 in (100 to 150 mm) deep and leaving the area in a smooth uniform condition free from stones, lumps, roots or other material.

4. If a sudden rain event occurs that would not allow the Contractor to apply the Type II Wood Fiber Blanket per Section 713, install Wood Fiber Blanket Type I per Section 713 if directed by the Engineer. Wood Fiber Blanket Type I application is for emergency use only.

Install temporary grass or permanent grass according to seasonal limitations and Specifications. When temporary grass is used, use the overseeding method (Subsection 700.3.05.E.4) when planting permanent grass.

3. Remove and dispose of all material excavated for the trench widening operation at an approved soil disposal site by the end of each working day. When shoulder reconstruction is required, this material may be used to reconstruct the graded shoulder after all asphaltic concrete pavement has been placed.

4. Provide immediate permanent and/or temporary erosion control measures for borrow pits, soil disposal sites and haul roads to prevent any contamination of adjacent streams or other watercourses, lakes, ponds or other areas of water impoundment.

5. Place asphalt in the trench the same day as the excavation occurs. Place asphalt or concrete in driveways and side roads being re-graded the same day as the excavation occurs. Stabilize any disturbed or exposed soil that is not covered with asphalt with a Wood Fiber Blanket (and grass seed). Payment will be made for the Wood Fiber Blanket and grass seed only if the shoulder has been constructed to final dimensions and grade and no further grading will be required.

6. Do not allow the grading (height of cut or fill) to exceed the operating range of the grassing equipment.

7. When grading operations or other soil disturbing activities are suspended, regardless of the reason, promptly perform all necessary permanent stabilization and/or erosion control work.

8. Use temporary erosion control measures to:

   To correct conditions that develop during construction but were unforeseen during the design stage.

   To use as needed before installing permanent erosion control features.

   To temporarily control erosion that develops during normal construction practices but are not associated with permanent control features on the Project.

9. When conditions warrant, such as unfavorable weather (rain event), the Engineer may require more frequent intervals for this work.

161.3.06 Quality Acceptance

Before Final Acceptance of the Work, clean drainage structures within the project limits, both existing and newly constructed, and ensure that they are functioning properly. Costs to accomplish this work are incidental and shall be included in the overall bid for the Contract.

161.3.07 Contractor Warranty and Maintenance

Maintain the erosion control features installed to:

- Contain erosion within the limits of the right-of-way
- Control storm water discharges from disturbed areas

Effectively install and maintain the erosion control features. Ensure these features contain the erosion and sediment within the limits of the rights of way and control the discharges of storm-water from disturbed areas to meet all local, state, and federal requirements on water quality.

If a construction Project has separate contractors, the Prime Contractor shall maintain the erosion control features at grading sites as acceptable to the Engineer until the Contract is accepted. If any erosion control devices are damaged by any contractor either by neglect, by construction methods, or any other reasons, including acts of nature, they shall be repaired within 24 hours by the Prime Contractor at no cost to the Department.

161.4 Measurement

Control of soil erosion and sedimentation is not measured separately for payment.

161.4.01 Limits

General Provisions 101 through 150.

161.5 Payment

When no pay item is shown in the Contract, the requirements of this Specification and the Erosion Control Plan shall be in full effect. The cost of complying with these requirements will not be paid for separately, but shall be included in the overall bid submitted with the exception of inspections performed by qualified personnel which will be included in Section 167.

When listed as a pay item in the Contract, payment will be made at the unit price bid for each particular item.

No payment will be made for erosion control outside the Right-of-Way or construction easements except as provided for by the Plans.

161.5.01 Enforcement and Adjustments

A. Failure to Provide a WECS

If a designated WECS is not maintained or if the Contractor does not comply with this Specification, cease activities except traffic control and erosion control work. Monies that are due or that may become due also may be withheld according to the Specifications

B. Failure to Comply with Specifications

If the Contractor fails to comply with any of the requirements of this Specification, all activities shall cease immediately except traffic control and erosion control related work.

Monies that are currently due or that may become due shall be withheld according to the specifications. In addition, nonrefundable monies shall be deducted from the contract as shown in the Schedule of Deductions table below. These deductions are in addition to any actions taken in the above subsections. Deductions assessed for uncorrected deficiencies shall continue until all corrections are completed to the satisfaction of the Engineer. Receipt of a Consent Order or Notice of Violation, etc from any Regulatory Agency will also result in the assessment of Deductions from the table below.

Schedule of Deductions for Each Calendar Day of Erosion Control Deficiencies Initial Occurrence* Original Total Contract Amount		
From More Than	To and Including	Daily Charge
0	$100,000	$750
$100,000	$1,000,000	$1125
$1,000,000	$5,000,000	$2000
$5,000,000	$15,000,000	$3000
$15,000,000	-	$5000

*Continued non-compliance with the requirements of this specification may result in the doubling of the above tabulated Daily Charge.

Upon written request from the Contractor, the Engineer may allow, limited activities to concurrently proceed once significant portions of the corrective work have been completed. This authorization may be similarly rescinded if in the opinion of the Engineer corrective work is not being diligently pursued.

Date: August 26, 2002
First Use Date 2001 Specifications: November 1, 2002
Revised: January 16, 2003
Revised: August 1, 2003
Revised: February 1, 2004
Revised October 15, 2005
Revised March 21, 2007

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

SPECIAL PROVISION

Section 167—Water Quality Monitoring

Add the following:

167.1 General Description

This Specification establishes the Contractor's responsibility to meet the requirements of the National Pollutant Discharge Elimination System (NPDES) Infrastructure Permit No. GAR 100002 as it pertains to Part IV. Erosion, Sedimentation and Pollution Control Plan.

167.1.01 Definitions

Certified Personnel— certified personnel are defined as persons who have successfully completed the Georgia Soil and Water Conservation Commission Course Level IA, possess a current certification card from the Commission, and have attended the Department's WECS seminar.

167.1.02 Related References

A. Standard Specifications

Section 161—Control of Soil Erosion and Sedimentation

B. Referenced Documents

NPDES Infrastructure Permit No. GAR 100002, Part IV

GDOT WECS seminar.

Environmental Protection Divisions Rules and Regulations (Chapter 391-3-26)

Georgia Soil and Water Conservation Commission Certification Level IA course.

OCGA 12-7

167.1.03 Submittals

General Provisions 101 through 150

167.2 Materials

General Provisions 101 through 150.

167.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

167.3 Construction Requirements

167.3.01 Personnel

Use certified personnel to perform all monitoring, sampling, inspections, and rainfall data collection.

Use the Contractor designated WECS or select a prequalified consultant from the Qualified Consultant List (QCL) to perform water quality monitoring.

Ensure that monitoring consultants' employees who perform monitoring, sampling, inspections, and rainfall data collection are GASWCC Certified.

167.3.02 Equipment

Provide equipment necessary to complete the Work or as directed.

167.3.03 Preparation

General Provisions 101 through 150.

167.3.04 Fabrication

General Provisions 101 through 150.

167.3.05 Construction

A. General

Perform inspections, rainfall data collection, testing of samples, and reporting the test results on the project according to the requirements in Part IV of the NPDES Infrastructure permit and this Specification.

Take samples manually or with the use of automatic samplers, according to the permit. Analyze all according to the permit, regardless of the method used to collect the samples.

If samples are analyzed in the field using portable turbidemeters, the monitoring results shall state that they are being used and a digital readout of NTUs is what is provided.

Submit bench sheets, work sheets, etc., when using portable turbidemeters. There are no exceptions to this requirement.

Perform required inspections and submit all reports required by this Specification within the time frames specified. Failure to perform the inspections or submit the required reports within the time specified will result in the cessation of all construction activities with the exception of traffic control and erosion control. Continued failure to perform inspections or submit the required reports within the times specified will result in non-refundable deductions as specified in Subsection 161.5.01.B.

B. Inspections

Have the Engineer inspect the installation and condition of each erosion control device required by the erosion control plan within seven days after initial installation. Have this inspection performed for each stage of construction when new devices are installed. Correct all deficiencies reported by the Engineer within two business days.

Ensure inspections are conducted by certified personnel on the areas and at the frequencies listed below. Document all inspections on form DOT-EC-1.

1. Daily:
   a. Petroleum product storage, usage and handling areas
   b. All locations where vehicles enter/exit the site
2. Weekly and after Rainfall Events:

   Conduct inspections on these areas every seven calendar days and within twenty-four hours after the end of a rainfall event that is 0.5 in (13 mm) or greater:
   a. Disturbed areas not permanently stabilized
   b. Material storage areas
   c. Structural control measures, Best Management Practices (BMPs)
   d. Water quality monitoring locations and equipment
3. Monthly:

   Once per month, inspect all areas where final stabilization has been completed. Look for evidence of sediments or pollutants entering the drainage system and or receiving waters. Inspect all erosion control devices that remain in place to verify the maintenance status and that the devices are functioning properly.

   Continue these inspections until the Notice of Termination is submitted.

C. Reports:

1. Inspection Reports:

   Summarize the results of inspections noted above in writing on form DOT-EC-1. Include the following information:

   - Date(s) of inspection
   - Name of personnel making inspection
   - Status of devices
   - Observations
   - Action taken
   - Signature of personnel making the inspection
   - Any incidents of non-compliance

   The EC-1 form shall be signed by the project WECS.

   Submit all inspection reports to the Engineer within twenty-four hours of the inspection.

   The Engineer will review the reports, inspect the project for compliance, and issue concurrence with the submitted reports provided the inspection reports are satisfactory.

   The Engineer will notify the certified personnel of any additional items that should be added to the inspection report.

   Correct any items listed in the inspection report requiring routine maintenance or correction within twenty-four hours of notification.

   Assume responsibility for all costs associated with additional sampling as specified in Part IV.D.5.d.3.(c) and Part IV.D.5.d.3.(c), of the NPDES GAR 100002 permit if either of these conditions arise:

   - BMPs shown in the Plans are not properly installed and maintained, or
   - BMPs designed by the Contractor are not properly designed, installed and maintained.

2. Monitoring Reports

   a. Report Requirements

      Include in all reports, the following certification statement, signed by the WECS or consultant providing monitoring on the project:

      > "I certify under penalty of law that this document and all attachments were prepared under my direct supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

      When a rainfall event requires a sample to be taken, submit a report of the monitoring results to the Engineer within seven working days of the date the sample was obtained. Include the following information:

      1) Date of sampling
      2) Rainfall amount on sample date (sample date only)
      3) NTU of sample & analysis method
      4) Location where sample was taken (station number, etc.)
      5) Receiving water or outfall sample
      6) Project number and county
      7) Whether the sample was taken by automatic sampler or manually (grab sample)

b. Test Results

Provide monitoring test results to the Engineer within 48 hours of the samples being analyzed. This notification may be verbal or written. This notification does not replace the monitoring summary.

3. Rainfall Data Reports

Record the measurement of rainfall once each twenty-four hour period. Measure rainfall data at the active phase of construction on the site.

Project rain gauges and those used to trigger the automatic samplers are to be emptied after every rainfall event. This will prevent a cumulative effect and prevent automatic samplers from taking samples even though the rainfall event was not a qualifying event.

Submit a written weekly report, signed by the WECS, to the Engineer showing the rainfall data for each day. The daily rainfall data supplied by the WECS to the Engineer will be the official rainfall data for the project.

167.3.06 Quality Acceptance

General Provisions 101 through 150.

167.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

167.4 Measurement

This item will not be measured separately for payment. Water Quality Inspections in accordance with the inspections and reports sub-sections shall take place up to the time the Notice of Termination is submitted or Contract Time expires.

167.4.01 Limits

General Provisions 101 through 150. Submit the report to the Engineer within 7 working days

167.5 Payment

This item will be paid for under CONSTRUCTION COMPLETE:

Includes meeting the requirements of the monitoring sections of the NPDES permit and this Specification, obtaining samples, analyzing samples, any and all necessary incidentals, and providing results of turbidity tests to the Engineer, within the time frame required by the NPDES Infrastructure permit, and this Specification. This item is based on the rainfall events that require sampling as described in Part IV.D.5 of the permit.

Also includes performing the requirements of the inspection section of the NPDES permit and this Specification, any and all necessary incidentals, and providing results of inspections to the Engineer, within the time frame required by the NPDES Infrastructure permit, and this Specification.

167.5.01 Adjustments

General Provisions 101 through 150.

September 13, 2007

AMENDMENT TO ADVERTISED CONTRACT

CONTRACT I.D. NUMBER:	B12937-07-000-0
GEORGIA PROJECT NUMBER:	CSNHS-0008-00(274)01
PCN:	0008274010000
COUNTY:	HENRY
AMENDMENT NUMBER:	4
LETTING DATE:	SEPTEMBER 21, 2007
LETTING NUMBER:	001

THE FOLLOWING CHANGES ARE HEREBY MADE TO THIS CONTRACT. THE BIDDER IS RESPONSIBLE FOR MAKING ANY NECESSARY CHANGES IN INK IN THE PROPOSAL. BIDDER SHALL ACKNOWLEDGE THIS AMENDMENT BY CHECKING THE APPROPRIATE SPACE ON THE PROPOSAL SIGNATURE PAGE.

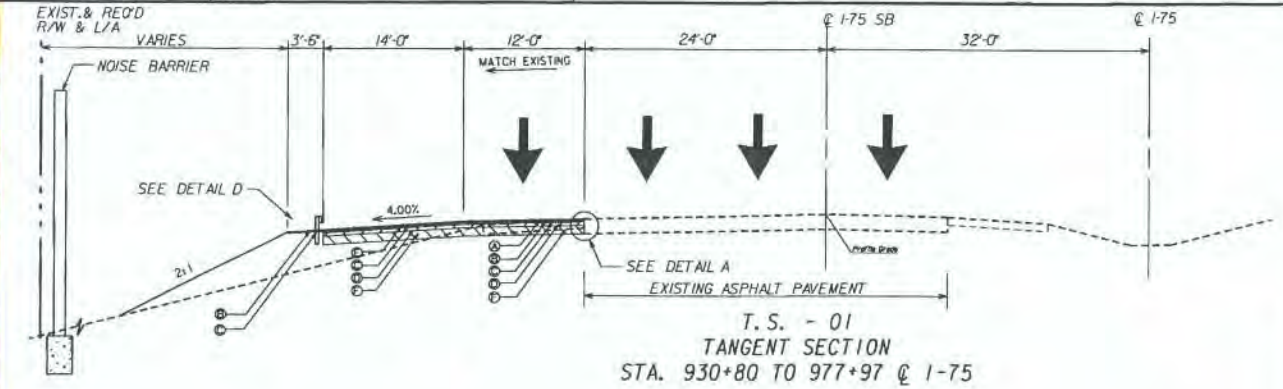
****

1. Special Provision Section 999-Design-Build, Subsection 999.2.i.; **Change** the referenced section **From** "999.03.B.1.S" **To** "999.3.B.1.S".

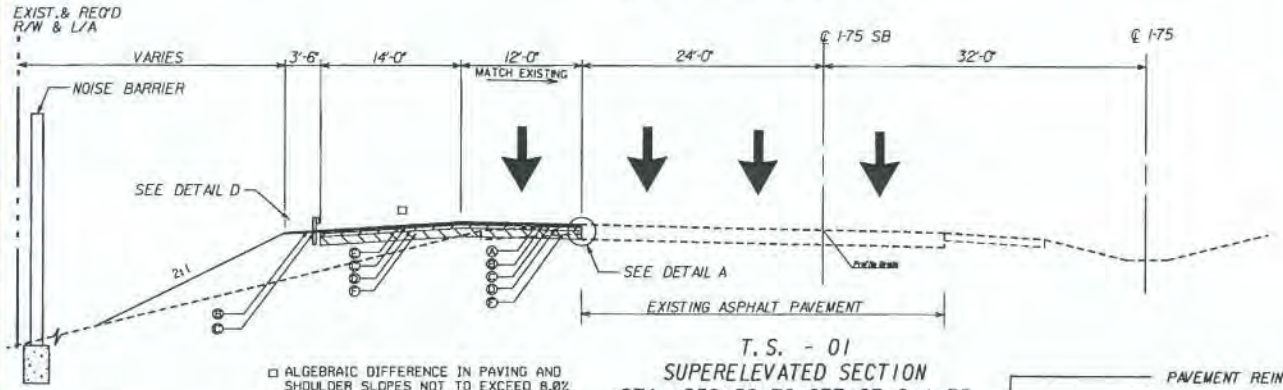
2. **Delete** Proposal Pages 472 through 475 from the proposal, **and Substitute** the attached revised/added pages 472 through 475, in the proposal.

DAVID E. HOGE
STATE TRANSPORTATION OFFICE ENGINEER

DATE TIME	TIME	PENTABLE	DGN	COUNTY	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
USER				HENRY	CSNHS-0008-00(274)		

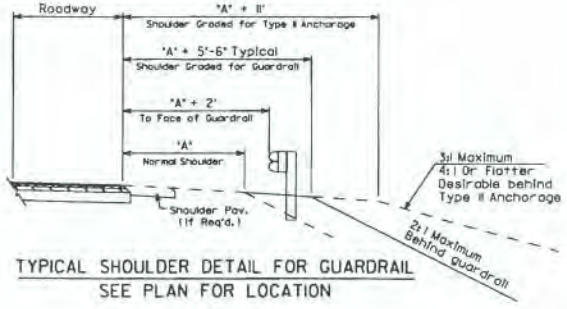


T. S. - 01
TANGENT SECTION
STA. 930+80 TO 977+97 ℄ I-75



□ ALGEBRAIC DIFFERENCE IN PAVING AND SHOULDER SLOPES NOT TO EXCEED 8.0%

T. S. - 01
SUPERELEVATED SECTION
STA. 930+80 TO 977+97 ℄ I-75

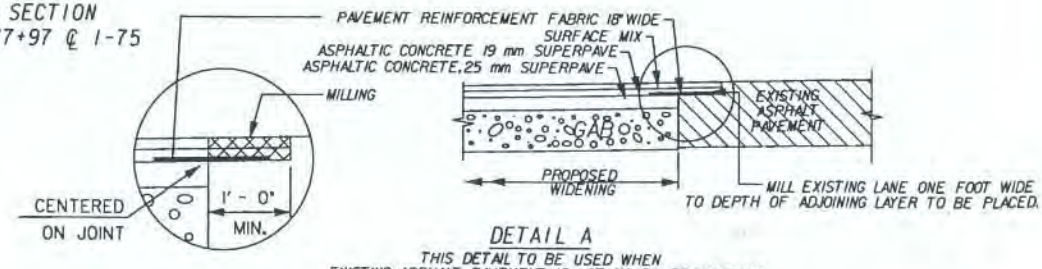


TYPICAL SHOULDER DETAIL FOR GUARDRAIL
SEE PLAN FOR LOCATION

DETAIL D

REQUIRED PAVEMENT

- Ⓐ 135 LBS/SY RECYCLED ASPH CONC 12.5 MM PEM, GP 1 OR 2, INCL BITUM & H LIME
- Ⓑ 165 LBS/SY RECYCLED ASPH CONC 12.5 MM SMA, GP 1 OR 2, INCL BITUM & H LIME
- Ⓒ 220 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
- Ⓓ 1430 LBS/SY RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
- Ⓔ 165 LBS/SY RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
- Ⓕ GRADED AGGREGATE BASE, 12"
- Ⓖ MILLING, 2" DEPTH
- Ⓗ LEVELING AS NEEDED
- Ⓘ 440 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
- Ⓙ 12" CONTINUOSLY REINF CONC PVM'T
- Ⓚ 330 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME



DETAIL A
THIS DETAIL TO BE USED WHEN EXISTING ASPHALT PAVEMENT IS NOT TO BE RESURFACED

REVISED/ADDED
472
604

JBT J.B. TRIMBLE, INC.
6445 Powers Ferry Road, Suite 100
Atlanta, GA 30339

REVISION DATES

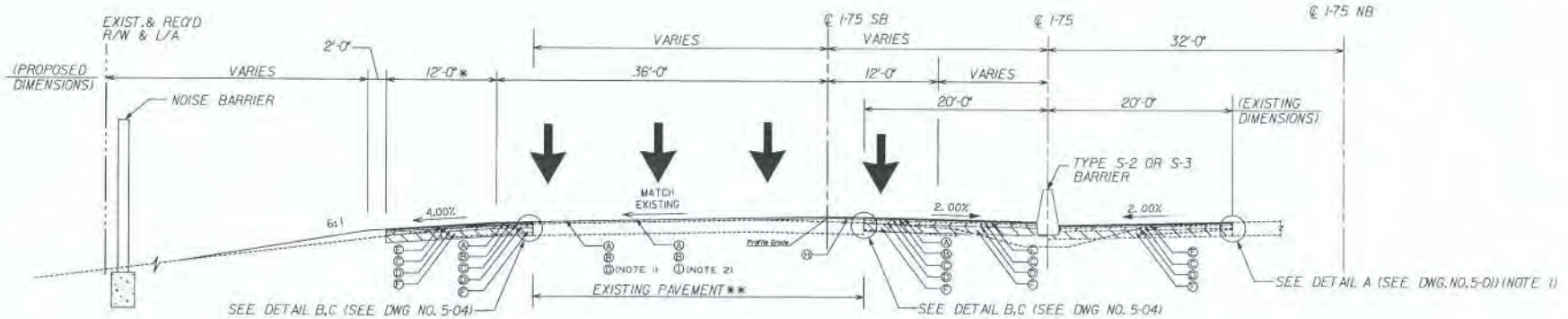
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: URBAN DESIGN
TYPICAL SECTIONS

DRAWING No. 5-01

DATE/TIME##	TIME##	#DGN#	COUNTY	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
#USER#	##PENTABLE##		HENRY	CSNHS-0008-00(274)		

REVISED/ADDED

6053



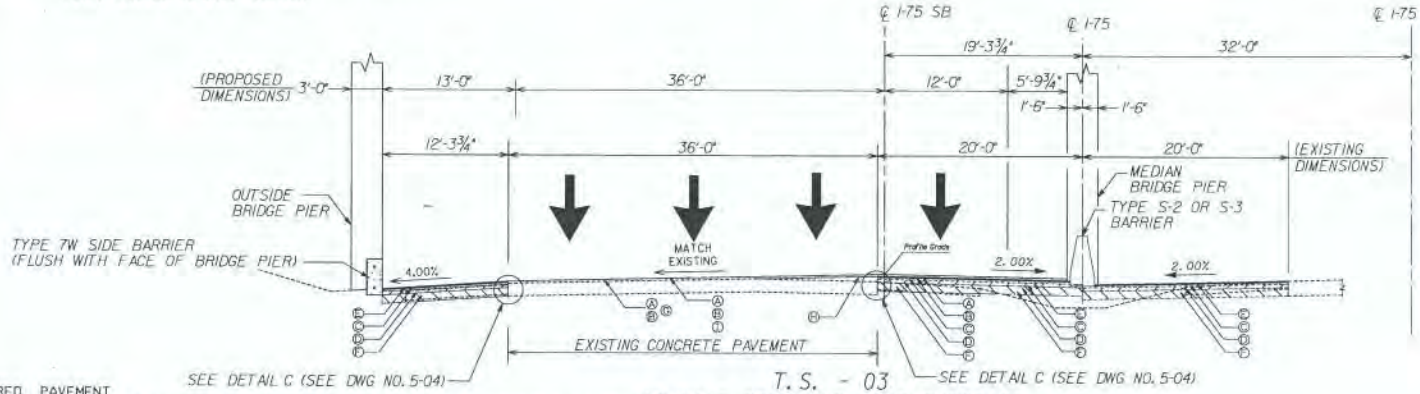
NOTE 1: TO BE USED FOR EXISTING ASPHALT PAVEMENT (STA. 977+97 TO STA. 990+28)

NOTE 2: TO BE USED FOR EXISTING CONCRETE PAVEMENT (STA. 990+28 TO STA. 990+86)

T. S. - 02
STA. 977+97 TO 990+86 ℄ I-75

*VARIES - STA.990+35 TO STA.990+86

**EXISTING ASPHALT PAVEMENT: STA. 977+97 TO 990+28
EXISTING CONCRETE PAVEMENT: STA. 990+28 TO 1005+97



T. S. - 03
AT WALT STEPHENS ROAD OVERPASS
STA. 990+86 TO 991+14 ℄ I-75

REQUIRED PAVEMENT

Ⓐ 135 LBS/SY RECYCLED ASPH CONC 12.5 MM PEM, GP 1 OR 2, INCL BITUM & H LIME
Ⓑ 165 LBS/SY RECYCLED ASPH CONC 12.5 MM SMA, GP 1 OR 2, INCL BITUM & H LIME
Ⓒ 220 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
Ⓓ 1430 LBS/SY RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
Ⓔ 165 LBS/SY RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
Ⓕ GRADED AGGREGATE BASE, 12"
Ⓖ MILLING, 2" DEPTH
Ⓗ LEVELING AS NEEDED
Ⓘ 440 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
Ⓙ 12" CONTINUOSLY REINF CONC PVMT
Ⓚ 330 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME

J.B. TRIMBLE, INC.
6445 Powers Ferry Road,
Suite 100
Atlanta, GA 30339

REVISION DATES		

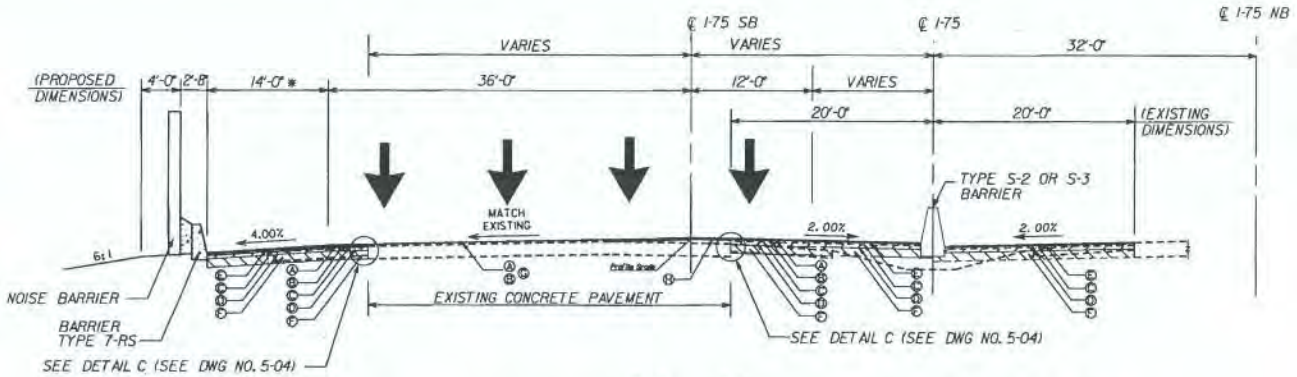
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: URBAN DESIGN

TYPICAL SECTIONS

DRAWING No. 5-02

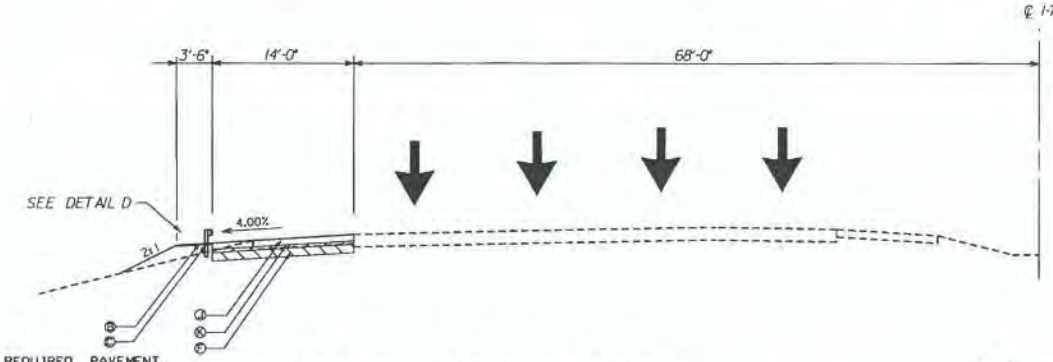
DATE/TIME###	TIME###		#DGN#	COUNTY	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
USER	#SPENTABLE##			HENRY	CSNHS-0008-00(274)		

REVISED / ADDED
474
606



T. S. - 04
STA. 991+14 TO 1005+97 ℄ I-75

*VARIES - STA. 991+14 TO STA. 991+70



T. S. - 05
STA. 1005+97 TO 1008+81 ℄ I-75

REQUIRED PAVEMENT
- Ⓐ 135 LBS/SY RECYCLED ASPH CONC 12.5 MM PEM, GP 1 OR 2, INCL BITUM & H LIME
- Ⓑ 165 LBS/SY RECYCLED ASPH CONC 12.5 MM SMA, GP 1 OR 2, INCL BITUM & H LIME
- Ⓒ 220 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
- Ⓓ 1430 LBS/SY RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
- Ⓔ 165 LBS/SY RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
- Ⓕ GRADED AGGREGATE BASE, 12"
- Ⓖ MILLING, 2" DEPTH
- Ⓗ LEVELING AS NEEDED
- Ⓘ 440 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME
- Ⓙ 12" CONTINUOSLY REINF CONC PVMT
- Ⓚ 330 LBS/SY RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM & H LIME

J.B. TRIMBLE, INC.
6445 Powers Ferry Road,
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Atlanta, GA 30339

REVISION DATES

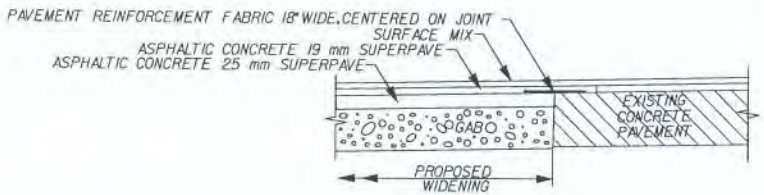
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: URBAN DESIGN

TYPICAL SECTIONS

DRAWING NO. 5-03

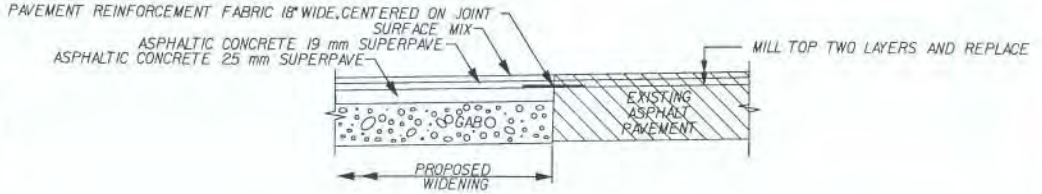
DATE/TIME### / USER#	TIME###	##PENTABLE##	#DGN#	COUNTY	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
				HENRY	GSNHS-0008-00(274)		

REVISED /ADDED
4/07



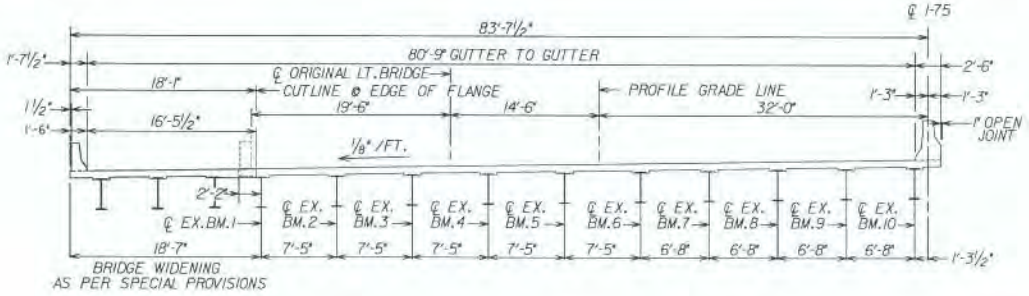
DETAIL C

THIS DETAIL TO BE USED WHEN EXISTING CONCRETE PAVEMENT IS TO BE RETAINED AND OVERLAID



DETAIL B

THIS DETAIL TO BE USED WHEN TWO INCHES OR MORE OF EXISTING ASPHALT PAVEMENT IS TO BE MILLED AND OVERLAYED



FLIPPEN ROAD UNDERPASS WIDENING

JBT J.B. TRIMBLE, INC.
6445 Powers Ferry Road,
Suite 100
Atlanta, GA 30339

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: URBAN DESIGN

TYPICAL SECTIONS

DRAWING NO. 5-04

September 19, 2007

AMENDMENT TO ADVERTISED CONTRACT

CONTRACT I.D. NUMBER: B12937-07-000-0

GEORGIA PROJECT NUMBER: CSNHS-0008-00(274)01

PCN: 0008274010000

COUNTY: HENRY

AMENDMENT NUMBER: 5

LETTING DATE: SEPTEMBER 21, 2007

LETTING NUMBER: 001

THE FOLLOWING CHANGES ARE HEREBY MADE TO THIS CONTRACT. THE BIDDER IS RESPONSIBLE FOR MAKING ANY NECESSARY CHANGES IN INK IN THE PROPOSAL. BIDDER SHALL ACKNOWLEDGE THIS AMENDMENT BY CHECKING THE APPROPRIATE SPACE ON THE PROPOSAL SIGNATURE PAGE.

****

1. Special Provision Section 999-Design-Build, Subsection 999.3.A.4.; **Revise** the second note to read as follows:

   "Note: Unless a different review time is specified elsewhere in the contract, a period of thirty (30) calendar days from receipt to release of the submittals by the Department shall be allowed for the Department's reviews. The review time for all drawings, Bridge Foundation Investigations and structural plans is thirty (30) calendar days. All Contractor schedules shall reflect said review times. All submittals must be directly submitted to the Engineer. The Engineer's receipt of submittals will mark the beginning of the review period. **All submittals by the Contractor will be required to contain a statement certifying that no unapproved design exceptions have been incorporated in the submittal.** Monthly progress meetings will be held on site. Attendees will include the Contractor, design consultant, and the Department's project engineer and design liaison."

DAVID E. HOGE
STATE TRANSPORTATION OFFICE ENGINEER