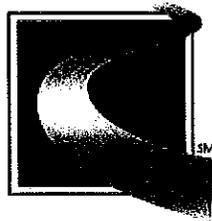


MARYLAND TRANSPORTATION AUTHORITY
Baltimore, Maryland

Invitation for Bids

FORT MCHENRY TUNNEL



**Maryland
Transportation
Authority**

CONTRACT NO. FT 2266-000-002

**REHABILITATION OF BRIDGE NO. BCW 52200
RAMP 'J' FROM HANOVER STREET
TO I-95 SOUTHBOUND**

BALTIMORE CITY

April 2009



TABLE OF CONTENTS

	<u>Page No.</u>
Table of Contents	
Notice to Bidders/Offerors	i-ii
Important Information Regarding MBE Utilization and Bidding Requirements	iii-v
Invitation for Bids	1
National Cooperative Highway Research Program	2-3
High Visibility Safety Apparel Policy	4-5
Special Provisions	6-12
Revisions to General Provisions	13-21
Revisions to Terms and Conditions	22-29
Revisions to Technical Requirements:	
Section 100.01 Maintenance of Railroad Traffic.....	30-35
Section 103 Engineer's Office.....	36-37
Section 104 Maintenance of Traffic (General)	38-42
Section 113 Digital Camera.....	43-44
Section 400-01 Crack Repair by Epoxy Injection.....	45-46
Section 400-02 Miscellaneous Repairs.....	47-48
Section 400-03 Patch Spalled and Deteriorated Concrete.....	49-51
Section 400-04 Replacement of Scupper Downspouts and Clean-outs.....	52
Section 400-05 Epoxy Sealer.....	53-54
Section 400-06 Cleaning and Painting Concrete Barrier Walls.....	55-56
Section 400-07 Bearing Pedestal Repairs.....	57
Section 426 Latex Modified Concrete Overlay for Bridge Decks.....	58-60
Section 436 Cleaning and Painting Structural Steel.....	61
Section 437 Grout Anchor Bolts.....	62
Section 456 Sight Barrier.....	63-66
Section 460 Expansion Joints in Structures.....	67
Section 559 Permanent Preformed Patterned Reflective Pavement Markings	68-70
Section 565 Removal of Existing Pavement Markings	71-72



	<u>Page No.</u>
Section 902 Portland Cement Concrete and Related Products.....	73-87
Section 950 Reflectorization of Signs and Channelization Devices.....	88
Wage Rates	89-94
Contractor Affirmative Action Program.....	95-111
Affirmative Action Requirements Utilization of Minority Business Enterprises for Straight State Contracts.....	112-118
Proposal Form.....	119
Schedule of Prices.....	120-131
Contract Time and Bonding.....	132
Buy American Steel Act	133-135
MDOT MBE FORMS – State-Funded Contracts (Bids Only) Certified MBE Utilization and Fair Solicitation Affidavit.....	136-146
Bid/Proposal Affidavit.....	147-157
Escrow Account for Retained Funds	158
Proposal Guaranty.....	159
Bid Guarantee	160-161
Bid Bond	162-164

NOTICE TO BIDDERS

Please review the checklist prior to submitting your bid on this Contract.

- When submitting your completed bid, do not separate the book. Submit the whole book including all addenda acknowledgment pages.
- Make sure that all addenda letters are attached outside of the front cover of the bid book.
- If the addendum has revised the Schedule of Prices, make sure that you have included the revised pages in your bid. Your price should reflect any and all changes.
- Prices must be written numerically and in words, unless approved substitute forms are used (Refer to GP-2.06). Don't leave any items blank.
- When tabulating your final price, make sure all your calculations are correct.
- Minority Business Enterprise Attachments A and B must be completed and submitted with your bid. If either of these attachments is missing your bid is non-responsive. Attachments C and D **should not** be submitted at time of bid.
For additional information on how to complete the MBE Attachments, please see the insert named "Important Information regarding MBE Utilization and Bidding Requirements" located in the IFB.
- The Bid/Proposal Affidavit must be completely filled out and signed by all the parties as indicated.
- If Escrow is being offered in a contract, the contractor must indicate whether or not they wish to utilize an Escrow Account for Retained Funds on the provided form.
- A bid bond must accompany all bids of One Hundred Thousand Dollars (\$100,000.00) or more. The bid bond document must be completely filled out and have an original Power of Attorney form attached.
- If the document is too large for the envelope that we have provided, you can place the document in another form of packaging that can be sealed and submitted. If the document is too large for the bid box, you should alert the receptionist.
- Make sure that your company's name, address, the contract number and the bid date appears on the front of the packaging.
- When submitting bid packages via US Mail, Federal Express, DHL, UPS or any other delivery service it is your responsibility to make sure that the bid reaches the bid box before the time deadline. It may be in your best interest to send the package 24 hours in advance of the deadline. Also, when sending packages this way, make sure that the labeling specifies that it is a bid submission.

Notice to Bidders/Offerors

EMaryland Marketplace

In order to take advantage of Maryland State and Local government contracting opportunities, vendors/contractors are encouraged to register with eMaryland Marketplace. The free registration provides a means for businesses to receive e-mail notification of upcoming contracting opportunities in their specified areas of interest and expertise.

For registration requirements, visit:
www.eMarylandMarketplace.com.

IMPORTANT INFORMATION REGARDING MBE UTILIZATION AND BIDDING REQUIREMENTS

The Maryland Transportation Authority (the "Authority") has been forced to reject many recent bids/proposals due to bid submissions that were not in strict compliance with the stipulated MBE rules and regulations. The following checklist has been developed to highlight certain critical components of the MBE program requirements. This listing is not all-inclusive and the bidder **must** comply with all MBE rules and regulations listed throughout this entire proposal book.

Please read all of the instruction provided on Attachment A, B, C & D in its entirety before completing the forms.

Attachment A (Certified MBE Utilization and Fair Solicitation Affidavit) & Attachment B (MBE Participation Schedule) must be included with the submittal of the bid or offer. If the bidder or offeror fails to submit these forms with the bid/offer as required, the Procurement Officer **shall deem the bid non-responsive** or shall determine that the **offer is not reasonably susceptible** of being selected for award. MBE Prime Contractors must achieve the established MBE goal with other certified MBE contractors. A Prime MBE Contractor **can not** count itself as an MBE to obtain the goal.

ATTACHMENT A

When filling out Attachment A, make sure you complete the following:

- If the Prime Contractor can achieve the established overall goal and sub goals, you must check the appropriate box.
- If after making good faith efforts, you determine you can not achieve the established overall goal or subgoals, you must request a waiver by checking the appropriate box.
- If you do not request the waiver at time of bid and you **are not** meeting the established goal(s), your bid/offer will be considered **non-responsive or not reasonably susceptible of being selected for award.**
- Attachment A must be signed and dated.

ATTACHMENT B Part 2

When filling out Attachment B, make sure you have included the following:

- Prime Contractor's name, address and phone number.
- Project description.
- Project number/Solicitation Number.
- List the minority firm name(Column 1), certification number and MBE Classification (Column 2), Total sub contract dollar amount (Column 3) and NAICS Codes of the services to be performed or products to be supplied (Column 4)
- Clarify for each sub-contractor if it will provide services, is a supplier or will supply and install (Column 5)
- It is the Contractor's responsibility to ensure that the proposed subcontractors are certified to perform the proposed work. All Contractors are to submit an approvable MBE plan at time of bid. Approvable means, the subcontractors are certified in the applicable NAICS Codes through MDOT and can perform the proposed services for the required participation goal. Contractors pending MBE certification at time of bid are **not** eligible for participation. If you submit a firm that is not certified to perform the proposed services and your contract falls short of the established MBE goal, your firm will be considered **non-responsive or not reasonably susceptible of being selected for award.**
- Prime Contractors are strongly encouraged to check the MDOT database at www.mbe.md.state.md.us to see if the subcontractor is certified to perform the services and to make sure the subcontractor has not graduated from the listed NAICS codes. If you have questions after checking the data base, you may contact the Authority MBE Office at 410-537-1048 for further assistance.

If you are using a supplier, the 60% rule applies. Please refer to the MBE Manual for the description of the 60% rule.

Please provide details on how you arrived at the 60% on Attachment B (Column 5) (i.e. - \$150,000.00 X 60% = \$90,000.00).

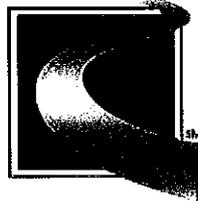
- If you are requesting a third tier relationship, you must state that request on the Attachment B form (Column 1). Please note: Third Tier MBE/DBE subcontracting will be approved by the Authority only when the Authority is satisfied that there is no way except by Third Tier contracting that an MBE/DBE goal can be achieved. Specifics as to why a Third Tier contracting agreement must be included.

- Attachment B must be signed and dated.
- If you are the apparent low bidder, you will receive a letter from the Authority requesting your MBE Attachment C (Outreach Efforts Compliance Statement) and Attachment D (Subcontractor Project Participation Affidavit). You will have ten (10) working days to submit the attachments to the Authority. If you requested a waiver at time of bid, all of the back up documentation that complies with COMAR 21.11.03.11, must be submitted within the ten working days with Attachments C & D.
- If the apparent low bidder fails to return the required documentation within the allotted ten (10) days, the Procurement Officer may determine that the apparent low bidder is not responsible and therefore not eligible for contract award.

MARYLAND TRANSPORTATION AUTHORITY
Baltimore, Maryland

Invitation for Bids

FORT MCHENRY TUNNEL



**Maryland
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Contract No. FT 2266-000-002

**REHABILITATION OF BRIDGE NO. BCW 52200
RAMP 'J' FROM HANOVER STREET
TO I-95 SOUTHBOUND**

Baltimore City

April 2009

NOTICE TO BIDDERS

A "Pre-Bidding Session" for the purpose of answering or obtaining answers to questions of parties interested in constructing the work relative to Right-of-Way, Utilities, Design, and Construction Details will be conducted at 9:00 a.m. on May 19, 2009, in the FSK Administration Conference Room, at the Maryland Transportation Authority, 303 Authority Drive, Administration Building, Baltimore, Maryland 21222. While attendance at the Pre-Bid conference is not mandatory, this is the offeror's opportunity to raise questions and/or issues of concern regarding the project.



NOTICE TO ALL HOLDERS OF THIS CONTRACT DOCUMENT

**NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP)
REPORT 350 IMPLEMENTATION SCHEDULE FOR DEVICES USED IN THE
MAINTENANCE OF TRAFFIC**

Except as otherwise specified in this Section, all items for the maintenance of traffic, including those listed under the following categories, shall be crashworthy in conformance with Level 3 or other Level as specified by the Engineer in conformance with the safety crash testing and performance criteria published in the National Cooperative Highway Research Program (NCHRP) Report 350, "Recommended Procedures for the Safety Performance Evaluation of Highway Features." When conformance with NCHRP Report 350 is required, the Contractor shall provide the Engineer with the manufacturers' certifications that the devices comply with the specified criteria.

Unless specifically waived by an attachment to these Contract Provisions, devices must be approved by the Office of Traffic and Safety.

Category 1 Devices

These devices are cones, tubular markers, flexible delineator posts, and drums, all without any accessories or attachments, which are used for channelization and delineation.

Category 2 Devices

These devices are Type I, II, and III barricades; portable sign supports with signs; intrusion alarms; and drums, vertical panels, and cones, all with accessories or attachments.

Category 3 Devices

- (a) Truck Mounted Attenuators (TMAs).
- (b) Temporary Barrier.
 - (1) Concrete Barrier.
 - (2) Traffic Barrier W Beam and Water Filled Barrier.
- (c) Temporary End Treatments.

Category 4 Devices

These devices are area lighting supports, arrow panels, and portable variable message signs that are usually portable or trailer-mounted.

**CONTRACT PROVISIONS
(NCHRP) REPORT 350 IMPLEMENTATION SCHEDULE**

CONTRACT NO. FT 2266-000-002
2 of 2

WORK ZONE DEVICES	IMPLEMENTATION SCHEDULE TO CONFORM TO NCHRP REPORT 350 CRITERIA
<p>CATEGORY 1 Cones, tubular markers, flexible delineator posts, and drums (all without any accessories or attachments)</p>	<p>All devices shall conform to NCHRP Report 350 criteria.</p>
<p>CATEGORY 2 Type I, II, and III barricades; portable signs supports with signs; intrusion alarms; and drums, vertical panels, and cones (all with accessories or attachments)</p>	<p>All devices shall conform to NCHRP Report 350 criteria.</p>
<p>CATEGORY 3 (a) Truck Mounted Attenuators (TMA) (b) Temporary Barriers (1) Concrete Barrier (2) Traffic Barrier W Beam and Water Filled Barrier (c) Temporary End Treatments</p>	<p>All devices shall conform to NCHRP Report 350 criteria.</p>
<p>CATEGORY 4 Portable trailer mounted devices including area lighting supports, arrow panels, and changeable message signs</p>	<p>The Contractor may use devices that do not conform to NCHRP Report 350 criteria, until compliance dates are established. Use of these devices shall comply with the provisions of Part 6 of the MUTCD.</p>



NOTICE TO ALL HOLDERS OF THIS CONTRACT DOCUMENT

HIGH VISIBILITY SAFETY APPAREL POLICY

BACKGROUND. Research indicates that high visibility garments have a significant impact on the safety of employees who work on highways and rights-of-way. In addition, high visibility garments may help to prevent injuries and accidents and to make highway workers more visible to the motoring public, which ultimately improves traffic safety.

STATEMENT OF POLICY.

- (a) The High Visibility Safety Apparel Policy provides a standardized apparel program.
- (b) The program seeks to improve the visibility of all persons who work on Administration highways and rights-of-way.
- (c) All apparel shall contain the appropriate class identification label.
- (d) Compliance with this policy is retroactive and becomes effective immediately. All affected employees shall receive high visibility apparel awareness training.

APPLICABILITY. This policy applies to all Administration employees and all other persons who work on Administration highways and rights-of-way. All workers shall wear, at a minimum, Class 2 ANSI/ISEA 107/2004 apparel.

- (a) For Administration employees, this apparel shall have a fluorescent yellow-green background material color and be the outermost garment worn.
- (b) Retro-reflective material color for Administration employee apparel shall be silver or white and be visible at a minimum distance of 1,000 feet. The retro-reflective safety apparel shall be designed to clearly recognize and differentiate the wearer from the surrounding work environment. The retro-reflective material may be contrasted by fluorescent orange background material not exceeding one and one half inches on either side of the retro-reflective material.
- (c) For non-Administration employees, this apparel shall be either fluorescent orange-red or fluorescent yellow-green background material color and be the outermost garment worn.
- (d) Retro-reflective material color for non-Administration employee apparel shall either be orange, yellow, white, silver, yellow-green, or a fluorescent version of these colors, and be visible at a minimum distance of 1,000 feet. The retro-reflective safety apparel shall be designed to clearly recognize and differentiate the wearer from the surrounding work environment.



CONTRACT PROVISIONS
HIGH VISIBILITY SAFETY APPAREL POLICY

REFERENCES.

- (a) ANSI/ISEA 107/2004 standard – American National Safety Institute/International Safety Equipment Association
- (b) MUTCD 2003 – Manual for Uniform Traffic Control Devices - Sections 6D.03B and 6E.02
- (c) Visibility Research – The VCTR 1989 report concludes that fluorescent colors, when compared with non-fluorescent colors, enhance the daytime conspicuity of worker clothing.

DEFINITIONS.

- (a) Apparel – The outermost high-visibility garment worn by employees who work on Administration highways and rights-of-way.
- (b) Highways – All roads owned by the Maryland Department of Transportation and maintained by the Administration.
- (c) High Visibility – The ability for workers to be distinguishable as human forms to be seen, day and night, at distances that allow equipment operators and motorists to see, recognize, and respond.



SP 1-1 PROJECT DESCRIPTION

CONTRACT NO.: FT-2266-000-002

TITLE: Rehabilitation of Bridge BCW 52200 Ramp J from Hanover Street to I-95 Southbound

FACILITY: Fort McHenry Tunnel

LOCATION: Baltimore City

ADVERTISED: April 28, 2009

PRE-BID MEETING: **9:00 a.m. on May 19, 2009** in the FSK Administration Conference Room at the Maryland Transportation Authority, 303 Authority Drive, Administration Building, Baltimore, MD 21222

PROJECT CONTACT: Project Manager: Nafiz Alqasem (410) 537-7821
Contract Administration: Ms. Maggie Johnson (410) 537-7807

BIDS DUE: **12:00 noon on June 11, 2009** in the Bid Box on the 1st floor of the Maryland Transportation Authority, Engineering Building, 300 Authority Drive, Baltimore, MD 21222

CLASSIFICATION: Class D - (\$1,000,001 – \$2,500,000)

CONTRACT TIME: Two Hundred and Ten (210) Calendar Days

LIQUIDATED DAMAGES: **\$800.00 per Calendar Day**

MINIMUM MBE GOALS: Overall Twenty-Five percent (25%)
Women owned businesses Six percent (6%)
African-American owned businesses Eleven percent (11%)

BID DOCUMENTS: **\$25.00** - Bid documents can be purchased between 7:30am and 3:30pm, Mondays, Wednesdays, Thursdays and Fridays and between 10:00am and 4:00pm on Tuesdays at the Ticket Office located at the Francis Scott Key Bridge, Maryland Transportation Authority, Administration Building, 303 Authority Drive, Baltimore, MD 21222.



Location and Scope of Work

This project is located on the Fort McHenry Tunnel Facility in Baltimore City.

The work to be performed includes the following:

- Overlay the bridge deck with latex modified concrete
- Replace the missing bridge mounted steel sight barrier
- Modify the existing roadway joints
- Zone painting structural steel
- Concrete parapet repairs
- Concrete crack repairs
- Miscellaneous structural repairs

SP 1-2 SPECIFICATIONS

All work on this project shall conform to the Maryland Department of Transportation, State Highway Administration's Specifications entitled, "Standard Specifications for Construction and Materials" dated July 2008, revisions thereof, or additions thereto, and the Special Provisions included in this Invitation for Bids.

SP 1-3 ORIGINAL FACILITY PLANS AND SITE VISITS

The original facility plans are on file at the Engineering/Finance Building of the Francis Scott Key Bridge and will be made available for inspection to prospective bidders. Parties interested in viewing the plans should contact Mr. Nafiz Alqasem, at (410) 537-7821. Parties interested in visiting the site should contact Mr. Nafiz Alqasem, at (410) 537-7821.

SP 1-4 - PROMPT PAYMENT TO SUBCONTRACTORS

The prime Contractor is responsible for making timely payments to all Subcontractors and Suppliers as required in the 1988 edition of the State Finance and Procurement Article of the Annotated Code of Maryland, Section 17-106.

This contract requires the Contractor to make payment to all Subcontractors within 10 days of receiving payment from the Authority.

Each month, the construction Project Engineer will review the current pay items with the prime Contractor and all involved Subcontractors to ensure that all work satisfactorily completed within specifications is included in the monthly progress payment. For payment purposes, the same quantity totals used to compute the payment to the prime Contractor will be the basis for payment to the Subcontractor.



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Transportation
Authority

If the Subcontractor does not receive payment within the required 10 days, the Subcontractor shall notify the Project Engineer in writing of the amount in dispute including the item numbers and payment quantity for each. The Project Engineer will then notify the Chief of Construction of the dispute. The Chief of Construction or his representative will verbally contact the prime Contractor within 48 hours to ascertain whether or not a performance dispute exists which necessitates non-payment to the Subcontractor. If a performance dispute exists, the prime Contractor must demonstrate that there is a valid basis to withhold payment from the Subcontractor. If the prime Contractor withholds payment from a Subcontractor, the prime Contractor shall provide to the Subcontractor written notice of the withholding of payment. The notice shall detail the reasons for withholding payment as well as the amount. A copy of the notice shall be provided to the Surety and the Authority. If no valid dispute exists, the prime Contractor will be directed to make immediate payment to the Subcontractor. The Subcontractor will be responsible for notifying the Chief of Construction if this payment is not made. Upon receipt of notification, the Chief of Construction will schedule a meeting with the Contractor and Subcontractor to verify and discuss the non-payment issue. This meeting will be held at the Authority's offices within 2 working days of the MdTA's contact with the subcontractor. If it is determined that the prime Contractor has withheld payment to the Subcontractor without cause, further progress payments to the prime Contractor will be withheld until the Subcontractor is paid. In addition, the MdTA may order a suspension of work or other administrative actions as it sees fit.

If an action is taken as stated above the Contractor shall notify the MdTA's Project Engineer when payment is made. After the MdTA's Project Engineer verifies that payment has been made to the Subcontractor the MdTA shall release withheld progress payments.

Nothing in this Special Provision shall be construed to prevent the Subcontractor from pursuing a claim with the surety under the prime Contractor's payment bond at any time.

SP 1-5 WORK HOURS

Refer to section 104 for lane closures and other work hour restrictions. Except for these restrictions, The Contractor can work 24 hours a day, seven days a week. However, no lane closures will be permitted during high winds.

SP 1-6 INSURANCE

TC-5.01 INSURANCE

Section TC 5.01 of the Standard Specifications is supplemented as follows:

1. The Contractor shall not commence work under this contract until he has obtained all of the minimum amounts of insurance required by these Special Provisions and the insurance has been approved by the Engineer. The Contractor shall furnish to the Maryland Transportation Authority ("Authority") duly executed certification of all



Maryland
Transportation
Authority

required insurance on forms satisfactory to the Authority. The certificates of insurance shall state that it is in force and cannot be cancelled, release or non-renewed except upon thirty (30) days prior written notice, registered mail to the Authority. All Contractors' insurance policies, with the exception of the Worker's Compensation and Employer's Liability, shall be endorsed to provide as additional insureds the Maryland Transportation Authority and the State of Maryland.

2. The Contractor shall purchase and maintain such insurance as is specified herein which will provide the Authority, its members, employees and agents, as well as the Contractor from claims which may arise out of or as a result of the Contractor's operations under this contract, whether such operations be by the Contractor, by any subcontractor, by anyone directly or indirectly employed by any of them or by anyone whose acts any of them may be liable. This insurance shall be maintained in full force until the Contract has been accepted by the Authority and final payment is made.
3. The Authority requires the following minimum levels of insurance coverage for this contract:

a) Worker's Compensation and Employer's Liability

The Contractor shall, at all times, maintain and keep in force such insurance as will protect him from claims under the Worker's Compensation Act of the State of Maryland and maintain and keep Employer's Liability Insurance at a limit of \$100,000. The Contractor shall also maintain United States Long Shore and Harbors Act coverage, if such exposure exists.

b) Comprehensive General Liability Insurance

The Contractor shall maintain Comprehensive General Liability Insurance in the amount of at least One Million Dollars (\$1,000,000) Combined Single Limit for Bodily Injury Liability and Property Damage Liability Insurance per occurrence and in the aggregate. Such insurance shall specifically include the Comprehensive General

Liability Broad Form Endorsement and indicate explosion, collapse, and underground damage coverage.

c) Comprehensive Automobile Liability Insurance

The Contractor shall maintain Comprehensive Automobile Liability Insurance (including all automotive equipment owned, operated, rented, or leased), in the amount of at least Five Hundred Thousand (\$500,000) Combined Single Limit for bodily injury and property damage.



d) Additional Insurance

The Contractor shall also procure and keep in effect:

Excess liability (umbrella coverage) in excess of and applicable to the coverage in the Comprehensive General Public Liability and Property Damage Insurance, "X, C, U" and Comprehensive Automobile Insurance in the amount of at least Two Million Dollars (\$2,000,000) for each occurrence.

4. Accident Notification - The Contractor shall send a written report to the Engineer and to the Maryland transportation Authority within twenty-four (24) hours of any accident or other event arising in any manner from the performance of the contract which results in or might result in personal injury or property damage.
5. Failure to comply with these Special Provisions may lead to termination from default/convenience.
6. There will be no special payment for the insurance as required by this contract and all costs incidental thereto shall be included in the (Lump Sum for "Mobilization", (refer to Section 108), or if the Contract does not include such an item, the insurance costs are to be included in pay items for the Proposal.

**SP 1-7 MINORITY BUSINESS ENTERPRISE REGULATIONS GOVERNING
CONSTRUCTION CONTRACTS IN EXCESS OF \$50,000
EFFECTIVE JULY 1, 2001**

GP – 7.29 of the General Provisions is supplemented as follows:

MBE participation goal for this contract is as indicated in these Special Provisions.

The Contractor shall:

1. Identify specific work categories appropriate for subcontracting;
2. At least 10 days before bid opening, solicit Minority Business Enterprises, through written notice that:
 - a) Describe the categories of work: and,
 - b) Provide information regarding the type of work being solicited and specific instructions on how to submit a bid.
3. Attempt to make personal contact with Minority Business firms:



4. Assist Minority Business Enterprises to fulfill bonding requirements or to obtain a waiver of these requirements:
5. Upon acceptance of a bid, provide the Maryland Transportation Authority (MdTA) with a list of Minority Businesses with whom the Contractor negotiated, including price quotes from Minority and Non-minority firms.

Third Tier Subcontracting:

Third Tier MBE/DBE Subcontracting will be approved by MdTA only when MdTA is satisfied that there is no way except by Third Tier contracting that an MBE/DBE goal can be achieved. The Contractor's written request must be submitted prior to contract award and contain specifics as to why a Third Tier contracting agreement is being requested.

Waivers:

If for any reason the bidder/offeree is unable to achieve the specified overall contract goal or subgoals for each certified MBE classification, the bidder/offeree must request, in writing, on Attachment A, (Certified MBE Utilization and Fair Solicitation Affidavit), a waiver a time of bid.

Strict adherence regarding documentation of the rationale for the waiver request and documentation of "Good Faith Efforts" of the Contractor are required for consideration of any waiver. For additional information on waivers, please see *COMAR 21.11.03.11*

Criminal Fraud Provisions:

All Contractors are reminded that Criminal Fraud Provision and Administrative Sanctions may be imposed for failure to achieve and maintain established MBE/DBE goals.

SP 1-8 PROGRESS SCHEDULE REQUIREMENTS

Refer to Section 109 of the Standard Specifications.

SP 1-9 CORPORATE REGISTRATION

A foreign corporation is any corporation not incorporated under the Laws of the State of Maryland. All foreign corporations, prior to performing any services for the Authority, must register with the Maryland State Department of Assessment and Taxation in compliance with Article 23, Section 90, Annotated Code of Maryland. Compliance is required of the successful vendor as well as the proposed subcontractors.

To accomplish the required registration, a foreign corporation must request and complete "Qualification Application Forms" which can be obtained from the Department of Assessment



Maryland
Transportation
Authority

and Taxation, State Office Building, Room 803, 301 West Preston Street, Baltimore, Maryland 21201. Forms can be obtained via web site at e-mail address: www.dat.state.md.us.

The Contractor will be responsible for documenting compliance with the aforesaid. This documentation will be required prior to the execution of a contract with the successful bidder.

SP 1-10 CONTRACTOR'S EMPLOYEE IDENTIFICATION

The Contractor shall provide to the Authority, a list containing the following for Contractor and all sub-contractors that would be working at the site. This shall include trucking companies who would come to the site on a repetitive basis for supply or remove materials:

- Name of Company
- Name and title of contact person
- Address of the Company
- Phone Number
- Facsimile number
- E-Mail address of contact person (if any)

All Contractor's employees, including employees of subcontractors, on this project, present at the site, shall be in possession of a valid employee identification card provided by the Employer, which shall contain a photograph and identify the employee by name and job title. The employee must produce the said identification if required by the Engineer or the Authority Police.

When working in or around the Authority's buildings, said employees identification shall be displayed at all times.

While working on the transportation facility projects of the Authority, Contractor's personnel shall have an ID decal displayed on their hardhat. These decals will be provided by the Authority. All Contractor's vehicles shall have a parking decal, attached to the rear view mirror. These parking decals will also be provided by the Authority and a distribution list will be maintained. AT the time of project completion these decals shall be returned to the Authority. Request for hardhat and rearview mirror decals shall be made to the Construction Section before the beginning of construction and should include the number required of each type.

All costs associated with ID's will not be paid for separately and shall be incorporated under other items of payment in the contract.



**GENERAL PROVISIONS
GP-SECTION 1
DEFINITIONS AND TERMS**

GP 1.03 – ORGANIZATIONAL DEFINITIONS

Revise the definitions of Administration to read as follows:

Administration – The word “Administration” shall mean “Maryland Transportation Authority”.

Except for Office of Materials and Research, all references to the Maryland State Highway Administration’s offices and positions shall mean the Authority’s corresponding offices and positions.



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GENERAL PROVISIONS
GP- SECTION 1
DEFINITIONS AND TERMS

GP 1.05 - DEFINITIONS

Add the following definitions:

Highway Standards - The official Book of Standards for Highway and Incidental Structures, edited by the State Highway Administration, with the latest incorporated revisions issued on or before the date of advertisement on the contract.



**GENERAL PROVISIONS
GP-SECTION 2
BIDDING REQUIREMENTS AND CONDITIONS**

GP 2.04 SITE INVESTIGATION

Revise the paragraph to read as follows:

The Contractor acknowledges that he has investigated and satisfied himself as to the conditions affecting the work, including but not restricted to those bearing upon transportation, disposal, handling, and storage of materials, availability of labor, water, electric power, roads, and uncertainties of weather, river stages, tides, or similar physical conditions at the site, and confirmation and conditions of the ground, the character of equipment and facilities needed preliminary to and during prosecution of the work. The Contractor further acknowledges that he has satisfied himself as to the character, quality and quantity of surface and subsurface materials or obstacles to be encountered insofar as the information is reasonably ascertainable from an inspection of the site, including all exploratory INFORMATION IN POSSESSION OF THE STATE, as well as from information presented by the drawings and Specifications made part of this contract. Any failure by the Contractor to acquaint himself with the available information may not relieve him from responsibility for estimating properly the difficulty or cost of successfully performing the work. The State assumes no responsibility for any conclusions or interpretations made by the Contractor on the basis of the information made available by the State.



**GENERAL PROVISIONS
GP-SECTION 2
BIDDING REQUIREMENTS AND CONDITIONS**

GP-2.06 PREPARATION OF THE BID

GP9 **ADD:** After paragraph (a), the following.

The Contractor may elect to submit his bid on forms he has generated in the development of his bid. These may be submitted in lieu of the schedule of prices bid forms furnished by the Administration in the Invitation for Bids. These forms shall emulate the forms currently furnished by the Administrations and, as a minimum, contain the following information.

- (1) State Contract No.
- (2) State Item Nos.
- (3) State's Proposed Quantities
- (4) Description of Items
- (5) Unit Price
- (6) Total Cost of Each Item
- (7) Total Bid Amount

The document shall be 8-1/2 x 11 inches, and oriented in a landscape format. The font size shall be no less than 10 points with horizontal lines dividing each item. Any addendum which revised items or quantities shall be noted on all affected schedule of prices sheets. Any special bid requirements that are noted in the schedule of prices shall also be listed on the form.

Should the Contractor elect to submit bids on the Contractor's own forms, the Contractor shall submit a sample of the form to the Administration at least two weeks prior to the scheduled opening of bids. The use of Contractor generated forms shall be approved, in writing, prior to their use. If the Contractor's forms were previously approved in writing on another Administration project and have not changed, they need not be resubmitted for this project.

Sample forms shall be submitted to:

Mrs. Linda McGill
Chief of Engineering Procurement
Maryland Transportation Authority
300 Authority Drive
Baltimore, MD 21222



**GENERAL PROVISIONS
GP-SECTION 2
BIDDING REQUIREMENTS AND CONDITIONS**

GP 2.23 - BID PROTESTS

Section GP 2.23 of the General Provisions is supplemented as follows:

The Board of Public Works does not have the jurisdiction to consider protests relating to this solicitation or an award of this contract under this solicitation.

All protests relating to this solicitation, the selection, and/or award must be filed in writing with the Authority's Procurement Officer, within the time limitations set forth in COMAR 21.10.07 and 21.10.02. Bid protests shall be filed not later than 7 days after the basis for protest is known, or should have been known, whichever is earlier. Oral protests will not be considered.

The specific details of the protest procedures shall be followed by aggrieved actual or prospective bidders or offerors as contained in COMAR 21.10.



**GENERAL PROVISIONS
GP SECTION 4
SCOPE OF WORK**

GP 4.10 - WARRANTY OF CONSTRUCTION

GP 4.10 of the Standard Specifications is revised to read as follows:

Delete: The first paragraph in its entirety.

Insert: The following:

The Warranty as defined under paragraphs A through G in GP 4.10 (Warranty of Construction) shall apply to this Maryland Transportation Authority contract unless specified elsewhere in this Invitation for Bids.



**GENERAL PROVISIONS
GP SECTION 5
CONTROL OF WORK**

GP 5.12 - FAILURE TO MAINTAIN ENTIRE PROJECT

Delete: Section GP 5.12 in its entirety

Insert: Revise the paragraph to read as follows:

Failure on the part of the Contractor, at any time, to RESPOND TO the provisions of GP 5.11 above, will result in the procurement officer's immediately notifying the Contractor to comply with the required maintenance provisions. In the event that the Contractor fails to PROCEED WITH CORRECTIONS TO UNSATISFACTORY MAINTENANCE SO AS TO CONFORM TO THE PROVISIONS OF GP 5.11 within 4 hours of receipt of such notice, the procurement officer MAY NOTIFY THE CONTRACTOR TO SUSPEND ALL OTHER WORK ON THE CONTRACT UNTIL SUCH TIME AS THE UNSATISFACTORY MAINTENANCE IS CORRECTED. In the event that the Contractor fails to RESPOND TO unsatisfactory maintenance within 4 hours after receipt of such notice, the procurement officer will immediately proceed with adequate forces and equipment to maintain the project, and the entire cost of this maintenance will be deducted from monies due the Contractor ON THE NEXT MONTHLY ESTIMATE.

**GENERAL PROVISIONS
GP SECTION 8
PROSECUTION AND PROGRESS**

GP 8.09 - LIQUIDATED DAMAGES

Delete: Section GP 8.09 in its entirety

Insert: Time is an essential element of the Contract and it is important that the work be vigorously prosecuted until completion.

For every calendar day that the contract remains uncompleted after the expiration of the contract time specified herein, or amended by extra work authorization, change orders or supplemental agreements, the Contractor will be liable for Liquidated Damages. The amount of Liquidated Damages shall be as specified in Contract Time and Bonding. This amount shall be deducted from any money due the Contractor, not as a penalty, but as Liquidated Damages. Damages in excess of any retained percentage shall be paid to the Authority by the Contractor.

Refer to Contract time and Bonding sheet contained elsewhere herein. See Table of Contents.

**GENERAL PROVISIONS
GP SECTION 9
PAYMENT**

GP 9.05 LATE PAYMENTS

ADD the following:

- (e) Payments will be made within thirty (30) days of the date when the contract amount becomes due and payable or the date of receipt of a proper invoice, whichever is later. The State's failure to remit payment within forty-five (45) days from that date may entitle the Contractor to interest at the rate of 10% per annum beginning on the 31st day.



**TERMS AND CONDITIONS
TC SECTION 4
CONTROL OF WORK**

TC 4.01 - SHOP PLANS AND WORKING DRAWINGS

Section TC 4.01 of the Specifications is amended to add:

All shop plans and working drawings for this project shall be submitted to:

Maryland Transportation Authority
Engineering Division
300 Authority Drive
Baltimore, Maryland 21222-2200
ATTN: Mr. Nafiz Alqasem

The Contractor shall allow a minimum of four (4) weeks turn around time on all drawings from the date they are received by the Authority. All shop plans and working drawings shall be reviewed and approved by the Contractor prior to submitting for approval to the Maryland Transportation Authority and shall be submitted by the general Contractor only. No drawings sent to the Authority directly by subcontractors, fabricators, etc. will be accepted. Ten (10) sets of drawings shall be submitted for approval.

Acceptance of a material source by the Engineer does not constitute approval of the material as a substitute as an "equal". Submission of a material as an "or equal" must be done in accordance with the following paragraphs:

All shop drawings, regardless if "Submitted as Specified" or "Submitted as Equal to Specified", shall be furnished with complete, specific, detailed information from the manufacturer or supplier or the material or equipment the Contractor proposes to furnish, in which the requirements of the Specifications are clearly shown to be met. This shall include a point by point comparison with the detail requirements of the Specifications.

When any article is specified by trade name of manufacturer with or without the clause "or equal", it is intended to establish the quality of the article. If the Contractor proposes to use material or equipment of another manufacturer as an "or equal" to material or equipment specified, all shop drawings shall conform to the following requirements, conditions, and procedure:

1. Substitution of equipment or materials other than those specified will be considered, providing, in the opinion of the Engineer, such equipment or material is equal to, or better than specified. The decision of the Engineer with respect to approval or disapproval of any material or equipment proposed to be substituted as an "or equal" is final. The Contractor shall have no claim of any sort by reason of such decision.
2. If the Contractor proposes to substitute materials or equipment as "or equal" to those specified, it shall be his responsibility to furnish, in addition to the information discussed above, a point by point comparison of the material or equipment specified under the Contract and that proposed to be substituted. The burden of responsibility in furnishing this information is with the Contractor.

If incomplete or irrelevant data is submitted as evidence of compliance with this section of the Specifications, the data will be returned and the request for approval will be denied.

TERMS AND CONDITIONS
TC SECTION 4
CONTROL OF WORK

TC-4.02 FAILURE TO ADEQUATELY MAINTAIN PROJECT.

16 **ADD:** To the existing paragraph.

Additionally, an appropriate deduction will be made from the Contractor's next progress estimate for each day or portion thereof that Maintenance of Traffic deficiencies exist, and will continue until the deficiencies are satisfactorily corrected and accepted by the Engineer. Any portion of a day will be assessed a full day deduction. The deduction will be equal to a prorata share of the lump sum price bid for Maintenance of Traffic or an amount prorated from the Engineer's estimate, whichever is more. The amount prorated will be the per diem amount established by using the working days (based upon calendar dates when required) divided into the total value of the bid item or the Engineer's estimate of that item, whichever is more.

The above noted deduction will be assessed on the next progress estimate if:

The Contractor does not take action to correct the deficiencies and properly assume the responsibilities of maintaining the project (as determined by the Engineer) within four hours of receiving a notice to comply with the required maintenance provisions.

The deduction will be equal to the daily prorated share of the lump sum price bid for Maintenance of Traffic or \$500.00 per day, whichever is more for each day or portion thereof that the deficiencies exist, and will continue until the deficiencies and proper assumption of the required maintenance provisions are satisfactorily corrected and accepted by the Engineer. The amount of monies deducted will be a permanent deduction and are not recoverable. Upon satisfactory correction of the deficiencies, payment of the Maintenance of Traffic lump sum item will resume.



**TERMS AND CONDITIONS
TC SECTION 5
LEGAL RELATIONS AND PROGRESS**

TC-5.01 INSURANCE.

17 **DELETE:** The first three paragraphs under TC-5.01 in their entireties.

INSERT: The following.

The requirement of GP-7.14 (Liability Insurance) to submit Certificate of Insurance prior to starting work is modified for Administration Contracts to require the certificate of insurance to be submitted prior to the execution of the Contract.

The Contractor shall maintain in full force and effect third party legal liability insurance necessary to cover claims arising from the Contractor's operations under this agreement which cause damage to the person or property of third parties. The insurance shall be under a standard commercial general liability (CGL) form endorsed as necessary to comply with the above requirements; or other liability insurance form deemed acceptable by the State. The State of Maryland shall be listed as an additional named insured on the policy. The limit of liability shall be no less than \$1,000,000 per occurrence/\$2,000,000 general aggregate. The insurance shall be kept in full force and effect until all work has been satisfactorily completed and accepted. The policies shall be endorsed to provide 30 days notice of cancellation or non-renewal to:

Director of Construction
Maryland Transportation Authority
304 Authority Drive
Baltimore, Maryland 21222

TERMS AND CONDITIONS
TC SECTION 7
PAYMENT

29 **DELETE:** TC-7.02 PAYMENT ALLOWANCES FOR STORED MATERIALS in its entirety.

INSERT: The following.

TC-7.02 PAYMENT ALLOWANCES FOR STORED MATERIALS.

When the Contractor requests payment allowance for materials, the following terms and conditions shall apply:

- (a) For superstructure members delivered on the project site, an allowance of 100 percent of the material cost plus freight charges as invoiced may be made provided the cost does not exceed 90 percent of the Contract price of the applicable Contract item. The allowance will be based upon validated invoices or bills for material including freight charges, and a copy thereof shall be made a part of the documented records for the project.
- (b) For reinforcement steel, piling, pipe, traffic barrier, signs and sign assemblies, and other nonperishable material in storage on the project, but excluding aggregates, cement, seed, plants, fertilizer or other perishable items, an allowance of 100 percent of the invoiced cost of the material plus freight charges to the Contractor may be made provided the cost does not exceed 90 percent of the Contract price of the applicable Contract item. Such material shall be delivered and stock-piled at the project site, and have been tested by the Administration and found to have conformed to the Specifications or have been accepted under an approved certification program prior to the allowance.
- (c) No allowance will be made for fuels, form lumber, falsework, temporary structures or other materials of any kind which will not become an integral part of the finished construction.

No payment for stored material will be made if it is anticipated that the material will be incorporated into the work within 30 days of the written request.

Only end product manufactured material or fully fabricated products that are awaiting installation or incorporation into the finished work are eligible for prepayment. Components, elements, or ingredients of a finished product are not eligible for prepayment.

- (d) Material for which an allowance is requested shall be stored in an approved manner in areas within the State of Maryland where damage is not likely to occur. If any of the stored materials are lost or become damaged in any manner, the Contractor shall be responsible for repairing or replacing the damaged materials. The value of the

lost or damaged material will be deducted from the Contractor's subsequent estimates until replacement has been accomplished. The request for allowances for any materials stored on private property within the State of Maryland shall be accompanied by a release from the owner and/or tenant of such property agreeing to permit the removal of the materials from the property without cost to the State of Maryland.

The material shall be clearly marked with the Administration's Contract number on individual units. If the material is normally shipped to the project in bundles or other forms of packaging, the Administration's Contract number shall be clearly marked or affixed to the package. When the material is not stored at the actual project site, the material shall be physically separated by fencing or equivalent barrier from other materials stored at the same site. The material shall be accessible to the Administration at all times.

When it is considered impractical to store materials on the actual project, the Engineer may approve storage areas in the vicinity of the actual project which will be considered at the project site.

When storage of the materials within the State of Maryland is not practical, approval shall be obtained from the District Engineer for storage elsewhere. Storage of materials outside the State of Maryland will be subject to the conditions set forth in this provision and limited to materials exceeding twenty-five thousand dollars (\$25 000), which are designed and fabricated exclusively for use on a specific project.

- (e) Material for which payment has been made, either wholly or partially, shall not be removed from the approved location until such time that it is to be incorporated into the work unless authorized by the Engineer.
- (f) The Contractor shall submit a written request for payment to the District Engineer at least two weeks prior to the estimate cutoff date established by the District Engineer. The following items shall accompany the written request for payment:
 - (1) Consent of surety specifying the material type and the item(s) in which the material is to be used.
 - (2) Validated invoices with the signature of an officer of the company supplying the material showing actual cost.
 - (3) A notarized statement from the Contractor attesting that the invoices as submitted do not include charges or fees for placing, handling, erecting or any other charges or markups other than the actual material cost, sales tax(es), if applicable, and freight charges.
 - (4) Bills of lading showing delivery of the material. The request for allowances for any materials stored on property outside the State of Maryland shall be accompanied by a release from the owner or tenant of such property agreeing to

permit verification by the Inspector that the material is stored at the approved location, and to permit the removal of the materials from the property without cost to the State of Maryland.

- (5) Inspection test reports, certifications and/or a written statement from the Inspector attesting to the inspection and approval of the material.

Upon receipt of the above by the District Engineer and verification by the Inspector that the material is stored at the approved location, the District Engineer will authorize payment.

- (6) A statement explaining why the material can not be stored on the project, if the Contractor is requesting to store material at a location other than the project site. The statement shall include the methods of storage, separation, and identification to be used by the Contractor. The Contractor shall provide a method of inventory control and withdrawal satisfactory to the Administration which shall be used by the Contractor to monitor materials not stored on the project.

- (7) A breakdown of the Contract line item bid unit price showing the relationship of the cost of the stored material to the costs of all other materials, labor, and components of the work included in the Contract line item unit price bid by the Contractor.

Upon receipt of the above by the District Engineer and verification by the Inspector that the material is stored at the approved location, the District Engineer will authorize payment.

The Contractor shall pay the material provider the amount shown on the invoice within 10 calendar days of receipt of payment from the Administration. Evidence of payment shall be provided to the Administration. Failure to make invoice payments as specified will be cause to deduct the monies from future estimates and/or deny future stored materials payment requests.

Copies of all pertinent data shall be made by the Contractor and distributed to the Inspector for retention as part of the documented records for the project.

DELETE: TC-7.05 PROGRESS PAYMENTS Subsection (a) (3) Variable Retainage

INSERT: The following.

- (3) **VARIABLE RETAINAGE.** The Contract will be subject to a variable retainage based upon the Authority's performance evaluations of the Contractor.

Those qualifying may have retainage reduced upon request of the Contractor with consent of surety. This request must be processed through the Construction Manager. If at any time during the performance of the project, the evaluation of the Contractor changes, retainage reduction may be reconsidered.

Contractors with "A" evaluations for the last two years may be reduced from 5 percent to 2.0 percent upon request after 15 percent project completion. Project completion percentage will be based upon actual work completed (excluding monies paid for stored materials). An interim evaluation of the current project must be completed and must be an "A". Contractors with "A" evaluations for the last two years may petition to have all retainage at that point released upon completion of a significant milestone. Retainage will continue at 2.0 percent until the next milestone of completion of the contract.

Contractors with "B" evaluations or any combination of "A" and "B" evaluations for the last two years may be reduced from 5 percent to 2.5 percent at 50 percent project completion and remain at that level until released upon final payment. Project completion percentage will be based upon actual work completed (excluding monies paid for stored materials). An interim evaluation of the current project shall be completed and shall be an "A" or "B".

Contractors with "C" evaluations or any combination of "C" and "D" evaluations for the last two years will begin and remain at 5 percent for the life of the project. An interim evaluation of the current project shall be completed and shall be a "C" or better rating.

Contractors with a "D" evaluation for the last two years will begin at 5 percent. Project performance will be evaluated monthly. Should the contractor performance remain at the "D" level, to protect the State's interest 10% of the progress payment will be withheld until performance improves to a "C".

New Bidders. Contractors who have not been previously rated by the Authority may be eligible for a reduction in retainage. To be eligible, their past performance on highway and bridge work shall be documented by the government agency with whom they had a contract and their performance shall be documented on Authority forms.

All other Contractors who do not fit into the above criteria would require a 5 percent retainage throughout the life of the Contract.



**CATEGORY 100
PRELIMINARY**

SECTION 100-01 — MAINTENANCE OF RAILROAD TRAFFIC

100-01.01 DESCRIPTION. This work shall consist of the maintenance of Railroad traffic in accordance with the requirements specified herein for work performed in or near Railroad property. For the purposes of these Special Provisions, CSX Transportation, Inc. will hereinafter be referred to as the "Railroad".

100-01.02 MATERIALS. None.

100-01.03 CONSTRUCTION. Railroad traffic shall be maintained at all times with safety and continuity within the limitations stated below, and the Contractor shall conduct all operations on, over, and adjacent to the Railroad's property fully within the rules, regulations, and requirements of the Railroad. The Contractor shall be responsible for acquainting himself with such requirements as the Railroad may demand.

Before proceeding with any construction work on, over, or adjacent to the Railroad's property, the Contractor shall submit Plans and a detailed description of the Method Of Procedure, which will be followed for work in these areas for the approval of the Engineer and the Railroad; however, such approval shall not serve in any way to relieve the Contractor's responsibility for the adequacy and safety of the Method Of Procedure.

Since the work in the field will not be permitted to proceed until the Plans and Method of Procedure have been approved by the Authority's Engineer and the CSX Railroad Engineer, it shall be the responsibility of the Contractor to submit his Plans and Method of Procedure promptly so that unnecessary delays in construction operations will be avoided.

The Contractor shall be required to submit to the Railroad a written Safety Program prepared by the Contractor for the education and protection of his employees. This program shall address the hazards and safety considerations in working in the vicinity of the Railroad's property and operation.

No work shall be performed on these portions of the project until such times as all Insurance Policies, and other requirements of the Railroad have been complied with and their approval, in writing, has been obtained by the Engineer.

The proper official of the Railroad to be contacted is as follows:



CSX TRANSPORTATION, INC.

Mr. Carl A. Roe, Jr., P.E., Principal Engineer
500 Water Street
13th Floor #J301
Jacksonville, FL 32256
Telephone: (904)-245-1036

Except in emergencies, contact shall be made with the above specified official through the Engineer.

All construction performed on, under, adjacent to, or over Railroad property will be subject to the inspection and approval of the Railroad.

At least ten (10) days advance notice shall be given, through the Engineer, to the Railroad, prior to entering upon or commencing any work on Railroad property.

Scheduling of the Contractor's operations that may affect the Railroad shall be coordinated through the Railroad. Scheduling or permission to occupy the track shall be made through the appropriate Yardmaster in addition to the above specified official.

All work herein provided to be done on, over, and adjacent to the Railroad's property shall be performed by the Contractor in a manner satisfactory to the Railroad, and shall be performed at such times, and in such a manner, as not to interfere with the movements of trains or traffic upon the tracks of the Railroad. The Contractor shall use all reasonable care and precaution in order to avoid accidents, damage, delay, or interference with the Railroad's trains or other property.

The Contractor shall consult the Railroad in order to determine the type of protection to ensure safety and continuity of Railroad traffic incident to the particular methods of operation and equipment to be used on the work.

The Railroad will furnish such qualified Flagmen, Signalmen, or Protection Men other than Crossing Watchmen, as may be required, to insure complete protection of train operations and Railroad facilities. The need for this type of service will be determined on the basis of Railroad Regulations and the Contractor's approved Construction Schedule. No work shall proceed without proper protection on the site. The providing of Watchmen and Guards, or any other precautionary and protective services by the Railroad, shall not relieve the Contractor from liability for payment of damages caused by or in consequence of the Contractor's operations.

All expenses incurred in connection with protection of Railroad facilities by Railroad Employees will be borne by the Maryland Transportation Authority. Billings for such



services or expense will be made directly to the Maryland Transportation Authority by the Railroad.

It shall be expressly understood that this Contract includes no work for which the Railroad is to be billed by the Contractor, and it shall be further understood that the Contractor is not to bill the Railroad for any work which he may perform, unless the Railroad gives written permission that such work be performed at the Railroad's expense.

Any work performed by the Railroad at the Contractor's request, other than protective services and work specifically designated in these Special Provisions, shall be paid for by the Contractor immediately upon presentation of the bills by the Railroad. Final settlement by the Maryland Transportation Authority with the Contractor shall be contingent upon: **(a)** the Contractor showing proof that the Railroad's property has been cleared of all machinery, equipment, surplus materials, false work, rubbish, temporary buildings, and other property in a condition satisfactory to the Railroad; **(b)** the Contractor showing proof that no bills are owed by the Contractor to the Railroad in connection with the work performed on this project.

The Contractor shall secure permission from the Railroad, in writing, for the erection of any temporary structures, scaffolding, rigging on, over, or adjacent to the Railroad's property. Forms for concrete, false work, and bracing on, or over the Railroad's property shall be approved by the Railroad with respect to any reduction of existing clearance. All work on or over the Railroad's property shall be approved by the Railroad with respect to any reduction of existing clearance. All work on or over the Railroad's property shall be performed under the supervision of both the Engineer and the Railroad.

Approved minimum temporary construction clearances from Railroad tracks are 22.00 ft. vertical from top of rail and 18.00 ft. horizontal from track centerline. Approval for clearances less than noted must be obtained by the Contractor through the Engineer from the Railroad and from the regulatory agency having jurisdiction over Railroad clearances in the State of Maryland before beginning any work involving such clearances.

The Contractor shall be held responsible to see that his employees enter upon Railroad or other property through points of access designated by the property owner. Operations within these properties shall be confined to the rights-of-way as shown on the Drawings and as designated by the Engineer.

Should the Contractor require a temporary grade crossing of Railroad tracks, the Contractor shall be required to apply for and execute the standard Private Grade Crossing Agreement for each crossing required. Application for the crossing shall be



Maryland
Transportation
Authority

SPECIAL PROVISIONS
CONTRACT NO. FT 2266-000-002
Page 4 of 6

made to the Railroad at least six weeks before the crossing is required. A Letter Size Plan showing location and size of crossing should accompany the letter of application. The letter should state the purpose for which the crossing is needed and the expected life of the crossing. The Contractor shall pay all construction, maintenance, removal, protection, and other costs. The roadbed shall be restored to its original condition.

The Contractor shall conduct his operations both on and off Railroad right-of-way so that no earth, mud, silt, or other foreign matter will be deposited on Railroad ballast or cause flooding or saturation of subgrade. In order to accomplish this, it may be necessary for the Contractor to construct temporary drainage facilities, temporary sheeting or take other precautionary action, such as nailing canvas or other similar materials to the ties to cover the ballast. The protective measures shall be performed by the Contractor at the Contractor's own expense in a manner satisfactory to the Railroad. However, in addition to the aforementioned protective measures, if the Railroad track ballast does become fouled due to the Contractor's operations, the Railroad, with its own forces, will remove the fouled ballast and replace it with clean ballast. The charges for this work will be billed against the Contractor by the Railroad.

The Contractor shall furnish and maintain during all construction work, such watchmen, lights, barricades, fences, and other appropriate protection as, in the opinion of the Railroad, shall be necessary for the protection of all persons having access to property and facilities of the Railroad.

Every Bidder is required to ascertain from the Railroad its rules, regulations, and requirements and what, if any, delays that he shall be subjected to, or scheduled days when work would be permitted, in connection with the supporting of tracks, and in connection with other Railroad operations, and every Bidder will be assumed to have included in his Bid Price, all costs and expenses and all risks of loss and damage to him, due to such delays, rules, regulations, and requirements.

Should any damage occur to Railroad property as a result of the Contractor's operations, the Railroad may repair such damage and perform any work for protection of its property it may deem necessary and the actual cost for such work shall be borne by the Contractor.

The Contractor will not be permitted to use Railroad personnel for the Contractor's purposes when such personnel are required at the immediate site of project construction by the Railroad solely for the safe operations of the Railroad.

Any approvals given by the Railroad will not be considered as a release from responsibility for any damage to the Railroad by the acts of the Contractor, his Sub-Contractors, or those of the Contractor's or Sub-Contractor's employees.



100-01.03.01 Shop and Working Drawings for Railroad Approval. Where the Contract Documents require that Shop and/or Working Drawings are to be submitted for Railroad review and approval, such submission shall be as required above and modified herein.

Six (6) copies of Shop AND/OR Working Drawings shall be submitted through the Engineer to the Railroad at least sixty (60) calendar days in advance of their being required for the work. All Working Drawings submitted for Railroad approval shall be certified by a Professional Engineer registered in the State of Maryland with expertise in the area of work to be performed.

No work shall be performed until the Working Drawings are approved by the Engineer and the Railroad. Approval of the Working Drawings by the Engineer and the Railroad shall not relieve the Contractor's responsibility for errors in dimensions, elevations, or design calculations and for performance of the work in a safe manner without endangering the safety of the Railroad personnel, equipment, or the Contractor's workmen.

The Working Drawings shall clearly show all dimensions, sizes of members, types of materials, and all other pertinent information as may be required by the Engineer and the Railroad to permit proper checking for such working drawings. The Contractor shall also submit along with the Working Drawings, copies of the Design Calculations.

Where required, Working Drawings shall be prepared and submitted for Railroad approval indicating the location of all cranes with respect to the tracks, capacity of cranes, boom length and the estimated lifting loads. All cranes and associated hardware used in the individual picks shall be rated for 150% of the service weight of the pick (i.e., F.S. = 1.5).

100-01.03.02 Insurance. The Contractor shall purchase and maintain for the length of the project the following Insurance Policies in addition to those required in the Specifications and in other sections of these Special Provisions.

- 1. Contractor's Public Liability and Property Damage Insurance:** Limits not less than \$2,000,000 per occurrence for Bodily Injury and \$2,000,000 per occurrence for Property Damage.
- 2. Contractor's Protective Public Liability and Property Damage Insurance:** If any part of the work is to be performed by a Subcontractor, the prime Contractor Shall carry in the Contractor's own behalf, insurance of same limits as set forth in Paragraph 1, above.



3. Railroad Protective Public Liability and Property Damage Insurance: This Policy shall name the respective "Railroad" as "The Insured" and shall be written on the form prescribed by the U.S. Department of Transportation, Federal Highway Administration, in the Federal Air Highway Program Manual, Volume 6, Chapter 6, Section 2, Subsection 2, Railroad-Highway Insurance Protection Required for Contractors.

Limits of Liability shall be in the amount of \$2,000,000 for bodily injury and property damage per occurrence with an aggregate of \$6,000,000 per Annual Policy Period.

The limits stated herein have been established after reviewing the work listed in the Contract. Should the Contractor be otherwise using Railroad property (e.g., temporary grade crossing) he or she may be subject to other requirements. The Contractor is required to communicate with the Railroad and provide for complying with all their requirements.

The original of Policy (3) must be furnished to and approved by the Railroad.

For Policy (1) and (2), Certifications are to be furnished to the Maryland Transportation Authority and to the Railroad on request. In all instances, the Contractor must furnish evidence to the Maryland Transportation Authority and Railroad that the insurance has been purchased and is in force until the Contract is completed and accepted.

The Contractor will not be permitted on Railroad property until Insurance Policy(s) have been approved. Policies, notices of cancellation or change, etc., are to be sent by the Contractor directly to the Engineering Officer of the Railroad. Contractor and the Contractor's Insurance Representatives must reconcile all Policy requirements to the satisfaction of the Railroad and the Engineer.

100-01.04 MEASUREMENT AND PAYMENT. Work on Railroad property during the life of the Contract and all incidental costs imposed on the Contractor due to the operations of the Railroad will not be measured for payment, but the cost thereof shall be included in the Contract Unit Prices for the various construction items affected by these requirements.

An allowance of \$75,000.00 has been established for this item in the Schedule of Prices. This item, Miscellaneous Reimbursable Railroad Expenses, will provide compensation to the Contractor for the costs of Railroad Insurance and Permits. The costs of the Contractor's time utilized to secure the Permits and Insurance will not be paid under this item, but costs thereof will be incidental to other items in the Contract. There is no guarantee that any or all of this item will be used during the term of the Contract.



**CATEGORY 100
PRELIMINARY**

SECTION 103 — ENGINEERS OFFICE

103.03 CONSTRUCTION.

DELETE: 103.03.06 Microcomputer System for all Offices in its entirety.

INSERT: The following.

103.03.06 Microcomputer System for all Offices.

(a) Desktop Unit.

- (1) IBM compatible with an Intel Pentium 4 or AMD processor.
- (2) Minimum microprocessor speed of 3.4 GHz.
- (3) Minimum hard drive storage of 80 GB (gigabyte).
- (4) Minimum of 2.0 GB RAM (Random Access Memory).
- (5) Enhanced 101 key keyboard with wrist rest.
- (6) Super Video Graphics Accelerator (“SVGA”) with 16MB memory.
- (7) Modem 56K BPS, ITU V.92 compliant – required for remote dial-in to the computer to provide MCMS system administration.
- (8) Full Duplex Sound Card (Sound Blaster Pro & Windows Compatible).
- (9) Audio Speakers.
- (10) Mouse with mouse pad.
- (11) One CDRW/DVDRW combo drive. Min Speed = 48X.
- (12) One Parallel Port, One Serial Port, Two USB Ports.

(b) Operating System. Minimum Microsoft® Windows XP.

(c) Video Monitor. Color Super VGA monitor conforming to Energy Star requirements with a minimum screen size of 17-inch flat panel.

(d) Printer/Scanner. HP (Hewlett-Packard) Photosmart C6180 All-in-One Inkjet Printer, 32 PPM, 4800x1200 DP, Color, 64MB, PC/Mac. Office jets and Bubble jets will not be accepted.



(e) Software.

- (1) Microsoft® Office 2000/XP Professional for Windows™ or later.
- (2) Antivirus software shall be installed and configured to perform an automatic update when the microcomputer system connects to the Internet.

(f) Internet Access. The microcomputer system shall be provided with unlimited DSL/Broadband or better Internet access approved by the Engineer.

(g) Accessories.

- (1) Uninterruptible power supply (“UPS”).
- (2) Standard computer workstation with minimum desk space of 60 X 30 in. and a swivel type office chair, padded with arm rests.
- (3) 8-1/2 X 11 in. xerographic paper to be supplied as needed.
- (4) Toner or ink as needed for printer.
- (5) Maintenance agreement to provide for possible down time.
- (6) Physical security system to deter theft of computer components.
- (7) Blank recordable CD-R media for re-writable CD-ROM drive to be supplied as needed.
- (8) One – USB 2.0 Flash Drive (2GB of Memory).

(h) Notes.

- (1) The microcomputer system shall be completely set up ready for use on or before the day the Engineer’s Office is to be occupied.
- (2) All software stated above shall be supplied on original disks with manuals and be retained in the construction field office for the duration of the Contract.
- (3) If for any reason the system fails to operate, the system shall be replaced or repaired within 48 hours.
- (4) When the microcomputer system is no longer required, the Construction Management software system including original user/operator guide manuals, program disks, and all data files will be removed by the Engineer and delivered to the Area Engineer and become the property of the Authority. The remaining microcomputer system shall remain the property of the Contractor.
- (5) Type ‘C’ and Type ‘D’ Engineer’s Office shall have two (2) complete microcomputer systems.



Maryland Transportation Authority

SPECIAL PROVISIONS
104 — MAINTENANCE OF TRAFFIC

Contract No. FT-2266-000-002
Page 1 of 5

CATEGORY 100
PRELIMINARY

SECTION 104 — MAINTENANCE OF TRAFFIC

Refer to Section 104 of the Standard Specifications.

104.00 GENERAL.

INSERT: The following:

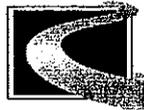
- 1) This project affects the Hanover Street Ramp to I-95 Southbound in Baltimore City and two (2) Baltimore City roads. **Long term lane closures including the complete closure of the ramp and implementing the detour as shown on the plans will only be permitted for sixty (60) consecutive calendar days.**
 - a) Work affecting the I-95 On-Ramp will require coordination with Maryland Transportation Authority.
 - b) Work affecting Hanover Street and McComas Street will require coordination with Baltimore City Department of Transportation.

AGENCY CONTACTS

Pre-Construction/Existing Contract Coordination

MARYLAND TRANSPORTATION AUTHORITY

CONTACT	TITLE	PHONE NUMBER
Mr. David Roehmer	Regional Administrator, Baltimore Harbor and Fort McHenry Tunnels	(410) 537-1310
Mr. Nafiz Alqasem	Project Manager	(410) 537-7821
Mr. Michael Darago	Maintenance Supervisor Fort McHenry Tunnel	(410) 537-1269
Ms. Roxane Mukai	Traffic & Planning Manager	(410) 537-7848



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS
104 — MAINTENANCE OF TRAFFIC

Contract No. FT-2266-000-002
Page 2 of 5

CITY OF BALTIMORE

CONTACT	TITLE	PHONE NUMBER
Mr. Randall Scott	Traffic Engineering	(443) 984-2153

104.01 TRAFFIC CONTROL PLAN (TCP)

104.01.01 DESCRIPTION.

DELETE: The first sentence of the last paragraph: "The Contractor...equipment and debris." in its entirety.

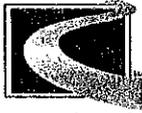
INSERT: The following:

The TCP for work consists of the Maryland Standard Traffic Control Typicals (referenced in the Contract Drawings) as well as several multi-phase Maintenance of Traffic schemes (included in the Contract Drawings), which will be employed as required to perform all construction and installation. This TCP will require various extensive lane shifts during each Construction Phase.

Roll up signs shall not be used on I-95. All signs must be removed or covered when not applicable. No lane closures can be made without prior written approval of the Project Engineer.

ALLOWABLE LANE CLOSURE SCHEDULES
BALTIMORE CITY STREETS

TIME OF DAY	DAYS OF THE WEEK	ALLOWED CLOSURES
6:00 PM – 12:00 AM	Friday	Single Lane/ Shoulder Closure
All Day (24 Hours)	Saturday-Sunday	Single Lane/ Shoulder Closure
12:00 AM – 6:00 AM	Monday	Single Lane/ Shoulder Closure



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS
104 — MAINTENANCE OF TRAFFIC

Contract No. FT-2266-000-002

Page 3 of 5

No lane closures are permitted on Holidays, or the day preceding and following the Holidays indicated below:

New Years Day
Good Friday
Easter Sunday
Memorial Day
Independence Day
Labor Day

No lane closures are permitted on Holidays, or two days preceding and following the Holidays indicated below:

Thanksgiving Day
Christmas Day

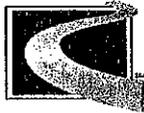
If a Holiday happens to fall on a Thursday, Friday or Monday, no closures will be permitted during that weekend.

On Monday of each week, the Contractor shall provide the Project Engineer with a complete list of anticipated lane closures, allowing the MdTA fourteen (14) calendar days notification.

The Engineer reserves the right to modify or expand the methods of traffic control or working hours as specified in the Contract Documents. Any request from the Contractor to modify the work restrictions shall be in writing and shall require written approval from the Engineer at least seventy-two (72) hours prior to implementing the change. The Contractor shall submit a copy of the original work restrictions with the written request.

No lane or shoulder closures will be permitted without written approval of the Engineer. No lane or shoulder closures will be permitted in either direction from two hours before to two hours after a scheduled event at M & T Bank Stadium (Ravens) and/or at Oriole Park at Camden Yards and/or certain events at the Mariner Arena and/or certain events at the Baltimore Convention Center. For estimating purposes the number of MOT impacting events shall be assumed as 11 events at M & T Bank Stadium per year, 84 events at Oriole Park at Camden Yards per year, and 5 events total per year at the Mariner Arena and Baltimore Convention Center combined.

The Contractor will not be permitted to use any portions of the existing roadway or interfere with or impede the free flow of traffic in any manner during prohibited hours. All existing tunnel bores and lanes of traffic must be completely open during these hours.



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS
104 — MAINTENANCE OF TRAFFIC

Contract No. FT-2266-000-002

Page 4 of 5

Lane closures will not be permitted during periods of falling precipitation, in heavy fog or otherwise poor visibility, or in the event of emergencies such as serious traffic accidents or unusually severe traffic congestion, as directed by the Engineer.

The Contractor must provide a means of communication to the Fort McHenry Tunnel Police detachment as a safety requirement. Acceptable forms of communication shall consist of a mobile telephone, citizens band or portable two-way radio.

When a lane or shoulder closure is in effect, except for long term closures involving temporary concrete barrier, work shall begin within one hour after the lane or shoulder is closed. Any delay longer than one hour with no work in progress shall require the Contractor to remove the lane or shoulder closure at no additional cost to the Authority. The Contractor's Traffic Manager shall attend pre-construction meetings and shall discuss traffic control and the Traffic Control Plan including procedures to be implemented for lane closures.

All lane closures shall be in conformance with the approved TCP and under the direction of the Contractor's Traffic Manager and the Engineer.

All lane and shoulder closures shall be restored at the end of the closure period and no travel lanes shall be reduced to less than eleven (11) feet along I-95, not including buffers. Prior to opening the closed lane or shoulder, the Contractor shall clear the lane or shoulder of all material, equipment, and debris.

No equipment, material or debris shall be stored or permitted to stand in open areas closer than thirty (30) feet from where traffic is being maintained unless protected by traffic barriers. The Contractor's employees shall not park their vehicles within the right-of-way of the through highway, unless written permission for an exception is given by the Engineer.

Failure to restore traffic capacity with the time specified will result in a deduction being assessed the next progress estimate in conformance with the following. This is in addition to the requirements specified in TC-4.02.

ELAPSED TIME, MINUTES	DEDUCTION
1-5	\$75.00
Over 5	\$50.00 per minute (in addition to the original 5 minutes)

When the Contractor submits an alternative TCP the following shall apply.

- (a) Plans or revisions to Plans submitted for approval shall be drawn to the same degree, likeness and sophistication as that of the original Plan.



Maryland Transportation Authority

SPECIAL PROVISIONS
104 — MAINTENANCE OF TRAFFIC

Contract No. FT-2266-000-002

Page 5 of 5

- (b) Submittals shall be on sheets measuring 22 x 34 in. with a standard margin and a Standard Title Block at the lower right corner approximately 4 x 8 in., or on 8-1/2 x 11 in. paper with a 1 in. margin and a Title Block.

The Title Block shall contain the following information in the order listed.

Name of Contractor (and Sub-Contractor, if applicable);
Address of Contractor (and Sub-Contractor, if applicable);
Sheet Title;
Administration/Authority Contract Numbers;
Complete Federal Aid Number, if any;
Prepared for Maryland Transportation Authority; and

- (c) Signature Block for approval by Contractor's Traffic Manager and date of approval. All lines shall be clean, sharp, solid, and heavy enough to permit adequate reproduction. The scale of phase details on the TCP shall be 1 in. equals 100 ft. Additional Plans that revise the Design Plans shall be at the same scale as the original Contract Plans.
- (d) The use of white pigment to cover lines is prohibited.
- (e) Plans shall indicate the proposed traffic movements throughout the area affected by the work for each Phase of Construction, have all routes labeled, show north arrow, and any other information that would clarify the TCP.

Any monetary savings from changes to the TCP made by the Contractor and approved by the Engineer will be divided equally between the Contractor and the Maryland Transportation Authority.

104.02.04 MEASUREMENT AND PAYMENT.

ADD: The following:

Maintenance of Traffic for all temporary lane closures including all labor, material, equipment and traffic control devices as shown on the MOT standards with the exception of protection vehicle will not be measured for payment but the cost will be incidental to the lump sum "Maintenance of Traffic" bid item. Example of temporary lane closures include, but are not limited to, lane closures for inspections, installing roadway joint seals, applying pavement markings, placement or relocation of signs, setting up temporary barrier, crash cushions, pick-up and delivery of equipment or materials, and other activities. Bid items for long term ramp closure and associated detour have been established and are included in the schedule of prices.



CATEGORY 100
PRELIMINARY

SECTION 113 — DIGITAL CAMERA

113.01 DESCRIPTION. Furnish a new or like new digital camera with a Color Inkjet Printer for use by Administration personnel. The digital camera and printer shall be delivered to the Engineer at the time of the Notice to Proceed. They shall remain operational and not be returned to the Contractor until final acceptance of the entire project, in conformance with GP-5.13.

113.02 MATERIALS.

(a) **Digital Camera.** The digital camera shall meet the following requirements and be furnished with the specified accessories.

- (1) Windows 2000, ME, XP compatible operating system
- (2) Photo Suite, Photo Deluxe, Picture Works, Photo Shop, or similar Photo Managing Software
- (3) 4.0 megapixel image resolution (minimum)
- (4) 3X optical zoom (minimum)
- (5) Two (2) sets of rechargeable batteries
- (6) SmartMedia Card or memory stick (512 MB minimum)
- (7) Pop-up or built-in flash modes
- (8) All items required for quick downloading
- (9) Auto-quick focus
- (10) Lens Cover, Shoulder Strap, and Carrying Case
- (11) AC adapter and Battery Charger

(b) **Color Inkjet Printer.** The printer shall conform to the following minimum requirements;

- (1) Resolution of 2400 x 1200 DPI (dots per inch).
- (2) Print speed of 17 PPM (pages per minute) for black and white and 13 PPM for color.
- (3) Memory 8 MB.
- (4) Duty cycle of 5,000 pages/month.

Office-jets and Bubble-jets will not be accepted.

113.03 CONSTRUCTION. Not applicable.

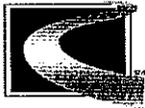


SPECIAL PROVISIONS INSERT
113 — DIGITAL CAMERA

CONTRACT NO. FT 2266-000-002
2 of 2

113.04 MEASUREMENT AND PAYMENT. The digital camera will not be measured but the cost will be incidental to the Contract price for Maintenance of Traffic unless otherwise specified in the Contract Documents. If the digital camera or printer becomes defective, is stolen, or for any other reason does not function as intended, it shall be replaced with an approved camera or printer at no additional cost to the Administration. A nonfunctioning or stolen camera or printer shall be replaced within eight hours after the Engineer notifies the Contractor.

Ownership of the camera and printer will remain with the Contractor. The Administration assumes neither responsibility nor liability for the condition of the camera when returned.



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS
400-01 — CRACK REPAIR BY EPOXY INJECTION

Contract No. FT-2266-000-002
Page 1 of 2

CATEGORY 400
STRUCTURES

SECTION 400-01 — CRACK REPAIR BY EPOXY INJECTION

400-01.01 DESCRIPTION. This work shall consist of furnishing all materials and equipment and repairing cracks in concrete structures by an epoxy injection system as specified in the Contract Documents and directed by the Engineer. Epoxy injection shall only be used to repair cracks from 0.005 inch to 0.25 inch in width. This work is at bridge pier caps, bearing pedestals, particularly, Pier Nos. 5-J and 7-J as well as the abutment and underside of deck as indicated in the Contract Documents and as ordered by the Engineer.

400-01.02 MATERIALS. The epoxy shall be able to be injected in the cracks under low pressure and shall consist of a non-sag epoxy bonder to seal the surface cracks, and epoxy to penetrate and fill the cracks, and bond the crack surfaces together.

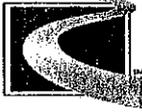
The epoxy injection system shall be one of the following:

MARK-8 Non-sag epoxy bonder and Mark 10 injection epoxy manufactured by POLY-CARB;
No. 22 Epoxy Paste and No. 4 Eva-Pox manufactured by E-poxy Industries, Inc.;;
Duralcrete Gel and Duralcrete LV injection epoxy manufactured by Dural International Corporation;

400-01.03 CONSTRUCTION. The Contractor shall furnish a copy of the comprehensive preparation and application instructions to the Engineer prior to the start of work. The Contractor shall arrange to have a manufacturer's representative at the job site to familiarize the Contractor and the Engineer with the Epoxy materials and application procedures. The representative shall direct the repair of at least one complete crack with epoxy bonder and epoxy injection, to assure that personnel are adequately informed to satisfactorily perform the remaining repairs. There shall be no separate payment for such arrangements and the cost shall be incidental to this item.

The Contractor shall follow the manufacturer's recommendations for surface preparation, mixing of the components of the bonder epoxy and injection epoxy system, surface sealing and applications and all other work. If there is a conflict between the Contract Documents and the manufacturer's recommendations, the manufacturer's recommendations shall prevail.

Concrete surfaces adjacent to the cracks to be sealed shall be cleaned to the extent necessary to achieve an adequate bond with the epoxy bonder and only by approved methods that will not allow abrasive grit or concrete dust to get into the crack(s). The use of solvent or thinners in cracks or on the bonding surfaces will not be permitted. Port holes shall be dust free.



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS

400-01 — CRACK REPAIR BY EPOXY INJECTION

Contract No. FT-2266-000-002

Page 2 of 2

Depth and spacing of holes at injection ports shall be established with due consideration of the crack widths and depths and injection pressure to ensure that no further damage will be done to the member being repaired. Substrate temperatures shall be greater than 45° F during the epoxy application.

The Contractor shall be responsible for cleaning and disposal of spills and excess material.

The Contractor shall be responsible for the removal of injection ports and surface sealer.

400-01.04 MEASUREMENT AND PAYMENT. Epoxy Pressure Injection shall be measured and paid for at the Contract unit price per linear foot. The payment will be full compensation for surface preparation, application, drilling, injection, furnishing, equipment, tools, labor, materials (including both bonder and injection epoxy), and incidentals to perform the work.



Maryland Transportation Authority

SPECIAL PROVISIONS
400-02 — MISCELLANEOUS REPAIRS

Contract No. FT-2266-000-002
Page 1 of 2

CATEGORY 400
STRUCTURES

SECTION 400-02 — MISCELLANEOUS REPAIRS

400-02.01 DESCRIPTION. This work consists of various miscellaneous repairs on the bridge in this Contract. The following repairs are included in this section.

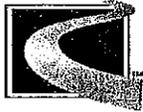
1. Replace loose and missing connection bolts. (Not including anchor bolts.)
2. Replace nuts and washers on bearing anchor bolts.
3. Caulk and seal joints.

In addition repair items discovered during the work and as ordered by the Engineer.

400-02.02 MATERIALS. All materials listed in the Standard Specifications for Construction and Materials and as ordered by the Engineer.

400-02.03 CONSTRUCTION. Exact locations, sizes, quantities, etc. of these repairs have not been determined. All Miscellaneous Repairs shall be performed at locations approved by the Engineer. Methods of repair and materials for the repair shall follow good construction practices and shall be approved by the Engineer prior to starting work. This section shall generally cover some of the known repair types but shall not be considered a complete list of repairs or a complete description of the repairs.

1. **Replacement of Loose and Missing Bolts.** All loose bolts and nuts are to be removed and shall become the property of the Contractor, and shall be removed from the site. Loose bolts and/or nuts are not to be reused at any location. New bolts shall be installed in all bolt holes and tightened in accordance with Subsection 430.03.17 of the Standard Specifications. Existing bolts that may need replacement are 7/8" ASTM A-325 High Strength Bolts, Type 3.
2. **Replace Missing Nuts and Washers on Anchor Bolts.** Existing anchor bolts shall be cleaned and if required, re-threaded. New washers and nuts shall be installed. A 1/2" gap shall be provided between the nut/washer and the top of the bearing so that the bearing can move freely. The bolt threads shall be burred above the nut to prevent removal of the nut. Existing nuts that may need replacement are hex nuts for 2" diameter anchor bolts. Existing washers that may need replacement at Abutment J, Pier 5-J and Pier 7-J (back only) are 10"x4 1/2"x1/2" thick elastomeric washers bonded to 10 1/2"x 5"x3/8" steel washers top and bottom. Existing washers that may need replacement at Pier 7-J (ahead only) and Pier 10-J are 10"x4 1/2"x 3/8" steel washers.



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS

400-02 — MISCELLANEOUS REPAIRS

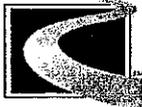
Contract No. FT-2266-000-002

Page 2 of 2

3. **Caulk and Seal Joint.** Joints between concrete units (including but not limited to joints between slabs and walls, wall sections, abutments and wing walls, etc.) shall be caulked and sealed as directed by the Engineer using material as specified in Subsection 9.11.01 of the Standard Specifications. Prior to sealer application, all existing deteriorated seals and joint material, if present, and all other foreign material shall be removed from the joint and concrete surfaces shall be prepared per the manufacturer's recommendations.

Any other repair item requested by the Engineer shall be completed to the satisfaction of the Engineer.

400-02.04 MEASUREMENT AND PAYMENT. Three separate pay items are provided in this contract for miscellaneous repairs. Replacement of Loose and Missing Bolts and Replace Nuts and Washers on Anchor Bolts shall be measured and paid for at the Contract unit price per each. Caulk and Seal Joint shall be measured and paid for at the Contract unit price per linear foot. The payment will be full compensation for all labor, equipment, tools, disposal, materials and incidentals necessary to perform the work.



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS

**400-03 — PATCH SPALLED AND DETERIORATED
CONCRETE**

Contract No. FT-2266-000-002

Page 1 of 3

**CATEGORY 400
STRUCTURES**

SECTION 400-03 — PATCH SPALLED AND DETERIORATED CONCRETE

400-03.01 DESCRIPTION. This work shall consist of the preparation and furnishing of all materials required to patch existing spalls and areas of deteriorated concrete where specified in the Contract Drawings and as ordered by the Engineer. The patch shall be Portland cement concrete or non-shrink grout. These repairs are on various bridge structure units and at various locations. Spall locations may be horizontal, vertical, or overhead.

400-03.02 MATERIALS. Plasticized concrete shall be Mix No. 6 conforming to Section 902 of the Standard Specifications, with the exception that the coarse aggregate shall have 100-percent passing 3/8-inch sieve and the slump after adding a water reducing high range admixture shall not exceed 8-inches. Concrete shall be obtained from a plant conforming to Section 915 of the Standard Provisions.

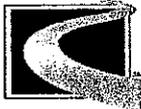
The Contractor may substitute a manufactured non-shrink grout bag mix. The grout shall be combined with water and any other items (including pea gravel) in accordance with the manufacturer's recommendations. Contractor shall submit to the Engineer for approval documentation on the manufacturer and product to be used.

400-03.03 CONSTRUCTION. The Contractor shall inspect the concrete surfaces to be repaired in the presence of the Engineer to determine the exact limits and locations of all areas to be repaired.

The Contractor shall make a 3/4-inch deep saw cut around the perimeter of the repair area. The concrete shall be removed to sound concrete with a 30-pound maximum size hammer or hand tools. The Contractor shall thoroughly blast and vacuum the newly exposed area prior to forming. All resulting debris shall be removed from the site.

The Contractor shall remove concrete material in a manner to facilitate uniform placement of fresh concrete; slope upper area of excavated voids to preclude entrapping air and forming hollow spots in the freshly placed concrete. Within 1-inch of the surface, the upper outline shall be essentially normal (perpendicular) to the surface. All surfaces of exposed concrete and reinforcing steel shall be cleaned of oil, solvent, grease, dirt, dust, bitumen, rust, loose particles and foreign matter.

The Contractor shall use caution where reinforcing steel is uncovered so as not to damage the steel or its bond in the surrounding concrete. Do not use pneumatic tools in direct contact with reinforcing steel. Use a 30-pound maximum size hammer for chipping behind reinforcing steel.



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS
400-03 — PATCH SPALLED AND DETERIORATED
CONCRETE

Contract No. FT-2266-000-002

Page 2 of 3

Clean exposed reinforcing steel in accordance with SSPC-SP-6, Commercial Blast Cleaning, to remove all contaminants, rust and rust scale.

In areas where reinforcing steel is surrounded by deteriorated concrete, has at least one-half its surface area exposed, or has less than 1-inch cover, the depth of removal shall be such as to include all deteriorated concrete but not less than 1-inch below or behind the reinforcing steel. Where the existing reinforcing steel is severely corroded or damaged, cut out reinforcing steel and replace with new reinforcing steel of the same sized and spacing. If the existing reinforcing steel is epoxy coated, the new reinforcing steel shall be epoxy coated. The new reinforcing steel may be lapped, welded or mechanically attached to the existing reinforcing steel. If epoxy coated reinforcing steel is welded, all areas of the coating that are damaged by the welding process must be repaired to the satisfaction of the Engineer. Where existing steel is determined by the Engineer to have insufficient cover, either replace reinforcing steel or adjust as directed. Remove concrete to a minimum depth of 1-inch behind the new steel.

The Contractor shall form excavated areas on vertical surfaces of concrete members by securing the forms in place. Design forms so that placement access will be at the top of each formwork assembly. The Engineer shall approve attachment of forms to the existing structure.

The Contractor has the option of using non-shrink grout or plasticized concrete to repair all concrete spalls or delaminated areas. The plasticized concrete shall be batched at a plant, unless written approval from the Engineer has been received to hand mix at the site. To batch at the site, the Contractor shall submit to the Engineer for approval, the procedures and methods for measuring and batching, including quality control methods.

The non-shrink grout shall be mixed and placed according to the manufacturer's recommendations. The plasticized concrete shall be placed according to Subsection 420.03.04 of the Standard Specifications.

Use of bonding compounds for placement of plasticized concrete shall only be permitted by the written approval of the Engineer. The Contractor shall provide documentation that the bonding compounds and the plasticizer are compatible. Dampen exposed concrete surfaces immediately prior to placement of fresh concrete. Small holes may be drilled into forms to permit air to escape during pouring and consolidation. After curing and stripping of forms, blend the patched area to match the physical appearance of the adjacent area as close as possible.

The Contractor shall not place any repair material if the temperature is predicted to fall below 38°F during the curing period. If the temperature does fall below freezing during the curing period, the Contractor shall take appropriate actions to protect the material to the satisfaction of the Engineer. Failure to protect the material during freezing temperatures to the satisfaction of the Engineer shall result in the repair being rejected and redone by the Contractor at no additional cost to the Authority.



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS

400-03 — PATCH SPALLED AND DETERIORATED
CONCRETE

Contract No. FT-2266-000-002

Page 3 of 3

400-03.04 MEASUREMENT AND PAYMENT. Patch Spalled and Deteriorated Concrete shall be measured and paid for at the Contract unit price per square foot. The measurement shall be made in the plane of the concrete surface that is being repaired. In the event that the repair contains portions of two intersecting planes, the measurement shall be in the plane that results in the larger area. The payment will be full compensation for all labor, equipment, tools, disposal, saw cutting, curing, materials and incidentals necessary to perform the work. Three types of repairs are shown in the Contract Plans, and each type of spall repair shall be paid for at the Contract unit price bid for that repair type, Patch Spalled and Deteriorated Concrete – Deep Spall, Patch Spalled and Deteriorated Concrete – Shallow Spall, and Patch Spalled and Deteriorated Concrete – Corner Spall



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS

**400-04 — REPLACEMENT OF SCUPPER DOWNSPOUTS
AND CLEAN-OUTS**

Contract No. FT-2266-000-002

Page 1 of 1

**CATEGORY 400
STRUCTURES**

**SECTION 400-04 — REPLACEMENT OF SCUPPER DOWNSPOUTS
AND CLEAN-OUTS**

400-04.01 DESCRIPTION. This work shall consist of removal and cleaning of all or portions of existing downspouts and installation of new 6 inch diameter PVC sections of downspouts at Pier Nos. 7-J, 9-J and 10-J.

400-04.02 MATERIALS.

PVC Pipe 905, M 278, Schedule 40

400-04.03 CONSTRUCTION. Repair of Scupper Downspouts and Replacement of Clean-Out Caps. The Contractor shall cut off and remove the damaged section of downspout as directed by the Engineer. All remaining sections of pipes shall be completely cleaned out. The Contractor shall install a new PVC downspout section(s) that is mechanically connected to the existing metal pipe and glued to existing PVC pipe. Pipe runs may include elbows, bends, wyes or other pieces. The Contractor shall submit for approval details of the mechanical connection and any new attachments to the existing bridge. The discharge end of the new downspout shall be as directed by the Engineer and may not be to original location.

Damaged and missing clean-out caps shall be replaced with a new PVC cap that fits tightly with the existing pipe. If the female portion of the clean-out is damaged or missing, the section of downspout including the clean-out portion, shall be replaced as indicated above, and paid for as Repair of Scupper Downspouts.

400-04.04 MEASUREMENT AND PAYMENT.

Replacement of Scupper Downspout will be measured and paid for at the Contract unit price per linear foot. Payment shall be full compensation for all detail preparation and submittals, removal, disposal, cleaning, elbows, bends, support straps, material, labor, equipment, tools and incidentals necessary to complete the work.

Replacement of Scupper Clean-Out Cap will be measured and paid for at the Contract unit price of each. Payment shall be full compensation for all material, labor, equipment, tools, and incidentals necessary to complete the work.



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS
400-05 — EPOXY SEALER

Contract No. FT-226-000-002
Page 1 of 2

CATEGORY 400
STRUCTURES

SECTION 400-05 — EPOXY SEALER

400-05.01 DESCRIPTION. This work shall consist of furnishing all materials and equipment for sealing cracks in the tops of horizontal concrete structures such as pier caps and abutment beam seat, in particular, the south abutment, Pier 5-J and Pier 7-J using a flexible epoxy sealer and as directed by the Engineer. Epoxy Sealer shall only be used to repair cracks from 0.005 inch to 0.25 inch in width.

400-05.02 MATERIALS.

A flexible epoxy coating system with filler to provide non-slip surface such as:

Fox Industries	FX-440 Primer
	FX-531 Flexible Epoxy Coating
	FX-701 Filler

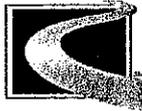
Or approved equal.

Epoxy resin shall be furnished in two components for combining in accordance with the manufacture's instructions immediately prior to use. Mixing of epoxy components shall be in accordance with the manufacture's instructions. Material and manufacturer must be submitted to the Engineer for approval.

400-05.03 CONSTRUCTION. The Contractor shall furnish a copy of the comprehensive preparation and application instructions to the Engineer prior to the start of work. The Contractor shall arrange to have a manufacture's representative at the job site to familiarize the Contractor and the Engineer with the epoxy materials and application procedures. There shall be no separate payment for such arrangements and the cost shall be incidental to this item.

The Contractor shall follow the manufacturer's recommendations for concrete surface preparation, mixing of the components of the epoxy and sealing cracks. If there is any conflict between the Contract Documents and the manufacturer's recommendations, the manufacturer's recommendations shall prevail.

Concrete surfaces adjacent to cracks shall be cleaned and free of surface moisture. The Contractor shall remove dust, laitance, grease, oils, curing compounds, and all foreign particles by water or abrasive cleaning prior to sealing the cracks.



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS
400-05 — EPOXY SEALER

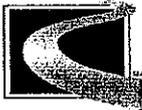
Contract No. FT-226-000-002

Page 2 of 2

After sealing the crack and prior to curing the epoxy, concrete surfaces at the crack and adjacent to the crack shall be covered with filler (dry sand) as recommended by the manufacture. Loose sand shall be removed after the epoxy is cured.

The Contractor shall be responsible for cleaning and disposal of spills and excess material.

400-05.04 MEASUREMENT AND PAYMENT. Epoxy Sealer shall be measured and paid for at the Contract unit price per linear foot. The payment will be full compensation for surface preparation, application of epoxy, broadcasting sand, removing loose sand, furnishing equipment, tools, labor, materials, and incidentals to perform the work.



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS
400-06 — CLEANING AND PAINTING CONCRETE
BARRIER WALLS

Contract No. FT-2266-000-002
Page 1 of 2

CATEGORY 400
STRUCTURES

SECTION 400-06— CLEANING AND PAINTING CONCRETE BARRIER WALLS

400-06.01 DESCRIPTION. This work shall consist of the surface preparation, painting, and barrier wall marker installation of concrete barrier mounted on the bridge.

400-06.02 MATERIALS. The coatings for concrete surfaces shall be waterborne acrylic paint meeting the following specifications:

Solids by Weight, % min.	56
Dry Opacity Contrast Ratio	0.98
0.005 in. (0.13 mm) wet film, min.	
Freeze-Thaw Resistance, Parabolic Dish Surface, C672, Modified Ratings	0-Rating @100 cycles
Color	Federal Standard 595 White 17875

Control and acceptance of the paint shall be based on the following limits:

Weight in lb/gal	Original Sample ±0.2
Infrared Spectrogram	Match Original Sample

All paint shall be from the same manufacturer.

Sand shall be free of organic and clay materials.

Barrier Wall Markers QPL

400-06.03 CONSTRUCTION. All surfaces to be painted shall be water blast cleaned with abrasive and shall be allowed to dry prior to the application of the coating. Nozzle pressure of the water blast cleaning equipment shall be 3000-3500 psi. Removed materials, scrap or waste material and debris shall be removed from the project and properly disposed of.



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS

400-06 — CLEANING AND PAINTING CONCRETE BARRIER WALLS

Contract No. FT-2266-000-002

Page 2 of 2

Two coatings shall be applied by brushing or rolling. At Jersey or F-shape type barriers the surfaces to be painted shall be the top and inside face and extended on to the roadway surface three inches. The rear face of the barrier walls and inside edge of the roadway shall be masked a minimum of 3 inches.

The paint shall have a minimum dry film thickness of 3 mils per each coat.

Each segment of the barrier shall be completely cleaned and inspected by the Engineer prior to any application of paint. Any areas not inspected prior to painting shall not be paid for. Should an area, which has been previously cleaned, become soiled or otherwise not meet the approval of the Engineer, the Contractor shall clean it at no additional cost to the Authority.

The Contractor shall take every precaution to protect motor vehicles, trains and other components of the bridge or roadway from contact with the paint. The Contractor shall be responsible for all damage done by his operations and shall take all necessary actions to protect property. The Contractor will be allowed a thirty day period, from receipt of a damage complaint by any party, to satisfy said complaint or the Authority shall have the right to satisfy the complaint at the expense of the Contractor.

Thinning of the paint shall not be permitted unless specifically approved in writing by the Engineer. Approval to thin paint shall not relieve the Contractor of his responsibility to obtain the required dry film thickness. The paint manufacturer's representative must be available to visit the jobsite upon the request of the Engineer to oversee the application of their product. The paint for the use on this project shall be stored at a central location near or on the project site elevated off of the floor for ventilation safety and stored for the protection of freezing and/or excessive heat according to the manufacturer's data sheet specifications.

Install Barrier Wall Markers as recommended by the manufacturer and as approved by the Engineer. The Barrier Markers shall be installed in conformance with Standard No. MD 665.02. The spacing and location shall be in conformance with Standard Nos. MD 665.03 and MD 665.04 respectively.

400-06.04 MEASUREMENT AND PAYMENT. Cleaning and Painting Barrier Walls shall be measured and paid for at the Contract unit price per square foot. The payment will be full compensation for surface preparation, paint, Barrier Wall Markers, broadcasting sand, removing loose sand, furnishing equipment, tools, labor, materials, and incidentals to perform the work.



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS

400-07 — BEARING PEDESTAL REPAIRS

Contract No. FT-2266-000-002

Page 1 of 1

**CATEGORY 400
STRUCTURES**

SECTION 400-07 — BEARING PEDESTAL REPAIRS

400-07.01 DESCRIPTION. This work shall consist of the repair of bearing pedestals while the bearing(s) remain in place.

400-07.02 MATERIALS.

Non-Shrink Grout	902.11
Steel	909.02 or A709, Grade 50
Sealant	911.01
Paint	912.02.03

400-07.03 CONSTRUCTION. The Contractor shall clean out all existing open voids and enlarge the surface opening by hand tool or small power tools so that the grout can flow into the void. All surfaces shall be cleaned to the satisfaction of the Engineer and any loose or foreign material removed. All exposed concrete surfaces shall be coated with a bonding compound and a flowable non-shrink grout poured into any open voids on the top of the pedestal.

400-07.04 MEASUREMENT AND PAYMENT. Bearing Pedestal Repair shall be measured and paid for at the Contract unit price per each dual bearing pedestal. The payment will be full compensation for all material, equipment, tools, labor, and incidentals to perform the work.



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS INSERT
426 — LMC OVERLAY FOR BRIDGE DECKS

CONTRACT NO. FT 2266-000-002
1 of 3

**CATEGORY 400
STRUCTURES**

**SECTION 426 — LATEX MODIFIED CONCRETE
OVERLAY FOR BRIDGE DECKS**

426.01 DESCRIPTION.

347 **DELETE:** Restrictions in its entirety.

INSERT: The following.

Restrictions. Placement of LMC on bridge decks is prohibited between December 1 and April 30 except that in Allegany, Garrett, and Washington Counties it is prohibited between October 15 and May 30. The Contractor shall not remove any portion of the existing bridge deck that can not be overlaid and cured prior to these restrictions.

426.03 CONSTRUCTION.

DELETE: 426.03.01(b) in its entirety.

INSERT: The following.

(b) Deck Surface Removal. Power operated mechanical type equipment shall be capable of uniformly removing the specified minimum depth from the existing concrete surface. This equipment is limited to depths not closer than 1/2 inch from the top of existing reinforcement. When additional removal is required, use power driven hand tools or hand tools.

347 **DELETE:** 426.03.02 Deck Removal and Repairs in its entirety.

INSERT: The following.

426.03.02 Deck Removal and Repairs. A minimum of 2 in. of concrete shall be removed from the bridge deck. The Contractor may only use mechanical type method to remove the concrete deck. The existing latex modified concrete overlay must be entirely removed. After completion of removal of deteriorated concrete, all rust, oil, or other foreign materials detrimental to achieving bond shall be removed followed by abrasive blasting and air blast or vacuum as determined by the Engineer.

The Engineer will determine any extraneous damage to the existing bridge caused by the Contractor's operations, which the Contractor shall repair at no additional cost to the Administration.

Regardless of the depth of removal of existing concrete, the LMC shall be placed to the original elevations and grades unless otherwise specified in the Contract Documents.

Existing reinforcement steel to be utilized in the finished deck shall conform to 421.03.07 except all bars shall be thoroughly cleaned by abrasive blasting. Where the



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS INSERT
426 — LMC OVERLAY FOR BRIDGE DECKS

CONTRACT NO. FT 2266-000-002
2 of 3

bond between existing concrete and reinforcement steel has been destroyed, or where more than half the diameter of the steel is exposed, the concrete adjacent to the bar shall be removed to a depth that will permit concrete bond to the entire periphery of the exposed bar. This clearance shall be a minimum of 1 in. unless lower bar mats make it impractical. Care shall be exercised to prevent cutting, stretching, or damaging any exposed reinforcement steel.

Spalled concrete, voids and other defects that are located within the proposed LMC overlay area shall then be repaired in conformance with the methods specified herein. Each repair shall include the removal of the additional deck material, all hand chipping, and filling the repair area voids with LMC overlay while applying the overlay.

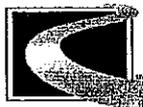
- (a) For cavities less than 1 in. deep, no additional work is required.
- (b) For cavities 1 to 3 in. deep, wire fabric shall be placed as specified in 423.03.04. Wire fabric will not be required for repair areas less than 2 ft².
- (c) For cavities over 3 in. deep but not full depth, the following provisions shall apply:
 - (1) If the repair crosses a proposed construction joint, a 1-1/2 x 3 in. keyway shall be provided at the vertical joint.
 - (2) The Contractor shall furnish and erect temporary protective shields as specified in 405.03.01 when the depth of removal reaches half of the original concrete deck thickness and deeper removal is anticipated.
- (d) For areas where the depth of removal is full depth, the following provisions shall apply in addition to the requirements of (c):
 - (1) In large areas, forms supplied to enable placement of the LMC overlay shall be supported by blocking erected from the stringers.
 - (2) In small areas, forms supplied to enable placement of the LMC overlay may be suspended from existing reinforcement bars by wire ties.

350 **DELETE:** 426.03.03 Surface Preparation in its entirety.

INSERT: The following.

426.03.03 Surface Preparation. The entire surface shall be thoroughly cleaned and abrasive blasted within 24 hours before placing the overlay. The abrasive blasting shall clean all reinforcement of visible rust and clinging concrete detached from the deck and all areas of concrete against which the overlay is to be placed. Abrasive blasting may be required on the day the overlay is to be placed so that reinforcement is free of visible rust, unless the Engineer determines that a thin coating of flash rust will be acceptable.

The surface shall be further cleaned by air blast followed by flushing with water. Prior to placing the LMC overlay, the surface shall be wetted and kept wet for at least one hour and puddles of water shall be removed.



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS INSERT
426 — LMC OVERLAY FOR BRIDGE DECKS

CONTRACT NO. FT 2266-000-002
3 of 3

353 **DELETE:** 426.03.06 Curing in its entirety.

INSERT: The following.

426.03.06 Curing. The surface of the LMC overlay shall be covered with a single layer of clean, wet burlap or wet cotton mat as soon as the surface will support it without deformation. Immediately following covering with wet burlap or wet cotton mat, a 4 mil layer of polyethylene film shall be placed on the burlap or cotton mat and the surface cured for 48 hours. Whenever cold weather protection is required, the polyethylene film shall be covered with R 12 insulating blankets. The Contractor shall provide a sufficient number of maximum/minimum recording thermometers to record temperatures in each LMC placement and ensure that all requirements outlined in 426.03.08 are satisfied.

After 48 hours, the curing material shall be removed and the LMC air cured for an additional 72 hours. White opaque burlap polyethylene sheeting may be substituted for the polyethylene film with approval of the Engineer, but shall not replace the wet burlap or wet cotton mat.

426.04 MEASUREMENT AND PAYMENT.

355 **DELETE:** 426.04.02, .03, and .04 in their entirety.

INSERT: The following.

426.04.02 Removal of existing concrete deck, regardless of the depth, will be measured and paid for at the Contract unit price per square yard for the Removal of Portions of Existing Deck item.

426.04.03 Furnishing of the latex modified concrete overlay will be measured and paid for at the Contract unit price per cubic yard for the Latex Modified Concrete Material item. Measurement for the volume of concrete will be based on the meter readings on the mixers dispensing the latex modified concrete excluding the calculated volume of any waste.

426.04.04 Placing, finishing, curing, and grooving of the latex modified concrete overlay, will be measured and paid for at the Contract unit price per square yard for the Placing Latex Modified Concrete Overlay item.

ADD: The following after 426.04.06.

426.04.07 Furnishing and installing any formwork required for full depth deck repairs will be measured and paid for at the Contract unit price per square foot for the pertinent Formwork for Full Depth Deck Repairs item. The measurement will be based upon the exposed opening at the bottom of the deck. The cost for the amount of form work extending beyond these limits will be incidental to the item.



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS

436 — CLEANING AND PAINTING EXISTING STRUCTURAL STEEL

CONTRACT NO. FT 2266-000-002

1 of 1

**CATEGORY 400
STRUCTURES**

SECTION 436 — CLEANING AND PAINTING EXISTING STRUCTURAL STEEL

Refer to Section 436 of the Standard Specifications for Construction and Materials

436.01.01 (d) Bearings and Beam Ends

Add the following paragraphs at the end of the section:

This work shall include cleaning and painting all beam ends at all locations where the roadway expansion joints are being modified as shown in the contract plans.

Field cleaning areas defined as beam or girder ends shall include all structural steel, including cross frames, end diaphragms and bearings, for a distance of 10 ft from the ends of stringers at the abutments, and 10 ft in each direction from the center line of the piers for a total of 20 ft.



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS INSERT
437 — GROUT ANCHOR BOLTS

CONTRACT NO. FT 2266-000-002
1 of 1

CATEGORY 400
STRUCTURES

SECTION 437 — GROUT ANCHOR BOLTS

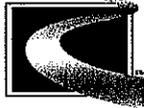
437.01 DESCRIPTION. This work shall consist of the preparation and furnishing of all materials required to grout existing anchor bolts where specified in Contract Drawings or as ordered by the Engineer.

437.02 MATERIALS.

Grout	902.11 (c),(d),(e)
-------	--------------------

437.03 CONSTRUCTION. Refer to 430.03.31 “Anchor Bolts” of the Standard Specification for Construction and Materials

437.04 MEASUREMENT AND PAYMENT. Grout Anchor Bolts shall be measured and paid for at the Contract unit price per each.



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS
SECTION 456 — SIGHT BARRIER

Contract No. FT-2266-000-002
Page 1 of 4

CATEGORY 400
STRUCTURES

SECTION 456 — SIGHT BARRIER

456.01 DESCRIPTION. This work is to replace the missing/damaged portion of the bridge mounted metal sight barrier. The Sight Barrier System shall consist of steel posts, steel bracing, steel panels, encasements, flashings and hardware necessary to construct a sight barrier to match the existing sight barrier system remaining on the Hanover Street On-Ramp Structure. All components shall be as specified unless prior approval for alternatives is obtained from the Authority.

456.02 MATERIALS.

Nuts	A563
Washers	F436
Steel Panels	ASTM A 653 Grade 33 through 80
Steel Posts (including plates and shapes)	A709, Grade 50
Steel Bracing	A709, Grade 50
Steel Encasement and Flashing	ASTM A 653 Grade 33 through 80

456.02.01 Hardware. No material substitutions will be permitted for anchor rods, nuts and washers. These items shall be hot dip galvanized in conformance with A 153.

456.02.02 Epoxy Zinc Rich Primer. The polyester coater shall provide and epoxy rich zinc primer to be used prior to the application of the polyester powder coating. The material shall withstand temperatures used for the polyester powder coating process and shall be subject to the approval of the Engineer. The color is to match the existing sight barrier system.

456.02.03 Steel Panels. A sample panel shall be prepared and delivered to the construction site. The Authority's approval of this panel shall be received before additional panels are manufactured. Whenever the original sample panels are rejected, additional sample panels shall be submitted for review until approved. Upon the Authority's approval of the sample panel and working drawings, the subsequent panels shall be equal in appearance to the approved panel. This panel shall be transported to the site and used as one of the panels in the sight barrier after all other panels have been accepted.



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS
SECTION 456 — SIGHT BARRIER

Contract No. FT-2266-000-002
Page 2 of 4

Panels shall have a minimum covering width of 12 inches. To prevent vibration, each panel shall have a male-female rib providing a friction interlock connection with adjacent panels, or otherwise shall adequately join in accordance with the manufacturer's specifications. With use of the friction interlock connection, sufficient connection strength to support its own weight without using fasteners when connecting to another panel and being in the vertical and horizontal positions must be ensured. Fabricate the wall to the shape required to match existing.

456.03 CONSTRUCTION. The Contractor shall submit working drawings and material certifications for review and approval by the Authority prior to the start of any fabrication. All design shall be in accordance with AASHTO Guide Specifications for Structural Design of Sound Barriers. The contractor shall verify existing dimensions and the locations of existing utilities prior to the start of any fabrication. All welding shall conform to AWS D1.

456.03.01 Galvanizing. All holes and welding required in the hardware shall be done before galvanizing. All hardware shall be free of oil or any mill coating. All welds shall be ground smooth, all weld spatter removed and hardware shall be free of burrs, rust or other surface imperfections.

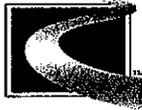
456.03.02 Anchor Assemblies. Anchor assemblies shall be assembled and placed at the elevation and spacing to match existing. The treads of the anchors shall be sufficient to provide for a ½ in minimum protrusion through the top of the nut when the sight wall is properly installed.

456.03.03 Posts. All posts shall be erected plumb at the specified alignment and at the appropriate spacing.

Polyester Coated Steel Posts. Steel posts shall be completely fabricated, including base plates and all holes drilled before applying the polyester coating system.

All steel posts shall be free of oil and any mill coating. All welds shall be ground smooth and all weld spatter removed. Steel posts shall be free of burrs, rust or other surface imperfections.

Steel posts and other nongalvanized items shall be abrasive blasted in conformance with SSPC-SP 10 to a surface condition of Near White. The cleaned surfaces shall be protected from conditions of high humidity, rainfall or surface moisture, and shall not be allowed to flash rust. The epoxy rich zinc primer shall be applied and cured at a minimum dry film thickness of 3 mils prior to the application of the polyester powder coating. The coating process shall ensure that all solvents in the epoxy zinc rich primer are removed prior to the application of the polyester powder coating.



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS
SECTION 456 — SIGHT BARRIER

Contract No. FT-2266-000-002
Page 3 of 4

When galvanized surfaces are to be polyester coated, the galvanizing shall be roughened with a brush blast cleaning conforming to SSPC-SP 7 prior to applying the polyester coating.

The polyester coating shall be applied as an electrostatically charged dry powder sprayed onto grounded posts using an electrostatic spray system. The polyester coating thickness after cure shall be 6 ± 2 mils.

The total thickness of coating, primer plus polyester coating, shall be 7 to 12 mils when measured as specified in G12.

After coating the posts shall be randomly checked for continuity using a 67 ½ volt wet sponge detector to check for holidays, pinholes and discontinuities. The coating thickness shall be checked with a properly calibrated gauge. Posts requiring limited repair for minor defects shall be touched up with a liquid touch-up. All polyester coated posts shall be wrapped to ensure safe arrival at the job site. At the job site and during installation, the utmost care shall be taken to prevent damage to the posts.

456.03.04 Steel Panels.

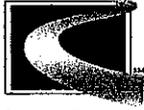
Defects and Tolerances. Cracked panels or panels determined by the Engineer which are not repaired or do not conform to the manufacturer's specified tolerances shall be rejected and replaced at no additional cost to the Authority.

Shipping, Handling and Erection. Panels shall be adequately protected by padding or other means to prevent bending or breaking during handling, storage, transporting, erection etc. Panels shall be adequately supported or braced during installation to ensure safety. The bracing or supports shall be maintained until proper alignment and adequate permanent support have been provided. No panel shall be left in an unsafe support condition.

When a panel is damaged, it will be evaluated by the Engineer to determine whether or not it can be used. If acceptable by the Engineer, damaged panels shall be repaired in a manner approved by the Engineer.

Panels shall be erected centered between posts within the manufacturer's tolerances assumed in the connection design.

The Engineer will inspect the panels again after erection to determine if they have been damaged.



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS
SECTION 456 — SIGHT BARRIER

Contract No. FT-2266-000-002
Page 4 of 4

456.04 MEASUREMENT AND PAYMENT. The payment shall be full compensation for all material, labor, equipment, tools, and incidentals necessary to complete the work. Sight Barrier System shall be measured and paid for at the Contract unit price per square foot of wall including posts, panels, stains and coatings, base plates, anchor assemblies, construction templates, temporary supports and hardware. Measurement will be based on approved dimensions, using the length along the face of the wall times the panel height.



Maryland
Transportation
Authority

Maryland Transportation Authority

SPECIAL PROVISIONS
SECTION 460 — EXPANSION JOINTS IN STRUCTURES

Contract No. FT-2266-000-002
Page 1 of 1

CATEGORY 400
STRUCTURES

SECTION 460 — EXPANSION JOINTS IN STRUCTURES

460.02 MATERIALS.

422 **ADD:** Neoprene Strip Seals 911.05

460.03 CONSTRUCTION.

423 **ADD:**

New seals, no matter the type or manufacturer, shall be in compression at 0 degrees Fahrenheit and shall not exceed manufacturer’s allowable specifications at 120 degrees Fahrenheit.

Portions of deck slabs shall be constructed in conformance with Section 420.03.

460.03.01 In-Place Testing.

424 **ADD:**

In-Place testing of bridge joints shall be required.

CHANGE:

In the first line of the second paragraph change the period from “...for a period of **five** hours...” to ‘...for a period of **two** hours...’.

460.04 MEASUREMENT AND PAYMENT.

425 **ADD:** At the end of Section 460.04.02:

Modifying Existing Bridge Roadway Joints shall be the payment item for Expansion Joints as indicated in the Contract Documents and shall be measured and paid for as indicated in this subsection.



**CATEGORY 500
PAVING**

**SECTION 559 — PERMANENT PREFORMED PATTERNED
REFLECTIVE PAVEMENT MARKINGS**

559.01 DESCRIPTION. This work shall consist of furnishing and applying permanent preformed patterned reflective pavement (PPPRP) markings as specified in the Contract Documents or as directed by the Engineer.

559.02 MATERIALS.

Permanent Preformed Patterned Reflective
Pavement Marking Materials 951.07

559.03 CONSTRUCTION.

559.03.01 General. PPPRP markings shall be applied in conformance with the manufacturer’s recommendations or as directed by the Engineer.

On new hot mix asphalt projects, the PPPRP markings shall be inlaid into the hot surface of the top course of pavement. No top course paving shall be permitted unless the stripping crew and marking materials are at the project site.

When the Contract Documents specifies the use of PPPRP markings on concrete pavements or existing asphalt pavements, the Contractor shall use heat, solvent, or other type of adhesive primer in conformance with the manufacturer’s recommendations.

Preformed legends and symbols shall conform to the applicable shape and sizes as specified in the MUTCD, and Contract Documents.

PPPRP markings shall conform to pavement contours and be resistant to deformation by traffic and damage from snow removal equipment. Surface preparation, use of solvents and primers and equipment used in the application of PPPRP markings shall conform with the manufacturer’s recommendations and be approved by the Engineer. After PPPRP markings are applied, they shall be immediately ready for traffic.

559.03.02 Quality Assurance/Quality Control. Refer to 549.03.01.

559.03.03 Cleaning Pavement Surfaces. Refer to 549.03.02.

553.03.04 Application. Refer to 549.03.03 and the following:

(a) Manufacturer’s Recommendations. The Contractor shall provide a copy of the manufacturer’s recommendations to the Engineer, and shall follow them for the installation of the line markings.

(b) Adherence. Adherence of PPPRP markings shall be randomly checked by using a paint scraper or another approved tool, which shall be held nearly parallel with the highway surface, so there is no dislodging of the tape.



SPECIAL PROVISIONS INSERT

CONTRACT NO. FT 2266-000-002

559 — PREFORMED PATTERNED REFLECTIVE MARKINGS

2 of 3

- (c) **Thickness.** The finished thickness of the PPPRP markings shall have a minimum caliper of 0.060 in. at the thickest portion of the patterned cross section, and a minimum caliper of 0.020 in. at the thinnest portion of the cross section. Measurements shall be made from the top of finished pavement surface.
- (d) **Color.** The color of the markings shall match Federal Standard 595 (33538 - yellow, 37886 – white, or 37038 - black). The Contractor shall supply the specified color chips for the Engineer’s use to visually determine that the PPPRP markings match the specified color.
- (e) **Retroreflectance.** Refer to 549.03.03(h) and the following:

MINIMUM RETROREFLECTANCE

COLOR	RETROREFLECTIVITY	CORRECTIVE ACTION
White	350 or higher	None
Yellow	250 or higher	
White	less than 350	Necessary corrective actions, removal, replacement
Yellow	less than 250	

- (f) **Width.** Refer to 549.03.03(e).
- (g) **Alignment.** Refer to 549.03.03(f).
- (h) **Layout Markings.** Refer to 549.03.03(i).

559.03.05 Quality Control Test Strip. Refer to 549.03.04.

559.03.06 Responsibility. Refer to Section 549.

559.03.07 Observation Period. The Contractor shall be responsible for any defects in materials and workmanship of the PPPRP markings for a period of 180 days from the date the markings are applied and under traffic.

The Engineer will not assess time charges during the observation period provided all other work on the Contract is complete. At the end of the observation period, the Engineer will inspect the pavement marking for durability, color, reflectivity, and inform the Contractor of all pavement markings that have failed and require replacement. The pavement marking will be considered failed for any of the following conditions:

- (a) More than five percent of the substrate is exposed in any 2000 ft section of longitudinal pavement marking line.
- (b) Retroreflectance values have dropped below 300 mcd/L/m² for white or 220 mcd/L/m² for yellow.
- (c) Marking is discolored on a visual comparison with the color chips.



SPECIAL PROVISIONS INSERT

CONTRACT NO. FT 2266-000-002

559 — PREFORMED PATTERNED REFLECTIVE MARKINGS

3 of 3

The Contractor shall remove and replace all failed PPPRP markings within 30 days of receiving written notification from the Engineer at no additional cost to the Administration. Work shall be in conformance with the manufacturer's recommendation and as approved by the Engineer before the project is accepted. The replacement markings shall conform to the same requirements as the original markings. If the work is not completed in this period, the Engineer will resume time charges until this work is completed.

At the end of the observation period, the Engineer will accept the work and terminate the Contractor's responsibilities upon satisfactory inspection of the PPPRP markings.

559.04 MEASUREMENT AND PAYMENT. Measurement and payment for the pertinent Permanent Preformed Patterned Reflective Pavement Marking items will be as specified in 549.04. The reflectometer will become the property of the Contractor at the completion of the project.



**CATEGORY 500
PAVING**

SECTION 565 — REMOVAL OF EXISTING PAVEMENT MARKINGS

565.01 DESCRIPTION. Remove existing pavement markings (lines, letters, numbers, arrows, and symbols) during temporary or permanent traffic shifts, and repairing any roadway areas damaged during the removal process. This Specification does not apply to raised or recessed pavement markers. Temporary blackout tape shall be applied when existing pavement markings will require salvaging for reuse after completion of temporary traffic shifts necessary to perform work specified in the Contract Documents. Refer to 104.11.02.

565.02 MATERIALS. Not applicable.

565.03 CONSTRUCTION. The Contractor shall layout and apply all new pavement markings (temporary or permanent) as specified in Section 549 before any removal of existing pavement markings begin.

565.03.01 Quality Control/Quality Assurance. At least two weeks prior to the start of pavement markings removal, the Contractor shall submit a Quality Control Plan (QCP) to the Engineer for review. The QCP shall contain (as a minimum) the following information:

- (a) How the Contractor proposes to perform the work while ensuring conformance with the Specifications.
- (b) Proposed method of removal based on road conditions, type and number of equipment to be used, manpower expectations, and time frame to complete the work based on maintenance of traffic (MOT) restrictions.
- (c) Location and quantity of markings to be removed.
- (d) Protective shielding plan and containment system, particularly in the case of markings that may contain toxic materials.

The QCP shall also detail when, how, and what corrective actions will be taken for unsatisfactory construction practices and deviations from the Contract Documents. Any deviation from the QCP shall be cause for immediate suspension of work. Operations shall not resume without the Engineer's approval.

565.03.02 Quality Control Test Strip. Prior to the beginning of work, the Contractor shall demonstrate the removal method to the Engineer for approval. A minimum of 100 ft of existing pavement markings shall be removed as a test strip at a location determined by the Engineer. If the method does not work or shows signs of damaging the road surface, then another method shall be tried. Additional control strips will be required. The preferred method is that which least damages the roadway and completely removes the markings.



SPECIAL PROVISIONS INSERT

CONTRACT NO. FT 2266-000-002

565 — REMOVAL OF EXISTING PAVEMENT MARKINGS

2 of 2

565.03.03 Methods of Removal. The following removal methods are based on the pavement condition and type of marking material:

- (a) **Manual.** A scraper or putty knife shall be used to lift tape from the pavement surface. Open flame for tape removal is prohibited.
- (b) **High Pressure Water Blasting.** A high pressure water blast shall be used to break the bond between the marking material and the pavement surface. The water blast may contain fine grit.
- (c) **Alternate Methods.** Abrasive blasting or grinding methods shall be submitted for approval to the Office of Materials Technology prior to use.

565.03.04 Cleaning Pavement Surfaces. Immediately behind the removal operation, a vacuum equipped street sweeper capable of removing all loose material shall be used to remove all dust and debris generated by the removal process prior to returning the area to traffic. The Contractor shall prevent debris from draining into inlets and waterways, and all debris shall be collected and disposed of on an approved spoil area or landfill.

565.03.05 Alignment. Removal shall be performed in a straight and uniform manner, and shall follow the longitudinal alignment of the markings with a lateral deviation of no more than 1 in. in any 10 ft section. Affected area shall not exceed 1/2 in. on either side of the existing marking. The depth shall be uniform throughout, 1/8 in. or less, with no gouge areas in the pavement surface. If a second pass is necessary to completely remove the markings, the edges of the groove shall be feathered to a width of 1.25 in. on each side for every additional 1/8 in. of depth.

565.03.06 Corrective Action. Any pavement surface damaged beyond the requirements specified herein by the Contractor's operations shall be repaired or repaved as determined by the Engineer at no additional cost to the Administration.

565.04 MEASUREMENT AND PAYMENT. The payment will be full compensation for the removal of the markings, pavement clean up, test strips, protective shielding, containment, disposal of marking material and pavement debris, and for all material, labor, equipment, tools, and incidentals necessary to complete the work.

Removal of the existing pavement markings will be measured and paid for at the Contract unit price for one or more of the following items:

- (a) Removal of Existing Pavement Marking Lines per linear foot, any width.
- (b) Removal of Existing Pavement Marking Letters, Symbols, Arrows, and Numbers per square foot.



**CATEGORY 900
MATERIALS**

665 **DELETE:** SECTION 902 — PORTLAND CEMENT CONCRETE AND RELATED PRODUCTS in its entirety.

INSERT: The following.

SECTION 902 — PORTLAND CEMENT CONCRETE AND RELATED PRODUCTS

902.01 STORAGE. Storage of materials shall conform to the Contract Documents and as directed by the Engineer.

902.02 CERTIFICATION OF PORTLAND CEMENT AND BLENDED HYDRAULIC CEMENT. The manufacturer shall furnish certification as specified in TC-1.02. The certification shall also include:

- (a) The mill shall report its quality control procedures, and submit a new report whenever there is a procedural change.
- (b) The mill's control laboratory shall be inspected by the Cement and Concrete Reference Laboratory of the National Institute of Standards and Technology on their regularly scheduled visits. The Engineer shall be provided with copies of the reports of these inspections along with an account of the action taken to correct cited deficiencies.
- (c) Records of data accumulated by the quality control procedures shall be produced upon request.
- (d) A certified document shall accompany each shipment stating that the contents conform to all applicable requirements. Additionally, the document shall show the producer's name, mill location, carrier number, date loaded, weight contained in carrier, silo number, consignee, destination, Contract number, and type of cement. The signature and title of the signer shall be shown on the document.
- (e) The mill shall, upon request, supply certified chemical and physical test values that can be associated with any sample representing cement drawn from a particular silo on a given date.
- (f) Acceptance of cement by certification will be terminated if test results differ from mill results by more than the precision limits given in the test method. The acceptance procedure will then revert to storage testing and approval prior to shipment.

902.03 HYDRAULIC CEMENT.

902.03.01 Portland Cement. M 85, with the fineness and the time of setting determined using T 153 and T 131, respectively.



902.03.02 Ground Iron Blast Furnace Slag. M 302, Grade 100 or 120. The Contractor may request to substitute a maximum of 50 percent of the weight of cement with ground iron blast furnace slag. When ground iron blast furnace slag is used, the minimum cement factor and water/cement ratio will be determined on the basis of the combined weight of the portland cement and ground iron blast furnace slag. When ground iron blast furnace slag is used to control alkali silica reactivity, see Table 902 B for percentage.

902.04 BLENDED HYDRAULIC CEMENT. M 240, Type I (PM) or a Type IP containing 15 to 25 percent pozzolan by weight of cement. Maximum loss on ignition is 3.0 percent. Do not use ground iron blast furnace slag for blending. The requirement for a manufacturer's written statement of the chemical composition is waived.

902.05 MASONRY CEMENT. C 91, except the water retention and staining tests are waived.

902.06 CONCRETE ADMIXTURES. Do not use concrete admixtures that contribute more than 200 ppm of chlorides based on the cement content when tested per MSMT 610. Use only prequalified admixtures.

Do not use pozzolan and Type I (PM) or Type IP cement in the same mix. Since the strength gains are delayed with these materials, a longer period of time may be required for curing and form removal.

902.06.01 Air Entraining Admixtures. M 154.

902.06.02 Chemical Admixtures. M 194, Type A, D, or nonchloride C.

902.06.03 High Range Water Reducing Admixtures. M 194, except that it shall be a liquid, the water content shall be a maximum of 85 percent of that of the control, and the durability factor shall be a minimum of 90. Use Type F for early strength, which shall produce a minimum compressive strength in 12 hours of 180 percent of that of the control. Use Type G when early strength is not specified. The manufacturer shall furnish certification as specified in TC-1.02. The certification shall include curves indicating the fluid ounces of admixture per 100 lb of cement as related to water reduction and strength gain for 12 hours when used with a minimum cement factor of 700 lb.

902.06.04 Pozzolans. The use of pozzolans may be requested to control alkali silica reactivity or for other reasons. When a pozzolan is used, determine the minimum cement factor and water/cement ratio on the basis of the combined weight cement and pozzolan. See Table 902 B for percentage of fly ash, and microsilica.

(a) **Fly Ash.** M 295, pozzolan Class C or F, except that the maximum permissible moisture content shall be 1.0 percent, and when used in concrete Mix Nos. 3 and 6 the maximum loss on ignition 3.0 percent.

(b) **Microsilica.** C 1240, except that the oversize requirement is waived.



902.06.05 Corrosion Inhibitors. Corrosion inhibitors shall be calcium nitrite based and contain a minimum of 30 percent active ingredients by mass. The gallonage of corrosion inhibitor used in the concrete mixture shall be included as water when determining the water/cementitious materials ratio.

902.07 PORTLAND CEMENT CONCRETE CURING MATERIALS. Use burlap cloth, sheet materials, liquid membrane forming compounds, or cotton mats.

902.07.01 Burlap. M 182, Class 1, 2, or 3.

902.07.02 Sheet Materials. M 171 with the following exceptions:

- (a) **White Opaque Burlap Polyethylene Sheeting.** Tensile strength and elongation requirements are waived. Use sheeting having a finished product weight of not less than 10 oz/yd².
- (b) **White Opaque Polyethylene Backed Nonwoven Fabric.** 902.07.02(a), with the thickness requirement waived. Use material having a finished product weight of not less than 5 oz/yd².
- (c) **White Opaque Polyethylene Film.** Tensile strength and elongation requirements are waived.

902.07.03 Liquid Membrane. M 148. Field control testing of the white pigmented curing compounds is on the basis of weight per gallon. The samples shall not deviate more than ± 0.3 lb/gal from the original source sample.

902.07.04 Cotton Mats. Cotton mats consist of a filling material of cotton bats or bats covered with unsized cloth and tufted or stitched to maintain the shape and stability of the unit under job conditions of handling.

Use coverings of either cotton cloth, burlap or jute having the following properties:

- (a) Cotton cloth covering shall weigh not less than 6.0 oz/yd² and have an average of not less than 32 threads/in. of warp and not less than 28 threads/in. of filling. Use raw cotton, cotton comber waste, cotton card strip waste, or combinations thereof as the raw material used in the manufacture of the cotton cloth.
- (b) Burlap or jute covering for cotton mats shall weigh not less than 6.4 oz/yd² and shall have not less than 8 threads/in. of warp and not less than 8 threads/in. of filling. Use the grade known commercially as "firsts" and they shall be free from avoidable imperfections in manufacture and from defects or blemishes affecting the serviceability.

Use a cotton bat, or bats made of raw cotton, cotton waste, cotton linters, or combinations thereof, as the filling material for the mats. Mats shall weigh not less than 12 oz/yd².



SPECIAL PROVISIONS INSERT
902-PORTLAND CEMENT CONCRETE

CONTRACT NO. FT 2266-000-002
4 of 15

902.08 FORM RELEASE COMPOUNDS. Use form release compounds that effectively prevent the bond of the concrete to the forms. Form release compounds shall not cause discoloration of the concrete or adversely affect the quality or rate of hardening at the interface of the forms.

The flash point of the form release compound shall not be less than 100 F when tested per T 73.

902.09 PARAFFIN WAX. Use clear paraffin wax for use as a bond breaker for concrete. The flash point shall not be less than 380 F when tested under D 92.

902.10 PORTLAND CEMENT CONCRETE. Section 915 and as specified herein.

902.10.01 Proportioning. Prior to the start of construction, submit to the AME the source and proportions of materials to be used for each concrete mix. The mixture shall meet 902.10.03.

The concrete, with the exception of water and chemical admixtures, shall be proportioned by weight. Water and chemical admixtures may be proportioned by volume or weight. The mix shall be uniform and workable.

902.10.02 Materials.

Coarse Aggregate	901.01
Fine Aggregate	901.01
Cement	902.03 and 902.04
Concrete Admixtures	902.06
Synthetic Fibers	902.15
Water	921.01

902.10.03 Portland Cement Concrete Mixtures.



The concrete mixes shall conform to the following:

TABLE 902 A

PORTLAND CEMENT CONCRETE MIXTURES									
MIX NO.	28 DAY SPECIFIED COMPRESSIVE STRENGTH	STANDARD DEVIATION	CRITICAL VALUE	MIN CEMENT FACTOR	COARSE AGGREGATE SIZE	MAX WATER/ CEMENT RATIO	SLUMP RANGE	TOTAL AIR CONTENT	CONCRETE TEMPERATURE
	psi	psi	psi	lb/yd ³	M 43 / M 195	by wt	in.	%	F
1	2500	375	2430	455	57, 67	0.55	2 — 5	5 — 8	70 ± 20
2	3000	450	3010	530	57, 67	0.50	2 — 5	5 — 8	70 ± 20
3	3500	525	3600	580	57, 67	0.50	2 — 5	5 — 8	70 ± 20
4	3500	525	3600	615	57, 67	0.55	4 — 8	N/A	70 ± 20
5	3500	525	3600	580	7	0.50	2 — 5	5 — 8	70 ± 20
6	4500	675	4770	615	57, 67	0.45	2 — 5	5 — 8	65 ± 15
7	4200	630	4420	580	57	0.50	1½ — 3	5 — 8	70 ± 20
8	4000	600	4180	750	7	0.42	2 — 5	5 — 8	65 ± 15
9	3000 (a)	N/A	N/A	800	57, 67	0.45	4 — 8	5 — 8	70 ± 20
10	4500	675	4770	700	¾" — No. 4	0.45	2 — 5	6 — 9	65 ± 15
11	4200	630	4420	—	57, 67	0.45	2 — 5	5 — 8	65 ± 15
12	4200	630	4420	—	¾" — No. 4	0.45	2 — 5	6 — 9	65 ± 15

Note 1: When concrete is exposed to water exceeding 15,000 ppm sodium chloride content, Type II cement shall be used. In lieu of Type II cement, a Type I cement may be used in combined form with an amount of up to 50 percent replacement with ground iron blast furnace slag, or an amount of up to 25 percent replacement with Class F fly ash. The Contractor shall submit to the Engineer the proposed mix proportions and satisfactory test results per C 1012 showing a sulfate resistance expansion not exceeding 0.10 percent at 180 days

Note 2: The temperature of Mix No. 6 when used for other than superstructure work as defined in TC-1.02 shall be 70 ± 20 F.

Note 3: Type A or D admixture shall be added to bridge, box culvert, and retaining wall concrete.

Note 4: Nonchloride Type C admixtures may be used when approved by the Engineer.

Note 5: Other Slump Requirements:

When a high range water reducing admixture Type F or Type G is specified, the slump shall be 4 to 8 in.

When synthetic fibers are specified, the slump shall be 5 in. maximum.

When concrete is to be placed by the slip form method, the slump shall be 2-1/2 in. maximum.

When the absorption of the coarse aggregate is greater than 10 percent, the slump shall be 3 in. maximum.

Note 6: Mix 9 shall contain a Type F high range water reducing admixture.

Note 7: Mix 10 and 12 shall be proportioned as specified in 211.2 of the ACI's Recommended Practices for Selection Proportions for Structural Lightweight Concrete. The maximum average Density of Cured Concrete shall be 118 lb/ft³. Control testing for Density of Cured Concrete shall be two companion cylinders for each 100 yd³, or fraction thereof, as specified in M 195.

Note 8: Mix 11 and 12 shall also conform to all requirements as specified in Table 902 C.

(a) Acceptance will be based on a minimum compressive strength of 3000 psi in 24 hours. Design approval will be given based on trial batch obtaining a minimum compressive strength of 2500 psi in 12 hours. Testing shall conform to 902.10.08 except that cylinders shall remain in the molds until tests are conducted.

Coarse and fine aggregate having an expansion up to 0.10 percent when tested for alkali silica reactivity (ASR) MSMT 212 may be used without restriction. Aggregates having an expansion greater than 0.10 but less than 0.35 percent are considered reactive and may only be used when one of the options in table 902 B are employed. Those having an expansion of 0.35 percent and greater are prohibited.



TABLE 902 B

OPTION	ALKALI CONTENT OF CEMENT % max	REPLACE CEMENT WITH		SPECIFICATION
		MATERIAL	% BY WEIGHT	
1	1.50	Class F Fly Ash	15 – 25	M 295
2	1.50	Ground Iron Blast Furnace Slag	25 – 50	M 302 Grade 100 or 120
3	1.50	Microsilica	5 – 7	C 1240
4	—	Blended Cement (a)	100	M 240
5	0.60 (b)	Low Alkali Cement	100	M 85

- (a) Pozzolan content of 15 – 25 percent by weight of cement
- (b) For mix 9 used for Portland cement concrete pavement repairs; the maximum allowable percentage of alkalis in Portland cement shall be 0.70.

When reactive aggregate is used, designate which option will be used to control the formation of the ASR gel. If an option other than option 5 in Table 902 B above is chosen, conduct tests per MSMT 212 using the reactive aggregate and the proposed cementitious material. The expansion test results shall not be greater than 0.10 percent. When more than one reactive aggregate is used in a concrete mix, each shall be tested individually and the maximum amount of pozzolan required to reduce the expansion of all the aggregates to 0.10 percent or less shall be used. Submit the aggregate source, test results, and the percent and type of replacement cement to the Engineer. The Engineer may withhold source approval pending verification testing.



TABLE 902 C

MIX PHYSICAL PROPERTIES		
TEST PROPERTY	TEST METHOD	SPECIFICATION LIMITS
Minimum Cementitious Materials Factor, lb/yd ³	—	580
Maximum Content of Portland Cement, lb/yd ³	—	550
Water/Cementitious Materials Ratio by Wt.	—	0.45
Corrosion Inhibitor, gal/yd ³	902.06.05	2.0
Synthetic Fibers, lb/yd ³	902.15	1.5
Permeability of Field Concrete, moving average of three tests, coulombs max	T 277 Modified	2500
Permeability of Field Concrete, individual test, coulombs max	T 277 Modified	3000
Shrinkage at 28 days, microstrains	C 157	400

Note 1: Only Type I or II Portland cement shall be used.

Note 2: Mixes shall contain ground iron blast furnace slag, fly ash or microsilica.

Note 3: The water to cement ratio shall be based upon the total water to cementitious materials ratio. The gallonage of the corrosion inhibitor shall be included in the water/cementitious materials ratio.

Note 4: The permeability test value of field concrete shall be the average of two test specimens representing production concrete. Test specimens shall be molded on the project site in 4 x 8 in. molds conforming to M 205. Test specimens shall be handled under same conditions as compressive strength test specimens in conformance with C 31 for the first seven days. When seven days old, they shall be cured in a 100 F water bath for the remainder of the 28 day curing. The 28 day rapid chloride permeability of the specimens will be determined in conformance with T 277. Test for the geometry of test specimens will be waived.

Note 5: Shrinkage tests will be performed on trial mixes only.

Note 6: High range water reducing admixture may be used except the water reducing requirements will be waived.

Note 7: A sealer conforming to 902.12 shall be used on the finished surface.

902.10.04 Trial Batch. A trial batch shall be prepared to certify that each mix meets 902.10.05 and 902.10.06. Approval will be given when the test results meets the minimum required average strength.

Make arrangements with the AME at least two weeks in advance, to have an authorized representative present during the batching and testing. Each trial batch shall consist of at least 3 yd³ of concrete. Supply all equipment, and labor required to produce the trial batches and conduct the required tests at no additional cost to the Administration.

The AME may waive the requirement for a trial batch when past performance records show that the required average strength requirement has been met.



902.10.05 Design Required Average Strength.

Specified compressive strength, f_c' , psi	Required average compressive strength, f_{cr}' , psi
$f_c' \leq 5000$	Use the larger value computed from Eq. (A-1) and (A-2) $f_{cr}' = f_c' + 1.34s$ (A-1) $f_{cr}' = f_c' + 2.33s - 500$ (A-2)
Over 5000	Use the larger value computed from Eq. (A-1) and (A-3) $f_{cr}' = f_c' + 1.34s$ (A-1) $f_{cr}' = 0.90 f_c' + 2.33s$ (A-3)

where:

- f_c' = the 28 day specified compressive strength.
- s = the standard deviation as specified in 902.10.06.

A test is defined as the average strength of two companion cylinders.

902.10.06 Standard Deviation.

- (a) When past performance records are available, a standard deviation will be established from documented performance records of the producer consisting of a minimum of 15 consecutive 28 day compressive strength tests obtained within the last 12 months.

The standard deviation will be established as the product of the calculated standard deviation and multiplier.

NUMBER OF TESTS	MULTIPLIER FOR STANDARD DEVIATION
15	1.16
20	1.08
25	1.03
30 or more	1.00

Interpolate for intermediate number of tests.



SPECIAL PROVISIONS INSERT
902-PORTLAND CEMENT CONCRETE

(b) When past performance records are not available, the required average strength shall meet to the following:

Specified compressive strength, f_c' , psi	Required average compressive strength, f_{cr}' , psi
$f_c' < 3000$	$f_{cr}' = f_c' + 1000$
$3000 \leq f_c' \leq 5000$	$f_{cr}' = f_c' + 1200$
$f_c' > 5000$	$f_{cr}' = 1.10 f_c' + 700$

902.10.07 Standard of Control. The average of all sets of three consecutive strength tests shall equal or exceed the critical value as specified in 902.10.03 which shall be computed using the following formula:

$$\text{Critical Value} = f_c' + (1.14 \times S) - 500$$

Failure to conform to this criteria shall be cause for immediate investigation and remedial action up to and including suspension of production. A design standard deviation equal to 15 percent of the specified strength shall be used for calculation until a minimum of 15 test results are obtained.

The actual average strength and standard deviation shall be computed upon the availability of 28 day strength data comprising a minimum of 15 tests. Should this determination indicate an excessive margin of safety, the concrete mix may be modified to produce lower average strength as approved by the Engineer. If these calculations indicate a coefficient of variation greater than 15, the quality of the concrete and testing will be evaluated.



902.10.08 Testing. Sampling per T 141. Testing as follows:

TEST	METHOD	MINIMUM TEST FREQUENCY	RESPONSIBILITY
Temperature (e)	T 309	1 per 50 yd ³ (or fraction thereof)	Project Engineer
Slump (a)(e)	T 119	1 per 50 yd ³ (or fraction thereof)	Project Engineer
Air Content (a)(e)	T 152 T 196	1 per 50 yd ³ (or fraction thereof)	Project Engineer
Compression (b)(c)(d)	T 23	1 per 50 yd ³ (or fraction thereof)	Project Engineer
Compression (b)(c)(d) Mix No. 7 Only	T 23	3 per Day	Project Engineer

- (a) A second test will be made when the first slump or air content test fails. Acceptance or rejection will be based on the results of the second test.
- (b) Compressive strength tests are defined as the average of two companion cylinders.
- (c) The Contractor shall be responsible for the making of all early break cylinders and furnishing the molds, stripping, curing/delivery of all cylinders, including 28 day cylinders, to the testing laboratory.
- (d) The Project Engineer will be responsible for making, numbering and signing the 28 day cylinders.
- (e) When constructing plain and reinforced concrete pavements, the testing frequency for slump, air content, and temperature shall be 1 per 100 yd³ or fraction thereof.

902.10.09 Acceptance. Concrete will be acceptable if both of the following requirements are met:

- (a) The average of all sets of three consecutive strength tests equal or exceed the specified design strength.
- (b) No individual strength test (average of two companion cylinders) falls below the specified design strength by more than 500 psi.

902.10.10 Price Adjustment. A price adjustment will be based on the Contract unit price per cubic yard of concrete. If the unit is a lump sum item, the price per cubic yard for the concrete will be determined by dividing the cubic yards into the Contract lump sum price.

- (a) **Test Results More Than 500 psi Below the Specified Design Strength.** Failing strength tests will be considered individually with a price adjustment being applied on the percentage basis as shown below.

(Price per yd³) X (quantity of yd³ represented by the failing concrete strength) X (percent of failure).

Example:

$$\$400.00 \text{ per yd}^3 \times 50 \text{ yd}^3 \times [1 - (3600 / 4500 \text{ psi})] = \$4,000.00$$



SPECIAL PROVISIONS INSERT
902-PORTLAND CEMENT CONCRETE

No payment will be allowed when the test results fall below 50 percent of the specified design strength for structural concrete or 40 percent for incidental concrete.

The Engineer will determine when the strength of the concrete represented by the failing tests is sufficient to remain in place or whether it must be removed and replaced with Specification concrete.

- (a) **Test Results 500 psi or Less than the Specified Design Strength.** Strength failures 500 psi or less than the specified design strength will be averaged with the next two consecutive tests. If those two tests include a failure greater than 500 psi, those tests will be evaluated as in 902.10.10(a) and replaced with the next consecutive test. If the resulting average falls below the specified design strength, a price adjustment will be applied as specified in the table below. Any failure will only be included in one grouping.

STRENGTH BELOW THE SPECIFIED (avg of 3 tests) DESIGN LEVEL, psi	ADJUSTMENT FACTOR
MIX NO. 1 THRU MIX NO. 7	
1 – 100	0.005
101 – 200	0.01
201 – 300	0.02
301 – 400	0.04
401 – 500	0.08

Adjustment price equals (price per yd³) X (quantity of yd³ represented by the failing cylinders) X (the adjustment factor).

Example:

$$\$400.00 \text{ per yd}^3 \times 50 \text{ yd}^3 \times 0.01 = \$200.00$$

902.11 MORTAR FOR GROUT. Mortar used for grouting anchor bolts, pipe, handrail posts, and miscellaneous items shall be composed in accordance with one of the following:

- (a) One part Portland cement or blended hydraulic cement and one part mortar sand by dry loose volume.
- (b) Prepared bag mixes consisting of Portland cement or blended hydraulic cement and mortar sand. The prepared mixes shall produce a mortar meeting the strength requirements specified in the Contract Documents.
- (c) Use nonshrink grout when specified. The grout shall have a minimum compressive strength of 5000 psi in seven days when tested as specified per T 106, except that the cube molds shall remain intact with a top firmly attached throughout the curing period. The nonshrink grout shall have a minimum expansion of 0.0 percent after seven days when tested as specified per T 160.



SPECIAL PROVISIONS INSERT
902-PORTLAND CEMENT CONCRETE

CONTRACT NO. FT 2266-000-002
12 of 15

- (d) Epoxy grout shall consist of sand and epoxy mixed by volume in per the manufacturer's recommendations. The grout shall be capable of developing a minimum compressive strength of 6500 psi in 72 hours when tested per MSMT 501. Sand for epoxy grout as specified in 901.01.
- (e) An epoxy or polyester anchoring system may be used when approved by the Engineer in accordance with the manufacturer's recommendations. Strength values shall be as specified in the Contract Documents.

902.12 LINSEED OIL. Shall consist of a 50-50 mixture (by volume) of boiled linseed oil meeting Federal Specification TT-L-190 and kerosene per D 3699.

902.13 LATEX MODIFIED CONCRETE. Portland cement concrete containing prequalified Laboratory approved styrene butadiene latex emulsion is defined as Latex Modified Concrete (LMC).

Latex emulsion shall have a minimum of 90 percent of the nonvolatiles as styrene butadiene polymers. The latex emulsion as specified in Table 902.13 A. The material shall be stored in suitable containers and be protected from freezing and exposure to temperatures in excess of 85 F.

LMC shall be proportioned using volumetric mixing and designed as follows:

LATEX MODIFIED CONCRETE	
MATERIAL	SPECIFICATION LIMITS
Portland Cement, CWT/yd ³ , min	6.6
Latex Emulsion/Cement Ratio	0.31 – 0.34
Water/Cement Ratio, max	0.22
Entrained Air, %	6.0 ± 3
Slump, in.	5 ± 1

The physical properties of LMC shall conform to Table 902.13 B. The Contractor shall furnish the necessary 3 X 6 in. molds per M 205 to be used for the fabrication of compressive strength cylinders.

Control and Acceptance Sampling.

- (a) Submit a two qt minimum sample, of the styrene butadiene latex emulsion to the AME daily for each lot of material used in a day's production.
- (b) A batch for LMC is defined as the capacity of the equipment being used on the project. Slump and air samples will be taken and tested before the placement of a batch is permitted. The slump shall be measured four to five minutes after discharge from the mixer. The test material shall be deposited off the deck and not be disturbed during this



SPECIAL PROVISIONS INSERT
902-PORTLAND CEMENT CONCRETE

CONTRACT NO. FT 2266-000-002

13 of 15

waiting period. One additional sample for slump and air will be taken randomly during the placement of each batch. For seven day compressive strength, two tests each per batch are required. A test is defined as consisting of two companion cylinders. The samples for these tests will be taken at random while the placement is in progress.

TABLE 902.13 A

REQUIREMENTS FOR CHEMICAL PROPERTIES OF LATEX EMULSION MATERIALS				
PROPERTY	SPECIFICATIONS		QUALITY ASSURANCE TESTS	
	LIMITS	TOLERANCE	PREQUALIFICATION TESTS	CONTROL AND ACCEPTANCE
Color	White	—	X	X
pH	9.0 – 11.0	—	X	X
Weight, lb/gal	8.40 – 8.47	—	X	X
Solids Content, %	46 – 53	—	X	X
*Butadiene Content, % of polymer	30 – 40	—	—	—
Viscosity @ 10 rpm-cps	Match Original	± 20	X	X
*Surface Tension, dynes/cm max	50	—	—	—
*Mean Particle Size, polymer – Å	1400 – 2500	—	—	—
Coagulum, % max	0.10	—	X	X
*Freeze-Thaw Stability, coagulum, % max	0.10	—	X	X
Infrared Spectra of Latex Film	Match Original	—	X	X
Infrared of Alcohol, Soluble Portion of Latex	Match Original	—	X	X
Shelf Life, min	1 yr	—	X	—

Note 1: Quality assurance tests shall be conducted as specified in MSMT 612 except those denoted by an * shall be conducted as specified in FHWA RD – 78-35.

Note 2: The original or prequalification sample shall be accompanied by the producer's certification on all of the tests and properties noted above and as specified in TC-1.02. The certification shall contain actual test values of the product and the infrared spectrograph.

Note 3: A separate certification is required for each lot of material. The certification shall note the date of manufacture, lot size, and whether or not the material is identical to the formulation of the original sample.



TABLE 902.13 B

LATEX MODIFIED CONCRETE PHYSICAL PROPERTIES			
TEST PROPERTY	TEST VALUES	QUALITY ASSURANCE TESTS	
		PREQUALIFIED TESTS	CONTROL AND ACCEPTANCE
7 Day Compressive Strength, psi min	3000	X	X
28 Day Compressive Strength, psi min	3500	X	—
42 Day Compressive Strength, psi min	3500	X	—
7 Day Flexural Strength, psi min	550	X	—
28 Day Flexural Strength, psi min	650	X	—
42 Day Shear Bond Strength, psi min	2000	X	—
Durability Factor, 300 cycles, % min	85	X	—
Chloride Permeability, Ppm max	510	X	—
Scaling Resistance, 50 cycles, max	3	X	—

Note 1: Quality assurance tests shall be conducted as specified in MSMT 721.

Note 2: Seven Day Compressive Strength Test will be used for Control & Acceptance of the material. The minimum specified design strength is 3000 psi at seven days. The mix design approval and acceptance will be based on a coefficient of variation of 10 percent with a probability of 1 in 10 tests falling below the specified strength. Only test values 80% or greater than the specified strength will be accepted

902.14 RAPID HARDENING CEMENTITIOUS MATERIALS FOR CONCRETE PAVEMENT REPAIRS. Materials shall be a dry, packaged cementitious mortar having less than 5 percent by weight of aggregate retained on the 3/8 in. sieve and meet the following requirements:

Classification.

- Class I — For use at ambient temperatures below 50 F.
- Class II — For use at ambient temperatures of 50 to 90 F.
- Class III — For use at ambient temperatures above 90 F.

Chemical Requirements. C 928 except that no organic compounds such as epoxy resins or polyesters as the principal binder.



Physical Requirements. Meet the following when tested per MSMT 725:

COMPRESSIVE STRENGTH, psi min				
CLASSIFICATION	< 2 hr	2-6 hr	6 hr	28 days
Type I — Slow	—	—	2000	4500
Type II — Rapid	—	2000	—	4500
Type III — Very Rapid	2500	—	—	4500

TEST RESULTS	
TEST PROPERTY	LIMITS
Bond Strength, 7 days, psi min	2000
Length Change, increase after 28 days in water, based on length at 3 hr, % max	+ 0.15
Length Change, decrease after 28 days, % max	- 0.15
Freeze Thaw, loss after 25 cycles in 10% CaCl ₂ solution, % max	8
Initial Setting Time, minutes min	10

Marking. All packages delivered to the project shall be marked with the following information:

- (a) Date material was packaged.
- (b) Approximate setting time.
- (c) Recommended dosage of water or liquid component.
- (d) Mixing instructions.
- (e) Class or temperature range.

Certification. The manufacturer shall furnish certification as specified in TC-1.02 showing the actual test results for each class and type of material submitted to the Laboratory.

902.15 SYNTHETIC FIBERS. When synthetic fibers are specified in the Contract Documents, the fibers shall be 1/2 to 1-1/2 in. long and conform to C 1116, Type III. The manufacturer shall furnish certification as specified in TC-1.02. The quantity of fibers used and their point of introduction into the mix shall conform to the fiber manufacturer's recommendations.



**CATEGORY 900
MATERIALS**

SECTION 950 - TRAFFIC MATERIALS

950.03 REFLECTORIZATION OF SIGNS AND CHANNELIZING DEVICES.

DELETE: 950.03.03 Type IX Retroreflective Sheeting in its entirety.

INSERT: The following.

950.03.03 Permanent Signs Retroreflective Sheeting. Retroreflective sheeting for permanent signs shall conform to ASTM D 4956-05, except as modified below:

MINIMUM REFLECTIVE INTENSITY VALUES FOR RETROREFLECTIVE SHEETING Minimum Coefficient of Retroreflection (R_A) $cd/(lx \cdot m^2)$ Per ASTM E-810 (Average of 0 and 90 degree orientation)									
Observation Angle°	Entrance Angle°	White	Yellow	Fluor. Yellow	Fluor. Yellow- Green	Red	Green	Blue	Fluor. Orange
0.2	-4	570	425	340	455	114	57	26	170
0.2	30	215	160	130	170	43	21	10	64
0.5	-4	400	300	240	320	80	40	18	120
0.5	30	150	112	90	120	30	15	6.8	45
1	-4	120	90	72	96	24	12	5.4	36
1	30	45	34	27	36	9	4.5	2	14

INSERT:

950.03.07 Permanent Traffic Signs (PTS) Unless otherwise specified in the Contract Documents, retroreflective sheeting for permanent signs shall conform to 950.03.03.