

Control	6422-79-001
Project	RMC - 642279001
Highway	SL0008
County	HARRIS

ADDENDUM ACKNOWLEDGMENT

Each bidder is required to acknowledge receipt of an addendum issued for a specific project. This page is provided for the purpose of acknowledging an addendum.

FAILURE TO ACKNOWLEDGE RECEIPT OF AN ADDENDUM WILL RESULT IN THE BID NOT BEING READ.

In order to properly acknowledge an addendum place a mark in the box next to the respective addendum.

- ADDENDUM NO. 1
- ADDENDUM NO. 2
- ADDENDUM NO. 3
- ADDENDUM NO. 4
- ADDENDUM NO. 5

In addition, the bidder by affixing their signature to the signature page of the proposal is acknowledging that they have taken the addendum(s) into consideration when preparing their bid and that the information contained in the addendum will be included in the contract, if awarded by the Commission or other designees.

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PROPOSAL TO THE TEXAS TRANSPORTATION COMMISSION

2014 SPECIFICATIONS

WORK CONSISTING OF FULL DEPTH CONCRETE REPAIR HARRIS COUNTY, TEXAS

The quantities in the proposal are approximate. The quantities of work and materials may be increased or decreased as considered necessary to complete the work as planned and contemplated.

This project is to be completed in 80 working days and will be accepted when fully completed and finished to the satisfaction of the Executive Director or designee.

Provide a proposal guaranty in the form of a Cashier's Check, Teller's Check (including an Official Check) or Bank Money Order on a State or National Bank or Savings and Loan Association, or State or Federally chartered Credit Union made payable to the Texas Transportation Commission in the following amount:

TWENTY-SIX THOUSAND (Dollars) (\$26,000)

A bid bond may be used as the required proposal guaranty. The bond form may be detached from the proposal for completion. The proposal may not be disassembled to remove the bond form. The bond must be in accordance with Item 2 of the specifications.

Any addenda issued amending this proposal and/or the plans that have been acknowledged by the bidder, become part of this proposal.

By signing the proposal the bidder certifies:

1. the only persons or parties interested in this proposal are those named and the bidder has not directly or indirectly participated in collusion, entered into an agreement or otherwise taken any action in restraint of free competitive bidding in connection with the above captioned project.
2. in the event of the award of a contract, the organization represented will secure bonds for the full amount of the contract.
3. the signatory represents and warrants that they are an authorized signatory for the organization for which the bid is submitted and they have full and complete authority to submit this bid on behalf of their firm.
4. that the certifications and representations contained in the proposal are true and accurate and the bidder intends the proposal to be taken as a genuine government record.

• **Signed: ****

(1) _____ (2) _____ (3) _____

Print Name:

(1) _____ (2) _____ (3) _____

Title:

(1) _____ (2) _____ (3) _____

Company:

(1) _____ (2) _____ (3) _____

- Signatures to comply with Item 2 of the specifications.

**Note: Complete (1) for single venture, through (2) for joint venture and through (3) for triple venture.

* **When the working days field contains an asterisk (*) refer to the Special Provisions and General Notes.**

NOTICE TO CONTRACTORS

ANY CONTRACTORS INTENDING TO BID ON ANY WORK TO BE AWARDED BY THIS DEPARTMENT MUST SUBMIT A SATISFACTORY “AUDITED FINANCIAL STATEMENT” AND “EXPERIENCE QUESTIONNAIRE” AT LEAST TEN DAYS PRIOR TO THE LETTING DATE.

UNIT PRICES MUST BE SUBMITTED IN ACCORDANCE WITH ITEM 2 OF THE STANDARD SPECIFICATIONS OR SPECIAL PROVISION TO ITEM 2 FOR EACH ITEM LISTED IN THIS PROPOSAL.

TEXAS DEPARTMENT OF TRANSPORTATION

BID BOND

KNOW ALL PERSONS BY THESE PRESENTS,

That we, (Contractor Name) _____

Hereinafter called the Principal, and (Surety Name) _____

a corporation or firm duly authorized to transact surety business in the State of Texas, hereinafter called the Surety, are held and firmly bound unto the Texas Department of Transportation, hereinafter called the Oblige, in the sum of not less than two percent (2%) of the department's engineer's estimate, rounded to the nearest one thousand dollars, not to exceed one hundred thousand dollars (\$100,000) as a proposal guaranty (amount displayed on the cover of the proposal), the payment of which sum will and truly be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the principal has submitted a bid for the following project identified as:

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NOW, THEREFORE, if the Oblige shall award the Contract to the Principal and the Principal shall enter into the Contract in writing with the Oblige in accordance with the terms of such bid, then this bond shall be null and void. If in the event of failure of the Principal to execute such Contract in accordance with the terms of such bid, this bond shall become the property of the Oblige, without recourse of the Principal and/or Surety, not as a penalty but as liquidated damages.

Signed this _____ Day of _____ 20_____

By: _____
(Contractor/Principal Name)

(Signature and Title of Authorized Signatory for Contractor/Principal)

*By: _____
(Surety Name)

(Signature of Attorney-in-Fact)

Impressed
Surety Seal
Only

*Attach Power of attorney (Surety) for Attorney-in-Fact

This form may be removed from the proposal.

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BIDDER'S CHECK RETURN

IMPORTANT

The space provided for the return address must be completed to facilitate the return of your bidder's check. Care must be taken to provide a legible, accurate, and complete return address, including zip code. A copy of this sheet should be used for each different return address.

NOTE

Successful bidders will receive their guaranty checks with the executed contract.

RETURN BIDDERS CHECK TO (PLEASE PRINT):

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IMPORTANT

PLEASE RETURN THIS SHEET IN ITS ENTIRETY

Please acknowledge receipt of this check(s) at your earliest convenience by signing below in longhand, in ink, and returning this acknowledgement in the enclosed self addressed envelope.

Check Received By: _____ Date: _____

Title: _____

For (Contractor's Name): _____

Project _____ County _____

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NOTICE TO THE BIDDER

In the space provided below, please enter your total bid amount for this project. Only this figure will be read publicly by the Department at the public bid opening.

It is understood and agreed by the bidder in signing this proposal that the total bid amount entered below is not binding on either the bidder or the Department. It is further agreed that **the official total bid amount for this proposal will be determined by multiplying the unit bid prices for each pay item by the respective estimated quantities shown in this proposal and then totaling all of the extended amounts.**

\$ _____
Total Bid Amount

Control 0001-03-030
 Project STP 2000(938)HES
 Highway SH 20
 County EL PASO

ALT	ITEM	DESC	SP	Bid Item Description	Unit	Quantity	Bid Price	Amount	Seq
	I04	509	X	REMOV CONC (SDWLK)	MSY	266.400	\$10.000	\$2,664.00	1
							Total Bid Amount	\$2,664.00	

Signed _____
 Title _____
 Date _____

Additional Signature for Joint Venture:

Signed _____
 Title _____
 Date _____

EXAMPLE OF BID PRICES SUBMITTED BY COMPUTER PRINTOUT

EXAMPLE

EXAMPLE

EXAMPLE

EXAMPLE

EXAMPLES

BID PRICES SUBMITTED BY HAND WRITTEN FORMAT

ALT	ITEM-CODE			UNIT BID PRICE <u>ONLY</u> WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC NO	S.P. NO.				
	190	026		RED OAK 1 1/2 - 1 3/4 GAL BB	EA	9.000	1
					L	E	

Unit price for each plant in place

	249	014		FLEX BASE(DEL)(DENSOT)(TY A GR4 CL2)	TON	56,787.00	14
					L	E	

Unit price for each ton of Flexible Base

	430	001	001	CL A CONC FOR EXT STR (CULV)	CY	45.000	27
					L	E	

Unit price for each cubic yard of Concrete

	610	007	001	RDWY ILL ASSEM(TY ST 50T-8-8)(.4 KW)S	EA	13.000	7
					L	E	

Unit price of each Roadway Illumination Assembly

EXAMPLE

EXAMPLE

EXAMPLE

EXAMPLE

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ALT	ITEM-CODE			UNIT BID PRICE ONLY. WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC CODE	S.P. NO.				
	361	6051		FULL-DPTH REP(BR APPROACH SLAB)(9"-13") DOLLARS and CENTS	SY	487.000	1
	361	6067		FULL-DEPTH REPAIR CRCP (13"-15") DOLLARS and CENTS	SY	1,712.000	2
	500	6001		MOBILIZATION DOLLARS and CENTS	LS	1.000	3
	502	6001	008	BARRICADES, SIGNS AND TRAFFIC HANDLING DOLLARS and CENTS	MO	3.000	4
	668	6077		PREFAB PAV MRK TY C (W) (ARROW) DOLLARS and CENTS	EA	30.000	5
	668	6078		PREFAB PAV MRK TY C (W) (DBL ARROW) DOLLARS and CENTS	EA	5.000	6
	668	6085		PREFAB PAV MRK TY C (W) (WORD) DOLLARS and CENTS	EA	29.000	7
	668	6115		PREFAB PAV MRK TY C (MULTI) (SHIELD) DOLLARS and CENTS	EA	10.000	8
	672	6010	001	REFL PAV MRKR TY II-C-R DOLLARS and CENTS	EA	3,369.000	9
	677	6002		ELIM EXT PAV MRK & MRKS (6") DOLLARS and CENTS	LF	19,647.000	10
	677	6008		ELIM EXT PAV MRK & MRKS (ARROW) DOLLARS and CENTS	EA	30.000	11

ALT	ITEM-CODE			UNIT BID PRICE ONLY. WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC CODE	S.P. NO.				
	677	6009		ELIM EXT PAV MRK & MRKS (DBL ARROW) DOLLARS and CENTS	EA	5.000	12
	677	6012		ELIM EXT PAV MRK & MRKS (WORD) DOLLARS and CENTS	EA	29.000	13
	677	6022		ELIM EXT PAV MRK & MRKS (SHEILD) DOLLARS and CENTS	EA	10.000	14
	678	6002		PAV SURF PREP FOR MRK (6") DOLLARS and CENTS	LF	185,488.000	15
	678	6004		PAV SURF PREP FOR MRK (8") DOLLARS and CENTS	LF	19,647.000	16
	678	6006		PAV SURF PREP FOR MRK (12") DOLLARS and CENTS	LF	14,613.000	17
	678	6009		PAV SURF PREP FOR MRK (ARROW) DOLLARS and CENTS	EA	30.000	18
	678	6010		PAV SURF PREP FOR MRK (DBL ARROW) DOLLARS and CENTS	EA	5.000	19
	678	6016		PAV SURF PREP FOR MRK (WORD) DOLLARS and CENTS	EA	5.000	20
	678	6025		PAV SURF PREP FOR MRKS (SHIELD) DOLLARS and CENTS	EA	10.000	21
	6001	6001		PORTABLE CHANGEABLE MESSAGE SIGN DOLLARS and CENTS	DAY	60.000	22
	6038	6004		MULTIPOLYMER PAV MRK (W)(6")(SLD) DOLLARS and CENTS	LF	58,422.000	23

ALT	ITEM-CODE			UNIT BID PRICE ONLY. WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC CODE	S.P. NO.				
	6038	6005		MULTIPOLYMER PAV MRK (W)(6")(BRK) DOLLARS and CENTS	LF	34,101.000	24
	6038	6006		MULTIPOLYMER PAV MRK (W)(6")(DOT) DOLLARS and CENTS	LF	326.000	25
	6038	6007		MULTIPOLYMER PAV MRK (W)(8")(SLD) DOLLARS and CENTS	LF	19,647.000	26
	6038	6011		MULTIPOLYMER PAV MRK (W)(12")(SLD) DOLLARS and CENTS	LF	11,910.000	27
	6038	6012		MULTIPOLYMER PAV MRK (W)(12")(LNDP) DOLLARS and CENTS	LF	2,703.000	28
	6038	6017		MULTIPOLYMER PAV MRK (Y)(6")(SLD) DOLLARS and CENTS	LF	58,538.000	29
	6038	6024		MULTIPOLYMER PAV MRK (BLK)(6")(BRK) DOLLARS and CENTS	LF	34,101.000	30
	6185	6002	002	TMA (STATIONARY) DOLLARS and CENTS	DAY	150.000	31
	6185	6005	002	TMA (MOBILE OPERATION) DOLLARS and CENTS	DAY	16.000	32

CERTIFICATION OF INTEREST IN OTHER BID PROPOSALS FOR THIS WORK

By signing this proposal, the bidding firm and the signer certify that the following information, as indicated by checking "Yes" or "No" below, is true, accurate, and complete.

- A. Quotation(s) have been issued in this firm's name to other firm(s) interested in this work for consideration for performing a portion of this work.

_____ YES

_____ NO

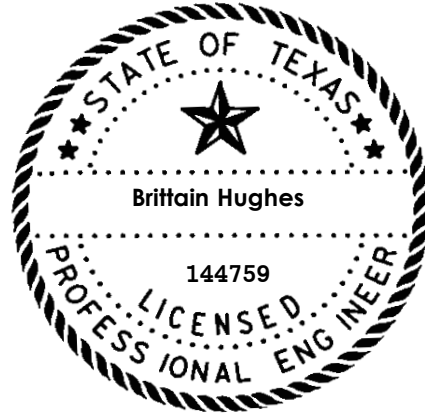
- B. If this proposal is the low bid, the bidder agrees to provide the following information prior to award of the contract.

1. Identify firms which bid as a prime contractor and from which the bidder received quotations for work on this project.
2. Identify all the firms which bid as a prime contractor to which the bidder gave quotations for work on this project.

ENGINEER SEAL

Control 6422-79-001
Project RMC - 642279001
Highway SL0008
County HARRIS

The enclosed Texas Department of Transportation Specifications, Special Specifications, Special Provisions, General Notes and Specification Data in this document have been selected by me, or under my responsible supervision as being applicable to this project. Alteration of a sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act.



The seal appearing on this document was authorized by
Brittain Hughes, P.E.
FEBRUARY 13, 2023

GENERAL NOTES

General:

Area Engineer contact information for this project follows:

Area Engineer: Phillip B. Garlin, P.E. Email: phillip.garlin@txdot.gov
Assistant Area Engineer: Roger J. Lopez, P.E. Email: roger.lopez@txdot.gov

Submit any questions about this project via the Letting Pre-Bid Q&A web page, located at:

<https://tableau.txdot.gov/views/ProjectInformationDashboard/NoticetoContractors>

The Letting Pre-Bid Q&A web page for each project can be accessed by scrolling or filtering the dashboard using the controls on the left side to navigate to the project. Hover over the blue hyperlink of the project to view the Q&A and click on the link in the window that pops up.

All work will be scheduled and directed by, and request for payment addressed to:

Reginald Phipps, Maintenance Section Supervisor
North Harris Maintenance Office
16803 Eastex Freeway
Humble, Texas 77347
(281) 319-6464

This is a Routine Maintenance Site-Specific working day contract for Full Depth Repair & Pavement Markings in North Harris County.

Night work and weekend work is required.

Provide and maintain a dedicated email address for receipt of work orders and correspondence throughout the term of this contract.

Each contract awarded by the Department stands on its own as such, is separate from other contracts. A Contractor awarded multiple contracts, must be capable and sufficiently staffed to concurrently process any or all contracts at the same time.

If fixed features require, the governing slopes shown may vary between the limits shown and to the extent determined by the Engineer.

Superelevate the curves to match the existing surface.

Locate all utilities, both underground and above ground, in the project area prior to beginning work so that conflicts are avoided.

Perform work on an as needed basis as directed.

Contractor's company name will be always displayed on outside of vehicles.

Maximum length of lane closure will be 2 miles.

Tolls incurred by the Contractor are incidental to the various bid items.

Work will not be permitted when impending bad weather or inclement weather may impair the quality of work.

Procure permits and licenses, which are to be issued by the City, County, or Municipal Utility District.

Notify the North Harris Maintenance Office by 7:30 am, when scheduled work is cancelled for any reason.

The cost for materials, labor and incidentals to provide for traffic across the roadway and for ingress and egress to private property in accordance with Section 7.2.4 of the standard specifications is subsidiary to the various bid items. Restore access roadways to their original condition upon completing construction.

If overhead or underground power lines need to be de-energized, contact the electrical service provider to perform this work. Cost associated with de-energizing the power lines or other protective measures required are at no expense to the Department.

If working near power lines, comply with the appropriate sections of Texas State Law and Federal Regulations relating to the type of work involved.

References to manufacturer's trade name or catalog numbers are for the purpose of identification only. Similar materials from other manufacturers are permitted if they are of equal quality, comply with the specifications for this project, and are approved, except for roadway illumination, electrical, and traffic signal items

General: Site Management

Do not mix or store materials, or store or repair equipment, on top of concrete pavement or bridge decks unless authorized by the Engineer. Permission will be granted to store materials on surfaces if no damage or discoloration will result.

Personal vehicles of employees are not permitted to park within the right of way, including sections closed to public traffic. Employees may park on the right of way at the Contractor's office, equipment, and materials storage yard sites.

Assume ownership of debris and dispose of at an approved location. Do not dispose of debris on private property unless approved in writing by the District Engineer.

Control the dust caused by construction operations. For sweeping the base material in preparation for laying asphalt and for sweeping the finished concrete pavement, use one of the following types of sweepers or approved equal:

Tricycle Type

Wayne Series 900
Elgin White Wing
Elgin Pelican

Truck Type - 4 Wheel

M-B Cruiser II
Wayne Model 945
Mobile TE-3
Mobile TE-4
Murphy 4042

General: Traffic Control and Construction

When design details are not shown on the plans, provide signs and arrows conforming to the latest "Standard Highway Sign Designs for Texas" manual.

Existing pavement markings removed or damaged by more than 20 ft. will be replaced with temporary striping. Temporary striping shall be paint based unless otherwise directed by the engineer. This work will be considered incidental to the item of work.

General: Utilities

Consider the locations of underground utilities depicted in the plans as approximate and employ responsible care to avoid damaging utility facilities. Depending upon scope and magnitude of planned construction activities, advanced field confirmation by the utility owner or operator may be prudent. Where possible, protect and preserve permanent signs, markers, and designations of underground facilities.

If the Contractor damages or causes damage (breaks, leaks, nicks, dents, gouges, etc.) to the utility, contact the utility facility owner or operator immediately.

Be aware that an operational Computerized Transportation Management System (CTMS) exists within the limits of this project and that the system must remain operational throughout construction. If the Contractor damages or causes damage to this system, repair such damage within 8 hours of occurrence at no cost to the Department. In the event of system damage, notify the Director of Traffic Management Systems at 713-881-3283 within one hour of occurrence. Failure of the Contractor to repair damage to the main fiber optic cable and CCTV cable trunk lines, which convey all corridor information to TranStar, will result in the Contractor being billed for the full cost of emergency repairs.

At least 72 hours before starting work, make arrangements for locating existing Department-owned above ground and underground fiber optic, communications, power, illumination, and traffic signal cabling and conduit. Do this by calling the Department's Houston District Traffic Signal Operations Office at 713-802-5662, or by e-mailing the Department's Houston District Traffic Signal Operations Office at HOU-LocateRequest@txdot.gov, to schedule marking of underground lines on the ground. Use caution if working in these areas to avoid damaging or interfering with existing facilities.

If overhead or underground power lines need to be de-energized, contact the electrical service provider to perform this work. Costs associated with de-energizing the power lines or other protective measures required are at no expense to the Department.

If working near power lines, comply with the appropriate sections of Texas State Law and Federal Regulations relating to the type of work involved.

Before beginning any underground work, notify the City of Houston's Chief Inspector, Public Works and Engineering, to establish the locations of any existing electrical systems for lighting facilities within the limits of this project.

Item 7: Legal Relations and Responsibilities

This project does not require a U.S. Army Corps of Engineers (USACE) Section 404 Permit before letting, but if a permit is needed during construction, assume responsibility for preparing the permit application. Submit the permit application to the Department's District Environmental Section for approval. Once the permit application is approved, the Department will submit it to the USACE. Assume responsibility for the requested revisions, in coordination with the Department's District Environmental Section.

If the work is on or in the vicinity of an at-grade railroad crossing, involves incidental work on railroad right of way, or involves construction of a railroad grade separation structure, notify the railroad company's Division Engineer and the Department's Project Engineer at least 30 days before performing any work on the railroad right of way and make arrangements for railroad flaggers unless otherwise shown in the contract. Obtain the required Railroad Right of Entry Permit from the railroad company. Payment of applicable permit fees is the responsibility of the Contractor. Acquiring the Railroad Right of Entry Permit is a lengthy process, allow sufficient time for this.

This project is on a hurricane evacuation route. Provide at the pre-construction meeting a written plan outlining procedures to suspend work, secure the job site, and safely handle traffic through and across the project in the event of a hurricane evacuation.

During the hurricane season (June 1 through November 30), do not close any travel lanes except when the Contractor can demonstrate that he/she can provide labor, equipment, material, a work plan, and quality of work to satisfactorily return all lanes to an open, all-weather travel surface within 3 days of receiving written or verbal notice but no later than 3 days before the predicted hurricane landfall. Construction of temporary lanes to an all-weather surface will be paid for in accordance with Article 9.7, "Payment for Extra Work and Force Account Method."

In addition to lane closures, cease work 3 days before the predicted hurricane landfall on or near the roadway that adversely impacts the flow of traffic and reduces the capacity of the highway during an evacuation. Vehicles of the Contractor, subcontractors, or material suppliers will not be allowed to enter or exit the traffic stream, including those for the purpose of material hauling and

delivery, and mobilization or demobilization of equipment. When directed, this prohibition will include a reasonable time period for the evacuees to return to their point of origin.

No significant traffic generator events identified.

Item 8: Prosecution and Progress

Working days will be computed and charged based on a Seven Day Workweek in accordance with Article 8.3.1.3.

Contractor can schedule the work on Monday to Thursday at night for sawcut and other preparations for the weekend work to starting Friday night 9:00 p.m. till 5:00 a.m. Monday morning as shown on Lane Closures schedule under Item 502.

The Lane Closure Assessment Fee is shown in the following table. This fee applies to the Contractor for closures or obstructions that overlap into restricted hour traffic for each hour or portion thereof, per lane, regardless of the length of lane closure or obstruction. For Restricted Hours subject to Lane Assessment Fee refer to the Item, "Barricades, Signs, and Traffic Handling." The time increment for the Lane Closure Assessment fee for this project is one hour.

Lane Closure Assessment Fee Table

ROADWAYS	LIMITS	MLNS	FEE	FRTG/SERV.	FEE
SL 8	Ella Blvd to JFK Blvd	112,551	\$2,500	NA	NA

Item 361: Repair of Concrete Pavement

Provide Class HES concrete for very early opening of small pavement areas. Designed Class HES to meet the requirements a minimum average compressive strength of 3,200 psi or a minimum average flexural strength of 450 psi in 24 hr. before opening to traffic.

Provide aggregate meeting Grade 2 or 3 requirements in accordance with Item 421 for Class HES concrete.

For full depth repair, remove only the quantity of pavement replaceable during the daily allowable work schedule.

Remove loose sub-base material and replace it with concrete. Use a bondbreaker, such as a polyethylene sheet, at the interface between the replaced sub-base material and the new concrete pavement.

Supply polyethylene fabric on the job site sufficient to cover the area of repair.

Do not place concrete if impending weather may result in rainfall or low temperatures that may impair the quality of the finished work.

Repair portions of the concrete pavement surfaces that are damaged while in a plastic state before those areas receive permanent pavement markings and open to traffic. Perform repairs that are structurally equivalent to and cosmetically uniform with adjacent undamaged areas. Do not repair by grouting onto the surface.

Ready mix concrete will be permitted if the equipment and construction methods can produce the desired results. Hand finishing will be permitted.

Perform saw cutting as shown on the plans in accordance with Section 360.4.10, "Sawing Joints." This saw cutting is subsidiary to this bid Item.

Item 500: Mobilization

This Contract consists of 1(1) lump sum (LS) mobilization.

Item 502: Barricades, Signs, and Traffic Handling

Use a traffic control plan for handling traffic through the various phases of construction. Follow the phasing sequence unless otherwise agreed upon by the Area Engineer and the Project Manager. Ensure this plan conforms to the latest "Texas Manual on Uniform Traffic Control Devices" and the latest Barricade and Construction (BC) Standard Sheets.

Submit changes to the traffic control plan to the Area Engineer. Provide a layout showing the construction phasing, signs, striping, and signalizations for changes to the original traffic control plan.

Furnish and maintain the barricades and warning signs, including the necessary temporary and portable traffic control devices, during the various phases of construction. Place and construct these barricades and warning signs in accordance with the latest "Texas Manual on Uniform Traffic Control Devices" for typical construction layouts.

Cover work zone signs when work related to the signs is not in progress, or when any hazard related to the signs no longer exists.

Keep the delineation devices, signs, and pavement markings clean. This work is subsidiary to the Item, "Barricades, Signs, and Traffic Handling."

Erect temporary signs when exit ramps are closed or moved to new locations during construction.

Before detouring traffic onto the mainlane shoulders, remove dirt, debris, vegetation, and other deleterious material from the surface of the shoulders. Appropriately sign the detour in an approved manner. This work is subsidiary to the various bid items.

Coordinate and schedule the work with the appropriate Metro representative if requiring access to the High Occupancy Vehicle lanes.

Cover or remove the permanent signs and construction signs that are incorrect or that do not apply to the current situation for a particular phase.

Do not mount signs on drums or barricades, except those listed in the latest Barricades and Construction standard sheets.

Use traffic cones for daytime work only. Replace the cones with plastic drums during nighttime hours.

Use shadow vehicles with Truck Mounted Attenuators (TMA) for lane and shoulder closures.

Do not reduce the existing number of lanes open to traffic except as shown on the following time schedule:

**One/Two Lane Closure
(Mainlanes, Frontage Roads, Connectors & Ramps)**

Day	Allowable Daytime Closure Hours	Allowable Nighttime Closure Hours	Restricted Hours Subject to Lane Assessment Fee
Monday	None	12:00 AM - 5:00 AM	5:00 AM - 9:00 PM
Tuesday	None	12:00 AM - 5:00 AM 9:00 PM - 12:00 AM	5:00 AM - 9:00 PM
Wednesday	None	12:00 AM - 5:00 AM 9:00 PM - 12:00 AM	5:00 AM - 9:00 PM
Thursday	None	12:00 AM - 5:00 AM 9:00 PM - 12:00 AM	5:00 AM - 9:00 PM
Friday	None	9:00 PM - 12:00 AM	12:00AM - 9:00 PM
Saturday	12:01 AM - 5:00PM	5:00 PM -12:00 PM 12:01 AM - 5:00 AM	None
Sunday	12:01 AM - 5:00PM	5:00 PM -12:00PM 12:01 AM - 5:00 AM	None

**Weekend Full Closure of Highway Facility
(Mainlanes, Frontage Roads, Connectors & Ramps)**

Day	Allowable Daytime Closure Hours	Allowable Nighttime Closure Hours	Restricted Hours Subject to Lane Assessment Fee
Monday	None	12:00 AM - 5:00 AM	5:00 AM - 9:00 PM
Tuesday	None	None	5:00 AM - 9:00 PM
Wednesday	None	None	5:00 AM - 9:00 PM
Thursday	None	None	5:00 AM - 9:00 PM
Friday	None	9:00 PM - 12:00 AM	12:00AM - 9:00 PM
Saturday	12:01 AM - 5:00PM	5:00 PM -12:00 PM 12:01 AM - 5:00 AM	None
Sunday	12:01 AM - 5:00PM	5:00 PM -12:00PM 12:01 AM - 5:00 AM	None

The above times are approved for the traffic control conditions listed. The Area Engineer may approve other closure times if traffic counts warrant. The Area Engineer may reduce the above times for special events.

Law enforcement assistance will be required for this project and is expected to be required for major traffic control changes and lane closures. Coordinate with local law enforcement and arrange for law enforcement as directed or agreed by the Engineer. Before payment will be made, complete the “Daily Report on Law Enforcement Force Account Work” (Form 318), provided by the Department and submit daily invoices that agree with this form for any day during the month in which approved services were provided.

Provide full-time, off-duty, uniformed, certified peace officers, as part of traffic control operations. The peace officers must be able to show proof of certification by the Texas Commission on Law Enforcement Officers Standards. The cost of the officers is paid for on a force account basis.

A minimum of 7 days in advance of any total closure, notify the Houston District Public Information Office of which roadways, ramps, intersections, or lanes will be closed, the dates they will remain closed, and when they will be opened again to traffic.

A minimum of 7 days in advance of any total closure, place a portable changeable message (PCM) sign at the location of each total closure which informs the traveling public of the details of the closure. Alternately, if the Traffic Control Plan provides a positive barrier at the location, a non-trailer mounted static message board sign behind the positive barrier may be used in place of a PCM.

The Contractor Force Account “Safety Contingency” that has been established for this project is intended to be utilized for work zone enhancements, to improve the effectiveness of the Traffic Control Plan, that could not be foreseen in the project planning and design stage. These enhancements will be mutually agreed upon by the Engineer and the Contractor’s Responsible Person based on weekly or more frequent traffic management reviews on the project. The Engineer may choose to use existing bid items if it does not slow the implementation of enhancement.

All lane closures are considered subsidiary to various bid items.

All work and materials furnished with this item are subsidiary to the pertinent bid items except:

- Truck mounted attenuators payable under Item 6185 6002

- Law enforcement personnel payable under force account
- Portable changeable message boards payable under Item 6001

Item 668: Prefabricated Pavement Markings

Use Type III glass beads for thermoplastic and multipolymer pavement markings.

Use a 0.100 in. (100 mil) thickness for thermoplastic pavement markings, measured to the top of the thermoplastic, not including the exposed glass beads.

Use a 0.022 in. (22 mil) thickness for multipolymer pavement markings, measured to the top of the multipolymer, not including the exposed glass beads.

If the Type II markings become dirty and require cleaning by washing, brushing, compressed air, or other approved methods before applying the Type I thermoplastic markings, this additional cleaning is subsidiary to the Item, "Reflectorized Pavement Markings."

Establish the alignment and layout for permanent striping.

Stripe all roadways before opening them to traffic.

Place pavement markings under these items in accordance with details shown on the plans, the latest "Texas Manual on Uniform Traffic Control Devices," or as directed.

When design details are not shown on the plans, provide pavement markings for arrows, words, and symbols conforming to the latest "Standard Highway Sign Designs for Texas" manual.

Purchase the traffic paint from the open market.

Words are paid by each word and number respectively and not by letter or digit.

Item 672: Raised Pavement Markers

If other operations are complete on the project and if the curing time period is not yet elapsed, the contract time will be suspended until the curing is done.

Before placing the raised pavement markers on concrete pavement, blast clean the surface using an abrasive-blasting medium. This work is subsidiary to the Item, "Raised Pavement Markers."

Provide epoxy adhesive that is machine-mixed or nozzle-mixed and dispensed. Equip the machine or nozzle with a mechanism to ensure positive mix measurement control.

Item 677: Eliminating Existing Pavement Markings and Markers

Remove existing pavement markings on concrete or asphalt surfaces by flail milling or as directed.

Item 678: Pavement Surface Preparation for Markings

Do not blast clean asphalt concrete pavement. Clean asphalt concrete pavement as required under the applicable specifications or as directed.

On new concrete pavement or on existing concrete pavement when placing a new stripe on a new location, remove the curing compounds and contamination from the pavement surface by flail milling or as directed. In addition, air-blast the surface with compressed air just before placing the new stripe.

On existing concrete pavement when placing a new stripe on an existing location, after removing the existing stripe under the Item, "Eliminating Existing Pavement Markings and Markers," air-blast the surface with compressed air just before placing the new stripe.

Do not clean concrete pavement by grinding

Item 6038: Multipolymer Pavement Markings

Apply beads using a single drop application process. Use an application rate of 12 pounds per 100 square feet of thermoplastic pavement marking material.

The contractor will layout the proposed striping in accordance with TxDOT Traffic Control Plan Standards and latest version Texas Manual on Unified Traffic Control Devices (TMUTCD) and project striping layout sheets. The Engineer will verify proposed striping layout prior to the beginning of striping operations.

Before the application of pavement markings, sufficiently clean pavement surfaces to remove all forms of contamination and loose materials, in accordance with Item 678, "Pavement Surface Preparation for Markings".

Item 6185: Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)

A shadow vehicle with Truck Mounted Attenuators (TMAs) or Trailer Attenuators (TAs) is required as shown on the appropriate Traffic Control Plan (TCP) sheets. TMAs/TAs must meet the requirements of the Compliant Work Zone Traffic Control Device List.

Level 3 Compliant TMAs/TAs are required for this project.

A total of one (1) shadow vehicle with a TMA/TA is required for the work with the exception of Pavement Marking Operations. The Contractor is responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMAs/TAs needed on the project.

Project Number: RMC 6422-79-001

County: HARRIS

Highway: SL 8

3F

Control: 6422-79-001

A total of three (3) shadow vehicles with a TMA/TA are required for Pavement Marking Operations. The Contractor is responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMAs/TAs needed on the project.

In addition to the shadow vehicles with TMAs/TAs that are specified as being required on the TCP layout sheets for this project, provide additional shadow vehicles with TMAs/TAs as shown on the TCP Standard sheets. The Contractor is responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMAs/TAs needed on the project.

CONTROL : 6422-79-001
PROJECT : RMC - 642279001
HIGHWAY : SL0008
COUNTY : HARRIS

TEXAS DEPARTMENT OF TRANSPORTATION

GOVERNING SPECIFICATIONS AND SPECIAL PROVISIONS

ALL SPECIFICATIONS AND SPECIAL PROVISIONS APPLICABLE TO THIS PROJECT ARE IDENTIFIED AS FOLLOWS:

STANDARD SPECIFICATIONS: ADOPTED BY THE TEXAS DEPARTMENT OF
----- TRANSPORTATION NOVEMBER 1, 2014.
STANDARD SPECIFICATIONS ARE INCORPORATED
INTO THE CONTRACT BY REFERENCE.

ITEMS 1 TO 9 INCL., GENERAL REQUIREMENTS AND COVENANTS
ITEM 361 REPAIR OF CONCRETE PAVEMENT (360)(421)(440)
ITEM 500 MOBILIZATION
ITEM 502 BARRICADES, SIGNS, AND TRAFFIC HANDLING
ITEM 668 PREFABRICATED PAVEMENT MARKINGS (678)
ITEM 672 RAISED PAVEMENT MARKERS <2>(677)(678)
ITEM 677 ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS (300)
(302)(316)<3096>
ITEM 678 PAVEMENT SURFACE PREPARATION FOR MARKINGS (677)

SPECIAL PROVISIONS: SPECIAL PROVISIONS WILL GOVERN AND TAKE
----- PRECEDENCE OVER THE SPECIFICATIONS ENUMERATED
HEREON WHEREVER IN CONFLICT THEREWITH.

SPECIAL PROVISION "NONDISCRIMINATION" (000---002)
SPECIAL PROVISION "CERTIFICATE OF INTERESTED PARTIES (FORM 1295)"
(000--1019)
SPECIAL PROVISION "SCHEDULE OF LIQUIDATED DAMAGES" (000--1243)
SPECIAL PROVISION "NOTICE OF CONTRACTOR PERFORMANCE EVALUATIONS"
(000---659)
SPECIAL PROVISIONS TO ITEM 2 (002---011)(002---013)
SPECIAL PROVISIONS TO ITEM 3 (003---011)(003---013)
SPECIAL PROVISIONS TO ITEM 5 (005---002)(005---003)
SPECIAL PROVISIONS TO ITEM 6 (006---001)(006---012)
SPECIAL PROVISIONS TO ITEM 7 (007---004)(007---010)(007---011)
SPECIAL PROVISIONS TO ITEM 8 (008---030)(008---033)(008---045)
SPECIAL PROVISIONS TO ITEM 9 (009---010)(009---011)
SPECIAL PROVISION TO ITEM 300 (300---020)

SPECIAL PROVISION TO ITEM 302 (302---003)
SPECIAL PROVISION TO ITEM 316 (316---002)
SPECIAL PROVISION TO ITEM 421 (421---010)
SPECIAL PROVISION TO ITEM 440 (440---004)
SPECIAL PROVISION TO ITEM 502 (502---008)
SPECIAL PROVISION TO ITEM 672 (672---001)
SPECIAL PROVISION TO SPECIAL SPECIFICATION ITEM 6185 (6185--002)

SPECIAL SPECIFICATIONS:

ITEM 3096 ASPHALTS, OILS, AND EMULSIONS <1><2>
ITEM 6001 PORTABLE CHANGEABLE MESSAGE SIGN
ITEM 6038 MULTI-POLYMER PAVEMENT MARKINGS (MPM) (677)<678>
ITEM 6185 TRUCK MOUNTED ATTENUATOR (TMA) AND TRAILER ATTENUATOR (TA)

GENERAL: THE ABOVE-LISTED SPECIFICATION ITEMS ARE THOSE UNDER WHICH
----- PAYMENT IS TO BE MADE. THESE, TOGETHER WITH SUCH OTHER
PERTINENT ITEMS, IF ANY, AS MAY BE REFERRED TO IN THE ABOVE-
LISTED SPECIFICATION ITEMS, AND INCLUDING THE SPECIAL
PROVISIONS LISTED ABOVE, CONSTITUTE THE COMPLETE SPECIFI-
CATIONS FOR THIS PROJECT.

CHILD SUPPORT STATEMENT

Under Section 231.006, Family Code, the vendor or applicant certifies that the individual or business entity named in this contract, bid, or application is not ineligible to receive the specified grant, loan, or payment and acknowledges that this contract may be terminated and payment may be withheld if this certification is inaccurate.

CONFLICT OF INTEREST CERTIFICATION

Pursuant to Texas Government Code Section 2261.252(b), the Department is prohibited from entering into contracts in which Department officers and employees have a financial interest.

By signing the Contract, the Contractor certifies that it is not prohibited from entering into a Contract with the Department as a result of a financial interest as defined under Texas Government Code Section 2261.252(b), and that it will exercise reasonable care and diligence to prevent any actions or conditions that could result in a conflict of interest with the Department.

The Contractor also certifies that none of the following individuals, nor any of their family members within the second degree of affinity or consanguinity, owns 1% or more interest or has a financial interest as defined under Texas Government Code Section 2261.252(b) in the Contractor:

- Any member of the Texas Transportation Commission; and
- The Department's Executive Director, General Counsel, Chief of Procurement and Field Support Operations, Director of Procurement, and Director of Contract Services.

Violation of this certification may result in action by the Department.

E-VERIFY CERTIFICATION

Pursuant to Texas Transportation Code §223.051, all TxDOT contracts for construction, maintenance, or improvement of a highway must include a provision requiring Contractors and subcontractors to use the U.S. Department of Homeland Security's E-Verify system to determine employment eligibility. By signing the contract, the Contractor certifies that prior to the award of the Contract:

- the Contractor has registered with and will, to the extent permitted by law, utilize the United States Department of Homeland Security's E-Verify system during the term of the Contract to determine the eligibility of all persons hired to perform duties within Texas during the term of the agreement; and
- the Contractor will require that all subcontractors also register with and, to the extent permitted by law, utilize the United States Department of Homeland Security's E-Verify system during the term of the subcontract to determine the eligibility of all persons hired to perform duties within Texas during the term of the agreement.

Violation of this requirement constitutes a material breach of the Contract, subjects a subcontractor to removal from the Contract, and subjects the Contractor or subcontractors to possible sanctions in accordance with Title 43, Texas Administrative Code, Chapter 10, Subchapter F, "Sanctions and Suspension for Ethical Violations by Entities Doing Business with the Department."

Certification Regarding Disclosure of Public Information

Pursuant to Subchapter J, Chapter 552, Texas Government Code, contractors executing a contract with a governmental body that results in the expenditure of at least \$1 million in public funds must:

- 1) preserve all contracting information* as provided by the records retention requirements applicable to Texas Department of Transportation (TxDOT) for the duration of the contract,
- 2) on request of TxDOT, promptly provide any contracting information related to the contract that is in the custody or possession of the entity, and
- 3) on completion of the contract, either:
 - A. provide, at no cost to TxDOT, all contracting information related to the contract that is in the custody or possession of the entity, or
 - B. preserve the contracting information related to the contract as provided by the records retention requirements applicable to TxDOT

The requirements of Subchapter J, Chapter 552, Government Code, may apply to this contract, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

By entering into Contract, the Contractor agrees to:

- provide, or make available, to TxDOT and any authorized governmental investigating or auditing agency all records, including electronic and payment records related to the contract, for the same period provided by the records retention schedule applicable to TxDOT, and
- ensure that all subcontracts include a clause requiring the same.

* As defined in Government Code §552.003, "Contracting information" means the following information maintained by a governmental body or sent between a governmental body and a vendor, contractor, potential vendor, or potential contractor:

- 1) information in a voucher or contract relating to the receipt or expenditure of public funds by a governmental body;
- 2) solicitation or bid documents relating to a contract with a governmental body;
- 3) communications sent between a governmental body and a vendor, contractor, potential vendor, or potential contractor during the solicitation, evaluation, or negotiation of a contract;
- 4) documents, including bid tabulations, showing the criteria by which a governmental body evaluates each vendor, contractor, potential vendor, or potential contractor responding to a solicitation and, if applicable, an explanation of why the vendor or contractor was selected; and
- 5) communications and other information sent between a governmental body and a vendor or contractor related to the performance of a final contract with the governmental body or work performed on behalf of the governmental body.

CERTIFICATION TO NOT BOYCOTT ISRAEL

Pursuant to Texas Government Code §2271.002, the Department must include a provision requiring a written verification affirming that the Contractor does not boycott Israel, as defined in Government Code §808.001, and will not boycott Israel during the term of the contract. This provision applies to a contract that:

- 1) is with a Contractor that is not a sole proprietorship,
- 2) is with a Contractor with 10 or more full-time employees, and
- 3) has a value of \$100,000 or more.

By signing the contract, the Contractor certifies that it does not boycott Israel and will not boycott Israel during the term of this contract. "Boycott" means refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made for ordinary business purposes.

Violation of this certification may result in action by the Department.

CERTIFICATION TO NOT BOYCOTT ENERGY COMPANIES

Pursuant to Texas Government Code §2274.002, the Department must include a provision requiring a written verification affirming that the Contractor does not boycott energy companies, as defined in Government Code §809.001, and will not boycott energy companies during the term of the contract. This provision applies to a contract that:

- 1) is with a Contractor that is not a sole proprietorship,
- 2) is with a Contractor with 10 or more full-time employees, and
- 3) has a value of \$100,000 or more.

By signing the contract, the Contractor certifies that it does not boycott energy companies and will not boycott energy companies during the term of this contract. "Boycott" means taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations with a company because the company: (1) engages in the exploration, production, utilization, transportation, sale, or manufacturing of fossil fuel-based energy and does not commit or pledge to meet environmental standards beyond applicable federal and state law; or (2) does business with a company described by (1).

Violation of this certification may result in action by the Department.

CERTIFICATION TO NOT DISCRIMINATE AGAINST FIREARM ENTITIES OR FIREARM TRADE ASSOCIATIONS

Pursuant to Texas Government Code §2274.002, the Department must include a provision requiring a written verification affirming that the Contractor:

- 1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association, as defined in Government Code §2274.001, and
- 2) will not discriminate against a firearm entity or firearm trade association during the term of the contract.

This provision applies to a contract that:

- 1) is with a Contractor that is not a sole proprietorship,
- 2) is with a Contractor with 10 or more full-time employees, and
- 3) has a value of \$100,000 or more.

By signing the contract, the Contractor certifies that it does not discriminate against a firearm entity or firearm trade association as described and will not do so during the term of this contract. "Discriminate against a firearm entity or firearm trade association" means, with respect to the entity or association, to: (1) refuse to engage in the trade of any goods or services with the entity or association based solely on its status as a firearm entity or firearm trade association; (2) refrain from continuing an existing business relationship with the entity or association based solely on its status as a firearm entity or firearm trade association; or (3) terminate an existing business relationship with the entity or association based solely on its status as a firearm entity or firearm trade association. "Discriminate against a firearm entity or firearm trade association" does not include: (1) the established policies of a merchant, retail seller, or platform that restrict or prohibit the listing or selling of ammunition, firearms, or firearm accessories; (2) a company's refusal to engage in the trade of any goods or services, decision to refrain from continuing an existing business relationship, or decision to terminate an existing business relationship to comply with federal, state, or local law, policy, or regulations or a directive by a regulatory agency, or for any traditional business reason that is specific to the customer or potential customer and not based solely on an entity's or association's status as a firearm entity or firearm trade association.

Violation of this certification may result in action by the Department.

Special Provision to Item 000

Nondiscrimination



1. DESCRIPTION

All recipients of federal financial assistance are required to comply with various nondiscrimination laws including Title VI of the Civil Rights Act of 1964, as amended, (Title VI). Title VI forbids discrimination against anyone in the United States on the grounds of race, color, or national origin by any agency receiving federal funds.

Texas Department of Transportation, as a recipient of Federal financial assistance, and under Title VI and related statutes, ensures that no person shall on the grounds of race, religion (where the primary objective of the financial assistance is to provide employment per 42 U.S.C. § 2000d-3), color, national origin, sex, age or disability be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under any Department programs or activities.

2. DEFINITION OF TERMS

Where the term “contractor” appears in the following six nondiscrimination clauses, the term “contractor” is understood to include all parties to contracts or agreements with the Texas Department of Transportation.

3. NONDISCRIMINATION PROVISIONS

During the performance of this contract, the contractor agrees as follows:

- 3.1. **Compliance with Regulations.** The Contractor shall comply with the Regulations relative to nondiscrimination in Federally-assisted programs of the Department of Transportation (hereinafter, “DOT”) Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.
- 3.2. **Nondiscrimination.** The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.
- 3.3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.
- 3.4. **Information and Reports:** The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Texas Department of Transportation to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information the contractor shall so certify to the Recipient, or the Texas Department of Transportation as appropriate, and shall set forth what efforts it has made to obtain the information.

- 3.5. **Sanctions for Noncompliance.** In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, the Recipient shall impose such contract sanctions as it or the Texas Department of Transportation may determine to be appropriate, including, but not limited to:
- withholding of payments to the contractor under the contract until the contractor complies, and/or
 - cancellation, termination or suspension of the contract, in whole or in part.
- 3.6. **Incorporation of Provisions.** The contractor shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as the Recipient or the Texas Department of Transportation may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that, in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the Recipient to enter into such litigation to protect the interests of the Recipient, and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

Special Provision 000

Certificate of Interested Parties (Form 1295)



Submit a notarized Form 1295, "Certificate of Interested Parties," in the following instances:

- at Contract execution for Contracts awarded by the Commission;
- at Contract execution for Contracts awarded by the District Engineer or Chief Engineer with an award amount of \$1,000,000 or more; at any time an existing Contract awarded by the District Engineer or Chief Engineer increases in value to \$1,000,000 or more due to changes in the Contract; at any time there is an increase of \$1,000,000 or more to an existing Contract (change orders, extensions, and renewals); or
- at any time there is a change to the information in Form 1295, when the form was filed for an existing Contract.

Form 1295 and instructions on completing and filing the form are available on the Texas Ethics Commission website.

Special Provision 000

Important Notice to Contractors



For Dollar Amount of Original Contract		Dollar Amount of Daily Contract Administration Liquidated Damages per Working Day
From More Than	To and including	
0	1,000,000	618
1,000,000	3,000,000	832
3,000,000	5,000,000	940
5,000,000	15,000,000	1317
15,000,000	25,000,000	1718
25,000,000	50,000,000	2411
50,000,000	Over 50,000,000	4265

In addition to the amount shown in Table 1, the Liquidated Damages will be increased by the amount shown in Item 8 of the General Notes for Road User Cost (RUC), when applicable.

Special Provision 000

Notice of Contractor Performance Evaluations



1. GENERAL

In accordance with Texas Transportation Code §223.012, the Engineer will evaluate Contractor performance based on quality, safety, and timeliness of the project.

2. DEFINITIONS

- 2.1. **Project Recovery Plan (PRP)**—a formal, enforceable plan developed by the Contractor, in consultation with the District, that documents the cause of noted quality, safety, and timeliness issues and specifies how the Contractor proposes to correct project-specific performance deficiencies.

In accordance with Title 43, Texas Administrative Code (TAC), §9.23, the District will request a PRP if the Contractor's performance on a project is below the Department's acceptable standards and will monitor the Contractor's compliance with the established plan.

- 2.2. **Corrective Action Plan (CAP)**—a formal, enforceable plan developed by the Contractor, and proposed for adoption by the Construction or Maintenance Division, that documents the cause of noted quality, safety, and timeliness issues and specifies how the Contractor proposes to correct statewide performance deficiencies.

In accordance with 43 TAC §9.23, the Division will request a CAP if the average of the Contractor's statewide final evaluation scores falls below the Department's acceptable standards for the review period and will monitor the Contractor's compliance with the established plan.

3. CONTRACTOR EVALUATIONS

In accordance with Title 43, Texas Administrative Code (TAC) §9.23, the Engineer will schedule evaluations at the following intervals, at minimum:

- Interim evaluations—at or within 30 days after the anniversary of the notice to proceed, for Contracts extending beyond 1 yr., and
- Final evaluation—upon project closeout.

In case of a takeover agreement, neither the Surety nor its performing Contractor will be evaluated.

In addition to regularly scheduled evaluations, the Engineer may schedule an interim evaluation at any time to formally communicate issues with quality, safety, or timeliness. Upon request, work with the Engineer to develop a PRP to document expectations for correcting deficiencies.

Comply with the PRP as directed. Failure to comply with the PRP may result in additional remedial actions available to the Engineer under Item 5, "Control of the Work." Failure to meet a PRP to the Engineer's satisfaction may result in immediate referral to the Performance Review Committee for consideration of further action against the Contractor.

The Engineer will consider and document any events outside the Contractor's control that contributed to the failure to meet performance standards or comply with a PRP, including consideration of sufficient time.

Follow the escalation ladder if there is a disagreement regarding an evaluation or disposition of a PRP. The Contractor may submit additional documentation pertaining to the dispute. The District Engineer's decision

on a Contractor's evaluation score and recommendation of action required in a PRP or follow up for non-compliance is final.

4. DIVISION OVERSIGHT

Upon request of the Construction or Maintenance Division, develop and submit for Division approval a proposed CAP to document expectations for correcting deficiencies in the performance of projects statewide.

Comply with the CAP as directed. The CAP may be modified at any time up to completion or resolution after written approval of the premise of change from the Division. Failure to meet an adopted or revised adopted CAP to the Division's satisfaction within 120 days will result in immediate referral to the Performance Review Committee for consideration of further action against the Contractor.

The Division will consider and document any events outside the Contractor's control that contributed to the failure to meet performance standards or comply with a CAP, including consideration of sufficient time and associated costs as appropriate.

5. PERFORMANCE REVIEW COMMITTEE

The Performance Review Committee, in accordance with 43 TAC §9.24, will review at minimum all final evaluations, history of compliance with PRPs, any adopted CAPs including agreed modifications, any information about events outside a Contractor's control contributing to the Contractor's performance, and any documentation submitted by the Contractor and may recommend one or more of the following actions:

- take no action,
- reduce the Contractor's bidding capacity,
- prohibit the Contractor from bidding on one or more projects,
- immediately suspend the Contractor from bidding for a specified period of time, by reducing the Contractor's bidding capacity to zero, or
- prohibit the Contractor from being awarded a Contract on which they are the apparent low bidder.

The Deputy Executive Director will determine any further action against the Contractor.

6. APPEALS PROCESS

In accordance with 43 TAC §9.25, the Contractor may appeal remedial actions determined by the Deputy Executive Director.

Special Provision to Item 2

Instructions to Bidders



Item 2, "Instructions to Bidders," of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Article 2.3., "Issuing Proposal Forms," is supplemented by the following:

- the Bidder or affiliate of the Bidder that was originally determined as the apparent low Bidder on a project, but was deemed nonresponsive for failure to register or participate in the Department of Homeland Security's (DHS) E-Verify system as specified in Article 2.15., "Department of Homeland Security (DHS) E-Verify System," is prohibited from rebidding that specific project.

Article 2.7., "Nonresponsive Bid," is supplemented by the following:

- the Bidder failed to participate in the Department of Homeland Security's (DHS) as specified in Article 2.15., "Department of Homeland Security (DHS) E-Verify System."

Article 2.15., "Department of Homeland Security (DHS) E-Verify System," is added.

The Department will not award a Contract to a Contractor that is not registered in the DHS E-Verify system. Remain active in E-Verify throughout the life of the contract. In addition, in accordance with paragraph six of Article 8.2, "Subcontracting," include this requirement in all subcontracts and require that subcontractors remain active in E-Verify until their work is completed.

If the apparent low Bidder does not appear on the DHS E-Verify system prior to award, the Department will notify the Contractor that they must submit documentation showing that they are compliant within 5-business days after the date the notification was sent. A Contractor who fails to comply or respond within the deadline will be declared non-responsive and the Department will execute the proposal guaranty. The proposal guaranty will become the property of the State, not as a penalty, but as liquidated damages. The Bidder forfeiting the proposal guaranty will not be considered in future proposals for the same work unless there has been a substantial change in the scope of the work.

The Department may recommend that the Commission:

- reject all bids, or
- award the Contract to the new apparent low Bidder, if the Department is able to verify the Bidder's participation in the DHS E-verify system. For the Bidder who is not registered in E-Verify, the Department will allow for one business day after notification to provide proof of registration.

If the Department is unable to verify the new apparent low Bidder's participation in the DHS E-Verify system within one calendar day:

- the new apparent low Bidder will not be deemed nonresponsive,
- the new apparent low Bidder's guaranty will not be forfeited,
- the Department will reject all bids, and
- the new apparent low Bidder will remain eligible to receive future proposals for the same project.

Special Provision to Item 2

Instructions to Bidders



Item 2, "Instructions to Bidders" of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Article 3., "Issuing Proposal Forms," is supplemented by the following:

The Electronic State Business Daily (ESBD), the Integrated Contractor Exchange (iCX) system, and the project proposal are the official sources of advertisement and bidding information for the State and Local Lettings. Bidders should bid the project using the information found therein, including any addenda. These sources take precedence over information from other sources, including TxDOT webpages, which are unofficial and intended for informational purposes only.

Special Provision to Item 3 Award and Execution Contract



Item 3, Award and Execution of Contract," of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Section 4.3, "Insurance." The first sentence is voided and replaced by the following:

For construction and building Contracts, submit a certificate of insurance showing coverages in accordance with Contract requirements. For routine maintenance Contracts, refer to Article 8, "Beginning of Work."

Article 8, "Beginning of Work." The first sentence is supplemented by the following:

For a routine maintenance Contract, do not begin work until a certificate of insurance showing coverages in accordance with the Contract requirements is provided and accepted.

Special Provision to Item 3

Award and Execution of Contract



Item 3, "Award and Execution of Contract" of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Section 4.3 "Insurance" is being amended by the following:

Table 2
Insurance Requirements

Type of Insurance	Amount of Coverage
Commercial General Liability Insurance	Not Less Than: \$600,000 each occurrence
Business Automobile Policy	Not Less Than: \$600,000 combined single limit
Workers' Compensation	Not Less Than: Statutory
All Risk Builder's Risk Insurance (For building-facilities contracts only)	100% of Contract Price

Special Provision to Item 5

Control of the Work



Item 5, "Control of the Work," of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Article 5.1, "Authority of Engineer," is voided and replaced by the following.

The Engineer has the authority to observe, test, inspect, approve, and accept the work. The Engineer decides all questions about the quality and acceptability of materials, work performed, work progress, Contract interpretations, and acceptable Contract fulfillment. The Engineer has the authority to enforce and make effective these decisions.

The Engineer acts as a referee in all questions arising under the terms of the Contract. The Engineer's decisions will be final and binding.

The Engineer will pursue and document actions against the Contractor as warranted to address Contract performance issues. Contract remedies include, but are not limited to, the following:

- conducting interim performance evaluations requiring a Project Recovery Plan, in accordance with Title 43, Texas Administrative Code (TAC) §9.23,
- requiring the Contractor to remove and replace defective work, or reducing payment for defective work,
- removing an individual from the project,
- suspending the work without suspending working day charges,
- assessing standard liquidated damages to recover the Department's administrative costs, including additional project-specific liquidated damages when specified in the Contract in accordance with 43 TAC §9.22,
- withholding estimates,
- declaring the Contractor to be in default of the Contract, and
- in case of a Contractor's failure to meet a Project Recovery Plan, referring the issue directly to the Performance Review Committee for consideration of further action against the Contractor in accordance with 43 TAC §9.24.

The Engineer will consider and document any events outside the Contractor's control that contributed to the failure to meet performance standards, including consideration of sufficient time.

Follow the issue escalation ladder if there is disagreement regarding the application of Contract remedies.

Special Provision to Item 5

Control of the Work



Item 5, "Control of the Work" of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Article 5.4, "Coordination of Plans, Specifications, and Special Provisions," the last sentence of the last paragraph is replaced by the following:

Failure to promptly notify the Engineer will constitute a waiver of all contract claims against the Department for misunderstandings or ambiguities that result from the errors, omissions, or discrepancies.

Special Provision to Item 6

Control of Materials



For this project, Item 6, "Control of Materials," of the Standard Specifications, is hereby amended with respect to the clauses cited below, and no other clauses or requirements of this Item are waived or changed hereby.

Article 4., "Sampling, Testing, and Inspection," is supplemented by the following:

Meet with the Engineer and choose either the Department or a Department-selected Commercial Lab (CL) for conducting the subset of project-level sampling and testing shown in Table 1, "Select Guide Schedule Sampling and Testing." Selection may be made on a test by test basis. CLs will meet the testing turnaround times shown (includes test time and time for travel/sampling and reporting) and in all cases issue test reports as soon as possible.

If the Contractor chooses a Department-selected CL for any Table 1 sampling and testing:

- notify the Engineer, District Lab, and the CL of project scheduling that may require CL testing;
- provide the Engineer, District Lab, and CL at least 24 hours' notice by phone and e-mail;
- reimburse the Department for CL Table 1 testing using the contract fee schedule for the CL (including mileage and travel/standby time) at the minimum guide schedule testing frequencies;
- reimburse the Department for CL Table 1 testing above the minimum guide schedule frequencies for retesting when minimum frequency testing results in failures to meet specification limits;
- agree with the Engineer and CL upon a policy regarding notification for testing services;
- give any cancellation notice to the Engineer, District Lab, and CL by phone and e-mail;
- reimburse the Department a \$150 cancellation fee to cover technician time and mileage charges for previously scheduled work cancelled without adequate notice, which resulted in mobilization of technician and/or equipment by the CL; and
- all CL charges will be reimbursed to the Department by a deduction from the Contractor's monthly pay estimate.

If the CL does not meet the Table 1 turnaround times, testing charge to the Contractor will be reduced by 50% for the first late day and an additional 5% for each succeeding late day.

Approved CL project testing above the minimum testing frequencies in the Guide Schedule of Sampling and Testing, and not as the result of failing tests, will be paid by the Department.

Other project-level Guide Schedule sampling and testing not shown on Table 1 will be the responsibility of the Department.

Table 1
Select Guide Schedule Sampling and Testing (Note 1)

TxDOT Test	Test Description	Turn-Around Time (Calendar days)
SOILS/BASE		
Tex-101-E	Preparation of Soil and Flexible Base Materials for Testing (included in other tests)	
Tex-104-E	Liquid Limit of Soils (included in 106-E)	
Tex-105-E	Plastic Limit of Soils (included in 106-E)	
Tex-106-E	Calculating the Plasticity Index of Soils	7
Tex-110-E	Particle Size Analysis of Soils	6
Tex-113-E	Moisture-Density Relationship of Base Materials	7
Tex-114-E	Moisture-Density Relationship of Subgrade and Embankment Soil	7
Tex-115-E	Field Method for In-Place Density of Soils and Base Materials	2
Tex-116-E	Ball Mill Method for the Disintegration of Flexible Base Material	5
Tex-117-E, Part II	Triaxial Compression Tests For Disturbed Soils and Base Materials (Part II)	6
Tex-113-E w/ Tex-117-E	Moisture-Density Relationship of Base Materials with Triaxial Compression Tests For Disturbed Soils and Base Materials (Part II)	10
Tex-140-E	Measuring Thickness of Pavement Layer	2
Tex-145-E	Determining Sulfate Content in Soils - Colorimetric Method	4
HOT MIX ASPHALT		
Tex-200-F	Sieve Analysis of Fine and Coarse Aggregate (dry, from ignition oven with known correction factors)	1 (Note 2)
Tex-203-F	Sand Equivalent Test	3
Tex-206-F, w/ Tex-207-F, Part I, w/ Tex-227-F	(Lab-Molded Density of Production Mixture – Texas Gyrotory) Method of Compacting Test Specimens of Bituminous Mixtures with Density of Compacted Bituminous Mixtures, Part I - Bulk Specific Gravity of Compacted Bituminous Mixtures, with Theoretical Maximum Specific Gravity of Bituminous Mixtures	1 (Note 2)
Tex-207-F, Part I &/or Part VI	(In-Place Air Voids of Roadway Cores) Density of Compacted Bituminous Mixtures, Part I- Bulk Specific Gravity of Compacted Bituminous Mixtures &/or Part VI - Bulk Specific Gravity of Compacted Bituminous Mixtures Using the Vacuum Method	1 (Note 2)
Tex-207-F, Part V	Density of Compacted Bituminous Mixtures, Part V- Determining Mat Segregation using a Density-Testing Gauge	3
Tex-207-F, Part VII	Density of Compacted Bituminous Mixtures, Part VII - Determining Longitudinal Joint Density using a Density-Testing Gauge	4
Tex-212-F	Moisture Content of Bituminous Mixtures	3
Tex-217-F	Deleterious Material and Decantation Test for Coarse Aggregate	4
Tex-221-F	Sampling Aggregate for Bituminous Mixtures, Surface Treatments, and LRA (included in other tests)	
Tex-222-F	Sampling Bituminous Mixtures (included in other tests)	
Tex-224-F	Determination of Flakiness Index	3
Tex-226-F	Indirect Tensile Strength Test (production mix)	4
Tex-235-F	Determining Draindown Characteristics in Bituminous Materials	3
Tex-236-F (Correction Factors)	Asphalt Content from Asphalt Paving Mixtures by the Ignition Method (Determining Correction Factors)	4
Tex-236-F	Asphalt Content from Asphalt Paving Mixtures by the Ignition Method (Production Mixture)	1 (Note 2)
Tex-241-F w/ Tex-207-F, Part I, w/ Tex-227-F	(Lab-Molded Density of Production Mixture – Superpave Gyrotory) Superpave Gyrotory Compacting of Specimens of Bituminous Mixtures (production mixture) with Density of Compacted Bituminous Mixtures, Part I- Part I - Bulk Specific Gravity of Compacted Bituminous Mixtures, with Theoretical Maximum Specific Gravity of Bituminous Mixtures	1 (Note 2)
Tex-242-F	Hamburg Wheel-Tracking Test (production mix, molded samples)	3
Tex-244-F	Thermal Profile of Hot Mix Asphalt	1
Tex-246-F	Permeability of Water Flow of Hot Mix Asphalt	3
Tex-280-F	Flat and Elongated Particles	3
Tex-530-C	Effect of Water on Bituminous Paving Mixtures (production mix)	4

AGGREGATES		
Tex-400-A	Sampling Flexible Base, Stone, Gravel, Sand, and Mineral Aggregates	3
Tex-410-A	Abrasion of Coarse Aggregate Using the Los Angeles Machine	5
Tex-411-A	Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate	12
Tex-461-A	Degradation of Coarse Aggregate by Micro-Deval Abrasion	5
CHEMICAL		
Tex-612-J	Acid Insoluble Residue for Fine Aggregate	4
GENERAL		
HMA Production Specialist [TxAPA – Level 1-A] (\$/hr)		
HMA Roadway Specialist [TxAPA – Level 1-B] (\$/hr)		
Technician Travel/Standby Time (\$/hr)		
Per Diem (\$/day – meals and lodging)		
Mileage Rate (\$/mile from closest CL location)		
Note 1– Turn-Around Time includes test time and time for travel/sampling and reporting. Note 2 – These tests require turn-around times meeting the governing specifications. Provide test results within the stated turn-around time. CL is allowed one additional day to provide the signed and sealed report.		

Special Provision to Item 6

Control of Materials



Item 6, "Control of Materials" of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Article 6.10., "Hazardous Materials," is voided and replaced by the following:

Comply with the requirements of Article 7.12., "Responsibility for Hazardous Materials."

Notify the Engineer immediately when a visual observation or odor indicates that materials on sites owned or controlled by the Department may contain hazardous materials. Except as noted herein, the Department is responsible for testing, removing, and disposing of hazardous materials not introduced by the Contractor. The Engineer may suspend work wholly or in part during the testing, removing, or disposing of hazardous materials, except in the case where hazardous materials are introduced by the Contractor.

Use materials that are free of hazardous materials. Notify the Engineer immediately if materials are suspected to contain hazardous materials. If materials delivered to the project by the Contractor are suspected to contain hazardous materials, have an approved commercial laboratory test the materials for the presence of hazardous materials as approved. Remove, remediate, and dispose of any of these materials found to contain hazardous materials. The work required to comply with this section will be at the Contractor's expense if materials are found to contain hazardous materials. Working day charges will not be suspended and extensions of working days will not be granted for activities related to handling hazardous material introduced by the Contractor. If suspected materials are not found to contain hazardous materials, the Department will reimburse the Contractor for hazardous materials testing and will adjust working day charges if the Contractor can show that this work impacted the critical path.

10.1. Painted Steel Requirements. Coatings on existing steel contain hazardous materials unless otherwise shown on the plans. Remove paint and dispose of steel coated with paint containing hazardous materials in accordance with the following:

10.1.1. Removing Paint From Steel For contracts that are specifically for painting steel, Item 446, "Field Cleaning and Painting Steel" will be included as a pay item. Perform work in accordance with that item.

For projects where paint must be removed to allow for the dismantling of steel or to perform other work, the Department will provide for a separate contractor (third party) to remove paint containing hazardous materials prior to or during the Contract. Remove paint covering existing steel shown not to contain hazardous materials in accordance with Item 446, "Field Cleaning and Painting Steel."

10.1.2. Removal and Disposal of Painted Steel. For steel able to be dismantled by unbolting, paint removal will not be performed by the Department. The Department will remove paint, at locations shown on the plans or as agreed, for the Contractor's cutting and dismantling purposes. Utilize Department cleaned locations for dismantling when provided or provide own means of dismantling at other locations.

Painted steel to be retained by the Department will be shown on the plans. For painted steel that contains hazardous materials, dispose of the painted steel at a steel recycling or smelting facility unless otherwise shown on the plans. Maintain and make available to the Engineer invoices and other records obtained from the facility showing the received weight of the steel and the facility name. Dispose of steel that does not contain hazardous material coatings in accordance with federal, state and local regulations.

10.2. Asbestos Requirements. The plans will indicate locations or elements where asbestos containing materials (ACM) are known to be present. Where ACM is known to exist or where previously unknown ACM has been found, the Department will arrange for abatement by a separate contractor prior to or during the Contract. Notify the Engineer of proposed dates of demolition or removal of structural elements with ACM at least 60 days before beginning work to allow the Department sufficient time for abatement.

The Department of State Health Services (DSHS), Asbestos Programs Branch, is responsible for administering the requirements of the National Emissions Standards for Hazardous Air Pollutants, 40 CFR Part 61, Subpart M and the Texas Asbestos Health Protection Rules (TAHPR). Based on EPA guidance and regulatory background information, bridges are considered to be a regulated "facility" under NESHAP. Therefore, federal standards for demolition and renovation apply.

The Department is required to notify the DSHS at least 10 working days (by postmarked date) before initiating demolition or renovation of each structure or load bearing member shown on the plans. If the actual demolition or renovation date is changed or delayed, notify the Engineer in writing of the revised dates in sufficient time to allow for the Department's notification to DSHS to be postmarked at least 10 days in advance of the actual work.

Failure to provide the above information may require the temporary suspension of work under Article 8.4., "Temporary Suspension of Work or Working Day Charges," due to reasons under the control of the Contractor. The Department retains the right to determine the actual advance notice needed for the change in date to address post office business days and staff availability.

10.3. Lead Abatement. Provide traffic control as shown on the plans, and coordinate and cooperate with the third party and the Department for managing or removing hazardous materials. Work for the traffic control shown on the plans and coordination work will not be paid for directly but will be subsidiary to pertinent Items.

Special Provision to Item 7

Legal Relations and Responsibilities



Item 7, "Legal Relations and Responsibilities," of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Section 7.7.2., "Texas Pollutant Discharge Elimination System (TPDES) Permits and Storm Water Pollution Prevention Plans (SWP3)," is voided and replaced by the following:

7.2. Texas Pollution Discharge Elimination System (TPDES) Permits and Storm Water Pollution Prevention Plans (SWP3).

7.2.1. Projects with less than one acre of soil disturbance including required associated project specific locations (PSL's) per TPDES GP TXR 150000.

No posting or filing will be required for soil disturbances within the right of way. Adhere to the requirements of the SWP3.

7.2.2. Projects with one acre but less than five acres of soil disturbance including required associated PSL's per TPDES GP TXR 150000.

The Department will be considered a primary operator for Operational Control Over Plans and Specifications as defined in TPDES GP TXR 150000 for construction activity in the right of way. The Department will post a small site notice along with other requirements as defined in TPDES GP TXR 150000 as the entity of having operational control over plans and specifications for work shown on the plans in the right of way.

The Contractor will be considered a Primary Operator for Day-to-Day Operational Control as defined in TPDES GP TXR 150000 for construction activity in the right of way. In addition to the Department's actions, the Contractor will post a small site notice along with other requirements as defined in TPDES GP TXR 150000 as the entity of having day-to-day operational control of the work shown on the plans in the right of way. This is in addition to the Contractor being responsible for TPDES GP TXR 150000 requirements for on- right of way and off- right of way PSL's. Adhere to all requirements of the SWP3 as shown on the plans. The Contractor will be responsible for Implement the SWP3 for the project site in accordance with the plans and specifications, TPDES General Permit TXR150000, and as directed.

7.2.3. Projects with 5 acres or more of soil disturbance including required associated PSL's per TPDES GP TXR 150000.

The Department will be considered a primary operator for Operational Control Over Plans and Specifications as defined in TPDES GP TXR 150000 for construction activities in the right of way. The Department will post a large site notice, file a notice of intent (NOI), notice of change (NOC), if applicable, and a notice of termination (NOT) along with other requirements per TPDES GP TXR 150000 as the entity having operational control over plans and specifications for work shown on the plans in the right of way.

The Contractor will be considered a primary operator for Day-to-Day Operational Control as defined in TPDES GP TXR 150000 for construction activities in the right of way. In addition to the Department's actions, the Contractor shall file a NOI, NOC, if applicable, and NOT and post a large site notice along with other requirements as the entity of having day-to-day operational control of the work shown on the plans in the right of way. This is in addition to the Contractor

being responsible for TPDES GP TXR 150000 requirements for on- right of way and off- right of way PSL's. Adhere to all requirements of the SWP3 as shown on the plans.

Special Provision to Item 7

Legal Relations and Responsibilities



Item 7, "Legal Relations and Responsibilities," of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Section 7.2.4., "Public Safety and Convenience." The first paragraph is deleted and replaced by the following.

Ensure the safety and convenience of the public and property as provided in the Contract and as directed. Keep existing roadways open to traffic or construct and maintain detours and temporary structures for safe public travel. Manage construction to minimize disruption to traffic. Maintain the roadway in a good and passable condition, including proper drainage and provide for ingress and egress to adjacent property.

If the construction of the project requires the closing of a highway, as directed, coordinate the closure with the Engineer and work to ensure all lanes and ramps possible are available during peak traffic periods before, during, and after significant traffic generator events to avoid any adverse economic impact on the municipalities during:

- dates or events as shown on the plans, and
- other dates as directed.

Special Provision to Item 007

Legal Relations and Responsibilities



Item 7, "Legal Relations and Responsibilities," of the Standard Specifications is amended with respect to the clauses cited below.

Section 2.6., "Barricades, Signs, and Traffic Handling," the first paragraph is voided and replaced by the following:

- 2.6. **Barricades, Signs, and Traffic Handling.** Comply with the requirements of Item 502 "Barricades, Signs, and Traffic Handling," and as directed. Provide traffic control devices that conform to the details shown on the plans, the TMUTCD, and the Department's Compliant Work Zone Traffic Control Device List maintained by the Traffic Safety Division. When authorized or directed, provide additional signs or traffic control devices not required by the plans.

Section 2.6.1., "Contractor Responsible Person and Alternative," is voided and replaced by the following:

- 2.6.1. **Contractor Responsible Person and Alternative.** Designate in writing, a Contractor's Responsible Person (CRP) and an alternate to be the representative of the Contractor who is responsible for taking or directing corrective measures regarding the traffic control. The CRP or alternate must be accessible by phone 24 hr. per day and able to respond when notified. The CRP and alternate must comply with the requirements of Section 2.6.5., "Training."

Section 2.6.2, "Flaggers," the first paragraph is voided and replaced by the following:

- 2.6.2. **Flaggers.** Designate in writing, a flagger instructor who will serve as a flagging supervisor and is responsible for training and assuring that all flaggers are qualified to perform flagging duties. Certify to the Engineer that all flaggers will be trained and make available upon request a list of flaggers trained to perform flagging duties.

Section 2.6.5, "Training," is voided and replaced by the following:

- 2.6.5. **Training.** Train workers involved with the traffic control using Department-approved training as shown on the "Traffic Control Training" Material Producer List.

Coordinate enrollment, pay associated fees, and successfully complete Department-approved training or Contractor-developed training. Training is valid for the period prescribed by the provider. Except for law enforcement personnel training, refresher training is required every 4 yr. from the date of completion unless otherwise specified by the course provider. The Engineer may require training at a frequency instead of the period prescribed based on the Department's needs. Training and associated fees will not be measured or paid for directly but are considered subsidiary to pertinent Items.

Certify to the Engineer that workers involved in traffic control and other work zone personnel have been trained and make available upon request a copy of the certification of completion to the Engineer. Ensure the following is included in the certification of completion:

- name of provider and course title,
- name of participant,
- date of completion, and
- date of expiration.

Where Contractor-developed training or a Department-approved training course does not produce a certification, maintain a log of attendees. Make the log available upon request. Ensure the log is legible and includes the following:

- printed name and signature of participant,
- name and title of trainer, and
- date of training.

2.6.5.1. **Contractor-developed Training.** Develop and deliver Contractor-developed training meeting the minimum requirements established by the Department. The outline for this training must be submitted to the Engineer for approval at the preconstruction meeting. The CRP or designated alternate may deliver the training instead of the Department-approved training. The work performed and materials furnished to develop and deliver the training will not be measured or paid for directly but will be considered subsidiary to pertinent Items.

2.6.5.1.1. **Flagger Training Minimum Requirements.** A Contractor's certified flagging instructor is permitted to train other flaggers.

2.6.5.1.2. **Optional Contractor-developed Training for Other Work Zone Personnel.** For other work zone personnel, the Contractor may provide training meeting the curriculum shown below instead of Department-approved training.

Minimum curriculum for Contractor-provided training is as follows:

Contractor-developed training must provide information on the use of personnel protection equipment, occupational hazards and health risks, and other pertinent topics related to traffic management. The type and amount of training will depend on the job duties and responsibilities. Develop training applicable to the work being performed. Develop training to include the following topics.

- The Life You Save May Be Your Own (or other similar company safety motto).
- Purpose of the training.
 - It's the Law.
 - To make work zones safer for workers and motorist.
 - To understand what is needed for traffic control.
 - To save lives including your own.
- Personal and Co-Worker Safety.
 - **High Visibility Safety Apparel.** Discuss compliant requirements; inspect regularly for fading and reduced reflective properties; if night operations are required, discuss the additional and appropriate required apparel in addition to special night work risks; if moving operations are underway, discuss appropriate safety measures specific to the situation and traffic control plan.
 - **Blind Areas.** A blind area is the area around a vehicle or piece of construction equipment not visible to the operators, either by line of sight or indirectly by mirrors. Discuss the "Circle of Safety" around equipment and vehicles; use of spotters; maintain eye contact with equipment operators; and use of hand signals.
 - **Runovers and Backovers.** Remain alert at all times; keep a safe distance from traffic; avoid turning your back to traffic and if you must then use a spotter; and stay behind protective barriers, whenever possible. Note: It is not safe to sit on or lean against a concrete barrier, these barriers can deflect four plus feet when struck by a vehicle.
 - Look out for each other, warn co-workers.
 - Be courteous to motorists.
 - Do not run across active roadways.
 - Workers must obey traffic laws and drive courteously while operating vehicles in the work zones.
 - Workers must be made aware of company distracted driving policies.
- **Night Time Operations.** Focus should be placed on projects with a nighttime element.

- **Traffic Control Training.** Basics of Traffic Control.
 - Identify work zone traffic control supervisor and other appropriate persons to report issues to when they arise.
 - Emphasize that work zone traffic control devices must be in clean and in undamaged condition. If devices have been hit but not damaged, put back in their correct place and report to traffic control supervisor. If devices have been damaged, replace with new one and report to traffic control supervisor. If devices are dirty, faded or have missing or damaged reflective tape clean or replace and report to traffic control supervisor. Show examples of non-acceptable device conditions. Discuss various types of traffic control devices to be used and where spacing requirements can be found.
 - **Channelizing Devices and Barricades with Slanted Stripes.** Stripes are to slant in the direction you want traffic to stay or move to; demonstrate this with a device.
 - **Traffic Queuing.** Workers must be made aware of traffic queuing and the dangers created by it. Workers must be instructed to immediately notify the traffic control supervisor and other supervisory personnel if traffic is queuing beyond advance warning sign and devices or construction limits.
 - **Signs.** Signs must be straight and not leaning. Report problems to the traffic control supervisor or other as designated for immediate repair. Covered signs must be fully covered. If covers are damaged or out of place, report to traffic control supervisor or other as designated.

Special Provision to Item 8 Prosecution and Progress



Item 8, "Prosecution and Progress" of the Standard Specification is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Article 8.2., "Subcontracting," is supplemented by the following paragraph, which is added as paragraph six to this article:

The Contractor certifies by signing the Contract that the Contractor will not enter into any subcontract with a subcontractor that is not registered in the Department of Homeland Security's (DHS) E-Verify system. Require that all subcontractors working on the project register and require that all subcontractors remain active in the DHS E-Verify system until their work is complete on the project.

Special Provision to Item 8 Prosecution and Progress



Item 8, "Prosecution and Progress" of the Standard Specifications is amended with respect to the clause cited below. No other clauses or requirements of this Item are waived or changed.

Article 8.7.2., "Wrongful Default," is revised and replaced by the following:

If it is determined after the Contractor is declared in default, that the Contractor was not in default, the rights and obligations of all parties will be the same as if termination had been issued for the convenience of the public as provided in Article 8.8 "Termination of Contract."

Special Provision to Item 8

Prosecution and Progress



Item 8, "Prosecution and Progress," of the Standard Specifications, is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Article 8.6., "Failure to Complete Work on Time," is supplemented by the following:

8.6.1. Lane Closure Assessment Fees.

Monetary assessment, as shown on the plans, will be made against the Contractor for any lane closure or obstruction that overlaps into the peak hour traffic for each time increment defined on the plans or portion thereof, per lane, regardless of the length of lane closure or obstruction.

8.6.1.1. Definition of Terms. For this Contract, the following definitions apply:

8.6.1.1.1. Time increment. Any continuous defined increment of time period or portion thereof for a period beginning at that point when lanes are closed or obstructed by the Contractor's operations.

8.6.1.1.2. Assessment Fee. The amount shown on the proposal for each defined time increment, representing the average cost of interference and inconvenience to the road user for each lane closed or obstructed during peak hour traffic. The Engineer may allow a proportional fee assessment for closures that do not involve an entire defined time increment.

8.6.1.1.3. Closure or Obstruction. When the Contractor's operations result in a reduced lane width of the travel way or shoulder less than that specified on the plan documents.

8.6.1.1.4. Peak Hour Traffic Times. Schedule of days and times described in the General Notes, when lane closures or obstructions are not allowed.

8.6.1.2. Fee Calculation and Collection. The assessment fee will be deducted from the amount due to the Contractor on the monthly construction estimate, and thus retained by the Department. The Engineer will determine the time of overlap of lane closures or obstructions for calculating the assessment fee. The assessment fee is based on road user costs and is assessed not as a penalty, but for added expense incurred by the traveling public.

Special Provision to Item 009

Measurement and Payment



Item 009 "Measurement and Payment" of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Article 9.5., "PROGRESS PAYMENTS" is supplemented with the following:

It is the Department's desire to pay a Contractor for work through the last working day of the month; however, the use of early cut-off dates for monthly estimates and MOH is a project management practice to manage workload at the Area Office level. Approval for using early cut-off dates is at the District's discretion. The earliest cut-off date for estimates is the 25th of the month.

Article 9.6., "PAYMENT FOR MATERIAL ON HAND (MOH)" first paragraph is amended as follows:

If payment for MOH is desired, request compensation for the invoice cost of acceptable nonperishable materials that have not been used in the work before the request, and that have been delivered to the work location or are in acceptable storage places. Nonperishable materials are those that do not have a shelf life or whose characteristics do not materially change when exposed to the elements. Include only materials that have been sampled, tested, approved, or certified, and are ready for incorporation into the work. Only materials which are completely constructed or fabricated on the Contractor's order for a specific Contract and are so marked and on which an approved test report has been issued are eligible. Payment for MOH may include the following types of items: concrete traffic barrier, precast concrete box culverts, concrete piling, reinforced concrete pipe, and illumination poles. Any repairs required after fabricated materials have been approved for storage will require approval of the Engineer before being made and will be made at the Contractor's expense. Include only those materials and products, when cumulated under an individual item or similar bid items, that have an invoice cost of at least \$1,000 in the request for MOH payment (e.g. For MOH eligibility, various sizes of conductor are considered similar bid items and may be cumulated to meet the threshold; for small roadside signs, the sign supports, mounting bolts, and the sign face is considered one bid item or similar bid items for more than one pay item for sign supports.) Requests for MOH are to be submitted at least two days before but not later than the estimate cutoff date unless otherwise agreed. If there is a need to request MOH after the established cut-off date, the district can make accommodation as the need arises. This needed accommodation is to be the exception, though, and not the rule.

Special Provision to Item 9

Measurement and Payment



Item 9, "Measurement and Payment" of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Section 9.7.1.4.3., "Standby Equipment Costs," is voided and replaced by the following:

7.1.4.3. **Standby Equipment Costs.** Payment for standby equipment will be made in accordance with Section 9.7.1.4., "Equipment," except that the 15% markup will not be allowed and that:

Section 7.1.4.3.1., "Contractor-Owned Equipment," is voided and replaced by the following:

7.1.4.3.1. **Contractor-Owned Equipment.** For Contractor-owned equipment:

- Standby will be paid at 50% of the monthly Equipment Watch rate after the regional and age adjustment factors have been applied. Operating costs will not be allowed. Calculate the standby rate as follows.

$$\text{Standby rate} = (\text{FHWA hourly rate} - \text{operating costs}) \times 50\%$$

- If an hourly rate is needed, divide the monthly *Equipment Watch* rate by 176.
- No more than 8 hr. of standby will be paid during a 24-hr. day period, nor more than 40 hr. per week.
- Standby costs will not be allowed during periods when the equipment would have otherwise been idle.

Special Provision to Item 300 Asphalt, Oils, and Emulsions



Item 300, "Asphalt, Oils, and Emulsions" of the Standard Specifications is replaced by Special Specification [3096](#), "Asphalts, Oils, and Emulsions." All Item 300 Special Provisions are no longer available, beginning with the April 2022 letting.

Special Provision to Item 302

Aggregates for Surface Treatments



Item 302, "Aggregates for Seal Coats," of the Standard Specifications, is hereby amended with respect to the clauses cited below, and no other clauses or requirements of this Item are waived or changed hereby.

Section 2.1., "Aggregate." Tables 2 and 3 are voided and replaced by the following.

Table 2
Aggregate Gradation Requirements (Cumulative % Retained¹)

Sieve	Grade								
	1	2	3S ²	3		4S ²	4	5S ²	5
				Non-Lightweight	Lightweight				
1"	-	-	-	-	-	-	-	-	-
7/8"	0-2	0	-	-	-	-	-	-	-
3/4"	20-35	0-2	0	0	0	-	-	-	-
5/8"	85-100	20-40	0-5	0-5	0-2	0	0	-	-
1/2"	-	80-100	55-85	20-40	10-25	0-5	0-5	0	0
3/8"	95-100	95-100	95-100	80-100	60-80	60-85	20-40	0-5	0-5
1/4"	-	-	-	95-100	95-100	-	-	65-85	-
#4	-	-	-	-	-	95-100	95-100	95-100	50-80
#8	99-100	99-100	99-100	98-100	98-100	98-100	98-100	98-100	98-100

1. Round test results to the nearest whole number.
2. Single-size gradation.

Table 3
Aggregate Quality Requirements

Property	Test Method	Requirement ¹	
		Minimum	Maximum
SAC	AQMP	As shown on the plans	
Deleterious Material ² , %	Tex-217-F , Part I	-	2.0
Decantation, %	Tex-406-A	-	1.5
Flakiness Index, %	Tex-224-F	-	17
Gradation	Tex-200-F , Part I	Table 2 Requirements	
Los Angeles Abrasion, %	Tex-410-A	-	35
Magnesium Sulfate Soundness, 5 Cycle, %	Tex-411-A	-	25
Micro-Deval Abrasion, %	Tex-461-A	Note 3	
Coarse Aggregate Angularity ⁴ , 2 Crushed Faces, %	Tex-460-A , Part I	85	-
Additional Requirements for Lightweight Aggregate			
Dry Loose Unit Wt., lb./cu. ft.	Tex-404-A	35	60
Pressure Slaking, %	Tex-431-A	-	6.0
Freeze-Thaw Loss, %	Tex-432-A	-	10.0
Water Absorption, 24hr., %	Tex-433-A	-	12.0

1. Material requirements are listed below, unless otherwise shown on the plans.
2. Not required for lightweight aggregate.
3. Used to estimate the magnesium sulfate soundness loss in accordance with Section 2.1.1.
4. Only required for crushed gravel.

Section 2.1.1., “Micro-Deval Abrasion,” is added.

The Engineer will perform a minimum of one Micro-Deval abrasion test in accordance with [Tex-461-A](#) for each coarse aggregate source per project that has a Rated Source Soundness Magnesium (RSSM) loss value greater than 15 as listed in the BRSQC. The Engineer may waive all Micro-Deval testing based on a satisfactory test history of the same aggregate source.

The Engineer will estimate the magnesium sulfate soundness loss for each coarse aggregate source, when tested, using the following formula.

$$Mg_{est.} = (RSSM)(MD_{act.}/RSMD)$$

where:

$Mg_{est.}$ = magnesium sulfate soundness loss

$MD_{act.}$ = actual Micro-Deval percent loss

$RSMD$ = Rated Source Micro-Deval

When the estimated magnesium sulfate soundness loss is greater than the maximum magnesium sulfate soundness loss specified, the coarse aggregate source will not be allowed for use unless otherwise approved by the Engineer. The Engineer may require additional testing before granting approval.

Section 2.2., “Precoating.” The third paragraph is voided and replaced by the following.

The Engineer retains the right to remove precoat material from aggregate samples in accordance with [Tex-210-F](#), or as recommended by the Construction Division, and test the aggregate to verify compliance with Table 2 and Table 3 requirements. Gradation testing may be performed with precoat intact.

Section 2.3., “Sampling,” is added.

Personnel who conduct sampling and witnessing of sampling must be certified by the Department-approved certification program. Supply the Engineer with a list of certified personnel and copies of their current certificates before beginning construction and when personnel changes are made. At any time during the project, the Engineer may perform production tests as deemed necessary in accordance with Item 5, “Control of the Work.”

The Engineer will sample aggregate from stockpiles located at the production site, intermediate distribution site, or project location in accordance with [Tex-221-F](#), Section 3.2.3. The Engineer will split each sample into 2 equal portions in accordance with [Tex-200-F](#), Section 3.3, and label these portions “Engineer” and “Contractor” or “Supplier.” Witness the sampling and splitting, and take immediate possession of the samples labeled “Contractor” or “Supplier”.

Section 2.4., “Reporting and Responsibilities,” is added.

The Engineer will provide test results to the Contractor and Supplier within 10 working days from the date the stockpile was sampled for sources listed on the Department’s Bituminous Rated Source Quality Catalog (BRSQC), unless otherwise directed. The Engineer will provide test results for the LA Abrasion ([Tex-410-A](#)) and Magnesium Sulfate Soundness ([Tex-411-A](#)) tests within 30 calendar days for sources not listed on the BRSQC, or for sources not meeting the requirements of Section 2.1.1., “Micro-Deval Abrasion.” The Engineer will report to the other party within 24 hours when any test result does not meet the requirements listed in Table 2 or Table 3.

Special Provision to Item 316

Seal Coat



Item 316, "Seal Coat" of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Section 4.8, "Asphalt Placement" is supplemented by the following:

4.8.5. Collect all samples in accordance with Tex-500-C, "Sampling Bituminous Materials, Pre-Molded Joint Fillers, and Joint Sealers" from the distributor and with witness by the Engineer.

At least once per project, collect split samples of each binder grade and source used. The Engineer will submit one split sample to MTD for testing and retain the other split sample.

In addition, collect one sample of each binder grade and source used on the project for each production day. The Engineer will retain these samples.

The Engineer will keep all retained samples for one yr., for hot-applied binders and cutback asphalts; or for two mo., for emulsified asphalts. The Engineer may submit retained samples to MTD for testing as necessary or as requested by MTD.

Special Provision to Item 421

Hydraulic Cement Concrete



Item 421, "Hydraulic Cement Concrete" of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Article 421.2., "Materials," the second sentence of the first paragraph is voided and replaced by the following.

Provide aggregates from sources listed in the Department's Concrete Rated Source Quality Catalog (CRSQC).

Article 421.2.2., Supplementary Cementing Materials (SCM), is voided and replaced with the following.

Supplementary Cementing Materials (SCM).

- **Fly Ash.** Furnish fly ash, Modified fly ash (MFA), and Ground Bottom Ash (GBA) conforming to [DMS-4610](#), "Fly Ash."
- **Slag Cement.** Furnish Slag Cement conforming to [DMS-4620](#), "Slag Cement."
- **Silica Fume.** Furnish silica fume conforming to [DMS-4630](#), "Silica Fume."
- **Metakaolin.** Furnish metakaolin conforming to [DMS-4635](#), "Metakaolin."

Article 421.3.1.3., "Agitators and Truck and Stationary Mixers," the first paragraph is voided and replaced by the following.

Provide stationary and truck mixers capable of combining the ingredients of the concrete into a thoroughly mixed and uniform mass and capable of discharging the concrete so that the requirements of [Tex-472-A](#) are met.

Article 421.3.1.3., "Agitators and Truck and Stationary Mixers," is supplemented with the following.

Truck mixers with automated water and chemical admixture measurement and slump and slump flow monitoring equipment meeting the requirement of ASTM C 94 will be allowed. Provide data every 6 mo. substantiating the accuracy of slump, slump flow, temperature, water, and chemical admixture measurements. The slump measured by the automated system must be within 1 in. of the slump measured in accordance with [Tex-415-A](#). The concrete temperature measured by the automated system must be within 1°F of concrete temperature measured in accordance with [Tex-422-A](#). The Engineer will not use the automated measurements for acceptance.

Article 421.4.2, "Mix Design Proportioning," Table 8 is voided and replaced by the following.

Table 8
Concrete Classes

Class of Concrete	Design Strength, ¹ Min f'_c (psi)	Max w/cm Ratio	Coarse Aggregate Grades ^{2,3,4}	Cement Types	Mix Design Options	Exceptions to Mix Design Options	General Usage ⁵
A	3,000	0.60	1-4, 8	I, II, I/II, IL, IP, IS, IT, V	1, 2, 4, & 7	When the cementitious material content does not exceed 520 lb./cu. yd., any fly ash listed in the MPL may be used at a cement replacement of 20% to 50%.	Curb, gutter, curb & gutter, conc. retards, sidewalks, driveways, back-up walls, anchors, non-reinforced drilled shafts
B	2,000	0.60	2-7				Riprap, traffic signal controller foundations, small roadside signs, and anchors
C ⁶	3,600	0.45	1-6	I, II, I/II, IP, IL, IS, IT, V	1-8		Drilled shafts, bridge substructure, traffic rail, culverts except top slab of direct traffic culverts, headwalls, wing walls, inlets, manholes, traffic barrier
E	3,000	0.50	2-5	I, II, I/II, IL, IP, IS, IT, V	1-8	When the cementitious material content does not exceed 520 lb./cu. yd., any fly ash listed in the MPL may be used at a cement replacement of 20% to 50%.	Seal concrete
F ⁶	Note ⁷	0.45	2-5	I, II, I/II, IP, IL, IS, IT, V			Railroad structures; occasionally for bridge piers, columns, bents, post-tension members
H ⁶	Note ⁷	0.45	3-6	I, II, I/II, III, IP, IL, IS, IT, V	1-4, 8	Mix design options 1-8 allowed for cast-in-place concrete and the following precast elements unless otherwise stated in the plans: <ul style="list-style-type: none"> ■ Bridge Deck Panels, ■ Retaining Wall Systems, ■ Coping, ■ Sound Walls, ■ Wall Columns, ■ Traffic Rail, ■ Traffic Barrier, ■ Long/Arch Span Culverts, and ■ precast concrete products included in Items 462, 464, and 465. Do not use Type III cement in mass placement concrete. Up to 20% of blended cement may be replaced with listed SCMs when Option 4 is used for precast concrete. Options 6, & 7 allowed for cast-in-place Class H concrete.	Precast concrete, post-tension members
S ⁶	4,000	0.45	2-5	I, II, I/II, IP, IL, IS, IT, V	1-8		Bridge slabs, top slabs of direct traffic culverts, approach slabs
P	See Item 360, "Concrete Pavement."	0.50	2-3	I, II, I/II, IL, IP, IS, IT, V	1-8	When the cementitious material content does not exceed 520 lb./cu. yd., any fly ash listed in the MPL may be used at a cement replacement of 20% to 50%.	Concrete pavement

Class of Concrete	Design Strength, ¹ Min f_c (psi)	Max w/cm Ratio	Coarse Aggregate Grades ^{2,3,4}	Cement Types	Mix Design Options	Exceptions to Mix Design Options	General Usage ⁵
CO ⁶	4,600	0.40	6	I, II, I/II, IP, IL, IS, IT, V	1-8		Bridge deck concrete overlay
LMC ⁶	4,000	0.40	6-8				Latex-modified concrete overlay
SS ⁶	3,600	0.45	4-6		1-8	Use a minimum cementitious material content of 658 lb./cu. yd. of concrete. Limit the alkali loading to 4.0 lbs./cu. yd. or less when using option 7.	Slurry displacement shafts, underwater drilled shafts
K ⁶	Note ⁷	0.40	Note ⁷	I, II, I/II, III IP, IL, IS, IT, V	1-8		Note ⁷
HES	Note ⁷	0.45	Note ⁷	I, IL, II, I/II, III		Mix design options do not apply. 700 lb. of cementitious material per cubic yard limit does not apply.	Concrete pavement, concrete pavement repair
"X" (HPC) <small>6,8,9</small>	Note ¹⁰	0.45	Note ¹⁰	I, II, I/II, III IP, IL, IS, IT, V	1-4, & 8	Maximum fly ash replacement for Option 3 may be increased to 50%. Up to 20% of a blended cement may be replaced with listed SCMs for Option 4. Do not use Option 8 for precast concrete.	
"X" (SRC) <small>6,8,9</small>	Note ¹⁰	0.45	Note ¹⁰	I/II, II, IP, IL, IS, IT, V	1-4, & 7	When using fly ash, only use fly ashes allowed for SRC as listed in the Fly Ash MPL. Type III-MS may be used where allowed. Type I and Type III cements may be use when fly ashes allowed for SRC as listed in the Fly Ash MPL are used, and with a maximum w/cm of 0.40. Up to 20% of blended cement may be replaced with listed SCMs when Option 4 is used for precast concrete. Use Option 7 for precast concrete where allowed.	

- Design strength must be attained within 56 days.
- Do not use Grade 1 coarse aggregate except in massive foundations with 4 in. minimum clear spacing between reinforcing steel bars, unless otherwise permitted. Do not use Grade 1 aggregate in drilled shafts.
- Use Grade 8 aggregate in extruded curbs unless otherwise approved.
- Other grades of coarse aggregate maybe used in non-structural concrete classes when allowed by the Engineer.
- For information only.
- Structural concrete classes.
- As shown on the plans or specified.
- "X" denotes class of concrete shown on the plans or specified.
- (HPC): High Performance Concrete, (SRC): Sulfate Resistant Concrete.
- Same as class of concrete shown on the plans.

Article 421.4.2.2., "Aggregates," is supplemented by the following.

Use the following equation to determine if the aggregate combination meets the sand equivalency requirement when blending fine aggregate or using an intermediate aggregate:

$$\frac{(SE_1 \times P_1) + (SE_2 \times P_2) + (SE_{ia} \times P_{ia})}{100} \geq 80\%$$

where:

SE_1 = sand equivalency (%) of fine aggregate 1

SE_2 = sand equivalency (%) of fine aggregate 2

SE_{ia} = sand equivalency (%) of intermediate aggregate passing the 3/8 in. sieve

P_1 = percent by weight of fine aggregate 1 of the fine aggregate blend

P_2 = percent by weight of fine aggregate 2 of the fine aggregate blend

P_{ia} = percent by weight of intermediate aggregate passing the 3/8 in. sieve

Article 421.4.2.3., “Chemical Admixtures,” the second paragraph is voided and replaced with the following.

Use a 30% calcium nitrite solution when a corrosion-inhibiting admixture is required. Dose the admixture at the rate of gallons of admixture per cubic yard of concrete shown on the plans. Use set retarding admixtures, as needed, to control setting time to ensure concrete containing corrosion inhibiting admixtures remain workable for the entire duration of the concrete placement. Perform setting time testing and slump loss testing during trial batch testing.

Article 421.4.2.5., “Slump,” the second paragraph is voided and not replaced. Table 9 is voided and replaced with below:

Table 9
Placement Slump Requirements

General Usage	Placement Slump Range, ^{1,2} in.
Walls (over 9 in. thick), caps, columns, piers	3 to 7
Bridge slabs, top slabs of direct traffic culverts, approach slabs, concrete overlays, latex-modified concrete for bridge deck overlays	3 to 6
Inlets, manholes, walls (less than 9 in. thick), bridge railing, culverts, concrete traffic barrier, concrete pavement (formed)	4 to 6
Precast concrete	4 to 9
Underwater concrete placements	6 to 8-1/2
Drilled shafts, slurry displaced and underwater drilled shafts	See Item 416, “Drilled Shaft Foundations.”
Curb, gutter, curb and gutter, concrete retards, sidewalk, driveways, seal concrete, anchors, riprap, small roadside sign foundations, concrete pavement repair, concrete repair	As approved

1. Maximum slump values may be increase above these values shown using chemical admixtures, provided the admixture treated concrete has the same or lower water-to-cementitious ratio and does not exhibit segregation or excessive bleeding. Request approval to increase slump limits in advance for proper evaluation by the Engineer.
2. For fiber reinforced concrete, perform slump before addition of fibers.

Article 421.4.2.6., “Mix Design Options”, is voided and replaced with the following.

Option 1. Replace cement with at least the minimum dosage listed in the Fly Ash MPL for the fly ash used in the mixture. Do not replace more than 50% of the cement with fly ash.

Option 2. Replace 35% to 50% of the cement with slag cement.

Option 3. Replace 35% to 50% of the cement with a combination of fly ash, slag cement, MFA, metakaolin, or at least 3% silica fume; however, no more than 35% may be fly ash, and no more than 10% may be silica fume.

Option 4. Use Type IP, Type IS, or Type IT cement as allowed in Table 8 for each class of concrete. Up to 10% of a Type IP, Type IS, or Type IT cement may be replaced with fly ash, slag cement, or silica fume. Use no more than 10% silica fume in the final cementitious material mixture if the Type IT cement contains silica fume, and silica fume is used to replace the cement.

Option 5. Option 5 is left intentionally blank.

Option 6. Use a lithium nitrate admixture at a minimum dosage determined by testing conducted in accordance with Tex-471-A. Before use of the mix, provide an annual certified test report signed and sealed by a licensed professional engineer, from a laboratory on the Department's MPL, certified by the Construction Division as being capable of testing according to Tex-471-A.

Option 7. Ensure the total alkali contribution from the cement in the concrete does not exceed 3.5 lb. per cubic yard of concrete when using hydraulic cement not containing SCMs calculated as follows:

$$\text{lb. alkali per cu. yd.} = \frac{(\text{lb. cement per cu. yd.}) \times (\% \text{ Na}_2\text{O equivalent in cement})}{100}$$

In the above calculation, use the maximum cement alkali content reported on the cement mill certificate.

Option 8. Use Table 10 when deviating from Options 1–3 or when required by the Fly Ash MPL. Perform required testing annually and submit results to the Engineer. Laboratories performing ASTM C1260, ASTM C1567, and ASTM C1293 testing must be listed on the Department's MPL. Before use of the mix, provide a certified test report signed and sealed by a licensed professional engineer demonstrating the proposed mixture conforms to the requirements of Table 10.

Provide a certified test report signed and sealed by a licensed professional engineer, when HPC is required, and less than 20% of the cement is replaced with SCMs, demonstrating ASTM C1202 test results indicate the permeability of the concrete is less than 1,500 coulombs tested immediately after either of the following curing schedules:

- Moisture cure specimens 56 days at 73°F.
- Moisture cure specimens 7 days at 73°F followed by 21 days at 100°F.

Table 10
Option 8 Testing and Mix Design Requirements

Scenario	ASTM C1260 Result		Testing Requirements for Mix Design Materials or Prescriptive Mix Design Options
	Mix Design Fine Aggregate	Mix Design Coarse Aggregate	
A	> 0.10%	> 0.10%	Determine the dosage of SCMs needed to limit the 14-day expansion of each aggregate ¹ to 0.10% when tested individually in accordance with ASTM C1567.
B	≤ 0.10%	≤ 0.10%	Use the minimum replacement listed in the Fly Ash MPL, or When Option 8 is listed on the MPL, use a minimum of 40% fly ash with a maximum CaO ² content of 25%, or Use any ternary combination which replaces 35% to 50% of cement.
	≤ 0.10%	ASTM C1293 1 yr. Expansion ≤ 0.04%	Use a minimum of 20% of any fly ash; or Use any ternary combination which replaces 20% to 50% of cement.
C	≤ 0.10%	> 0.10%	Determine the dosage of SCMs needed to limit the 14-day expansion of coarse and intermediate ¹ aggregate to 0.10% when tested individually in accordance with ASTM C1567.
D	> 0.10%	≤ 0.10%	Use the minimum replacement listed in the Fly Ash MPL, or When Option 8 is listed on the MPL, use a minimum of 40% fly ash with a maximum CaO ² content of 25%, or Use any ternary combination which replaces 35% to 50% of cement.
	> 0.10%	ASTM C1293 1 yr. Expansion ≤ 0.04%	Determine the dosage of SCMs needed to limit the 14-day expansion of each fine aggregate to 0.10% when individually tested in accordance with ASTM C1567.

1. Intermediate size aggregates will fall under the requirements of mix design coarse aggregate.
2. Average the CaO content from the previous ten values as listed on the test certificate.

Article 421.4.2.7., "Optimized Aggregate Gradation (OAG) Concrete," the first sentence of the first paragraph is voided and replaced by the following.

The gradations requirements in Table 4 and Table 6 do not apply when OAG concrete is specified or used by the Contractor unless otherwise shown on the plans.

The fineness modulus for fine aggregate listed in Table 5, does not apply when OAG Concrete is used,

Article 421.4.6.2., “Delivering Concrete,” the third paragraph is supplemented by the following.

When truck mixers are equipped with automated water or chemical admixture measurement and slump or slump flow monitoring equipment, the addition of water or chemical admixtures during transit is allowed. Reports generated by this equipment must be submitted to the Engineer daily.

Article 421.4.6.2., “Delivering Concrete,” the fifth paragraph is voided and replaced with the following. Begin the discharge of concrete delivered in truck mixers within the times listed in Table 14. Concrete delivered after these times, and concrete that has not begun to discharge within these times will be rejected

Article 421.4.8.3., “Testing of Fresh Concrete,” is voided and replaced with the following.

Testing Concrete. The Engineer, unless specified in other Items or shown on the plans, will test the fresh and hardened concrete in accordance with the following methods:

- Slump. [Tex-415-A](#);
- Air Content. [Tex-414-A](#) or [Tex-416-A](#);
- Temperature. [Tex-422-A](#);
- Making and Curing Strength Specimens. [Tex-447-A](#);
- Compressive Strength. [Tex-418-A](#);
- Flexural Strength. [Tex-448-A](#); and
- Maturity. [Tex-426-A](#).

Flexural strength and maturity specimens will not be made unless specified in other items or shown on the plans.

Concrete with slump less than minimum required after all addition of water withheld will be rejected, unless otherwise allowed by the Engineer. Concrete with slump exceeding maximum allowed may be used at the contractor’s option. If used, Engineer will make, test, and evaluate strength specimens as specified in Article 421.5., “Acceptance of Concrete.” Acceptance of concrete not meeting air content or temperature requirements will be determined by Engineer. Fresh concrete exhibiting segregation and excessive bleeding will be rejected.

Article 421.4.8.3.1. “Job-Control Testing,” is voided and not replaced.

Special Provision to Item 440

Reinforcement for Concrete



Item 440, "Standard Specification Title" of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Article 440.2., "Materials" is supplemented with the following:

- 2.14. Provide zinc-coated, hot-dip galvanized Class I or II steel reinforcement conforming to ASTM A767, Grades 60 or 75 when shown on the plans and as allowed.
- 2.15. Provide continuously hot-dip galvanized reinforcement (CGR) conforming to ASTM A1094 steel reinforcement, Grades 60 or 75 when shown on the plans and as allowed.

Article 440.2.5., "Weldable Reinforcing Steel" is supplemented with the following:

All welding operations must be performed prior to hot-dip galvanizing.

Article 440.2.8., "Mechanical Couplers" is supplemented with the following:

Provide hot-dipped or mechanically galvanized couplers when splicing galvanized reinforcing or continuously galvanized reinforcing.

Article 440.2.11., "Low-Carbon, Chromium Reinforcing Steel." The first sentence is voided and replaced by the following:

Provide deformed steel bars conforming to ASTM A1035, Grade 100, Type CS when low-carbon, chromium reinforcing steel is required on the plans. Type CM will only be permitted if specified on the plans.

Article 440.3.1., "Bending" is supplemented with the following:

Do not bend hot-dip galvanized reinforcement. Only minor positioning adjustments are permitted.

Bending of continuously galvanized reinforcement is permitted after galvanizing.

Article 440.3.5, "Placing" the following will be added to paragraph four.

Use Class 1 or 1A supports with continuously galvanized reinforcing. Provide epoxy or plastic-coated tie wires and clips for use with epoxy coated reinforcing steel.

Article 440.3.6.3., "Repairing Coating" is supplemented with the following:

Repair damaged galvanized surfaces in accordance with Article 445.3.5.2. "Repair Processes."

Special Provision to Item 502

Barricades, Signs and Traffic Handling



Item 502, "Barricades, Signs and Traffic Handling" of the Standard Specifications, is hereby amended with respect to the clauses cited below, and no other clauses or requirements of this Item are waived or changed hereby.

Article 502.1., "Description," is supplemented by the following:

Temporary work-zone (TWZ) traffic control devices manufactured after December 31, 2019, must have been successfully tested to the crashworthiness requirements of the 2016 edition of the Manual for Assessing Safety Hardware (MASH). Such devices manufactured on or before this date and successfully tested to NCHRP Report 350 or the 2009 edition of MASH may continue to be used throughout their normal service lives. An exception to the manufacture date applies when, based on the project's date of letting, a category of MASH-2016 compliant TWZ traffic control devices are not approved, or are not self-certified after the December 31, 2019, date. In such case, devices that meet NCHRP-350 or MASH-2009 may be used regardless of the manufacture date.

Such TWZ traffic control devices include: portable sign supports, barricades, portable traffic barriers designated exclusively for use in temporary work zones, crash cushions designated exclusively for use in temporary work zones, longitudinal channelizers, truck and trailer mounted attenuators. Category I Devices (i.e., lightweight devices) such as cones, tubular markers and drums without lights or signs attached however, may be self-certified by the vendor or provider, with documentation provided to Department or as are shown on Department's Compliant Work Zone Traffic Control Device List.

Article 502.4., "Payment," is supplemented by the following:

Truck mounted attenuators and trailer attenuators will be paid for under Special Specification, "Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)." Portable Changeable Message Signs will be paid for under Special Specification, "Portable Changeable Message Sign." Portable Traffic Signals will be paid for under Special Specification, "Portable Traffic Signals."

Special Provision to Item 672

Raised Pavement Markings



For this project, Item 672, "Raised Pavement Markings," of the Standard Specifications, is hereby amended with respect to the clauses cited below, and no other clauses or requirements of this Item are waived or changed hereby.

Article 672.3., "Construction," the twelfth paragraph is voided and replaced by the following:

Provide a 30-day performance period that begins the day following written acceptance for each separate location or patch. The date of written acceptance will be the last calendar day of each month for the RPMs installed that month for the completed separate project locations. This written acceptance does not constitute final acceptance.

Article 672.3., "Construction," is supplemented by the following:

672.3.1. Raised Pavement Markers Patch. Raised Pavement Markers will be in accordance with Item 672, "Raised Pavement Markers." Unless otherwise directed in the General Notes and Specification Data, a patch will be defined as 1,000 LF or less along the center line of the roadway. The Engineer will determine whether to remove and place markers on the entire roadway segment or just the patch areas. Unless otherwise directed on the plans, the Contractor will remove temporary pavement markings (tabs or temporary tape) prior to placement of permanent markers.

Article 672.5., "Payment," the first paragraph is voided and replaced by the following:

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid at the unit price bid for "Reflectorized Pavement Marker," "Traffic Button," "Plowable Reflectorized Pavement Marker," or "Reflectorized Pavement Marker (Patch)" of the types specified.

RPMs INSTALLATION RECORD

The 30-day performance period begins the day after written acceptance for each separate location. The date of written acceptance will be the last calendar day of each month for the RPMs installed that month for the completed separate project locations.

COUNTY HIGHWAY	CONTROL PROJECT	LIMITS FROM LIMITS TO	MONTH/YR OF INSTALLATION

Contractor signature

Date

Department signature

Date

Special Provision to Special Specification 6185 Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)



Item 6185, "Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)" of the Standard Specifications, is hereby amended with respect to the clauses cited below, and no other clauses or requirements of this Item are waived or changed hereby.

Article 4. "Measurement", is voided and replaced by the following:

- 4.1. **Truck Mounted Attenuator/Trailer Attenuator (Stationary).** This Item will be measured by the day. TMA/TAs must be set up in a work area and operational before a calendar day can be considered measurable. A day will be measured for each TMA/TA set up and operational on the worksite.
- 4.2. **Truck Mounted Attenuator/Trailer Attenuator (Mobile Operation).** This Item will be measured by the hour or by the day. The time begins once the TMA/TA is ready for operation at the predetermined site and stops when notified by the Engineer. When measurement by the hour is specified, a minimum of 4 hr. will be paid each day for each operating TMA/TA used in a mobile operation. When measurement by the day is specified, a day will be measured for each TMA/TA set up and operational on the worksite.

Special Specification 3096

Asphalts, Oils, and Emulsions



1. DESCRIPTION

Provide asphalt cements, cutback and emulsified asphalts, performance-graded asphalt binders, and other miscellaneous asphalt materials as specified on the plans.

2. MATERIALS

Provide asphalt materials that meet the stated requirements when tested in conformance with the referenced Department, AASHTO, and ASTM test methods. Use asphalt containing recycled materials only if the recycled components meet the requirements of Article 6.9., "Recycled Materials." Provide asphalt materials that the Department has preapproved for use in accordance with [Tex-545-C](#), "Asphalt Binder Quality Program."

Inform the Department of all additives or modifiers included in the asphalt binder as part of the facility quality plan, as required by [Tex-545-C](#), "Asphalt Binder Quality Program," and provide that information to Department personnel. The Department reserves the right to prohibit the use of any asphalt additive or modifier.

Limit the use of polyphosphoric acid to no more than 0.5% by weight of the asphalt binder.

The use of re-refined engine oil bottoms is prohibited.

Acronyms used in this Item are defined in Table 1.

Table 1
Acronyms

Acronym	Definition
Test Procedure Designations	
Tex T or R D	Department AASHTO ASTM
Polymer Modifier Designations	
P SBR or L SBS TR	polymer-modified styrene-butadiene rubber (latex) styrene-butadiene-styrene block co-polymer tire rubber (from ambient temperature grinding of truck and passenger tires)
AC	asphalt cement
AE	asphalt emulsion
AE-P	asphalt emulsion prime
A-R	asphalt-rubber
C	cationic
EAP&T	emulsified asphalt prime and tack
EBL	emulsified bonding layer
FDR	full depth reclamation
H-suffix	harder residue (lower penetration)
HF	high float
HY	high yield
MC	medium-curing
MS	medium-setting
PCE	prime, cure, and erosion control
PG	performance grade
RC	rapid-curing
RS	rapid-setting
S-suffix	stockpile usage
SCM	special cutback material
SS	slow-setting
SY	standard yield
TRAIL	tracking resistant asphalt interlayer

2.1.

Asphalt Cement. Provide asphalt cement that is homogeneous, water-free, and nonfoaming when heated to 347°F, and meets the requirements in Table 2.

Table 2
Asphalt Cement

Property	Test Procedure	Viscosity Grade									
		AC-0.6		AC-1.5		AC-3		AC-5		AC-10	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Viscosity 140°F, poise 275°F, poise	T 202	40	80	100	200	250	350	400	600	800	1,200
		0.4	–	0.7	–	1.1	–	1.4	–	1.9	–
Penetration, 77°F, 100g, 5 sec.	T 49	350	–	250	–	210	–	135	–	85	–
Flash point, C.O.C., °F	T 48	425	–	425	–	425	–	425	–	450	–
Solubility in trichloroethylene, %	T 44	99.0	–	99.0	–	99.0	–	99.0	–	99.0	–
Spot test	Tex-509-C	Neg.		Neg.		Neg.		Neg.		Neg.	
Tests on residue from RTFOT:											
Viscosity, 140°F, poise	T 240 T 202	–	180	–	450	–	900	–	1,500	–	3,000
Ductility, ¹ 77°F 5 cm/min., cm	T 51	100	–	100	–	100	–	100	–	100	–

1. If AC-0.6 or AC-1.5 ductility at 77°F is less than 100 cm, material is acceptable if ductility at 60°F is more than 100 cm.

- 2.2. **Polymer-Modified Asphalt Cement.** Provide polymer-modified asphalt cement that is smooth, homogeneous, and meets the requirements Table 3. Supply samples of the base asphalt cement and polymer additives if requested.

Table 3
Polymer-Modified Asphalt Cement

Property	Test Procedure	Polymer-Modified Viscosity Grade											
		AC-12-5TR		NT-HA ¹		AC-15P		AC-20XP		AC-10-2TR		AC-20-5TR	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Polymer		TR		-		SBS		SBS		TR		TR	
Polymer content, % (solids basis)	Tex-533-C or Tex-553-C	5.0	-	-	-	3.0	-	-	-	2.0	-	5.0	-
Dynamic shear, G*/sinδ, 82°C, 10 rad/s, kPa	T 315			1.0	-								
Dynamic shear, G*/sinδ, 64°C, 10 rad/s, kPa	T 315	-	-	-	-	-	-	1.0	-	-	-	1.0	-
Dynamic shear, G*/sinδ, 58°C, 10 rad/s, kPa	T 315	1.0	-	-	-	-	-	-	-	1.0	-	-	-
Viscosity 140°F, poise	T 202	1,200	-			1,500	-	2,000	-	1,000	-	2,000	-
275°F, poise	T 202			-	4,000	-	8.0	-	-	-	8.0	-	10.0
Penetration, 77°F, 100 g, 5 sec.	T 49	110	150	-	25	100	150	75	115	95	130	75	115
Ductility, 5cm/min., 39.2°F, cm	T 51					-	-	-	-	-	-	-	-
Elastic recovery, 50°F, %	Tex-539-C	55	-			55	-	55	-	30	-	55	-
Softening point, °F	T 53	113	-	170	-	-	-	120	-	110	-	120	-
Polymer separation, 5 hr.	Tex-540-C	None				None		None		None		None	
Flash point, C.O.C., °F	T 48	425	-	425	-	425	-	425	-	425	-	425	-
Tests on residue from RTFOT aging and pressure aging:	T 240 and R 28												
Creep stiffness S, -18°C, MPa	T 313	-	300	-	-	-	300	-	300	-	300	-	300
m-value, -18°C		0.300	-	-	-	0.300	-	0.300	-	0.300	-	0.300	-

1. Non-Tracking Hot Applied Tack Coat - TRAIL product

- 2.3. **Cutback Asphalt.** Provide cutback asphalt that meets the requirements of Tables 4, 5, and 6, for the specified type and grade. Supply samples of the base asphalt cement and polymer additives if requested.

Table 4
Rapid-Curing Cutback Asphalt

Property	Test Procedure	Type-Grade					
		RC-250		RC-800		RC-3000	
		Min	Max	Min	Max	Min	Max
Kinematic viscosity, 140°F, cSt	T 201	250	400	800	1,600	3,000	6,000
Water, %	D95	–	0.2	–	0.2	–	0.2
Flash point, T.O.C., °F	T 79	80	–	80	–	80	–
Distillation test:	T 78						
Distillate, percentage by volume of total distillate to 680°F							
to 437°F		40	75	35	70	20	55
to 500°F		65	90	55	85	45	75
to 600°F		85	–	80	–	70	–
Residue from distillation, volume %		70	–	75	–	82	–
Tests on distillation residue:							
Viscosity, 140°F, poise	T 202	600	2,400	600	2,400	600	2,400
Ductility, 5 cm/min., 77°F, cm	T 51	100	–	100	–	100	–
Solubility in trichloroethylene, %	T 44	99.0	–	99.0	–	99.0	–
Spot test	Tex-509-C	Neg.		Neg.		Neg.	

Table 5
Medium-Curing Cutback Asphalt

Property	Test Procedure	Type-Grade							
		MC-30		MC-250		MC-800		MC-3000	
		Min	Max	Min	Max	Min	Max	Min	Max
Kinematic viscosity, 140°F, cSt	T 201	30	60	250	500	800	1,600	3,000	6,000
Water, %	D95	–	0.2	–	0.2	–	0.2	–	0.2
Flash point, T.O.C., °F	T 79	95	–	122	–	140	–	149	–
Distillation test:	T 78								
Distillate, percentage by volume of total distillate to 680°F									
to 437°F		–	35	–	20	–	–	–	–
to 500°F		30	75	5	55	–	40	–	15
to 600°F		75	95	60	90	45	85	15	75
Residue from distillation, volume %		50	–	67	–	75	–	80	–
Tests on distillation residue:									
Viscosity, 140°F, poise	T 202	300	1,200	300	1,200	300	1,200	300	1,200
Ductility, 5 cm/min., 77°F, cm	T 51	100	–	100	–	100	–	100	–
Solubility in trichloroethylene, %	T 44	99.0	–	99.0	–	99.0	–	99.0	–
Spot test	Tex-509-C	Neg.		Neg.		Neg.		Neg.	

Table 6
Special-Use Cutback Asphalt

Property	Test Procedure	Type-Grade					
		MC-2400L		SCM I		SCM II	
		Min	Max	Min	Max	Min	Max
Kinematic viscosity, 140°F, cSt	T 201	2,400	4,800	500	1,000	1,000	2,000
Water, %	D95	–	0.2	–	0.2	–	0.2
Flash point, T.O.C., °F	T 79	150	–	175	–	175	–
Distillation test:	T 78						
Distillate, percentage by volume of total distillate to 680°F							
to 437°F		–	–	–	–	–	–
to 500°F		–	35	–	0.5	–	0.5
to 600°F		35	80	20	60	15	50
Residue from distillation, volume %		78	–	76	–	82	–
Tests on distillation residue:							
Polymer		SBR		–		–	
Polymer content, % (solids basis)	Tex-533-C	2.0	–	–	–	–	–
Penetration, 100 g, 5 sec., 77°F	T 49	150	300	180	–	180	–
Ductility, 5 cm/min., 39.2°F, cm	T 51	50	–	–	–	–	–
Solubility in trichloroethylene, %	T 44	99.0	–	99.0	–	99.0	–

- 2.4. **Emulsified Asphalt.** Provide emulsified asphalt that is homogeneous, does not separate after thorough mixing, and meets the requirements for the specified type and grade in Tables 7, 8, 9, 10, and 10A-C.

Table 7
Emulsified Asphalt

Property	Test Procedure	Type-Grade									
		Rapid-Setting		Medium-Setting				Slow-Setting			
		HFRS-2		MS-2		AES-300		SS-1		SS-1H	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Viscosity, Saybolt Furol 77°F, sec. 122°F, sec.	T 72	-	-	-	-	75	400	20	100	20	100
Sieve test, %	T 59	-	0.1	-	0.1	-	0.1	-	0.1	-	0.1
Miscibility	T 59	-		-		-		Pass		Pass	
Cement mixing, %	T 59	-	-	-	-	-	-	-	2.0	-	2.0
Coating ability and water resistance: Dry aggregate/after spray Wet aggregate/after spray	T 59	-		-		Good/Fair Fair/Fair		-		-	
Demulsibility, 35 mL of 0.02 N CaCl ₂ , %	T 59	50	-	-	30	-	-	-	-	-	-
Storage stability, 1 day, %	T 59	-	1	-	1	-	1	-	1	-	1
Freezing test, 3 cycles ¹	T 59	-		Pass		-		Pass		Pass	
Distillation test: Residue by distillation, % by wt. Oil distillate, % by volume of emulsion	T 59	65	-	65	-	65	-	60	-	60	-
		-	0.5	-	0.5	-	5	-	0.5	-	0.5
Tests on residue from distillation: Penetration, 77°F, 100 g, 5 sec. Solubility in trichloroethylene, % Ductility, 77°F, 5 cm/min., cm Float test, 140°F, sec.	T 49 T 44 T 51 T 50	100 97.5 100 1,200	140 - - -	120 97.5 100 -	160 - - -	300 97.5 - 1,200	- - - -	120 97.5 100 -	160 - - -	70 97.5 80 -	100 - - -

1. Applies only when the Engineer designates material for winter use.

Table 8
Cationic Emulsified Asphalt

Property	Test Procedure	Type-Grade											
		Rapid-Setting		Medium-Setting				Slow-Setting					
		CRS-2		CRS-2H		CMS-2		CMS-2S		CSS-1		CSS-1H	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Viscosity, Saybolt Furol 77°F, sec. 122°F, sec.	T 72	-	-	-	-	-	-	-	-	20	100	20	100
Sieve test, %	T 59	-	0.1	-	0.1	-	0.1	-	0.1	-	0.1	-	0.1
Cement mixing, %	T 59	-	-	-	-	-	-	-	-	-	2.0	-	2.0
Coating ability and water resistance: Dry aggregate/after spray Wet aggregate/after spray	T 59	-		-		Good/Fair Fair/Fair		Good/Fair Fair/Fair		-		-	
Demulsibility, 35 mL of 0.8% Sodium dioctyl sulfosuccinate, %	T 59	70	-	70	-	-	-	-	-	-	-	-	-
Storage stability, 1 day, %	T 59	-	1	-	1	-	1	-	1	-	1	-	1
Particle charge	T 59	Positive		Positive		Positive		Positive		Positive		Positive	
Distillation test: Residue by distillation, % by wt. Oil distillate, % by volume of emulsion	T 59	65	-	65	-	65	-	65	-	60	-	60	-
		-	0.5	-	0.5	-	7	-	5	-	0.5	-	0.5
Tests on residue from distillation: Penetration, 77°F, 100 g, 5 sec. Solubility in trichloroethylene, % Ductility, 77°F, 5 cm/min., cm	T 49 T 44 T 51	120 97.5 100	160 - -	70 97.5 80	110 - -	120 97.5 100	200 - -	300 97.5 -	- - -	120 97.5 100	160 - -	70 97.5 80	110 - -

Table 9
Polymer-Modified Emulsified Asphalt

Property	Test Procedure	Type-Grade									
		Rapid-Setting		Medium-Setting				Slow-Setting			
		HFRS-2P		AES-150P		AES-300P		AES-300S		SS-1P	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Viscosity, Saybolt Furol 77°F, sec. 122°F, sec.	T 72	-	-	75	400	75	400	75	400	30	100
Sieve test, %	T 59	-	0.1	-	0.1	-	0.1	-	0.1	-	0.1
Miscibility	T 59	-		-		-		-		Pass	
Coating ability and water resistance: Dry aggregate/after spray Wet aggregate/after spray	T 59	-		Good/Fair Fair/Fair		Good/Fair Fair/Fair		Good/Fair Fair/Fair		-	
Demulsibility, 35 mL of 0.02 N CaCl ₂ , %	T 59	50	-	-	-	-	-	-	-	-	-
Storage stability, 1 day, %	T 59	-	1	-	1	-	1	-	1	-	1
Breaking index, g	Tex-542-C	-	-								
Distillation test: ¹ Residue by distillation, % by wt. Oil distillate, % by volume of emulsion	T 59	65	-	65	-	65	-	65	-	60	-
		-	0.5	-	3	-	5	-	7	-	0.5
Tests on residue from distillation: Polymer content, wt. % (solids basis)	Tex-533-C	3.0	-	-	-	-	-	-	-	3.0	-
Penetration, 77°F, 100 g, 5 sec.	T 49	90	140	150	300	300	-	300	-	100	140
Solubility in trichloroethylene, %	T 44	97.0	-	97.0	-	97.0	-	97.0	-	97.0	-
Viscosity, 140°F, poise	T 202	1,500	-	-	-	-	-	-	-	1,300	-
Float test, 140°F, sec	T 50	1,200	-	1,200	-	1,200	-	1,200	-	-	-
Ductility, ² 39.2°F, 5 cm/min., cm	T 51	50	-	-	-	-	-	-	-	50	-
Elastic recovery, 2 50°F, %	Tex-539-C	55	-	-	-	-	-	-	-	-	-
Tests on RTFO curing of distillation residue Elastic recovery, 50°F, %	T 240 Tex-536-C	-	-	50	-	50	-	30	-	-	-

1. Exception to T 59: Bring the temperature on the lower thermometer slowly to 350°F ±10°F. Maintain at this temperature for 20 min. Complete total distillation in 60 min. (±5 min.) from the first application of heat.

2. HFRS-2P must meet one of either the ductility or elastic recovery requirements.

Table 10
Polymer-Modified Cationic Emulsified Asphalt

Property	Test Procedure	Type-Grade											
		Rapid-Setting						Medium-Setting				Slow-Setting	
		CRS-2P		CHFRS-2P		CRS-2TR		CMS-1P ³		CMS-2P ³		CSS 1P	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Viscosity, Saybolt Furol 77°F, sec. 122°F, sec.	T 72	-	-	-	-	-	-	10	100	-	-	20	100
		150	400	100	400	150	500	-	-	50	400	-	-
Sieve test, %	T 59	-	0.1	-	0.1	-	0.1	-	0.1	-	0.1	-	0.1
Demulsibility, 35 ml of 0.8% sodium dioctyl sulfosuccinate, %	T 59	70	-	60	-	40	-	-	-	-	-	-	-
Storage stability, 1 day, %	T 59	-	1	-	1	-	1	-	1	-	1	-	1
Breaking index, g	Tex-542-C	-	-	-	-	-	-	-	-	-	-	-	-
Particle charge	T 59	Positive		Positive		Positive		Positive		Positive		Positive	
Distillation test ¹ :	T 59												
Residue by distillation, % by weight		65	-	65	-	65	-	30	-	60	-	62	-
Oil distillate, % by volume of emulsion		-	0.5	-	0.5	-	3	-	0.5	-	0.5	-	0.5
Tests on residue from distillation:													
Polymer content, wt. % (solids basis)	Tex-533-C	3.0	-	3.0	-	5.0 ⁷	-	-	-	-	-	3.0	-
Penetration, 77°F, 100 g, 5 sec.	T 49	90	150	80	130	90	150	30	-	30	-	55	90
Viscosity, 140°F, poise	T 202	1,300	-	1,300	-	1,000	-	-	-	-	-	-	-
Solubility in trichloroethylene, %	T 44	97.0	-	95.0	-	98	-	-	-	-	-	97.0	-
Softening point, °F	T 53	-	-	-	-	-	-	-	-	-	-	135	-
Ductility, 77°F, 5 cm/min., cm	T 51	-	-	-	-	40	-	-	-	-	-	70	-
Float test, 140°F, sec.	T 50	-	-	1,800	-	-	-	-	-	-	-	-	-
Ductility, ² 39.2°F, 5 cm/min., cm	T 51	50	-	-	-	-	-	-	-	-	-	-	-
Elastic recovery, ² 50°F, %	Tex-539-C	55	-	55	-	-	-	-	-	-	-	-	-
Tests on residue from evaporative recovery:	R 78, Procedure B												
Nonrecoverable creep compliance of residue, 3.2 kPa, 52°C, kPa ⁻¹	T 350	-	-	-	-	-	-	-	2.0	-	4.0	-	-
Tests on rejuvenating agent:													
Viscosity, 140°F, cSt	T 201	-	-	-	-	-	-	50	175	50	175	-	-
Flash point, C.O.C., °F	T 48	-	-	-	-	-	-	380	-	380	-	-	-
Saturates, % by weight	D 2007	-	-	-	-	-	-	-	30	-	30	-	-
Solubility in n-pentane, % by weight	D 2007	-	-	-	-	-	-	99	-	99	-	-	-
Tests on rejuvenating agent after RTFO	T 240												
Weight Change, %		-	-	-	-	-	-	-	6.5	-	6.5	-	-
Viscosity Ratio		-	-	-	-	-	-	-	3.0	-	3.0	-	-
Tests on latex ⁴ :													
Tensile strength, die C dumbbell, psi	D 412 ⁵	-	-	-	-	-	-	800	-	800	-	-	-
Change in mass after immersion in rejuvenating agent, %	D 471	-	-	-	-	-	-	-	40 ⁶	-	40 ⁶	-	-

- Exception to T 59: Bring the temperature on the lower thermometer slowly to 350°F (±0°F). Maintain at this temperature for 20 min. Complete total distillation in 60 min. (±5 min.) from the first application of heat.
- CRS-2P must meet one of either the ductility or elastic recovery requirements.
- With all precertification samples of CMS-1P or CMS-2P, submit certified test reports showing that the rejuvenating agent and latex meet the stated requirements. Submit samples of these raw materials if requested by the Engineer.
- Preparation of latex specimens: use any substrate and recovery method which produces specimens of uniform dimensions and which delivers enough material to achieve desired residual thickness.
- Cut samples for tensile strength determination using a crosshead speed of 20 in. per minute.
- Specimen must remain intact after exposure and removal of excess rejuvenating agent.
- Modifier type is tire rubber.

Table 10A
Non-Tracking Tack Coat Emulsion¹

Property	Test Procedure	NT-HRE		NT-RRE		NT-SRE	
		Min	Max	Min	Max	Min	Max
Viscosity, Saybolt Furol 77° F, sec.	T 72	15	–	15	–	10	100
Storage stability, 1 Day, %	T 59	–	1	–	1	–	1
Settlement, 5-day, %	T 59	–	5	–	5	–	5
Sieve test, %	T 59	–	0.30	–	0.30	–	0.1
Distillation test: ² Residue by distillation, % by wt. Oil distillate, by volume of emulsion	T 59	50	–	58	–	50	–
Test on residue from distillation: Penetration, 77°F, 100 g, 5 sec. Solubility in trichloroethylene, % Softening point, °F Dynamic shear, G*/sin(δ), 82°C, 10 rad/s, kPa	T 49 T 44 T 53 T 315	– 97.5 150 1.0	20 – – –	15 97.5 – –	45 – – –	40 97.5 – –	90 – – –

1. Due to the hardness of the residue, these emulsions should be heated to 120-140°F before thoroughly mixing as the emulsion is being prepared for testing.
2. Exception to T 59: Bring the temperature on the lower thermometer slowly to 350°F ± 10°F. Maintain at this temperature for 20 min. Complete total distillation in 60 ± 5 min. from first application of heat.

Table 10B
Spray Applied Underseal Membrane Polymer-Modified Emulsions (EBL)

Property	Test Procedure	Min	Max
Viscosity @ 77°F, SSF	T 72	20	100
Storage Stability ¹ , %	T 59	–	1
Demulsibility ² Anionic emulsions – 35 mL of 0.02 N CaCl ₂ , % Cationic emulsions – 35 mL of 0.8% sodium dioctyl sulfosuccinate, %	T 59	55	–
Sieve Test ³ , %	T 59	–	0.05
Distillation Test ⁴ Residue by distillation, % by wt. Oil portion of distillate, % by vol.	T 59	63	0.5
Test on Residue from Distillation Elastic Recovery @ 50°F, 50 mm/min., % Penetration @ 77°F, 100 g, 5 sec., 0.1 mm	Tex-539-C T 49	60 80	– 130

1. After standing undisturbed for 24 hr., the surface must be smooth, must not exhibit a white or milky colored substance, and must be a homogeneous color throughout.
2. Material must meet demulsibility test for emulsions.
3. May be required by the Engineer only when the emulsion cannot be easily applied in the field.
4. The temperature on the lower thermometer should be brought slowly to 350°F ± 10°F and maintained at this temperature for 20 min. The total distillation should be completed in 60 ± 5 min. from the first application of heat.

Table 10C
Full-Depth Reclamation Emulsion (FDR EM)

Property	Test Procedure	Standard Yield (SY)		High Yield (HY)	
		Min	Max	Min	Max
Sieve test, %	T 59	–	0.1	–	0.1
Viscosity Saybolt Furol @ 77°F, sec.	T 59	20	100	20	100
Distillation test ¹ : Residue by distillation, % by wt. Oil portion of distillate, % by vol.	T 59	60	–	63	–
Test on residue from distillation: Penetration @ 77°F, dmm	T 49	55	95	120	–
Test on rejuvenating agent: BWOA, % ² Viscosity @ 140°F, cSt Flash Point, COC, °F Solubility in n-pentane, % by wt.	*** T 201 T 48 D2007	– – – –	– – – –	2 50 380 99	– 175 – –

1. The temperature on the lower thermometer should be brought slowly to 350°F ± 10°F and maintained at this temperature for 20 min. The total distillation should be completed in 60 ± 5 min. from the first application of heat.
2. BWOA = By weight of asphalt. Provide a manufacturer's certificate of analysis (COA) with the percent of rejuvenator added.

2.5.

Specialty Emulsions. Provide specialty emulsion that is either asphalt-based or resin-based and meets the requirements of Table 11 or Table 11A.

Table 11
Specialty Emulsions

Property	Test Procedure	Type-Grade					
		Medium-Setting				Slow-Setting	
		AE-P		EAP&T		PCE ¹	
		Min	Max	Min	Max	Min	Max
Viscosity, Saybolt Furol 77°F, sec. 122°F, sec.	T 72	–	–	–	–	10	100
Sieve test, %	T 59	–	0.1	–	0.1	–	0.1
Miscibility ²	T 59	–	–	Pass	–	Pass	–
Demulsibility, 35 mL of 0.10 N CaCl ₂ , %	T 59	–	70	–	–	–	–
Storage stability, 1 day, %	T 59	–	1	–	1	–	–
Particle size, ⁵ % by volume < 2.5 μm	Tex-238-F³	–	–	90	–	90	–
Asphalt emulsion distillation to 500°F followed by Cutback asphalt distillation of residue to 680°F: Residue after both distillations, % by wt. Total oil distillate from both distillations, % by volume of emulsion	T 59 & T 78	40	–	–	–	–	–
		25	40	–	–	–	–
Residue by distillation, % by wt.	T 59	–	–	60	–	–	–
Residue by evaporation, ⁴ % by wt.	T 59	–	–	–	–	60	–
Tests on residue after all distillations:							
Viscosity, 140°F, poise	T 202	–	–	800	–	–	–
Kinematic viscosity, ⁵ 140°F, cSt	T 201	–	–	–	–	100	350
Flash point C.O.C., °F	T 48	–	–	–	–	400	–
Solubility in trichloroethylene, %	T 44	97.5	–	–	–	–	–
Float test, 122°F, sec.	T 50	50	200	–	–	–	–

1. Supply with each shipment of PCE:

- a copy of a lab report from an approved analytical lab, signed by a lab official, indicating the PCE formulation does not meet any characteristics of a Resource Conservation Recovery Act (RCRA) hazardous waste;
 - a certification from the producer that the formulation supplied does not differ from the one tested and that no listed RCRA hazardous wastes or Polychlorinated Biphenyls (PCBs) have been mixed with the product; and
 - a Safety Data Sheet.
2. Exception to T 59: In dilution, use 350 mL of distilled or deionized water and a 1,000-mL beaker.
 3. Use [Tex-238-F](#), beginning at "Particle Size Analysis by Laser Diffraction," with distilled or deionized water as a medium and no dispersant, or use another approved method.
 4. Exception to T 59: Leave sample in the oven until foaming ceases, then cool and weigh.
 5. PCE must meet either the kinematic viscosity requirement or the particle size requirement.

**Table 11A
Hard Residue Surface Sealant**

Property	Test Procedure	Min	Max
Viscosity, Krebs unit, 77°F, Krebs units	D 562	45	75
Softening point, °F	Tex-505-C ¹	250	–
Uniformity	D 2939	Pass ²	
Resistance to heat	D 2939	Pass ³	
Resistance to water	D 2939	Pass ⁴	
Wet flow, mm	D 2939	–	0
Resistance to Kerosene (optional) ⁵	D 2939	Pass ⁶	
Ultraviolet exposure, UVA-340, 0.77 W/m ² , 50°C chamber, 8 hr. UV lamp, 5 min. spray, 3 hr. 55 min. condensation, 1,000 hr. total exposure ⁷	G 154	Pass ⁸	
Abrasion loss, 1.6 mm thickness, liquid only, %	ISSA TB-100	–	1.0
Residue by evaporation, % by weight	D 2939	33	–
Tests on residue from evaporation: Penetration, 77°F, 100 g, 5 sec. Flash point, Cleveland open cup, °F	T 49 T 48	15 500	30
Tests on base asphalt before emulsification Solubility in trichloroethylene, %	T 44	98	–

1. Cure the emulsion in the softening point ring in a 200°F ± 5°F oven for 2 hr.
2. Product must be homogenous and show no separation or coagulation that cannot be overcome by moderate stirring.
3. No sagging or slippage of film beyond the initial reference line.
4. No blistering or re-emulsification.
5. Recommended for airport applications or where fuel resistance is desired.
6. No absorption of Kerosene into the clay tile past the sealer film. Note sealer surface condition and loss of adhesion.
7. Other exposure cycles with similar levels of irradiation and conditions may be used with Department approval.
8. No cracking, chipping, surface distortion, or loss of adhesion. No color fading or lightening.

2.6.

Recycling Agent. Recycling agent and emulsified recycling agent must meet the requirements in Table 12. Additionally, recycling agent and residue from emulsified recycling agent, when added in the specified proportions to the recycled asphalt, must meet the properties specified on the plans.

Table 12
Recycling Agent and Emulsified Recycling Agent

Property	Test Procedure	Recycling Agent		Emulsified Recycling Agent (ARA-1)		Polymer Modified Emulsified Recycling Agent (ARA-1P)	
		Min	Max	Min	Max	Min	Max
Viscosity, Saybolt Furol, 77°F, sec.	T 72	–	–	15	100	15	110
Sieve test, %	T 59	–	–	–	0.1	–	0.1
Miscibility ¹	T 59	–		No coagulation			
Residue by evaporation, ² % by wt.	T 59	–	–	60	–	–	–
Distillation test: Residue by distillation, % by wt. Oil distillate, % by volume of emulsion	T 59					60 –	65 2
Penetration of Distillation Residue at 39.2°F, 100 g, 5 sec.	T 49					110	190
Tests on recycling agent or residue from evaporation: Flash point, C.O.C., °F Kinematic viscosity, 140°F, cSt 275°F, cSt	T 48 T 201	400 75 –	– 200 10.0	400 75 –	– 200 10.0	400	–

1. Exception to T 59: Use 0.02 N CaCl₂ solution in place of water.
2. Exception to T 59: Maintain sample at 300°F until foaming ceases, then cool and weigh.

2.7. **Crumb Rubber Modifier.** Crumb rubber modifier (CRM) consists of automobile and truck tires processed by ambient temperature grinding.

CRM must be:

- free from contaminants including fabric, metal, and mineral and other nonrubber substances;
- free-flowing; and
- nonfoaming when added to hot asphalt binder.

Ensure rubber gradation meets the requirements of the grades in Table 13 when tested in accordance with [Tex-200-F](#), Part I, using a 50-g sample.

Table 13
CRM Gradations

Sieve Size (% Passing)	Grade A		Grade B		Grade C		Grade D	Grade E
	Min	Max	Min	Max	Min	Max		
#8	100	–	–	–	–	–	As shown on the plans	As approved
#10	95	100	100	–	–	–		
#16	–	–	70	100	100	–		
#30	–	–	25	60	90	100		
#40	–	–	–	–	45	100		
#50	0	10	–	–	–	–		
#200	–	–	0	5	–	–		

2.8. **Crack Sealer.** Provide polymer-modified asphalt-emulsion crack sealer meeting the requirements of Table 14. Provide rubber-asphalt crack sealer meeting the requirements of Table 15.

Table 14
Polymer-Modified Asphalt-Emulsion Crack Sealer

Property	Test Procedure	Min	Max
Rotational viscosity, 77°F, cP	D 2196, Method A	10,000	25,000
Sieve test, %	T 59	–	0.1
Storage stability, 1 day, %	T 59	–	1
Evaporation	Tex-543-C		
Residue by evaporation, % by wt.		65	–
Tests on residue from evaporation:			
Penetration, 77°F, 100 g, 5 sec.	T 49	35	75
Softening point, °F	T 53	140	–
Ductility, 39.2°F, 5 cm/min., cm	T 51	100	–

Table 15
Rubber-Asphalt Crack Sealer

Property	Test Procedure	Class A		Class B	
		Min	Max	Min	Max
CRM content, Grade A or B, % by wt.	Tex-544-C	22	26	–	–
CRM content, Grade B, % by wt.	Tex-544-C	–	–	13	17
Virgin rubber content, ¹ % by wt.		–	–	2	–
Flash point, ² C.O.C., °F	T 48	400	–	400	–
Penetration, ³ 77°F, 150 g, 5 sec.	T 49	30	50	30	50
Penetration, ³ 32°F, 200 g, 60 sec.	T 49	12	–	12	–
Softening point, °F	T 53	–	–	170	–
Bond Test, non-immersed, 0.5 in specimen, 50% extension, 20°F ⁴	D5329	–	–	–	Pass

1. Provide certification that the Min % virgin rubber was added.
2. Agitate the sealing compound with a 3/8- to 1/2 in. (9.5- to 12.7 mm) wide, square-end metal spatula to bring the material on the bottom of the cup to the surface (i.e., turn the material over) before passing the test flame over the cup. Start at one side of the thermometer, move around to the other, and then return to the starting point using 8 to 10 rapid circular strokes. Accomplish agitation in 3 to 4 sec. Pass the test flame over the cup immediately after stirring is completed.
3. Exception to T 49: Substitute the cone specified in D 217 for the penetration needle.
4. Allow no crack in the crack sealing materials or break in the bond between the sealer and the mortar blocks over 1/4 in. deep for any specimen after completion of the test.

- 2.9. **Asphalt-Rubber Binders.** Provide asphalt-rubber (A-R) binders that are mixtures of asphalt binder and CRM, which have been reacted at elevated temperatures. Provide A-R binders meeting D6114 and containing a minimum of 15% CRM by weight. Provide Types I or II, containing CRM Grade C, for use in hot-mixed aggregate mixtures. Provide Types II or III, containing CRM Grade B, for use in surface treatment binder. Ensure binder properties meet the requirements of Table 16.

**Table 16
A-R Binders**

Property	Test Procedure	Binder Type					
		Type I		Type II		Type III	
		Min	Max	Min	Max	Min	Max
Apparent viscosity, 347°F, cP	D2196, Method A	1,500	5,000	1,500	5,000	1,500	5,000
Penetration, 77°F, 100 g, 5 sec.	T 49	25	75	25	75	50	100
Penetration, 39.2°F, 200 g, 60 sec.	T 49	10	–	15	–	25	–
Softening point, °F	T 53	135	–	130	–	125	–
Resilience, 77°F, %	D5329	25	–	20	–	10	–
Flash point, C.O.C., °F	T 48	450	–	450	–	450	–
Tests on residue from Thin-Film Oven Test:	T 179						
Retained penetration ratio, 39.2°F, 200 g, 60 sec., % of original	T 49	75	–	75	–	75	–

- 2.10. **Performance-Graded Binders.** Provide PG binders that are smooth and homogeneous, show no separation when tested in accordance with [Tex-540-C](#), and meet the requirements of Table 17.

Separation testing is not required if:

- a modifier is introduced separately at the mix plant either by injection in the asphalt line or mixer,
- the binder is blended on site in continuously agitated tanks, or
- binder acceptance is based on field samples taken from an in-line sampling port at the hot-mix plant after the addition of modifiers.

Table 17
Performance-Graded Binders

Property and Test Method	Performance Grade																	
	PG 58			PG 64				PG 70				PG 76				PG 82		
	-22	-28	-34	-16	-22	-28	-34	-16	-22	-28	-34	-16	-22	-28	-34	-16	-22	-28
Average 7-day max pavement design temperature, °C ¹	58			64				70				76				82		
Min pavement design temperature, °C ¹	-22	-28	-34	-16	-22	-28	-34	-16	-22	-28	-34	-16	-22	-28	-34	-16	-22	-28
Original Binder																		
Flash point, T 48, Min, °C	230																	
Viscosity, T 316 ^{2,3} : Max, 3.0 Pa s, test temperature, °C	135																	
Dynamic shear, T 315 ⁴ : G*/sin(δ), Min, 1.00 kPa, Max, 2.00 kPa ⁷ , Test temperature @ 10 rad/sec., °C	58			64				70				76				82		
Elastic recovery, D6084, 50°F, % Min ⁸	-	-	30	-	-	30	50	-	30	50	60	30	50	60	70	50	60	70
Rolling Thin-Film Oven (Tex-506-C)																		
Mass change, T 240, Max, %	1.0																	
Dynamic shear, T 315: G*/sin(δ), Min, 2.20 kPa, Max, 5.00 kPa ⁷ , Test temperature @ 10 rad/sec., °C	58			64				70				76				82		
MSCR, T350, Recovery, 0.1 kPa, High Temperature, % Min ⁸	-	-	20	-	-	20	30	-	20	30	40	20	30	40	50	30	40	50
Pressure Aging Vessel (PAV) Residue (R 28)																		
PAV aging temperature, °C	100																	
Dynamic shear, T 315: G*/sin(δ), Max, 5,000 kPa Test temperature @ 10 rad/sec., °C	25	22	19	28	25	22	19	28	25	22	19	28	25	22	19	28	25	22
Creep stiffness, T 313 ^{5,6} : S, max, 300 MPa, m-value, Min, 0.300 Test temperature @ 60 sec., °C	-12	-18	-24	-6	-12	-18	-24	-6	-12	-18	-24	-6	-12	-18	-24	-6	-12	-18
Direct tension, T 314 ⁶ : Failure strain, min, 1.0% Test temperature @ 1.0 mm/min., °C	-12	-18	-24	-6	-12	-18	-24	-6	-12	-18	-24	-6	-12	-18	-24	-6	-12	-18

- Pavement temperatures are estimated from air temperatures and using an algorithm contained in a Department-supplied computer program, may be provided by the Department, or by following the procedures outlined in AASHTO MP 2 and PP 28.
- This requirement may be waived at the Department's discretion if the supplier warrants that the asphalt binder can be adequately pumped, mixed, and compacted at temperatures that meet all applicable safety, environmental, and constructability requirements. At test temperatures where the binder is a Newtonian fluid, any suitable standard means of viscosity measurement may be used, including capillary (T 201 or T 202) or rotational viscometry (T 316).
- Viscosity at 135°C is an indicator of mixing and compaction temperatures that can be expected in the lab and field. High values may indicate high mixing and compaction temperatures. Additionally, significant variation can occur from batch to batch. Contractors should be aware that variation could significantly impact their mixing and compaction operations. Contractors are therefore responsible for addressing any constructability issues that may arise.
- For quality control of unmodified asphalt binder production, measurement of the viscosity of the original asphalt binder may be substituted for dynamic shear measurements of G*/sin(δ) at test temperatures where the asphalt is a Newtonian fluid. Any suitable standard means of viscosity measurement may be used, including capillary (T 201 or T 202) or rotational viscometry (T 316).
- Silicone beam molds, as described in AASHTO TP 1-93, are acceptable for use.
- If creep stiffness is below 300 MPa, direct tension test is not required. If creep stiffness is between 300 and 600 MPa, the direct tension failure strain requirement can be used instead of the creep stiffness requirement. The m value requirement must be satisfied in both cases.
- Maximum values for unaged and RTFO aged dynamic shear apply only to materials used as substitute binders, as described in Item 340, "Dense-Graded Hot-Mix Asphalt (Small Quantity)", Item 341, "Dense-Graded Hot-Mix Asphalt, and Item 344, "Superpave Mixtures."
- Elastic Recovery (ASTM D6084) is not required unless MSCR (AASHTO T 350) is less than the minimum % recovery. Elastic Recovery must be used for the acceptance criteria in this instance.

3. EQUIPMENT

Provide all equipment necessary to transport, store, sample, heat, apply, and incorporate asphalts, oils, and emulsions.

4. CONSTRUCTION

Typical Material Use. Use materials shown in Table 18, unless otherwise determined by the Engineer.

Table 18
Typical Material Use

Material Application	Typically Used Materials
Hot-mixed, hot-laid asphalt mixtures	PG binders, A-R binders Types I and II
Surface treatment	AC-5, AC-10, AC-15P, AC-20XP, AC-10-2TR, AC-20-5TR, HFRS-2, MS-2, CRS-2, CRS-2H, CRS-2TR, CMS-2P HFRS-2P, CRS-2P, CHFRS-2P, A-R binders Types II and III
Surface treatment (cool weather)	AC12-5TR, RC-250, RC-800, RC-3000, MC-250, MC-800, MC-3000, MC-2400L, CMS-2P
Precoating	AC-5, AC-10, PG 64-22, SS-1, SS-1H, CSS-1, CSS-1H
Tack coat	PG Binders, SS-1H, CSS-1H, EAP&T, TRAIL, EBL
Fog seal	SS-1, SS-1H, CSS-1, CSS-1H, CMS-1P
Hot-mixed, cold-laid asphalt mixtures	AC-0.6, AC-1.5, AC-3, AES-300, AES-300P, CMS-2, CMS-2S
Patching mix	MC-800, SCM I, SCM II, AES-300S
Recycling	AC-0.6, AC-1.5, AC-3, AES-150P, AES-300P, recycling agent, emulsified recycling agent
Crack sealing	SS-1P, polymer mod AE crack sealant, rubber asphalt crack sealers (Class A, Class B)
Microsurfacing	CSS-1P
Prime	MC-30, AE-P, EAP&T, PCE
Curing membrane	SS-1, SS-1H, CSS-1, CSS-1H, PCE
Erosion control	SS-1, SS-1H, CSS-1, CSS-1H, PCE
FDR -Foaming	PG 64-22, FDR EM-SY, FDR EM-HY

- 4.1. **Storage and Application Temperatures.** Use storage and application temperatures in accordance with Table 19. Store and apply materials at the lowest temperature yielding satisfactory results. Follow the manufacturer's instructions for any agitation requirements in storage. Manufacturer's instructions regarding recommended application and storage temperatures supersede those of Table 19.

Table19
Storage and Application Temperatures

Type-Grade	Application		Storage Max (°F)
	Recommended Range (°F)	Max Allowable (°F)	
AC-0.6, AC-1.5, AC-3	200–300	350	350
AC-5, AC-10	275–350	350	350
AC-15P, AC-20-5TR, AC12-5TR and AC10-2TR	300–375	375	360
RC-250	125–180	200	200
RC-800	170–230	260	260
RC-3000	215–275	285	285
MC-30, AE-P	70–150	175	175
MC-250	125–210	240	240
MC-800, SCM I, SCM II	175–260	275	275
MC-3000, MC-2400L	225–275	290	290
HFRS-2, MS-2, CRS-2, CRS-2H, HFRS-2P, CRS-2P, CMS-2, CMS-2S, AES-300, AES-300S, AES-150P, AES-300P, CRS-2TR	120–160	180	180
SS-1, SS-1H, CSS-1, CSS-1H, PCE, EAP&T, SS-1P, RS-1P, CRS-1P, CSS-1P, recycling agent, emulsified recycling agent, polymer mod AE crack sealant	50–130	140	140
PG binders	275–350	350	350
Rubber asphalt crack sealers (Class A, Class B)	350–375	400	–
A-R binders Types I, II, and III	325–425	425	425

5. MEASUREMENT AND PAYMENT

The work performed, materials furnished, equipment, labor, tools, and incidentals will not be measured or paid for directly but is subsidiary or is included in payment for other pertinent items.

Special Specification 6001

Portable Changeable Message Sign



1. DESCRIPTION

Furnish, operate, and maintain portable trailer mounted changeable message sign (PCMS) units.

2. MATERIALS

Furnish new or used material in accordance with the requirements of this Item and the details shown on the plans. Provide a self-contained PCMS unit with the following:

- Sign controller
- Changeable Message Sign
- Trailer
- Power source

Paint the exterior surfaces of the power supply housing, supports, trailer, and sign with Federal Orange No. 22246 or Federal Yellow No. 13538 of Federal Standard 595C, except paint the sign face assembly flat black.

- 2.1. **Sign Controller.** Provide a controller with permanent storage of a minimum of 75 pre-programmed messages. Provide an external input device for random programming and storage of a minimum of 75 additional messages. Provide a controller capable of displaying up to 3 messages sequentially. Provide a controller with adjustable display rates. Enclose sign controller equipment in a lockable enclosure.
- 2.2. **Changeable Message Sign.** Provide a sign capable of being elevated to at least 7 ft. above the roadway surface from the bottom of the sign. Provide a sign capable of being rotated 360° and secured against movement in any position.
- Provide a sign with 3 separate lines of text and 8 characters per line minimum. Provide a minimum 18 in. character height. Provide a 5 × 7 character pixel matrix. Provide a message legibility distance of 600 ft. for nighttime conditions and 800 ft. for normal daylight conditions. Provide for manual and automatic dimming light sources.
- The following are descriptions for 3 screen types of PCMS:
- **Character Modular Matrix.** This screen type comprises of character blocks.
 - **Continuous Line Matrix.** This screen type uses proportionally spaced fonts for each line of text.
 - **Full Matrix.** This screen type uses proportionally spaced fonts, varies the height of characters, and displays simple graphics on the entire sign.
- 2.3. **Trailer.** Provide a 2 wheel trailer with square top fenders, 4 leveling jacks, and trailer lights. Do not exceed an overall trailer width of 96 in. Shock mount the electronics and sign assembly.
- 2.4. **Power Source.** Provide a diesel generator, solar powered power source, or both. Provide a backup power source as necessary.
- 2.5. **Cellular Telephone.** When shown on the plans, provide a cellular telephone connection to communicate with the PCMS unit remotely.

3. CONSTRUCTION

Place or relocate PCMS units as shown on the plans or as directed. The plans will show the number of PCMS units needed, for how many days, and for which construction phases.

Maintain the PCMS units in good working condition. Repair damaged or malfunctioning PCMS units as soon as possible. PCMS units will remain the property of the Contractor.

4. MEASUREMENT

This Item will be measured by each PCMS or by the day used. All PCMS units must be set up on a work area and operational before a calendar day can be considered measurable. When measurement by the day is specified, a day will be measured for each PCMS set up and operational on the worksite.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Portable Changeable Message Sign." This price is full compensation for PCMS units; set up; relocating; removing; replacement parts; batteries (when required); fuel, oil, and oil filters (when required); cellular telephone charges (when required); software; and equipment, materials, tools, labor, and incidentals.

Special Specification 6038

Multipolymer Pavement Markings (MPM)



1. DESCRIPTION

Provide MPM on pavement surfaces shown on the plans to meet the performance requirements of this Specification for:

- color,
- durability, and
- retroreflectivity.

2. MATERIALS

- 2.1. **Multipolymer Pavement Marking Materials.** Use materials that produce an adherent, retroreflective pavement marking system that meets all of the performance requirements of this Specification. Use materials that do not result in the generation of any hazardous materials/wastes, as defined in Section 1.3.60., "Hazardous Materials or Waste," during application or removal. If requested, provide a laboratory report from a commercial laboratory indicating material used does not result in the generation of any hazardous materials/wastes, as defined in Section 1.3.60., during application or removal.

Use a multipolymer resin material, which is:

- 2-component (a predominantly multipolymer pigmented resin component with a curing agent component);
- 100% solids, producing no toxic fumes when heated to application temperature;
- track-free in less than 40 min. with appropriate ambient temperature as recommended by the manufacturer;
- formulated and tested to perform as a pavement marking material with glass spheres applied to the surface; and
- on the Material Producer List for [Pavement Markings \(Multipolymer\)](#) maintained by CST/M&P for MPM. Inclusion onto the MPL requires documentation of acceptable performance from Department pavement marking field application that have been in place for at least 1 yr. Contact CST/M&P to initiate and document field trials of new materials for MPL consideration.

Before work begins, provide a laboratory report from an independent testing laboratory showing that the initial color of each material selected for use conforms to the color limits set forth in Table 1, measured by 45°/0° geometry CIE, D65 Illuminant, 2° standard observation angle in accordance with ASTM E 1347, E 1348, or E 1349.

- 2.2. **Nonreflectorized Contrast or Shadow Markings.** The marking material used for the contrast or shadow marking must conform to the same formulation, material, prequalification, and sampling requirements with the exception of the following items:

- color pigment used;
- documentation of acceptable performance from Department pavement marking field application that have been in place for at least 1 yr.; and
- glass spheres must be replaced with a black, color-fast, anti-skid material.

Before work begins, provide a laboratory report from an independent testing laboratory showing that the initial color of each material selected for use conforms to the color limits set forth in Table 1, measured by

45°/0° geometry CIE, D65 Illuminant, 2° standard observation angle in accordance with ASTM E 1347, E 1348, or E 1349.

3. EQUIPMENT

Provide equipment as required or directed according to the following:

- 3.1. **Preparation and Application.** Use equipment designed for the pavement preparation and application of the type of MPM material selected.
- 3.2. **Colorimeter.** Provide a colorimeter using 45°/0° geometry CIE, D65 Illuminant, 2° standard observation angle meeting the requirements of ASTM E 1347, E 1348, or E 1349.
- 3.3. **Retroreflector.** Unless otherwise shown on the plans, provide a portable or mobile retroreflector meeting the following requirements.
- 3.3.1. **Portable Retroreflector.** Provide a portable retroreflector that meets the requirements of ASTM E 1710.
- 3.3.2. **Mobile Retroreflector.** Provide a mobile retroreflector that:
- is approved by the Construction Division (CST) for project evaluation of retroreflectivity, which will include taking a set of readings on stripes designated by CST and comparing them with the readings of a portable retroreflector provided by CST that meets the specifications indicated in this Specification;
 - is calibrated daily, before measuring retroreflectivity on any pavement stripe, with a portable retroreflector meeting the following requirements: ASTM E 1710, entrance angle of 88.76°, observation angle of 1.05°, and an accuracy of ±15%;
 - requires no traffic control when retroreflectivity measurements are taken and is capable of taking continuous readings; and
 - documents mobile retroreflector evaluations, showing average retroreflectivity values for each 0.25-mi. section, or the area of concern if it is less than 0.25 mi., with all deficient sections clearly marked.

4. CONSTRUCTION

- 4.1. **General.** Prepare the pavement surface using controlled techniques that minimize pavement damage and hazards to the traveling public. Apply the MPM materials according to the manufacturer's recommendations using widths, colors, and shapes, and at locations as shown on the plans.
- Obtain approval for the sequence of work and estimated daily production. Use traffic control as shown on the plans or as approved. Establish guides to mark the lateral location of pavement markings as shown on the plans or as directed, and have guide locations verified. Use material for guides that will not leave a permanent mark on the roadway. Apply markings in alignment with the guides and without deviating for the alignment more than 1 in. per 200 ft. of roadway or more than 2 in. maximum. Remove all applied markings that are not in alignment or sequence as stated in the plans or as stated in the specifications at the Contractor's expense and in accordance with Item 677, "Eliminating Existing Pavement Markings and Markers," except for measurement and payment.
- 4.2. **Initial Performance Requirements.** Meet the following initial performance requirements after installation. Perform an initial performance evaluation from 7 to 15 days after MPM are installed to verify that the MPM meet the performance requirements for retroreflectivity. Conduct initial retroreflectivity evaluations of placed pavement markings with either a portable or a mobile retroreflector, unless otherwise shown on the plans, according to Section 6038.5.2., "Retroreflectivity." The Contractor is responsible for traffic control when conducting performance evaluations.

The Engineer will conduct a visual evaluation for color and durability and require testing only if MPM do not appear to meet the performance requirements.

For MPM not meeting performance requirements, repair or replace until re-evaluation shows the MPM meet the performance requirements.

- 4.2.1. **Color.** Provide MPM consisting of pigments blended to provide color conforming to standard highway colors as shown in Table 1.

Table1
Color Requirements

Federal 595 Color		Chromaticity Coordinates								Brightness (Y)
		1		2		3		4		
		x	y	x	y	x	y	x	y	
White	17855	.290	.315	.310	.295	.350	.340	.330	.360	60 Min
Yellow	33538	.470	.455	.510	.489	.490	.432	.537	.462	30 Min
Black	-	-	-	-	-	-	-	-	-	5 Max

- 4.2.2. **Retroreflectivity.** Provide MPM meeting the minimum retroreflectivity values listed in Table 2.

Table2
Minimum Retroreflectivity Requirements

Color	Retroreflectivity, mcd/m ² /lx, Min
White	250
Yellow	175

- 4.2.3. **Durability.** Provide MPM that do not lose more than 5% of the striping material in a 1,000-ft. section of continuous stripe or broken stripe (25 broken stripes). Pavement markings must remain in the proper alignment and location.

5. PERFORMANCE EVALUATIONS

Provide traffic control and conduct evaluations of color, retroreflectivity, and durability as required or directed.

- 5.1. **Color.** Measure the color using 45°/0° geometry CIE, D65 Illuminant, 2° standard observation angle in accordance with ASTM E 1347, E 1348, or E 1349.
- 5.2. **Retroreflectivity.** Unless otherwise shown on the plans, conduct retroreflectivity evaluations of pavement markings with either a portable or a mobile retroreflectometer. Make all measurements in the direction of traffic flow, except for broken centerline on 2-way roadways, where measurements will be made in both directions.

If using a portable retroreflectometer, take a minimum of 1 measurement every mile on each series of markings (i.e., edgeline, center skip line, each line of a double line, etc.), at approved locations. If more than 1 measurement is taken, average the measurements. For all markings measured in both directions, take a minimum of 1 measurement in each direction. If the measurement taken on a specific series of markings within each mile segment falls below the minimum retroreflectivity values, take a minimum of 5 more measurements within that mile segment for that series of marking. If the average of these 5 measurements falls below the minimum retroreflectivity requirements, that mile segment of the applied markings does not meet the performance requirement.

If using a mobile retroreflectometer, review the results to determine deficient sections and deficient areas of interest. These areas do not meet the performance requirements.

- 5.3. **Durability.** Measure the durability in accordance with ASTM D 913 for marking material loss and visual inspection for alignment and location. Conduct evaluations at approved locations.

6. MEASUREMENT

This Item will be measured by the foot. Each stripe will be measured separately.

This is a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal unless modified by Article 9.2, "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantities are required.

7. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Multipolymer Pavement Markings (MPM)" of the type and color specified and the shape, width, and size specified as applicable, at the time of project acceptance. This price is full compensation for materials, application of MPM, equipment, labor, tools, and incidentals.

Surface preparation, when shown on the plans, will be paid for under Item 678, "Pavement Surface Preparation for Markings."

Special Specification 6185

Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)



1. DESCRIPTION

Furnish, operate, maintain and remove upon completion of work, Truck Mounted Attenuator (TMA) or Trailer Attenuator (TA).

2. MATERIALS

Furnish, operate and maintain new or used TMAs or TAs. Assure used attenuators are in good working condition and are approved for use. A list of approved TMA/TA units can be found in the Department's Compliant Work Zone Traffic Control Devices List. The host vehicle for the TMA and TA must weigh a minimum of 19,000 lbs. Host vehicles may be ballasted to achieve the required weight. Any weight added to the host vehicle must be properly attached or contained within it so that it does not present a hazard and that proper energy dissipation occurs if the attenuator is impacted from behind by a large truck. The weight of a TA will not be considered in the weight of the host vehicle but the weight of a TMA may be included in the weight of the host vehicle. Upon request, provide either a manufacturer's curb weight or a certified scales weight ticket to the Engineer.

3. CONSTRUCTION

Place or relocate TMA/TAs as shown on the plans or as directed. The plans will show the number of TMA/TAs needed, for how many days or hours, and for which construction phases.

Maintain the TMA/TAs in good working condition. Replace damaged TMA/TAs as soon as possible.

4. MEASUREMENT

4.1. **Truck Mounted Attenuator/Trailer Attenuator (Stationary).** This Item will be measured by the each or by the day. TMA/TAs must be set up in a work area and operational before a calendar day can be considered measurable. When measurement by the day is specified, a day will be measured for each TMA/TA set up and operational on the worksite.

4.2. **Truck Mounted Attenuator/Trailer Attenuator (Mobile Operation).** This Item will be measured by the hour. The time begins once the TMA/TA is ready for operation at the predetermined site and stops when notified by the Engineer. A minimum of 4 hr. will be paid each day for each operating TMA/TA used in a mobile operation.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Truck Mounted Attenuators/Trailer Attenuators (Stationary)," or "Truck Mounted Attenuators/Trailer Attenuators (Mobile Operation)." This price is full compensation for furnishing TMA/TA: set up; relocating; removing; operating; fuel; and equipment, materials, tools, labor, and incidentals.