

NOTIFICATION OF ADDENDUM

ADDENDUM NO. 1

DATED 7/29/2021

Control	0028-03-107, ETC.
Project	STP 2021(525)HES, ETC.
Highway	US 90
County	LIBERTY

Ladies/Gentlemen:

Attached please find an addendum on the above captioned project. Included in the attachment is an addendum notification which details the changes and the respective proposal pages which were added and/or changed.

Except for new bid insert pages, it is unnecessary to return any of the pages attached.

Bid insert pages must be returned with the bid proposal submitted to the Department, unless your firm is submitting a bid using a computer print out. The computer print out must be changed to reflect the new bid item information.

Contractors and material suppliers, etc. who have previously been furnished informational proposals are not being furnished a copy of the addendum. If you have a subcontractor on the above project, please advise them of this addendum. Acknowledgment of this addendum is not requested if your company has been issued a proposal stamped "This Proposal Issued for Informational Purposes."

You are required to acknowledge receipt of this addendum on the Addendum Acknowledgement form contained in your bid proposal by placing a mark in the box next to the respective addendum.

Failure to Acknowledge receipt of this addendum in your bid proposal will result in your bid not being read.

SUBJECT: PLANS AND PROPOSAL ADDENDUMS

PROJECT: STP 2021(525)HES

CONTROL: 0028-03-107

COUNTY: LIBERTY

LETTING: 08/05/2021

REFERENCE NO: 0727

PROPOSAL ADDENDUMS

PROPOSAL COVER

BID INSERTS (SH. NO.:

X GENERAL NOTES (SH. NO.: C

SPEC LIST (SH. NO.:

SPECIAL PROVISIONS:

ADDED:

DELETED:

SPECIAL SPECIFICATIONS:

ADDED:

DELETED:

X OTHER: PLAN SHEETS & OTHER CHANGES

DESCRIPTION OF ABOVE CHANGES

(INCLUDING PLANS SHEET CHANGES)

GENERAL NOTES

SHEET C - ITEM 8 REMOVED NOTE

PLANS

PLAN SHEET#2 (INDEX OF SHEETS) ADDED SHEETS 17K-17O

PLAN SHEET#17A (GENERAL NOTES) REVISED NOTE ITEM 8

PLAN SHEETS #17K-17O (ESTIMATE & QUANTITY SHEETS) ADDED

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GENERAL NOTES:

Contractor questions on this project are to be addressed to the following individual(s):

Name Noel Salac, P.E.

Email Noel.Salac@txdot.gov

Name Roberto Rodriguez, P.E.

Email Roberto.M.Rodriguez@txdot.gov

Contractor questions will be accepted through email, phone and in person by the above individuals.

All contractor questions will be reviewed by the Area Engineer or Assistant Area Engineer. Once a response is developed, it will be posted to TxDOT's Public FTP at the following Address:

<https://ftp.dot.state.tx.us/pub/txdot-info/Pre-Letting%20Responses/>

All questions submitted that generate a response will be posted through this site. The site is organized by District, Project Type (Construction or Maintenance), Letting Date, CCSJ/Project Name.

The following standard detail sheets have been modified:

FD (MOD)

Item 000 Utilities

Consider the locations of underground utilities depicted on the plans as approximate and employ responsible care to avoid damaging, or accommodate 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 utility damage (breaks, leaks, nicks, dents, gouges, etc.) occurs, contact the utility facility owner or operator immediately. In the event utility lines needing unforeseen adjustments are encountered during construction operations, alter operations and continue to prosecute the contract in such a manner that will allow utility adjustments to be made by others.

Item 4 Scope of Work

Remove all vegetation from pavement edges, intersections and driveways before planing or ACP operations. This work will not be paid for directly but will be subsidiary to the various bid items.

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Item 5 Control of the Work

Station the project before commencing work. Mark the stations every 100 feet. Maintain stationing throughout the duration of the project. Remove the station markings at the completion of the project. Consider this work to be subsidiary to the various bid items of the contract.

Verify all horizontal and vertical control, approach grades to structures and driveways before beginning work. Notify the Engineer immediately if discrepancies are discovered.

Furnish, to the Engineer, a list of the final centerline elevations based on the alignment stationing shown on the plans.

The *UPRR* Railroad right of way is located adjacent to this project. Take necessary precautions to insure that no debris or material is dropped on the railroad's tracks.

Item 6 Control of Materials

Flammable/combustible materials must be stored at a designated location as approved.

Do not store flammable/combustible materials under or adjacent to Bridge class structures.

Daily removal of these materials will be considered incidental work.

Mixing of materials, storing of materials, storing of equipment, or repairing of equipment on top of concrete pavement or bridge decks will not be permitted unless specifically authorized.

When a precast or cast-in-place concrete element is included in the plans, a precast concrete alternate may be submitted in accordance with "Standard Operating Procedure for Alternate Precast Proposal Submission" found online at <https://www.txdot.gov/inside-txdot/forms-publications/consultants-contractors/publications/bridge.html#design>

Acceptance or denial of an alternate is at the sole discretion of the Engineer. Impact to the project schedule and any additional costs resulting from the use of alternates are the sole responsibility of the Contractor.

Item 7 Legal Relations and Responsibilities

Furnish all materials, labor and incidentals required to provide for traffic across the highway and for temporary ingress and egress to private property in accordance with article 7.2.4 of the standard specifications at no additional cost to the state. Maintain ingress and egress to the adjacent property at all times. Consider this work to be subsidiary to the various bid items of the contract.

The Contractor will be completely responsible for the immediate removal of any material that gets upon any vehicle as a result of their operation.

State contract mowers will mow the right of way during the growing season. The Contractor will be notified by the Engineer one week in advance of the anticipated time when mowers will be in the limits of the project. Clean the right of way to such a condition that allows the mowing contractors to safely mow.

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Personal vehicles of the contractor's employees will not be parked within the right of way at any time including any section closed to public traffic, unless the vehicle is being used for construction procedures. However, the Contractor's employees may park on the right of way at sites where the contractor has their office, equipment and materials storage yard.

The Contractor will be familiar with the right of way map and the location of all the right of way monumentation. Care will be taken by the Contractor and its subcontractors to protect and avoid disturbance to the right of way monumentation. Any monument disturbed by the Contractor will be repaired and/or replaced to the satisfaction of the Engineer. This work will be corrected at the Contractor's expense.

No significant traffic generator events have been identified in the project limits.

Item 8 Prosecution and Progress

Working days will be charged during all observed curing times, even if no other work is being performed.

Compute and charge working days in accordance with Article 8.3.1.4 Standard Workweek.

Submit monthly progress schedules in accordance with 8.5.5.2.3. Failure to supply updated project schedule may result in the Engineer withholding progress (monthly) payments.

Adjoining projects may be in progress during the construction of a portion of this project. Plan and prosecute the sequence of construction and the traffic control plan with adjacent construction projects, if applicable. Manage construction of all phases to minimize disruption to traffic.

Notify the Engineer 72 hours in advance of any temporary or permanent lane, ramp or connector affected by closures, detours, or restrictions to lane widths, alterations to vertical clearances or modifications to alignment/radii. Any other modification to the roadway that may adversely affect the mobility of oversized/overweight trucks will require 5 business day advance written notice to the Engineer.

Temporary lane closures will not be allowed Monday thru Friday during the following times:

Westbound: 5:00 AM to 9:00 AM

Eastbound: 4:00 PM to 8:00 PM

Night work may be required. If required, nighttime hours will be defined as 9:00 PM until 5:00 AM, Sunday night thru Thursday night. Ensure all lanes are reopened by 5:00 A.M.

Maintain one lane open to traffic in each direction during construction activities, unless otherwise approved.

Maintain two lanes open to traffic in each direction at the end of each work day and when construction is not active, unless otherwise approved.

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Supplemental lighting in addition to lighting on equipment and work vehicles will be required to insure adequate lighting for workers safety and inspection. All operations including planing and ACP placement must be adequately lighted using supplemental lighting. All supplemental lights are subject to the approval of the Engineer. Supplemental lighting will be added to the milling machine, asphalt distributor, aggregate spreader, rollers and laydown machine unless otherwise approved. This is considered subsidiary to the various bid Items of the contract.

All edges must be backfilled by the end of the workday with a 3:1 or flatter slope. No drop offs will be left outside the current workday.

Accrue Contract time charges through the Contractor's completion of the final punch list. Time will not be suspended until all work is completed.

Submit a work schedule to the Engineer at the preconstruction meeting indicating completion dates for each location, and the number of crews required for the completion of the contract within the contract time period. If at any time during the contract the work progress is behind the initial schedule, submit documentation indicating how the project will be accelerated to ensure project completion in the remaining contract time.

Provide a sequence of work with an estimated project schedule to the Engineer at the preconstruction meeting. By noon of each Wednesday, provide the Engineer a written outline of the proposed work schedule for the following week. This outline will also list the times and places for any proposed traffic control changes.

Monthly critical path method (CPM) updates are a very important aspect of managing the progress of this project. CPM planning schedule software will be required on this project as stipulated in the special provisions to the plans.. An updated electronic schedule will be provided to the Engineer by the tenth day of each month. The Engineer may withhold the monthly estimate if the schedule update has not been received.

For this project, create and maintain the critical path method (CPM) schedule.

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

The construction sequence may be modified as directed and approved.

Law enforcement will be considered for this contract under the following conditions unless otherwise directed:

- Night work operations that create substantial traffic safety risks for workers and/or road users,
- Major traffic shifts involving high speed (greater than 55 MPH) and/or high volume roadways (ADT exceeds 10,000),
- Traffic shifts at intersections where unexpected or sudden queuing is anticipated,
- Complex intersections where flaggers may not be able to maintain adequate traffic control.

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Provide full-time, off-duty uniformed officer(s), with transportation jurisdiction and full police powers in the county or city in which the project is located, during construction as directed . The officer(s) must be able to show proof of certification by the Texas Commission on Law Enforcement Officers Standards. Officer(s) will be paid by force account, and must be approved. The vehicle used must be a marked law enforcement vehicle in the city or county where the project is located. Complete the daily tracking form provided by the Department and submit invoices that agree with the tracking form for payment at the end of each month approved services were provided.

HURRICANE

In the event of the declaration of a hurricane watch, warning, other severe weather warning or national or state emergency that requires the roadways in the vicinity be used as evacuation routes, cease all work that requires the Contractor's, sub-contractors' or material suppliers' vehicles to enter the stream of traffic on these primary or secondary evacuation routes. This work includes material hauling and delivery, and mobilization or demobilization of equipment.

Item 100 Preparing Right of Way

Heavy equipment rutting will be graded to the existing terrain profile. Consider this work to be subsidiary to the various bid items of the contract.

Item 104 Removing Concrete

Saw the longitudinal break-back line when removing the existing concrete pavement for stage construction. Saw depth to be approximately two (2) inches. The saw depth is to increase, if the edge of the existing concrete pavement to remain in place is not reasonably straight or as directed. Consider this work to be subsidiary to the various bid items of the contract.

Provide full-depth saw cutting for removal of existing concrete driveways that conflict with the proposed widening. Consider this work to be subsidiary to the various bid items of the contract.

Limits of riprap and/or mow strip removal will be as directed.

Item 105 Removing Treated and Untreated Base and Asphalt Pavement

Haul and stockpile the unused material as directed by the Engineer. Stockpile material salvaged from this project at location approximately 0.9 mile west of FM 1413 or at the secondary location at SH 321 at railroad overpass located approximately 3.4 miles north of US 90. Stockpiled or reused material shall be small enough to pass a 2" sieve.

Item 110 Excavation

Any earthwork cross-sections, computer printouts, data files and any other information provided is for non-construction purposes only and it is the responsibility of the prospective bidder to validate the data with the appropriate plans, specifications and estimates for the projects. Contact the Area Office for information on availability.

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Do not windrow or stockpile material next to or along the roadway. Remove excess material from the project daily.

Item 132 Embankment

Compaction method specified as *density control* compaction.

It is the Contractor's responsibility to advise the Engineer of the location of the material source enough in advance to avoid delay due to testing requirements.

Embankment Type C will conform to the following specification requirements:

1. Liquid Limit – 40 maximum
2. Plasticity Index – 20 maximum, 8 minimum
3. Internal Friction Angle – 28 degrees minimum

All slopes requiring embankment will be tracked immediately upon final grading to prevent erosion. Tracking consists of operating a tracked vehicle or equipment up and down the slopes leaving track marks perpendicular to the direction of the slope. See the EC(1) standard for tracking details. Tracking slopes to prevent erosion will not be measured or paid for directly, but will be subsidiary to pertinent Items.

Item 162 Sodding for Erosion Control

Furnish and place Bermudagrass sod.

Item 164 Seeding for Erosion Control

Final grading and stabilization (seeding) will be achieved as soon as possible and not scheduled only for the end of the project. Final grading and stabilization should be initiated as the overall work progresses.

Multiple mobilizations of the seeding crews will be expected to comply with the Construction General Permit of the Texas Pollution Elimination Discharge System requirements for re-vegetating disturbed soils.

Eliminate seeding in areas of natural growth determined to have enough cover.

Item 168 Vegetative Watering

Equip water trucks with sprinkler systems capable of covering the entire area to be seeded or sodded from the roadway.

Water all newly placed sod or seeded areas the same day of installation. Thereafter, maintain the sod or seeded areas in a well-watered condition and at no time allow the areas to dry to the condition that water stress is evident.

Mechanical watering may not be required during periods of adequate moisture as determined.

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Furnish and apply water at a rate of 6.788 Mega gallons per acre per cycle or as directed on the plans.

Comply with stabilization requirements for 70% grass coverage; uniform vegetative coverage is required. During this period, meter and operate water equipment under pumping pressure capable of delivering the required quantities of water necessary. For Permanent seeding each cycle will be executed weekly for 12 weeks, unless directed otherwise. For Temporary seeding each cycle will be executed weekly for 6 weeks, unless directed otherwise.

Provide a log book showing daily water usage and receipts of water applied, in addition to metering the water equipment.

Item 260 Lime Treatment (Road-Mixed)

Do not place dry lime.

The lime stabilized subgrade at intersection and driveway turnouts may be eliminated with written approval from the Engineer.

Item 276 Cement Treated (Plant-Mixed)

Use Class L, Type A, Grade 1-2 material for the Cement Treated base placed under the concrete pavement. Material to be placed in 6 inch lifts unless directed by the Engineer.

Use Class M, Type A, Grade 1-2 material for the Cement Treated base placed under the Super pave and/or D-GR HMA that is greater than 1 inch. Material to be placed in 6 inch lifts unless directed by the Engineer.

Item 340 Dense Graded Hot Mix Asphalt (Small Quantity)

Prepare Mix Designs using the Superpave Gyrotory compactor.

Item 354 Planing and Texturing Pavement

Where the underlying flexible base is exposed during the planing operation, prime this area with an asphalt at a rate as directed and patch with an approved HMA material, at the end of the day's operation in which it occurs. These items of work will not be paid for directly but will be subsidiary to Item 354.

Complete planing operations in adjacent lanes and shoulders to the same point at the end of each day.

Cut the existing shoulder pavement to allow for drainage of water away from travel lanes which have been planed. This work will be subsidiary to various bid items.

Stockpile material salvaged from this project at location approximately 4,800 feet east of FM 1413 or at the secondary location at SH 321 at railroad overpass.

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Schedule the work so that a seal coat or HMA is placed no more than two weeks after milling has been performed on any pavement surface, unless otherwise approved. The Engineer may require the seal coat to be placed sooner than two weeks in cases when base materials are exposed or when the pavement structure is showing signs of distress.

Depth of overlays are expected to vary. No additional payment will be made for milling that exceeds specified depth up to twice the pay item depth (D). Compensation for milling greater than 2 x D will be in accordance with Article 9.7

Remove any and all asphalt materials that may remain on the concrete surface after milling due to irregularities in the underlying section (i.e. scabbing). Up to 1 in of adjacent shifted or faulted concrete slabs may be milled to remove scabs and improve ride.

If the Engineer determines an adjacent driveways needs to be tapered back to prevent a drop-off an additional pass will need to be made to taper the driveway as directed or for a distance of 24” into the driveway. This work will be measured and paid for under Item 354.

Cut and/or remove raised concrete repair areas, concrete curb, exposed rebar, etc. flush with the concrete pavement surface. This work will not be paid for directly but will be subsidiary to Item 354.

Item 360 Concrete Pavement

Concrete placement will not be permitted when impending weather conditions, in the opinion of the Engineer, may result in rainfall or low temperatures which will impair the quality of the finished work.

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

High-early strength cement may be used for frontage road and city street intersection construction.

Item 361 Repair of Concrete Pavement

Schedule work so that concrete placement follows full-depth saw-cutting by no more than 72 hours on typical roadways unless otherwise approved. Repairs located within bridge approach slabs are to be replaced the day after sawing unless otherwise approved.

Complete repairs so that longitudinal joints fall on edge of travel lane or center of travel lane. No joints will be allowed in the wheel paths.

All material generated, including concrete slurry, as a result of saw cutting will be collected and kept from entering waterways, culverts, roadway inlets, and ditches.

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Work will be conducted in such a manner so that all materials will be collected before the end of each day and especially before any rainfall event. Material from saw cutting will not be allowed to be tracked by traffic to other areas. Adequate sweeping, vacuuming and hauling equipment will be maintained on the project to conduct material collection and recovery on a continuous basis. Curb inlets will be blocked and protected during grinding and sweeping operations, but fully opened prior to a rainfall event. Disposal of the material produced by the sawing operation will be to a solid waste facility authorized to handle such material. The Contractor will, prior to beginning operations, provide a plan outlining the method of collection and disposal of this material for approval by the Engineer. The plan will also include the name and location of the facility receiving the solid waste. All work, equipment, materials and fees necessary to collect and dispose of this material will be considered subsidiary to this item and not paid for directly.

Material produced by the grinding operation may be recycled in accordance with all applicable rules and regulations as required. The Contractor will submit a plan for recycling to the Engineer for approval prior to before any grinding being performed.

Provide Class HES concrete. The coarse aggregate will be either Grade 2 or 3. A set accelerating admixture or high range water reducer may be necessary to meet the compressive strength requirements: this will require the written approval of the Engineer and will be subsidiary to the bid item. A satisfactory work plan for control must be submitted by the Contractor and approved before use. An evaluation of the concrete containing the admixture will be performed by the Engineer. Design the Class HES concrete to meet the requirements of Class P and a minimum average compressive strength of 1800 psi in 4 hours.

Where repairs in jointed pavement require the removal of a transverse joint, construct a new joint at the same location.

Where patches in jointed pavement require the removal of an existing dowel basket assembly, install a new basket in the same location.

Provide a concrete finish consisting of a carpet drag and transverse tine as per the 2014 Standard Specification book Item 360 on patches which are not to be overlaid or seal coated, unless otherwise directed by the Engineer. Provide a standard broom finish on all other pavements. Place the final riding surface on the patch prior to before opening the patch to traffic.

Saw-cutting will not be paid for directly, but will be considered subsidiary to this Item. Schedule work, such that concrete placement follows full-depth saw-cutting by no more than three days. Saw-cutting of existing concrete pavement across existing cracks will not be allowed unless approved by the Engineer.

Placement of removed slabs onto concrete pavement which is to remain in place will not be allowed. All removed portions of concrete will be removed from the project the same day as removed from the roadway. Breaking removed portions of concrete on the top of the existing pavement will not be allowed.

Concrete removal will not be permitted when impending weather conditions may result in rainfall which will delay the concrete placement. In the event of rainfall should occur after concrete

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placement operations have commenced, the Contractor will have ample covering on hand to protect the work.

For all concrete patches without an asphaltic concrete pavement overlay or seal coat, provide a vibratory screed at least two (2) feet longer than the width of the pavement to be used in finishing all repaired areas ten (10) feet or longer in length.

Station limits may be adjusted as directed by the Engineer to meet varying field conditions

Item 400 Excavation and Backfill for Structures

Cut and restore pavement to the depth and dimensions shown on the plans with: 1.25" SP Mixes SP-D, SAC-A PG76-22; 6" D-GR HMA(SQ) TY D PG 64-22; 15" CM TRT(PT MX)(CL M)(TY A)(GR1-2).

Structural Excavation is a Pay Item for the construction of the following elements: Ground Improvements. Rock Backfill according to Item 423 Type DS material.

Item 403 Temporary Special Shoring

Submit design calculations and detail sheets bearing the seal of a licensed professional Engineer for all temporary shoring no later than two (2) weeks before beginning work. Do not begin work until the design calculations and detail sheets have been approved. The contractor will be responsible for the complete design, fabrication and removal of the temporary shoring .

If steel pilings are placed in a marine environment apply a marine-grade immersion coating system recommended by the manufacturer for marine, immersion service, and meeting the requirements of NORSOK Standard M-501, Coating System No. 7 for piling in marine environments.

Item 420 Concrete Substructures

The following elements are Plans Quantity elements: *Abutments*

Item 422 Concrete Superstructures

Mixing of materials, storing of materials, storing of equipment, or repairing of equipment on top of concrete pavement or bridge decks will not be permitted unless specifically authorized. Permission will be granted if, in the opinion of the Engineer, storage of the materials will not cause damage or discoloration. Any damage resulting from this work will be corrected at the Contractor's expense.

Item 423 Retaining Walls

For MSE walls, provide a system from one of the approved suppliers as listed on the following website:

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<http://www.txdot.gov/business/resources/approved-systems/mse-wall.html>

For ground improvement backfill, Type DS material will be payed by Item 400 Rock Backfill.

Item 467 Safety End Treatment

At driveway locations where the contract requires modifying pipe installations, provide a 6:1 maximum embankment slope from the edge of the driveway to the top of the SET.

Grading required for shaping driveways and side road turnouts, including embankment for pipe culverts at these access locations, will be considered subsidiary to various bid items.

Item 502 Barricades, Signs, and Traffic Handling

Construct all work zone signs, sign supports, and barricades from material other than wood unless approved otherwise. Metal posts, if used, are to be galvanized. Aluminum signs, if used, will meet the following minimum thickness requirements:

<u>Square Feet</u>	<u>Minimum Thickness</u>
Less than 7.5	0.080 inches
7.5 to 15	0.100 inches
Greater than 15	0.125 inches

The Contractor Force Account “Safety Contingency” that has been established for this project is intended to be used 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.

Adjoining projects may be in progress during the construction of this project. Coordinate and manage the sequence of construction and the traffic control plan with adjoining construction projects, if applicable, to minimize disruption to traffic in all phases of the work.

Arrange asphalt laydown schedule to meet plan striping requirements.

Remove all traffic control devices from the right of way when they are not in use. Devices scheduled to be used within 3 days may be placed along the shoulder of the roadway or along the right of way when not in use, or stored in other approved areas on the project. Cover any construction signs that are not in effect and are installed in a fashion that will not allow them to be removed from the right of way easily.

Arrange construction operations to prevent the hauling of materials through the completed pavement sections unless otherwise approved.

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Provide all flaggers and pilot vehicle drivers with two-way radio communication capability.

Item 504 Field Office and Laboratory

Provide a high speed internet connection(minimum 100 Mbps download speed), a multifunction color printer/fax/scanner/copier capable of reproducing 11 X 17 prints and a telephone in the hot mix laboratory at the plant that produces their mix for use by the State.

Provide Field Office and Laboratory Type "B".

Item 506 Temporary Erosion, Sedimentation, and Environmental Controls

Construct all side slopes on rock filter dams with 6:1 slopes.

The Contractor is prohibited from removing grass vegetation throughout the entire project limits and then ceasing construction for long periods, typically over three weeks. The Contractor schedule will be developed based on staged vegetation removal, limiting disturbed soil to no more than 25 percent at one time, unless otherwise approved. Should the Contractor not be able to adequately control sediment and erosion for areas disturbed, the Department will substantially reduce the size of areas that the Contractor may disturb soil. Should the project be evaluated to have sediment control problems as a result of the Contractor disturbing excessive amounts of soil, the Contractor will be required to immediately re-vegetate (seed and water) those disturbed areas at no cost to the Department.

The Contractor will designate a clean out area for concrete trucks. No other area will be allowed without approval of the Engineer.

Item 512 Portable Traffic Barrier

Place all portable concrete barriers in a manner such that exposed ends are not facing traffic. In situations where this is not possible, the adjacent lane is to be closed and a truck mounted attenuator will be used to protect the exposed end until appropriate treatment can be provided.

Portable Concrete Traffic Barrier is to be pinned at the locations specified on the Plans or at any location where a drop-off requiring barrier is present within 2' of outside barrier edge. Barrier will be pinned along the hazard and along one 30' section upstream of the hazard as well as at upstream edge of second barrier to transition from pinned to unpinned condition. Pinning of barriers will be accomplished using a rotary hammer drill. Percussion (star drill) type drilling equipment will not be used.

Item 514 Permanent Concrete Traffic Barrier

Permanent Concrete Traffic Barrier will be cast in place unless otherwise directed.

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Item 530 Intersections, Driveways, and Turnouts

Welded wire fabric will not be allowed for reinforcing concrete driveways. Use reinforcing steel consisting of No. 3 or 4 bars meeting the requirements of grade 40 or 60 reinforcing steel. Place bars on 12 in. centers in each direction, supported on reinforcing chairs.

Unless otherwise directed, install 1/2 in. pre-molded expansion joint material between existing concrete and new concrete.

Item 540 Metal Beam Guard Fence

At the close of work each day, protect the ends of metal beam guard fence in an approved manner, so that no blunt ends are exposed to approaching traffic.

Item 542 Removing Metal Beam Guard Fence

Accept ownership of removed metal beam guard fence and terminal anchors.

Item 545 Crash Cushion Attenuators

See standards in the plan set for information describing the attenuator's details: direction of traffic, design speed, foundation, backup support, backup width, and/or transition options.

Payment for D&OM(VIA)-20, and all required object markers and barrier reflectors on the attenuators will be considered subsidiary to this Item.

Item 556 Pipe Underdrains

Use Type D filter material.

Item 585 Ride Quality for Pavement Surfaces

For overlay portion of the project use Surface Test Type B pay adjustment schedule 2 to evaluate ride quality of the travel lanes in accordance with Item 585, "Ride Quality for Pavement Surfaces."

For Continuously Reinforced Concrete Pavement (CRCP) mainlanes, use Surface Test Type B and Pay Adjustment Schedule 2. For ramps, shoulders, and widened travel lanes, use Surface Test Type A. For new location frontage roads, use Surface Test Type B and Pay Adjustment Schedule 3.

Item 610 Roadway Illumination Assemblies

The Roadway Illumination Pole (RIP-19) standard details were developed for installations in locations where the 3-second gust basic maximum wind speed is 110 mph, and where the elevation of the base of the pole is less than (i.e. not more than) 25' above the elevation of surrounding terrain, in accordance with the "AASHTO Standard Specifications for Structural Supports for

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Highway Signs, Luminaires and Traffic Signals,” current edition (AASHTO Design Specifications). For poles to be installed in regions where the maximum basic wind speed exceeds 110 mph or to be mounted more than 25’ above the surrounding terrain, the contractor will provide poles meeting the following requirements:

- A. **Submittals.** Following the electronic shop drawing submittal process (see ftp://ftp.dot.state.tx.us/pub/txdot-info/library/pubs/bus/bridge/e_submit_guide.pdf), the contractor will submit to the Engineer, for approval, fabrication drawings and calculations for the poles. The drawings and calculations will be sealed by a Texas licensed professional engineer (P.E.).
- B. **Luminaire Structural Support Requirements.** Lighting poles, arms, and anchor bolt assemblies will have a 25 year design life to safely resist dead loads, ice loads and the required basic wind speeds at the location of installation in accordance with the current edition of the AASHTO Design Specifications. For transformer base poles, the fabricator will include transformer base and connecting hardware in calculations and shop drawing submittals. All transformer bases will have been structurally tested to resist the theoretical plastic moment capacity of the pole. Certification of the plastic moment load test and FHWA breakaway requirement test of the model of base being furnished will be submitted with the shop drawings. Shop drawings will show breakaway base model number, and manufacturer's name and logo. Manufacturer's shop drawings will include the ASTM designations for all materials to be used.

Item 618 Conduit

Do not use cast iron junction boxes in concrete traffic barriers and single slope traffic barriers. Use polymer concrete junction boxes instead of the cast iron junction boxes shown on standard sheets CTBI (3), CTBI (4), AND SSCB (4). Mount the junction boxes flush (+ 0”, - ½”) with concrete surface of concrete barrier.

The polymer concrete barrier box will not be paid for separately, but will be considered subsidiary to ITEM 618, “CONDUIT”.

Where PVC, duct cable, and HDPE conduit 1” and larger is allowed and installed as per the Department standards, provide a PVC elbow in place of the galvanized rigid metal elbow required by the Electrical Detail standards. Ensure the PVC elbow is of the same schedule rating as the conduit to which it is connected. Ensure only a flat, high tensile strength polyester fiber pull tape is used for pulling conductors through the PVC conduit system.

PVC Conduit systems that snap or lock together without glue and that are UL listed to be used for bored PVC electrical applications, will be allowed for PVC Schedule 40 and PVC schedule 80 upon approval.

Place conduit under existing roadways and/or driveways as directed and in accordance with Item 476.

Cap, do not glue, open ends of conduit.

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If casing is required to place bored conduit, consider the casing incidental and subsidiary to the conduit.

Ensure open trenches and excavations are filled at the end of each work day.

Leave a minimum length of 2 feet for each conductor cable in each ground box and in each pole.

When backfilling bore pits, ensure that the conduit does not become damaged during installation or due to any settling of the backfill material. Compact select backfill (use Type SM or SC) in three equal lifts to the bottom of the conduit; or if sand is used, it must be placed to a point 2 inches above the conduit. Backfill density will be equal to the existing soil. Exercise due care to prevent any material from entering the conduit.

Place conduit under existing pavement by boring unless otherwise directed. Pits for boring will not be closer than 3 feet from edge of pavement unless otherwise approved. Water jetting will not be permitted. At the close of work each day, cover all open pits and barricade for safety.

Use of a pneumatically driven device for punching holes beneath pavement (commonly known as a "missile") will not be permitted on this project.

Remove all abandoned conductor and conduit to 1 foot below ground level. This work will not be paid for directly, but will be considered subsidiary to the pertinent bid items.

After placement of cable and conduit, restore the natural ground to its original contour. Restore all driveways to their original condition. Consider this work subsidiary to this bid item.

When conduit is laid in a trench or bored, minimum depth to the top of the conduit will be 3 feet. Where obstructions prevent laying conduit at this depth, place conduit at the maximum depth possible.

Where a trench is cut through the pavement, surfaced shoulder, or median or driveways for laying conduit, replace the base and surfacing with similar material equal in appearance and quality to the original construction. Consider this work to be subsidiary to this bid item.

The polymer concrete barrier box will not be paid for separately, but will be considered subsidiary to ITEM 618, "CONDUIT."

Refer to plans and specifications for type of conduit. Waterproof and tighten all couplings and connections. Bring all proposed and existing conduit into a ground box and 'elbow' it unless otherwise shown on the plans. Provide a bushing to protect the wire from abrasion when a conduit run terminates.

Replace sections of conduit with the size and type shown on the plans in the event the existing conduit proves unusable due to location or damage.

Secure permission from the proper authority as directed before cutting into or removing any sidewalks or curbs for installation of this Item.

The locations of conduit and ground boxes are diagrammatic and will be shifted, as directed, to accommodate field conditions.

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Install conduit in an area not exceeding 2 ft. in any direction from a straight line with the depth of the conduit at least 2 ft. unless otherwise shown on the plans. Installation of the conduit by jacking or boring method will be at a depth of at least 1 ft. below the bottom of the base material of the roadway. Evidence of damage to the roadway during the jacking or boring operation will be enough grounds to stop the method being used.

Install conduit on a 2 in. sand cushion and backfill with at least 6 in. of sand. Backfill the remainder of the trench with flexible base, soil or two-sack concrete as required by the location of the conduit or as directed.

Consider all conduit elbows and rigid metal extensions required to be installed on PVC conduit systems subsidiary.

Install a non-metallic pull rope in conduit runs, which are longer than 50 ft. Installed pull ropes in conduit are for future use and will be capped using standard weather tight conduit caps as directed. Consider this work subsidiary to the pertinent Items.

Install a continuous bare or green insulated copper wire No. 8 AWG or larger in every conduit throughout the electrical system including installed loop detectors and traffic signal cables which are in conformance with the Electrical Detail Standard Sheets and the latest edition of the National Electric Code.

Placement of conduit under the existing pavement using the open trench method will not be allowed without prior approval.

Consider all fittings, brackets, and junction boxes necessary to complete the installations subsidiary to the pertinent Items.

Item 620 Electrical Conductors

For both transformer and shoe-base type illumination poles, provide double-pole breakaway fuse holder as shown on the Texas Department of Transportation (TxDOT) materials producers list. Category is "Roadway Illumination and Electrical Supplies". Fuse holder is shown on list under Items 610 & 620.

Provide 10 amp time delay fuses.

Use Bussman HEBW, Littlefuse LEB, Ferraz-Shawmut FEB, or equal on ungrounded conductors. For all grounded conductors use Bussman HET, Littlefuse LET, Ferraz-Shawmut FEBN, or equal. These breakaway connectors have a white colored marking and a permanently installed solid neutral.

Identify the conductors as shown on the Electrical Details Standard Sheets when two or more conductors are present in one conduit or enclosure. Use an identification tag with two plastic straps. Each tag will indicate circuit number, letter, or other identification as shown on the plans.

Bond grounding conductors, which share the same conduit, junction box or structures, together at every accessible point in accordance with the Electrical Detail Standard Sheets and the latest edition of the National Electric Code.

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All wiring will be in accordance with the National Electric Code and the appropriate Department standard sheets.

All conductors are to be continuous without splice from terminal point to terminal point or as otherwise directed. No aluminum conductors will be allowed on this project.

When pulling cables or conductors through conduit, lubricate the cables or conductors with lubricant generally used for this purpose.

Test each wire of each cable or conductor after installation. Any incomplete circuit or any damage to any wire or any cable is cause for immediate rejection of the entire cable being tested. Removal and replacement of the entire cable will not be paid for separately, but will be considered subsidiary to the various bid items. The replacement cable will also be tested after installation.

Provide ends of wires to be attached to terminal posts with properly sized self-insulated crimping-type solderless terminals. Attach these terminals to wires with a ratchet type compression crimping tool properly sized to the wire. Place pre-numbered identification tags of plastic or tape around each wire adjacent to the wire ends in the controller, and terminal blocks.

Color code all insulated power conductors in accordance with the national electrical code and the Department standard ED sheets. White will be the neutral conductor and will not be used for any other conductor. The grounding conductor will be bare or green. Green will not be used for any other conductor.

Do not use colored tape marking on conductors size 6 AWG or smaller.

Bond together grounding conductors that share the same conduit, junction box, ground box or structure at every accessible point in accordance with the current national code and the Department standard ED sheets.

Electrical certification for this project will be as per Item 7 of the current Texas Standard Specifications and any special provisions to Item 7.

Item 624 Ground Boxes

Place ground boxes 5 feet from the edge of shoulder or curb or as otherwise directed. Additional ground boxes may be required as determined by the Engineer.

Location and estimated number of ground boxes are diagrammatic only and may vary to accommodate field conditions as directed.

Provide ground boxes manufactured from reinforced polymer concrete (RPM) composed of borosilicate glass fiber, a catalyzed polyester resin and aggregate.

Class A concrete will be considered miscellaneous.

Provide all personnel and equipment necessary to remove ground box lids for inspection by the Engineer. Provide this assistance within 24 hours after notification from the Engineer.

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Item 628 Electrical Services

Construct electrical services as shown on the ED sheets. Make all arrangements for electrical services and comply with local standards for proper installation.

Ensure the service closure is assembled by a Company shown on the prequalified Material Producers List for "Roadway Illumination and Electrical Supplies" located on the following web site:

<http://www.txdot.gov/business/resources/producer-list.html>

Before any UL listed electrical service assembly can be purchased or installed an electrical service data chart will have to be furnished with accurate information for that electrical services specific location. This chart is to go to the UL 508A Listed Industrial Control Panel Shop building the service enclosure. The information to be shown on the chart will be as follows: electrical service description as per bid code, service number, service riser conduit size, service conductors number and size, main circuit breaker size, two-pole contactor size when required, panel board ampere rating (which will be a minimum of 100 amps), and branch circuit breakers identified and number of poles and size of branch circuit breakers provided.

The location of the service poles as shown are approximate. Any and all cost associated with the installation and connection of the service poles to the electrical utility company will be considered incidental to the service pole. This includes conduit, conduit fittings and electrical conductors.

Furnish and install service pole address numbers and letters. Provide type and size of letters and numbers as approved.

Provide lockable service enclosures equipped with Master #2195 padlocks with two keys for each lock.

Power provided to the locations shown for primary line extensions, connection and meter charges and other expenses by the utility company will be paid for under Force Account Work. Ensure the costs associated with these charges are approved before engaging the utility company to do the work. Notify the utility company a minimum of two (2) weeks prior to the date power connection to electrical service is needed.

Item 636 Signs and/or Item 644 Small Roadside Sign Assemblies and/or Item 647 Large Roadside Sign Supports and Assemblies

Remove and stockpile all existing signs and sign posts within the project that are not to remain, at a stockpile location designated by the Engineer. Remove the signs from the posts. Replace any signs or post damaged by the Contractor at his/her entire expense. Consider this work to be subsidiary to the various bid items of the contract.

Item 644 Small Roadside Sign Assemblies

Erect Reference Marker signs at the same station as they were located before removal.

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Item 647 Large Roadside Sign Supports and Assemblies

Remove and stockpile all existing signs and sign posts within the project that are not to remain, at a stockpile location designated by the Engineer. Remove the signs from the posts. Replace any signs or post damaged by the Contractor at his/her entire expense. Consider this work to be subsidiary to the various bid items of the contract.

Item 658 Delineator and Object Marker Assemblies

Use Type A reflector unit (sheeting) on delineator assemblies attached to concrete barrier.

Mount reflector at a height of 4.0' to 4.5' from the bottom of the continuous concrete barrier. If this cannot be achieved mount reflector 6" from the top of the barrier to the bottom of the reflector.

Mount reflectors on a steel or concrete bridge rail, where the bridge is greater than 200' in length, at a height of 6" from the top of the rail to the bottom of the reflector.

Use bolt-on attachment for delineator assemblies attached to guard fence.

Install delineators when directed. This may require installation of delineators on portions of guardrail and bridge rail that is not being repaired in order to maintain consistency with adjacent sections.

MBGF will receive GF2 delineators installed on 100' maximum spacing.

Type C delineators will be installed using Adhesive 795A manufactured by Davidson Traffic Control Products or an equivalent approved in writing.

Item 666 Retroreflectorized Pavement Markings

Furnish Type II drop-on glass beads.

Item 672 Raised Pavement Markers

Remove all existing traffic buttons before the application of the seal coat. Consider this work to be subsidiary to the various bid items of the contract. Location and details of the existing buttons are available at the Area Engineer 's office.

Item 677 Eliminating Existing Pavement Markings and Markers

Remove all contaminates and loose material. Consider this work to be subsidiary to the various bid items of the contract.

Remove existing raised pavement markers before the addition of the asphaltic pavement or seal coat. Dispose of the removed markers form the project at the end of each workday. Consider this work to be subsidiary to the various bid items of the contract.

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Remove existing stripping without gouging or creating undue groves in existing PFC hot mix overlays. Lightly flail the existing markings to remove the topcoat or raised portion of the existing stripe while leaving the existing striping contained within the pores of the PFC in place. Apply non-reflective, black, non-removable work zone pavement markings, in accordance with Item 662 to cover and fill existing residual striping contained in the pores. Payment for the Item 662 topcoat will be subsidiary to Item 677.

Item 3077 Superpave Mixtures

Provide a space, building or testing area, large enough to accommodate TxDOT equipment and testing on site at the Hot Mix Plant near or within the area of Contractor's testing equipment the Contractors Lab or in the Contractors own testing area. The contractor will provide the SGC" Superpave Gyratory Compactor" and TGC "Texas Gyratory Compactor". All other equipment must be provided by TxDOT. TxDOT will be responsible for maintaining state provided equipment. The Contractor will provide TxDOT with the Calibration paperwork on the shared equipment that they provide.

Provide a high speed internet connection, a multifunction color printer/fax/scanner/copier capable of reproducing 11 X 17 prints and a telephone in the hot mix laboratory at the plant that produces their mix for use by the State. This will not be paid for directly but will be considered subsidiary to Item 3077.

Use aggregate that meets the SAC requirement of class A for all surface mixes.

Provide mix designs. Mix designs must be verified and approved.

Operate the spreading and finishing machine at a uniform forward speed consistent with the plant production rate, hauling capability, and roller train capacity to result in a continuous operation. The speed will be slow enough, so that stopping between trucks is not ordinarily required. If the Engineer determines sporadic delivery of material is adversely affecting the HMA placement, the Engineer may require paving operations to cease until acceptable methods are employed to minimize starting and stopping of the paver.

A material transfer device (MTD) will be required for all surface courses of HMA on this project. An MTD is defined as a self-propelled, wheel-mounted vehicle capable of receiving HMA from the haul trucks separate from the paver. The MTD will have a minimum storage capacity of approximately 25 tons and will be equipped with a pivoting discharge conveyor and a means of completely remixing the HMA before placement. The Engineer may approve an alternative device on a trial basis for the surface course. This device will be capable of receiving HMA separate from the paver and must have remixing capabilities. For all other courses of HMA, other than the surface, an alternative device may be used as long as it is capable of receiving HMA separate from the paver.

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

Shadow vehicles with TMA and high intensity rotating, flashing, oscillating or strobe lights are required. Use one TMA preceding every stationary work zone and two TMA's for mobile operations.

In addition to the shadow vehicles with truck mounted attenuator (TMA) that are specified as being required for this project, provide **1** additional shadow vehicle(s) with TMA for TCP **(3-2)-13** as detailed on General Note 2 of this standard sheet.

Therefore, 3 total shadow vehicles with TMA will be required for this type of work. The contractor will be responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMA's needed for the project.

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