

# NOTIFICATION OF ADDENDUM

## ADDENDUM NO. 2

**DATED 7/01/2011**

<b>Control</b>	<b>3510-05-022</b>
<b>Project</b>	<b>C 3510-5-22</b>
<b>Highway</b>	<b>SH 99</b>
<b>County</b>	<b>HARRIS</b>

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: C 3510-5-22

CONTROL: 3510-05-022

COUNTY: HARRIS

LETTING: 07/08/2011

REFERENCE NO: 0701

**PROPOSAL ADDENDUMS**

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- PROPOSAL COVER
- BID INSERTS (SH. NO.:
- GENERAL NOTES (SH. NO.: H
- SPEC LIST (SH. NO.: 3 OF 5
- SPECIAL PROVISIONS:
- ADDED: 008---134

DELETED:

- SPECIAL SPECIFICATIONS:
- ADDED:

DELETED:

- OTHER: PLAN SHEETS

DESCRIPTION OF ABOVE CHANGES  
(INCLUDING PLANS SHEET CHANGES)

GENERAL NOTES-

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SHEET H: ADDED U.S. ARMY CORPS OF ENGINEERS (USACE) PERMIT # TO ITEM 7

SPEC LIST-

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ADDED SPECIAL PROVISION 008---134

SPEC LIST SHEET 3 OF 5 CHANGED AS A RESULT

PLAN SHEETS-

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SHEET 6: REVISED INDEX TO INCLUDE NEW SHEETS

SHEET 27: REVISED GENERAL NOTES TO INCLUDE USACE PERMIT # IN ITEM 7

SHEETS 861-902: ADDED SHEETS FOR USACE PERMIT INFORMATION

**GENERAL NOTES:**

**General:**

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.

Notify the Engineer immediately if discrepancies are discovered in the horizontal control or the benchmark data.

The following standard detail sheets are modified:

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.

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 7.7 of the standard specifications is subsidiary to the various bid items. Restore access roadways to their original condition upon completing construction.

Grade street intersections and median openings for surface drainage.

If a foundation is to be placed where a riprap surface or an asphalt concrete surface presently exists, use caution in breaking out the existing surface for placement. Break out no greater area than is required to place the foundation. After placing the foundation, wrap the periphery with 0.5 in. pre-molded mastic expansion joint. Then replace the remaining portion of the broken out surface with Class A or Class C concrete or cold mix asphalt concrete to the exact slope, pattern, and thickness of the existing riprap or asphalt. Payment for breaking out the existing surface, wrapping the foundation, and replacing the surface is subsidiary to the various bid items.

The lengths of the posts for ground mounted signs and the tower legs for the overhead sign supports are approximate. Verify the lengths before ordering these materials to meet the existing field conditions and to conform to the minimum sign mounting heights shown in the plans.

Furnish aluminum Type A signs instead of plywood signs for signs shown on the Summary of Small Signs sheet.

Stencil the National Bridge Inventory (NBI) number on each existing bridge shown on these plans. The NBI number is shown above the title block for each bridge layout.

Clearly mark or highlight on the shop drawings, the items being furnished for this project. Submit required shop drawings in accordance with the shop drawing distribution list shown in the note for Item 5 for review and distribution.

Right of way parcels or utility adjustments shown to be unclear on the plans but not listed on the special provisions will have no effect on construction.

Request additional soil information for this project at the Area Engineer's office.

Unless otherwise shown on the plans or otherwise directed, commence work after sunrise and ensure construction equipment is off the road by sunset.

**General: Roadway Illumination and Electrical**

For roadway illumination and electrical items, use materials from pre-qualified producers as shown on the Construction Division (CST) of the Department's material producers list. Use the following website to view this list:

[http://www.dot.state.tx.us/txdot\\_library/publications/producer\\_list.htm](http://www.dot.state.tx.us/txdot_library/publications/producer_list.htm). The category/item is Roadway Illumination and Electrical Supplies. No substitutions will be allowed for materials found on this list.

Perform electrical work in conformance with the National Electrical Code (NEC) and Department standard sheets.

The Contractor may make the electrical grounding connections and permissible splices using the thermal fusion process, Cadweld, Thermaweld or approved equal, instead of bolted connections and splices only for illumination.

The Area Engineer will arrange with the Contractor, an inspection of the completed electrical systems for the highway lighting systems before final acceptance for compliance with plans and specifications. The inspection will be made with personnel from the electrical section of the Department's District Transportation Operations Office. The city's electrical division personnel will also inspect lighting systems within the city limits. Portions of the work found to be deficient during this inspection will not be accepted.

**General: Traffic Signals**

For traffic signal items, use materials from pre-qualified producers as shown on the General Services Division (GSD) of the Department's material producers list. Use the following websites to view this list:

[http://www.dot.state.tx.us/business/contractors\\_consultants/producer\\_list.htm](http://www.dot.state.tx.us/business/contractors_consultants/producer_list.htm) and [http://www.txdot.gov/txdot\\_library/consultants\\_contractors/publications/purchasing\\_specifications.htm](http://www.txdot.gov/txdot_library/consultants_contractors/publications/purchasing_specifications.htm) under Supplemental Specifications and Attachments. No substitutions will be allowed for materials found on this list.

**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 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**

Schedule construction operations such that preparing individual items of work follows in close sequence to constructing storm drains in order to provide as little inconvenience as practical to the businesses and residents along the project.

Schedule work so that the base placement operations follow the subgrade work as closely as practical to reduce the hazard to the traveling public and to prevent undue delay caused by wet weather.

This project requires extensive grading operations in an environmentally sensitive area.

If relocating mailboxes, place them with the post firmly in the ground at nearby locations. Upon completing the project, the Engineer will locate the final mailbox placement. Perform this work in accordance with the requirements of the Item, “Mailbox Assemblies”, except for measurement and payment. This work is subsidiary to the various bid items.

If fences cross construction easements shown on the plans and work is required beyond the fences, remove and replace the fences as directed. This work and the materials are subsidiary to the various bid items.

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

**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 cause 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. Repair any damage to this system within 8 hours of occurrence at no cost to the Department. In the event of system damage, notify the TxDOT Houston District Maintenance Office (Mr. David Fink at 713-881-3063) 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 48 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 notifying Mr. Ugonna Ughanze or Ms. Mona Kozman of the Department's Houston District Traffic Signal Operations Office by telephone at (713) 802-5661 or (713) 802-5895, by fax at (713) 802-5349, or by E-mail at [Ugonna.Ughanze@txdot.gov](mailto:Ugonna.Ughanze@txdot.gov) or [Mona.Kozman@txdot.gov](mailto:Mona.Kozman@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.

Notify the Engineer at least 48 hours before constructing junction boxes at storm drain and utility intersections.

Install or remove poles and luminaires located near overhead or underground electrical lines using established industry and utility safety practices. Consult the appropriate utility company before beginning such work.

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.

Perform electrical work in conformance with the National Electrical Code (NEC) and Department standard sheets.

Before beginning any underground work, notify the City of Houston's Chief Inspector, Public Works and Engineering, at (713) 859-3371 to establish the locations of any existing electrical systems for lighting facilities within the limits of this project.

The contractor shall notify the Kinder Morgan Missouri City Texas Operations office at (281) 886-1802 and issue a Texas One Call (811) prior to construction in order to schedule an inspector to be on location when work is being conducted within twenty-five feet of Kinder Morgan facilities

### Item 5: Control of the Work

Before contract letting, electronically generated earthwork cross-section data will be furnished free of charge to the prospective bidders on a compact high-density disk, in an ASCII print format. This will be available through the Association of General Contractors bulletin board service or through the Area Engineer's office. If the earthwork data is not available electronically, reproducible earthwork cross sections are available at the Area Engineer's office for borrowing by copying service companies for the purpose of making copies for the prospective bidders, at the prospective bidder's expense. The earthwork cross-section data provided above is for non-construction purposes only and it is the responsibility of the prospective bidder to validate the enclosed data with the appropriate plans, specifications, and estimates for the projects.

Submit shop drawings electronically for the fabrication of items as documented in Table 1 below. Information and requirements for electronic submittals can be viewed in the "Guide to Electronic Shop Drawing Submittal" which can be accessed through the following web link, [ftp://ftp.dot.state.tx.us/pub/txdot-info/library/pubs/bus/bridge/e\\_submit\\_guide.pdf](ftp://ftp.dot.state.tx.us/pub/txdot-info/library/pubs/bus/bridge/e_submit_guide.pdf). References to 11 in. x 17 in. sheets in individual specifications for structural items imply electronic CAD sheets.

**Table 1**  
**2004 Construction Specification Required Shop/Working Drawing Submittals**

Spec Item No.'s	Product	Submittal Required	Approval Required (Y/N)	Contractor/Fabricator P.E. Seal Required	Reviewing Party
7.8	Construction Load Analyses	Y	Y	Y	B
400	Excavation and Backfill for Structures (cofferdams)	Y	N	Y	A
403	Temporary Special Shoring	Y	N	Y	B
420	Formwork/Falsework	Y	N	Y	A
423	Retaining Walls, (calcs req'd.)	Y	Y	Y	C
425	Optional Design Calculations (Prstrs Bms)	Y	Y	Y	B
425	Prestr Concr Sheet Piling	Y	Y	N	B
425	Prestr Concr Beams	Y	Y	N	B
425	Prestr Concr Bent	Y	Y	N	B
426	Post Tension Details	Y	Y	N	B
434	Elastomeric Bearing Pads (All)	Y	Y	N	B
441	Bridge Protective Assembly	Y	Y	N	B
441	Misc Steel (various steel assemblies)	Y	Y	N	B
441	Steel Pedestals (bridge raising)	Y	Y	N	B
441	Steel Bearings	Y	Y	N	B
441	Steel Bent	Y	Y	N	B
441	Steel Diaphragms	Y	Y	N	B
441	Steel Finger Joint	Y	Y	N	B
441	Steel Plate Girder	Y	Y	N	B

441	Steel Tub-Girders	Y	Y	N	B
441	Erection Plans	Y	N	Y	A
449	Sign-Structure Anchor Bolts	Y	Y	N	T
450	Railing	Y	Y	N	A
462	Concrete Box Culvert	Y	Y	N	C
462	Concrete Box Culvert (Alternate Designs Only, calcs reqd.)	Y	Y	Y	B
464	Reinforced Concrete Pipe (Jack and Bore only; ONLY when requested)	Y	Y	Y	A
465	Pre-cast Junction Boxes, Grates, and Inlets	Y	Y	N	A
465	Pre-cast Junction Boxes, Grates, and Inlets (Alternate Designs Only, calcs req'd.)	Y	Y	Y	B
466	Pre-cast Headwalls and Wingwalls	Y	Y	N	A
467	Pre-cast Safety End Treatments	Y	Y	N	A
495	Raising Existing Structure (calcs reqd.)	Y	Y	Y	B
610	Roadway Illumination Supports (Non-standad only, calcs reqd.)	Y	Y	Y	T
613	High Mast Illumination Poles (Non-standard only, calcs reqd.)	Y	Y	Y	T
627	Treated Timber Poles	Y	Y	N	T
644	Special Non-Standard Supports (Bridge Mounts, Barrier Mounts, Etc.)	Y	Y	Y	T
647	Large Roadside Sign Supports	Y	Y	Y	T
650	Cantilever Sign Structure Supports - Alternate Design Cacls.	Y	Y	Y	T
650	Sign Structures	Y	Y	N	T
652	Highway Sign Lighting Fixtures	Y	Y	N	T
654	Sign Walkways	Y	Y	N	T
680	Installation of Highway Traffic Signals	Y	Y	N	T
682	Vehicle and Pedestrian Signal Heads	Y	Y	N	T
684	Traffic Signal Cables	Y	Y	N	T
685	Roadside Flashing Beacon Assemblies	Y	Y	N	T
686	Traffic Signal Pole Assemblies (Steel)	Y	Y	Y	T
687	Pedestal Pole Assemblies	Y	Y	N	T
688	Detectors	Y	Y	N	A
784	Repairing Steel Bridge Members	Y	Y	Y	B
SS	Prestr Concr Crown Span	Y	Y	N	B
SS	Sound Barrier Walls	Y	Y	N	B
SS	Camera Poles	Y	Y	Y	TMS
SS	Pedestrian Bridge (Calcs req'd.)	Y	Y	Y	B
SS	Screw-In Type Anchor Foundations	Y	Y	N	T
SS	Fiber Optic/Communication Cable	Y	Y	N	TMS
SS	Spread Spectrum Radios for Signals	Y	Y	N	T
SS	VIVDS System for Signals	Y	Y	N	T
SS	CTMS Equipment	Y	Y	N	TMS

**Key to Reviewing Party**

A - Area Office	
<b>Area Office</b>	<b>Email Address</b>
Fort Bend Area Office	<a href="mailto:HOU-FBAShpDrwgs@txdot.gov">HOU-FBAShpDrwgs@txdot.gov</a>
Traffic Systems Construction Office	<a href="mailto:HOU-TSCShpDrwgs@txdot.gov">HOU-TSCShpDrwgs@txdot.gov</a>
B - Bridge Engineer	
Bridge Design (TxDOT)	<a href="mailto:HOU-BrqShpDrwgs@txdot.gov">HOU-BrqShpDrwgs@txdot.gov</a>

C - Construction Office	
Construction	HOU-ConstrShpDrwgs@txdot.gov
Laboratory	HOU-LabShpDrwgs@txdot.gov

T - Traffic Engineer	
Traffic Operations	HOU-TrfShpDrwgs@txdot.gov
TMS – Traffic Management System	
Computerized Traffic Management Systems (CTMS)	HOU-CTMSShpDrwgs@txdot.gov

**Item 7: Legal Relations and Responsibilities**

Do not initiate activities in a Project Specific Location (PSL), associated with a U.S. Army Corps of Engineers (USACE) permit area, that have not been previously evaluated by the USACE as part of the permit review of this project. Such activities include those pertaining to, but are not limited to, haul roads, equipment staging areas, borrow and disposal sites. Associated defined here means materials are delivered to or from the PSL. The permit area includes the waters of the U.S. or associated wetlands affected by activities associated with this project. Special restrictions may be required for such work. Assume responsibility for consultations with the USACE regarding activities, including PSLs that have not been previously evaluated by the USACE. Provide the Department with a copy of consultations or approvals from the USACE before initiating activities.

The Contractor may proceed with activities in PSLs that do not affect a USACE permit area if a self-determination has been made that the PSL is non-jurisdictional or if proper USACE clearances have been obtained in jurisdictional areas or have been previously evaluated by the USACE as part of the permit review of this project. The Contractor is solely responsible for documenting any determinations that their activities do not affect a USACE permit area. Maintain copies of their determinations for review by the Department or any regulatory agency.

Document and coordinate with the USACE, if required, before hauling any excavation from or hauling any embankment to a USACE permit area by either 1 or 2 below:

**1. Restricted Use of Materials for the Previously Evaluated Permit Areas.**

Document both the Project Specific Locations (PSL) and their authorization. Maintain copies for review by the Department or any regulatory agency. When an area within the project limits has been evaluated by the USACE as part of the permit process for this project:

- a. Suitable excavation of required material in the areas shown on the plans and cross sections as specified in the Item, “Excavation” is used for permanent or temporary fill (under the Item, “Embankment”) within a USACE permit area.
- b. Suitable embankment (under the Item, “Embankment”) from within the USACE permit area is used as fill within a USACE evaluated area.

- c. Unsuitable excavation or excess excavation, "Waste" (under the Item, "Excavation"), that is disposed of at a location approved within a USACE evaluated area.
- 2. Contractor Materials from Areas Other than Previously Evaluated Areas.**
- Provide the Department with a copy of USACE coordination or approvals before initiating any activities for an area within the project limits that has not been evaluated by the USACE or for any off right of way locations used for the following, but not limited to, haul roads, equipment staging areas, borrow and disposal sites:
- a. The Item, "Embankment" used for temporary or permanent fill within a USACE permit area.
  - b. Unsuitable excavation or excess excavation, "Waste" (under the Item, "Excavation"), that is disposed of outside a USACE evaluated area.

The total area disturbed for this project is 98.6 acres. The disturbed area in this project, the project locations in the Contract, and Contractor project specific locations (PSLs) within 1 mile of the project limits for the Contract, will further establish the authorization requirements for storm water discharges. The Department will obtain an authorization to discharge storm water from the Texas Commission on Environmental Quality (TCEQ) for the construction activities shown on the plans. The Contractor is to obtain required authorization from the TCEQ for Contractor PSLs for construction support activities on or off the ROW. When the total area disturbed in the Contract and PSLs within 1 mile of the project limits exceeds 5 acres, provide a copy of the Contractor NOI for PSLs on the ROW to the Engineer (to the appropriate MS4 operator when on an off-state system route) and to the local government that operates a separate storm drain system.

Before bidding on this project, obtain a copy of the complete U.S. Army Corps of Engineers Nationwide or Individual Permit Number SWG-1997-02901 at the Area Engineer's office. Review the permit before bidding on the project and become aware of its conditions.

Place erosion control measures around the perimeter of impacted wetlands as shown in the above mentioned U.S. Army Corps of Engineers Nationwide permits. During staging and construction operations, equipment is not allowed in the Waters of the United States.

Do not place temporary fill in areas determined to be wetlands. This prohibition includes constructing staging areas, temporary fills or other actions that would result in placing fill in wetlands within the right of way, which are not addressed in the plans. The Engineer will coordinate with the Houston District Environmental Section to determine if wetlands are present on this project before placing temporary fill. If wetlands exist, obtain the appropriate permits from the U.S. Army Corps of Engineers.

Avoid encroaching into the wetland areas delineated in the plans. Place erosion control measures around the wetlands as shown on the plans. No construction work or construction equipment is permitted within this delineated area. If applicable for bridge construction, construct drilled shafts outside of this delineated area. Secure approval for the locations of field offices, material storage sites, material disposal sites, plants, borrow pits, etc. in writing before

use to ensure that the proposed location is not within Jurisdictional Waters of the United States (wetlands).

Do not store any material in Waters of the United States inside the right of way without written approval.

Before construction operations begin, provide a drawing of the location of proposed temporary access roads, haul roads, or temporary fill used during construction operations to ensure that they are not within Jurisdictional Waters of the United States.

If the Contractor elects to use an area not permitted and determined to be within Jurisdictional Waters of the United States during the prosecution of the work, the Contractor will hold the Department harmless for delays caused by procuring the necessary permits from the United States Army Corps of Engineers.

This project requires (*formal consultation or permits*) with environmental resource agencies. There is a high probability of encountering environmentally sensitive areas on Contractor designated project specific locations (PSLs) for this project (haul roads, equipment staging areas, borrow pits, disposal sites, field offices, storage areas, parking areas, etc.). This Item provides listings of regulatory agencies the Contractor may need to contact for this project. Maintain the roadway slope stability. Maintaining slope stability is subsidiary to the various bid items.

The nesting / breeding season for migratory birds is March 1 through August 30.

Conduct any tree removal outside of the migratory bird nesting season. If this is not possible due to scheduling, then exercise caution to remove only those trees with no active nests. Do not destroy nests on structures or in trees within the project limits during the nesting / breeding season.

Take measures to prevent the building of nests on any structures or trees within the project limits throughout the duration of the construction if work / removal will be performed during the nesting / breeding season. This can be accomplished by application of bird repellent gel, netting by hand every 3 to 4 days, or any other non-threatening method approved by the Houston District Environmental Section. Obtain this approval well in advance of the planned use. Contact the Houston District Environmental Section at 713-802-5241. The cost of this work is subsidiary to the various bid items.

### **Item 8: Prosecution and Progress**

The road user cost liquidated damages are \$35,000 per day. After the project is substantially complete, the liquidated damages become those based on contract administration costs.

Create, maintain, and submit for approval, a Critical Path Method (CPM) project schedule using computer software that is fully compatible with version 3.1 of Primavera Systems, Inc. or Primavera Project Planner (P3).

The Department will supply bidders, upon written request, one electronic copy of the time determination schedule. The time determination schedule provided is for informational use only and is not intended for bidding or construction purposes.

The Department will not adjust the number of days for the project and milestones, if any, due to differences in opinion regarding any assumptions made in the preparation of the schedule or for errors, omissions, or discrepancies found in the time determination schedule.

Working days will be computed and charged based on a 6-day workweek in accordance with Section 8.3.A.2

Provide a virus-free computer disk or diskette containing the Primavera construction schedule.

**Item 100: Preparing Right of Way**

Clean existing ditches under fill sections of undesirable materials including grass, muck, and trash. Perform this work in accordance with the Construction section of the Item, "Preparing Right of Way." This work is subsidiary to this bid Item.

The Item, "Preparing Right of Way" will be measured for payment only in those designated areas shown on the plans. Preparing right of way necessary to perform construction that is outside designated areas is subsidiary to this bid Item.

Remove abandoned utilities that are in conflict with the new utilities, at no expense to the Department.

Reestablish and maintain right of way stakes after completing the right of way preparation activities and until the new utilities are in place.

Remove and assume ownership of the existing ground mounted signs within the limits of roadway construction unless otherwise noted or directed. This work is subsidiary to the Item, "Preparing Right of Way."

**Item 104: Removing Concrete**

Removing concrete curb is paid as a separate bid item if the existing pavement on which it rests is not removed at the same time.

**Item 105: Removing Stabilized Base and Asphalt Pavement**

Removing curb on cement-stabilized base or on cement treatment being removed at the same time is subsidiary to this bid Item.

**Item 104: Removing Concrete**

**Item 105: Removing Stabilized Base and Asphalt Pavement**

ACP over cement or lime treatment

Removing the Asphalt Concrete Pavement (ACP) material is paid under the Item, "Salvaging, Hauling, and Stockpiling Reclaimable Asphalt Pavement."

Removing the cement or lime treatment is paid under the Item, "Removing Stabilized Base and Asphalt Pavement."

Remove the ACP separately from the cement or lime treatment. Make the removed depth is as uniform as possible during each removal pass if the pavement depth being removed is composed of different asphalt layers. Unless otherwise approved, stockpile the RAP of differing types of quality separately by its intended use such as for the asphalt treatment, cement treatment, lime treatment, or asphalt concrete pavement. Break, crush, or mill the stockpiled materials so that 100 percent pass the 2-in. sieve.

Removing the concrete pavement material is paid under the Item, "Removing Concrete."

Removing the base material is paid under the Item, "Removing Stabilized Base and Asphalt Pavement."

**Item 110: Excavation**

If manipulating the excavated material requires moving the same material more than once to accomplish the desired results, the excavation is measured and paid for only once regardless of the manipulation required.

Transition the ditch grades and channel bottom widths at structure locations. Use only approved channel excavation in the embankment.

The total excavation quantity shown on the plans includes the quantity for excavating to 2 ft. behind the back of the proposed curb.

**Item 132: Embankment**

There is a potential borrow source for embankment material, know as John Paul's Landing, located within the project vicinity that fronts Katy Hockley Road at Sharp Road. It is the responsibility of the Contractor to determine if material obtained from this site meets embankment material requirements and specifications as per item 132 "Embankment". Contact Mr. Fred Garcia, P.E., Harris County Flood Control District, at (713) 684-4172 or [fred.garcia@hcfcd.org](mailto:fred.garcia@hcfcd.org), for further information. A Geotechnical Report is available from Mr. Garcia for review.

If salvaged base is used for the embankment material, break it into small pieces to achieve the required density and to facilitate placing in the embankment. Obtain approval of the material before placing in the embankment.

Furnish Type C material with a maximum Liquid Limit (LL) of 65, a minimum Plasticity Index (PI) of 5, and composed of suitable earth material such as loam, clay, or other materials that form a suitable embankment.

The embankment material used on the project which has a Liquid Limit exceeding 45 will be tested for Liquid Limits at the rate of one test per 20,000 cu. yd. or per total quantity less than 20,000 cu. yd., unless otherwise directed. Only use material that passes the above tests.

Furnish material with a maximum Liquid Limit (LL) of 65.

**Item 161: Compost**

**Item 162: Sodding for Erosion Control**

**Item 164: Seeding for Erosion Control**

**Item 166: Fertilizer**

**Item 168: Vegetative Watering**

Refer to the "Fertilizer, Seed, Sod, Straw, Compost, and Water" standard sheet for material specifications, application rates, and for watering requirements.

**Item 204: Sprinkling**

Perform subsidiary sprinkling as required under various other items in accordance with the Item, "Sprinkling."

Sprinkling for dust control is subsidiary to the various bid items.

**Item 260: Lime Treatment (Road-Mixed)**

For slurry placing, before discharging through the distributors, sufficiently agitate or mix the lime and water to place the lime in suspension and to obtain a uniform mixture.

The Engineer will observe the lime treatment that the Contractor elects to open to construction traffic immediately after compaction. If the construction traffic damages the subgrade, route the traffic off the damaged section in accordance with the standard specification. If the construction traffic does not damage the subgrade, cure the subgrade until other courses of material cover it. Apply these courses within 14 days with a maximum curing period of 7 days.

Place the hydrated and the commercial lime as a water suspension or slurry according to the slurry placing method shown in Section 260.4.C.2, "Slurry Placement."

Use the type of lime at particular locations as directed.

Place the quicklime dry or as a slurry.

For the dry quicklime, a spreader box is not required if the lime material is evenly distributed.

In limited areas, the Contractor may construct the lime slurry subgrade under a sequence of work in which the application, mixing, and compaction are completed in the same working day, if approved by the Engineer.

Provide documentation from certified public scales showing gross, tare, and net weights. Provide producer’s delivery tickets also showing gross, tare, and net weights. Completely empty the lime trailers at the project site. The Engineer may direct the Contractor to reweigh any shipment of lime on certified scales. The cost of this operation is subsidiary to the Item, “Lime Treatment (Road-Mixed).”

The percentage of lime shown on the plans is estimated on the basis of engineering tests. If soil tests made during construction indicate properties different than those originally anticipated, the Engineer may vary the percentage of the lime to provide soil characteristics similar to those of the preliminary tests.

Mix the lime with the new base material in an approved pugmill type stationary mixer.

**Item 276: Cement Treatment (Plant-Mixed)**

Before placing the new base, wet and coat the vertical construction joints between the new base and the previously placed base with dry cement.

If the total thickness of the cement treatment is greater than 8 in., compact it in multiple lifts in accordance with Section 276.4.C, “Compaction.” Place the courses in the same working day unless otherwise approved.

If using a 100 percent crushed stone aggregate for the proposed base or other aggregate, it must contain 4.5 percent cement based on the dry weight of the aggregate. There is no minimum compressive strength requirement for this Item.

The requirement for core drilling to determine the thickness of cement treatment is waived if using less than 500 sq. yd. at one location.

For widening the existing pavement, the Engineer may waive the requirements for preparing the subgrade by scarifying and compacting if the as-cut subgrade can be maintained to the density of the natural ground and to a uniform consistency when placing the base course. Keep the subgrade wet.

Compact in accordance with the standard specifications and complete the finishing operations within a period of 5 hours after adding the cement to the base material.

Cure the final course of cement treatment using an asphalt distributor that distributes the approved curing material and water mixture material at a rate of 0.25 gallons per square-yard evenly and smoothly or as recommended by the manufacturer at the recommended dilution rate, under a pressure necessary for proper distribution. Provide a curing material meeting the requirements of the Item, “Asphalts, Oils, and Emulsions” for curing the cement treatment. Use the following materials for curing the courses of cement treatment:

**Curing Material**

Water  
PCE

**Application**

All courses, except final course  
Final course

Continue curing until placing another course or opening the finished section to traffic.

Spread the material so that the layers of base are uniform in depth and in loose density before compacting.

Type E material consists of Type A material, crushed concrete (except under flexible pavement), or Reclaimed Asphalt Pavement (RAP) meeting the requirements of the Item, "Flexible Base." If approved, the 20 percent maximum RAP limitation may be waived.

Unless otherwise directed, place the next pavement layer within 7 working days of placing the base.

If using crushed stone for the Type E material under this Item, ensure it meets the requirements for the Item, "Flexible Base," Type A, Grade 1. Texas Test Method TEX-117-E is not required for this Item.

If using Recycled Type E cement treatment under proposed flexible pavement, produce it using the existing base salvaged from within this project or from other approved Department projects and salvaged asphalt concrete pavement. Do not use crushed concrete under flexible pavement.

If using Recycled Type E cement treatment under proposed concrete pavement, produce it using the existing base salvaged from within this project or from other approved Department projects, salvaged asphalt concrete pavement, or crushed concrete. If using crushed concrete as an aggregate, meet the requirements of Grade 3.

If using salvaged existing base and asphalt concrete pavement as described above, size it so that all the material, except the existing individual aggregate, passes the 2-in. sieve and is of a gradation that allows satisfactory compaction. Provide salvaged material that does not contain deleterious material such as clay or organic material. Provide material passing the No. 40 sieve, defined as soil binder, with a maximum Plasticity Index of 10 and a maximum Liquid Limit of 35 when tested in accordance with test method TEX-106-E.

Meet the following additional requirements if the base and ACP are salvaged from other Department projects:

1. Obtain written approval before using the material.
2. Salvage and stockpile by approved methods.
3. Stockpile the material for exclusive use by the Department.

**Item 292: Asphalt Treatment (Plant-Mixed)**

**Item 3224: Dense-Graded Hot Mix Asphalt (QCQA)**

Unless otherwise shown on the plans, RAP generated by this project will become the property of the Contractor for use in the current construction project or in future projects.

**Item 292: Asphalt Treatment (Plant-Mixed)**

If using the iron ore topsoil as the primary aggregate, meaning 80 percent or more by weight of the total mixture, the requirements for the water susceptibility test are waived.

Mixtures containing the iron ore topsoil are exempted from test methods TEX-217-F (Part I, separation of deleterious material and Part II, decantation test for coarse aggregate) and TEX-203-F (Sand Equivalent Test).

Assume responsibility for proportioning the materials entering the asphalt mixture, regardless of the type of plant used.

Furnish the mix designs for approval.

Compact the courses to a minimum density of 95 percent of the maximum density as determined using test method TEX-126-E.

Meet the following grading requirements:

Sieve Size	Percent Passing Grade 4 (Bondbreaker)
1-3/4 in.	-
1 in.	-
1/2 in.	100
No. 4	30 - 70
No. 40	15 - 45

Physical requirements are as follows:

- Maximum Plasticity Index (PI) = 8
- Maximum Liquid Limit (LL) = 35
- Maximum Wet Ball Mill = 50 (crushed stone)
- Maximum LA Abrasion = 50 (iron ore)

If blending the materials, perform the Wet Ball Mill test for the composite aggregate.

Form the asphalt material from 3.5 to 7 percent of the mixture by weight.

For nominal aggregate size less than 0.5 in., design the mix in accordance with test method TEX 204-F. The minimum stability is 30 percent with a laboratory molded density of 96 percent plus or minus 1.5 percent.

If the layer thickness after placing is 1.25 in. or less, the bondbreaker is exempt from the in-place density control described in Section 292.4.E, "Compaction."

**Item 340: Dense-Graded Hot Mix Asphalt (Method)**

Dilution of tack coat is not allowed.

**Item 360: Concrete Pavement**

Where the pavement curb is left off for a later tie, provide the dowels or the tie bars as indicated on the paving detail sheets. The dowel bars and tie bars are subsidiary to the various bid items.

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.

On pavement widening, hand finishing in place of the longitudinal float will be permitted.

Where existing pavement is widened with new pavement, place the new pavement a minimum of 2 ft. wide.

Equip the batching plants to proportion by weight, aggregates and bulk cement, using approved proportioning devices and approved automatic scales.

For mono curb, the curb height transitions will be paid at the contract unit price of the larger curb height in the transition. The 2.5-in. laydown curbs for driveways will be paid at the unit price bid for the Item, "Mono Curb (6 in.)."

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

Do not use limestone dust of fracture as fine aggregate.

If the concrete design requires greater than 5.5 sacks of cementitious material per cubic yard, obtain written approval. If placing concrete pavement mixes from April 1 to October 31, inclusive, use a minimum of 25 percent by weight of Class F Fly Ash.

The pay limits for concrete pavements with traffic rails extends to the outside edge or back of the traffic rail.

Perform saw cutting as shown on the plans in accordance with Section 360.4.J, "Sawing Joints." This saw cutting is subsidiary to this bid Item.

Use coarse aggregate to produce concrete with a Coefficient of Thermal Expansion (CTE) of less than  $6.0 \times 10^{-6}$  in/in/ °F. Before construction, submit test specimens to the TxDOT Construction Division for aggregate acceptance. Provide samples or test specimens as directed. The TxDOT Construction Division will perform the testing. Test results are final. Testing is required for naturally occurring aggregates.

**Items 360, 420, and 421: All Concrete Items**

For the Department's concrete cylinder split samples, transport the test cylinders to the Houston District Laboratory located at 7600 Washington Avenue in Houston, or to the appropriate Area

Laboratory, when applicable. Transporting the test cylinders is subsidiary to the various bid items.

The approach pavement is paid for under the Item, "Concrete Pavement."

**Item 400: Excavation and Backfill for Structures**

Plugging existing pipe culverts is subsidiary to the various bid items.

If Recycled Cement Treatment (Type D) is included in the plans, the following additional requirements apply:

1. Use only approved sand, crushed concrete, or salvaged base free from deleterious matter, as aggregate for cement-stabilized backfill
2. Provide crushed concrete or salvaged base backfill material in accordance with the Item, "Cement Treatment (Plant-Mixed)(Type D)" (base or crushed concrete), except the recycled Type D material must not contain Reclaimed Asphalt Pavement (RAP).
3. For backfill material below the spring line of pipes, use cement-stabilized sand rather than Recycled Type D backfill material.
4. For the cement-stabilized sand backfill, use a minimum of 7 percent of hydraulic cement based on the dry weight of backfill material. The cement content for the crushed concrete and salvaged base is specified in the Item, "Cement Treatment (Plant-Mixed) (Type D)."
5. Place and compact the stabilized backfill material using a gradation that provides a dense mass without segregating and is impervious to passing of water.

**Item 407: Steel Piling**

Assume ownership of removed temporary steel sheet piling.

**Item 416: Drilled Shaft Foundations**

Include the cost for furnishing and installing anchor bolts mounted in the drilled shafts in the unit bid price for the various diameter drilled shafts.

The Department may test using ultrasonic methods the anchor bolts for overhead sign supports, light standards, and traffic signal poles after they are installed. Replace faulty anchor bolts as directed. Do not weld the anchor bolts.

**Item 420: Concrete Structures**

Unless otherwise noted, use Class C concrete with an ordinary surface finish for signal, lighting, or sign structure foundations.

Mass concrete is a plans quantity item.

Highway: SH 99

Control: 3510-05-022

**Item 421: Hydraulic Cement Concrete**

Entrained air is required in all slip formed concrete (bridge rail, concrete traffic barrier, pavement, etc.), but is not required for other structural concrete. Adjust the dosage of air entraining agent for low air content as directed or allowed by the Engineer. If entrained air is provided where not required, only the upper limits of the Special Provision will be enforced.

**Item 423: Retaining Walls**

Place concrete riprap mow strips for retaining walls as shown on the plans and in accordance with the Item, "Riprap." Use Class B concrete reinforced with No. 4 bars spaced at 18 in. centers each direction and placed 2 in. below the surface. This work is paid for under the Item, "Riprap."

Provide and maintain positive drainage away from the earth wall system, including the leveling pad, for the contract duration.

The following Mechanically Stabilized Earth (MSE) wall systems are approved:

**Reinforced Earth Walls**

The Reinforced Earth Company  
1331 Airport Freeway, Suite 302  
Euless, Texas 76010-4150  
(817) 283-5503

**Retained Earth Walls**

Foster Geotechnical  
901 North Highway 77  
Hillsboro, Texas 76645  
(254) 580-9100

**Reinforced Soil Embankment Walls**

Texas Welded Wire, Inc.  
645 West Hurst Boulevard  
Hurst, Texas 76053  
(817) 282-4560

**Tricon Retained Soil Walls**

Tricon Precast, Ltd.  
15055 Henry Road  
Houston, Texas 77060  
(281) 931-9832

**Strengthened Earth Walls**

Hanson Concrete Products  
3500 Maple Avenue  
Dallas, Texas 75219  
(214) 525-5877

**Strengthened Soil Walls**

Shaw Technologies, Inc.  
P.O. Box 271448  
Flower Mound, Texas 75027  
(817) 490-1924

**VP Wall System**

Valley Prestress Products, Inc.  
P.O. Box 1367  
Mission, Texas 78573  
(956) 584-5701

**Tensar Retaining Wall System**

Tensar Earth Technologies, Inc.  
5883 Glenridge Drive, Suite 200  
Atlanta, Georgia 30328  
(888) 828-5126

**Stabilized Earth Wall**

T&B Structural Systems, Inc.  
6800 Manhattan Blvd.  
Fort Worth, Texas 76120  
(888) 280-9858 (Toll Free)

**Structural Embankment Systems**

Robertson Engineering, Inc.  
327 North Denton Street, Suite 100  
Weatherford, Texas 76088  
(817) 596-7500

**Item 427: Surface Finishes for Concrete**

Provide a Surface Area I finish for structures. Use concrete paint for the surface finish.

**Item 428: Concrete Surface Treatment**

Provide a Class I surface treatment to the following elements: The upper surfaces of the bridge slab (including direct traffic culverts), bridge sidewalks and medians, and the inside face of curbs.

**Item 432: Riprap**

If stone riprap is shown on the plans, use common stone riprap in accordance with Section 432.2.C.3, placed dry in accordance with Section 432.3.B.3. Do not grout. Crushed concrete may also be used.

**Item 442: Metal for Structures**

Use temperature zone 1 for Charpy V-Notch (CVN) testing.

Prestressed concrete panels will not be allowed on steel structures.

Slab forming options PMDF and PCP (Panels) are allowed on all concrete girder spans. PCP (Panel) forming option is not allowed on steel girder spans, Use PMDF on all steel girder spans.

**Item 449: Anchor Bolts**

Pipe joint compound, as used in this Item, is an electrically conducting protective thread lubricant compound to be used on the foundation anchor bolts for illuminations poles (Crouse-Hinds TL-2, 0z/Gedney Stl, or Thomas & Betts Kopr-Shield).

**Item 450: Railing**

Add a 3/4-in. longitudinal chamfer to the SSTR railing. Provide a continuous chamfer typically located 6 in. above the final grade. The cost of this is subsidiary to the Item, "Railing."

**Item 462: Concrete Box Culverts and Storm Drains**

**Item 464: Reinforced Concrete Pipe**

Concrete collars are subsidiary to the various bid items except for those specified on the plans for stage construction, which are paid for under the Item, "Concrete Structures" as "Cl C Conc (Collar)."

Rubber gaskets are required for concrete pipe joints except for connections of safety end treatments, driveway culverts, and joints between the existing pipes and extensions.

Open, install, and backfill each section, or a portion of a section, in the same day at locations requiring pipe culverts under existing roadways.

Place the pipe drains across existing roadways half at a time to allow passage of traffic. No trenches may remain open overnight.

Known locations of existing stubouts are shown on the plans, but these stubouts may be in a different position or condition. Delays, inconveniences, or additional work required will not be a basis for additional compensation.

Provide leave-outs or holes in the proposed storm drain structures and pipes for drainage during interim construction. This work is subsidiary to the various bid items.

The flowline elevations of side road structures are based on the proposed ditches. Field-verify these elevations and adjust them as necessary to meet the field conditions. Before placing these structures, prepare and submit for approval, the data (revised elevation, alignment, length, etc.) for the adjusted structures.

If groundwater is encountered while installing the storm drain system, install a suitable dewatering system to facilitate construction of the storm drains. The costs for materials and labor required to install and maintain this system are subsidiary to the Item, "Reinforced Concrete Pipe."

#### **Item 465: Manholes and Inlets**

If required on the plans, build manholes and inlets to stage 1 construction, cover with temporary pavement, and complete in a later phase of construction. This temporary covering and pavement are subsidiary to the various bid items.

If building manholes or inlets in graded areas, first construct them to an elevation at least 4 in. above the top of the highest entering pipe and cover with a wooden cover. Complete the construction of such manholes or inlets to the finished elevation when completing the grading work for such manholes or inlets. Adjust the final elevation, if required, since this elevation is approximate.

Construct manholes and inlets in paved areas to an elevation so their temporary wooden covers are flush with the surface of the base material.

Do not leave excavations or trenches open overnight.

#### **Items 496: Removing Structures**

Do not permit debris resulting from the structure removal or construction activities to enter a natural or manmade waterway such as drainage channels, rivers, streams, bays, etc. Remove debris which falls into such waterways. This work is subsidiary to the Item, "Removing Structures."

#### **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. The latest versions of Work Zone Standard Sheets WZ (BTS-1) and WZ (BTS-2) are the traffic control plan for the signal installations.

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.”

If a section is not complete before the end of the workday, pull back the base material to the existing pavement edge on a 6H: 1V slope. Edge drop-offs during the hours of darkness are not permitted.

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.

Replace the overhead signs, informational signs, and exit signs to be removed, with temporary signs providing the correct information to the traveling public. Size the replacement signs and include them in the traffic control plan.

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.

Place positive barriers to protect drop-off conditions greater than 2 ft. within the clear zone that remain overnight.

Use shadow vehicles with Truck Mounted Attenuators (TMA) for lane closures during construction. Do not reduce the existing number of lanes open to traffic except as shown on the following time schedule:

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.

Provide 6 portable changeable message signs as shown on the Traffic Control Plan and the Special Specification Item, "Portable Changeable Message Signs."

Minimize the number of working days for street closures. The following table lists the maximum number of working days allowed for each street closure. The closure period for each intersection occurs only during the phase when constructing that street, unless otherwise directed. Reopen the street within the number of working days allowed; otherwise the Engineer may cease construction activities not affiliated with reopening the closed street, until it fully reopens to the traveling public. Time charges will not be suspended nor increased to compensate for this occurrence.

Use Uneven Lane Signs (CW 8-11) during resurfacing operations for elevation differences between adjacent lanes of greater than 1 in.

During construction, remove, cover, adjust, or replace overhead sign panels to correspond with each current traffic control phase. The desirable size of letters for freeways is 10 in., the minimum is 8 in. This work is subsidiary to Item 502.

#### **Item 504: Field Office and Laboratory**

Furnish one Type A structure for the laboratory. Ensure the windows for the structure have burglar bars.

Furnish a Type D structure for the asphalt mix control laboratory for the Engineer's exclusive use. In addition to the requirements of this Item, "Field Office and Laboratory," ensure this structure has a minimum height of 8 ft. Also ensure it has a minimum of 400 sq. ft. of gross floor area suitable for permanently located asphalt plants or 200 sq. ft. for temporarily located asphalt plants serving one project. Partition the floor area into a minimum of 2 interconnected rooms, and provide each room with an exterior door and a minimum of 2 windows. Construct the floor of sufficient strength to support the testing equipment and with an impervious covering.

Adequately air condition the Type D structure and furnish it with a minimum of one desk, 3 chairs, one file cabinet, a telephone, and one built-in equipment-storage cabinet suitable for storing nuclear equipment. Ensure the cabinet is a minimum of 3 ft. wide by 2 ft. deep by 3 ft. high and has a secure lock. Provide the structure with a 240-volt electrical service entrance. Use a licensed electrician to determine the service size and service entrance conductors. Provide a minimum service of four 120-volt circuits with 20 amp breakers, and a maximum of 2 grounded convenience outlets per circuit and a minimum of two 220-volt ovens with vents to the outside. Provide a structure with a minimum of 2 convenience outlets per wall and a utility sink with an adequate, clean potable water supply for testing. Do not use space heaters to heat the structure. Use support blocks for the portable structures, tie them down, and securely attach them to the ground.

Determine the asphalt content by the ignition method and meet the requirements of Section 504.2.B.4.b, "Asphalt Content by Ignition Method" except provide a NEMA 6-50R (204/240 volt, 50 A) outlet within 2.25 ft. of the ignition oven location.

If an asphalt mix plant is located at the project site, provide a Type D structure with the dimensions of a Type C structure, at the project site to perform the asphalt mix quality control tests.

If a commercial source is used for the asphalt mix, provide a Type D structure with the dimensions of a Type C structure, at the commercial source site to perform the asphalt mix quality control tests.

Equip each lab with a fire extinguisher and first aid kit. Also equip the labs with an eye wash station. Provide equipment that meets the minimum OSHA requirements. At a minimum, furnish 20 lb. fire extinguishers that are rated for Type A, B, and C fires.

Furnish one Type E structure for the field office. Ensure the windows for the structure have burglar bars.

Provide a Type E field office meeting the requirements of a Type C structure. Provide this as a single structure with a minimum of 500 sq. ft. of floor space and 3 rooms. Provide the structure with the following facilities (The cost of providing these items is subsidiary to this bid Item.):

1. Three desks with 3 swivel chairs, two 5-drawer file cabinets and 3 straight back chairs.
2. Telephone service and equipment consisting of a minimum of one telephone with one extension. Include the call-waiting feature in the service.
3. Potable water with an electric water cooler, a cup dispenser, and cups.
4. Adequate heating, air conditioning, lighting, and a sufficient number of electrical outlets.
5. A commercially available toilet or equivalent facility for the field office and each laboratory.

6. A suitable printer/copier/fax machine for the field office in accordance with Department Material Specification DMS-10101, "Computer Equipment."

Provide a fenced enclosure approximately 100 ft. by 200 ft. Provide an appropriate parking area covered with a suitable base material and with a minimum of 2 security lights, one on each end of the lot. Cost of the work and materials to provide the enclosure are subsidiary to the various bid items.

The above requirements are subsidiary to the various bid items.

Assume ownership of temporary chain link security fences.

Equip each field office with a fire extinguisher and first aid kit. At a minimum, furnish 20 lb. fire extinguishers that are rated for Type A, B, and C fires.

#### **Item 506: Temporary Erosion, Sedimentation and Environmental Control**

A Storm Water Pollution Prevention Plan (SW3P) is required. Since the disturbed area is more than 5 acres, a "Notice of Intent" (NOI) is also required.

Use appropriate measures to prevent, minimize, and control the spill of hazardous materials in the construction staging area. Remove and dispose of materials in compliance with State and Federal laws.

Before starting construction, review with the Engineer the SW3P used for temporary erosion control as outlined on the plans. Before construction, place the temporary erosion and sedimentation control features as shown on the SW3P.

Schedule the seeding or sodding work as soon as possible. The project schedule provides for a vegetation management plan.

After completing earthwork operations, restore and reseed the disturbed areas in accordance with the Department's specifications for permanent or temporary erosion control.

Implement temporary and permanent erosion control measures to comply with the National Pollution Discharge Elimination System (NPDES) general permit under the Clean Water Act.

Before starting grading operations and during the project duration, place the temporary or permanent erosion control measures to prevent sediment from leaving the right of way.

#### **Item 512: Portable Concrete Traffic Barrier**

Transport Low Profile Concrete Traffic Barriers (CTB) used for traffic handling from the Department stockpile located on the north side of IH 610 at Long Drive.

After completing the project, return Low Profile Concrete Traffic Barriers (CTB) used for traffic handling, to the Department stockpile located on the north side of IH 610 at Long Drive.

After completing the project, return the associated CTB connecting hardware to the area office or as directed.

**Item 529: Concrete Curb, Gutter, and Combined Curb and Gutter**

**Item 530: Intersections, Driveways, and Turnouts**

**Item 531: Sidewalks**

An air-entraining admixture is not required.

For concrete curbs, use Grade 7 aggregate conforming to Section 421.2 of the Item, "Hydraulic Cement Concrete."

For driveways and turnouts, coarse aggregate Grade No. 3 through No. 8 conforming to the gradation requirements specified in the Item, "Hydraulic Cement Concrete" will be permitted.

For reinforcing steel in sidewalks and pedestrian ramps, use No. 4 bars at a maximum 18 in. spacing center-to-center in both directions.

**Item 540: Metal Beam Guard Fence**

Painting the timber posts is not required.

Use timber posts for galvanized steel metal beam guard fence, except for anchorage at turned down ends. Turn down free ends of galvanized steel metal beam guard fence unless otherwise shown on the plans.

Furnish and install wood blocks between the rail elements and the timber posts as detailed on the plans. These block-outs are subsidiary to this bid Item.

The quantity of the metal beam guard fence is subject to change.

Provide a mow strip as shown on the plans, at metal beam guard fence locations, including any guardrail end treatments. This work is subsidiary to this bid Item.

**Item 545: Crash Cushion Attenuators**

After completing the project, return remaining unused crash cushion attenuators units to the Area Office Maintenance yard or as directed, at no cost to the Department.

**Item 556: Pipe Underdrains**

Do not use crushed blast furnace slag.

Lay the underdrain pipe on a slope to insure proper drainage.

Tie the under drain pipe into the inlets as shown on the plans.

If filter material is processed gravel, use the following material requirements:

Square Sieve	Percent Retained
1/2 in.	0
No. 4	10 - 35
No. 40	55 - 85

If filter material is approved concrete sand, use the following material requirements:

Square Sieve	Percent Retained
5/8 in.	0
No. 4	0 - 40
No. 40	40 - 90
No. 100	90 - 100

#### **Item 585: Ride Quality for Pavement Surfaces**

To eliminate the need for corrective action due to excessive deviations in the final surface layers, exercise caution to ensure satisfactory profile results in the intermediate paving layers (mixture).

Milling will not be allowed as a corrective action for excessive deviations in the final surface layer of hot-mix asphalt.

For Continuously Reinforced Concrete Pavement (CRCP) mainlanes and direct connectors, use Surface Test Type B and Pay Adjustment Schedule 2. For ramps use Surface Test Type A.

For concrete or asphalt curb and gutter sections or frontage roads, use Surface Test Type B and Pay Adjustment Schedule 2 except for the outside lane. Use Surface Test Type B and Pay Adjustment Schedule 3 for the outside lane.

For all other roads (cross streets and intersections), use Surface Test Type A.

#### **Item 610: Roadway Illumination Assemblies**

The cost of providing the electrical conductor in the pole foundation or in the pole base to make connections is subsidiary to the roadway illumination assembly. The quantity for payment is the surface distance between locations.

Fabricate steel roadway illumination poles in accordance with TxDOT Standard RIP-11 (Roadway Illumination Poles – 2011). Poles manufactured according to RIP-11 require no shop drawings. Alternate designs to RIP-11 or the use of aluminum to fabricate poles will require the submission of shop drawings electronically.

Instructions for submitting shop drawings electronically are available on the internet at the Department's home page (<http://www.txdot.gov>), Business with TxDOT, Bridge Information, Shop Drawings. The file is titled: Guide to Electronic Shop Drawing Submittal. The direct link is: [ftp://ftp.dot.state.tx.us/pub/txdot-info/library/pubs/bus/bridge/e\\_submit\\_guide.pdf](ftp://ftp.dot.state.tx.us/pub/txdot-info/library/pubs/bus/bridge/e_submit_guide.pdf).

**Item 613: High Mast Illumination Poles**

Place the metal beam guard fence before placing the high mast foundation.

Before erecting the high mast poles, notify the Engineer a minimum of 3 working days in advance for scheduling the inspection of each assembled high mast pole and high mast assembly.

Place high mast illumination poles in locations so that the light mounting and support assembly can be lowered and maintained from ground level without interfering with bridges or retaining walls. Notify the Engineer of any such conflicts.

Provide anchor bolts for high mast illumination poles in accordance with the Item, “Anchor Bolts.”

**Item 614: High Mast Illumination Assemblies**

Erect and place in operation high mast illumination poles before removing existing illumination facilities.

The high mast power cable must meet the latest edition of TxDOT Standard sheets, “High Mast Illumination Details” (HMID) and Department Material Specification (DMS) 11021, “High Mast Assembly Kits.”

Fabricate high mast ring assemblies in accordance with shop drawings approved by the department. Submit shop drawings for each project, or use pre-approved standard shop drawings.

For project specific shop drawings, electronically submit the drawings of the complete assembly in accordance with the Item, “Steel Structures” and in accordance with the shop drawing distribution list shown in the note under Item 5 for review and distribution.

To be eligible to use pre-approved standard shop drawings, the shop drawing must be submitted and approved by the Department before using it on the project. Deviation from the pre-approved standard shop drawing will require resubmission of the shop drawings. The Engineer may approve, in writing, the use of updated standard drawings in cases where the standard drawings have been updated and the updated version has been approved by the Department.

For pre-approval and updates to previously approved standard shop drawings, electronically submit shop drawings of the complete assembly in accordance with the Item, “Steel Structures” as documented in the Department’s “Guide to Electronic Shop Drawing Submittal” which can be accessed through the following web link:

[ftp://ftp.dot.state.tx.us/pub/txdot-info/library/pubs/bus/bridge/e\\_submit\\_guide.pdf](ftp://ftp.dot.state.tx.us/pub/txdot-info/library/pubs/bus/bridge/e_submit_guide.pdf).

Copies of the standard shop drawings are on file with traffic operations division, bridge division, and the materials section of construction division. Additional shop drawings for high mast illumination assemblies built in accordance with these drawings are not required. Pre-approved shop drawing manufacturers and assembly model numbers can be found at the following web

site: [http://www.dot.state.tx.us/business/contractors\\_consultants/producer\\_list.htm](http://www.dot.state.tx.us/business/contractors_consultants/producer_list.htm). The category/item is Roadway Illumination and Electrical Supplies. No substitutions will be allowed for materials found on this list.

Provide Cord Connectors for Electrical Power Cable, which are UL-listed, watertight, 480 V, 30 Amp, 2P3W pin, and sleeve devices. Ensure the plug is IEC Type 330P7W and the connector is IEC Type 330C7W.

Provide pre-qualified High-Pressure Sodium (HPS) lamps from the Material Producer List (MPL) of the wattages shown on the plans, shipped and secured within the fixture. No alternatives are allowed. Provide HPS lamps that have an average rated lamp life of 30,000 hours. Ensure that the lamps fully extinguish at the end of the usable lamp life and remain extinguished without cycling. Do not provide lamps that burn at a reduced output at their end of life. Meet the Federal Toxic Characteristic Leachate Procedure (TCLP).

**Item 616: Performance Testing of Lighting Systems**

The illumination plans provide for a complete illumination system installed, connected, tested, and ready for operation.

Allow the electrical work to be inspected by the City. Complying with the provisions and requirements of the City electrical ordinance is not required. Such inspection does not make the City a party to this contract.

Adjust the high mast luminaires per the manufacturer's recommendations. Submit the photometrics and obtain approval before placing the luminaires in service. Initially adjust the luminaires during the lamp installation procedure.

After satisfactory completion of tests, place the new lighting fixtures in operation. Final acceptance will be made after the fixtures operate satisfactorily for a minimum period of 14 days. The 14-day test period is included in the allowed working days.

Assume responsibility for the new lighting fixtures during the test period. Make adjustments or repairs as required and repair defects or damage at no expense to the Department.

**Item 618: Conduit**

**Item 620: Electrical Conductors**

**Item 628: Electrical Services**

If the specifications for electrical items require UL-listed products, this means UL-listed or CSA-listed.

**Item 618: Conduit**

When backfilling bore pits, ensure that the conduit is not damaged during installation or due to settling backfill material. Compact select backfill in 3 equal lifts to the bottom of the conduit; or if using sand, place it 2 in. above the conduit. Ensure backfill density is equal to that of the existing soil. Prevent material from entering the conduit.

Construct bore pits a minimum of 5 ft. from the edge of the base or pavement. Close the bore pit holes overnight.

Unless shown on the plans, install underground conduit a minimum of 24 in. deep. Install the conduit in accordance with the latest National Electrical Code (NEC) and applicable Department standard sheets. Place conduit under driveways or roadways a minimum of 24 in. below the pavement surface.

If using casing to place bored conduit, the casing is subsidiary to the conduit.

If placing the conduit under existing pavement to reach the service poles, bore the conduit in place and extend it a minimum distance of 5 ft. beyond the edge of shoulder or the back of curb.

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

Remove conductor and conduit to be abandoned to 1 ft. below the ground level. This work is subsidiary to the various bid items.

Do not use cast iron junction boxes in concrete traffic barriers and single slope traffic barriers. Use polymer concrete junction boxes in place of the cast iron junction boxes shown on standard sheets CTBI (3), CTBI (4), and SSCB (4). Mount the junction boxes flush (+ 0 in., - 1/2 in.) with the concrete surface of the concrete barrier.

Use materials from the pre-qualified producers list as shown on the Department's Construction Division (CST) material producers list. This list is available online at the following website: [http://www.dot.state.tx.us/business/contractors\\_consultants/producer\\_list.htm](http://www.dot.state.tx.us/business/contractors_consultants/producer_list.htm). The category is "Roadway Illumination and Electrical Supplies." The polymer concrete barrier box is subsidiary to Item 618, "Conduit."

Locate the underground utilities within the project limits. Provide the equipment necessary for locating these utilities, locate, and mark them before starting any excavation work in the area. This work is subsidiary to the various bid items. Repair any damage done to any existing underground utilities at no cost to the Department.

Ensure the interconnection of new equipment to the existing system does not interfere with the operation of the remaining system components. Ensure the system remains completely operational between the hours of 6:00 a.m. Monday and 12:00 a.m. (midnight) Saturday.

Do not interrupt system operation without coordinating with the Department's operations personnel at Houston Transtar (Mr. Carlton Allen) at (713) 881-3285.

Perform work to be done on cables during weekends only.

Provide Liquid-Tight Flexible Metal (LTFM) conduit if the plans refer to flexible metal conduit. Do not use flexible metal conduit.

Unless otherwise shown on the plans, place conduit runs behind curbs at locations where curbs exist.

Use schedule 80 PVC conduit to house conductor runs under paved riprap, roadway, or driveways, unless otherwise shown on the plans.

Use Rigid Metal Conduit (RMC) for exposed conduit.

Before backfilling conduit trenches, place a detectable underground metalized mylar marking tape above the conduit and concrete encasement. Imprint the marking tape with, "TxDOT CONDUIT AND FIBER OPTIC CABLE SYSTEM. CALL (713) 802-5909 BEFORE PROCEEDING" every 18 in. Supplying and installing the marking tapes is subsidiary to the various bid items.

Conduit elbows and rigid metal extensions required when installing PVC conduit systems are subsidiary to the various bid items.

Install a continuous bare or green insulated copper wire No. 8 AWG or larger in every conduit throughout the electrical system in accordance with the Electrical Detail Standard Sheets, and the latest edition of the N.E.C.

### **Item 620: Electrical Conductors**

Test each wire of each cable or conductor after installation. Incomplete circuits or damage to the wire or the cable are cause for immediate rejection of the entire cable being tested. Remove and replace the entire cable at no expense to the Department. Also test the replacement cable after installation.

When pulling cables or conductors through the conduit, do not exceed the manufacturer's recommended pulling tensions. Lubricate the cables or conductors with a lubricant recommended by the cable manufacturer.

For both transformer and shoe-base type illumination poles, provide double-pole breakaway fuse holders as shown on the Department's Construction Division (CST) material producers list. This list is available online at the following website:

[http://www.dot.state.tx.us/business/contractors\\_consultants/producer\\_list.htm](http://www.dot.state.tx.us/business/contractors_consultants/producer_list.htm). The category is "Roadway Illumination and Electrical Supplies." The fuse holder is shown on the list under Items 610 and 620. Provide 10 Amp time delay fuses.

Ensure that circuits test clear of faults, grounds, and open circuits.

Split bolt connectors are allowed only for splices on the grounding conductors.

For Roadside Flashing Beacon Assemblies (Item 685) and Pedestal Pole Assemblies (Item 687) within the project, provide single-pole breakaway disconnects. Use Bussman HEBW, Littlefuse

LEB, Ferraz-Shawmut FEB, or equal on ungrounded conductors. For 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.

For electrical licensing and electrical certification requirements for this project, see Item 7 of the Standard Specifications and any applicable special provisions to Item 7.

**Item 624: Ground Boxes**

The ground box locations are approximate. Alternate ground box locations may be used as directed, to avoid placing in sidewalks or driveways.

Ground metal ground box covers. Bond the ground box cover and ground conductors to a ground rod located in the ground box and to the system ground.

Ground the existing metal ground box covers as shown on the latest standard sheet ED (3), III, B, 4 through 6.

During construction and until project completion, provide personnel and equipment necessary to remove ground box lids for inspection. Provide this assistance within 24 hours of notification.

Construct concrete aprons in accordance with the latest standard sheet ED (3). Make the depth of the concrete apron the same as the depth of the ground box, except for Type 1 and Type 2 ground boxes. For Type 1 or Type 2 ground boxes, construct the concrete apron in accordance with details shown on the "Ground Box Details Installations" standard.

**Item 628: Electrical Services**

Furnish a UL-listed meter can for electrical service poles. Furnish a size and style of meter can in accordance with the requirements of the local electrical service provider. This work is subsidiary to the Item, "Electrical Services."

Verify and coordinate the electrical service location with the engineering section of the appropriate utility district or company.

Identify the electrical service pole with an address number assigned by the Utility Service Provider. Provide 2-in. numerals visible from the highway. Provide numbers cut out aluminum figures nailed to wood poles or painted figures on steel poles or service cabinets.

**Item 636: Aluminum Signs**

Include aluminum route markers, exit only panels, routing signs, and other special panels attached to guide signs in the unit bid price for the parent guide sign material.

Furnish and install signs shown on the traffic signal "Summary of Traffic Signal Materials" sheet. Ensure that the legend on these sign panels is in accordance with the latest "Standard Highway Sign Designs for Texas" manual.

The locations of sign panels on overhead structures are approximate. Verify in the field before installing.

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

**Item 644: Small Roadside Sign Supports and Assemblies**

Sign locations shown on the plans are approximate. Before placing them, obtain approval of and then stake the exact locations for these signs.

Use the Texas Universal Triangular Slip Base with the concrete foundation for small ground mounted signs, unless otherwise shown in the plans.

Remove existing street name signs from existing stop signs and re-install them above the new stop signs. Removing and re-installing existing street name signs is subsidiary to the Item, "Small Roadside Sign Supports and Assemblies."

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

Provide and install the materials for speed limit signs. For speed limit signs that are indicated with "XX," the Area Engineer will request a speed study through the Director of Transportation Operations to determine the legal speeds to be posted. This request will be made as soon as possible after the roadway opens to traffic. After the speed limit to be posted is determined, this information will be provided to the Contractor by the Area Engineer.

Use Type E Super High Specific Intensity (Fluorescent Prismatic) yellow green reflective sheeting background to fabricate school signs (S1-1, S3-1, S4-3, S5-1, W16-2, SW16-9p, and SW16-7pL(R)).

Assume ownership of the removed existing signs.

Locations of the relocated signs are approximate. Before placing them, obtain approval of and then stake the exact locations for these signs.

Replace existing signs that become damaged during relocation at no expense to the Department.

**Item 647: Large Roadside Sign Supports and Assemblies**

Locations of the relocated signs are approximate. Before placing them, obtain approval of and then stake the exact locations for these signs.

Replace existing signs that become damaged during relocation at no expense to the Department.

Assume ownership of the removed existing signs.

**Item 650: Overhead Sign Supports**

Stencil the structure numbers on the new structures for permanent identification.

If sign panels mounted on an overhead sign support face the same direction of traffic, keep the bottoms of the sign panels in the same horizontal plane, unless otherwise shown in the plans.

There is no additional reimbursement for blocking or shims for fits of alignment.

Mill test reports are not required for the walkway, grating, miscellaneous secondary structural items, or hardware.

Use the existing panel supports if removing existing guide signs and if placing new panels of different sizes at the same location. Extend the supports, if needed. If the supports extend over the top of the panel, cut off the supports at the top of the panel or the top of the truss, whichever is higher.

Before fabricating, field check the sign structure elevations, details, and dimensions shown on the plans.

If sign lighting and walkways are not used, trim the sign support brackets flush with the bottoms of the signs.

Assume ownership of removed existing overhead sign supports and other removed materials.

**Item 652: Highway Sign Lighting Fixtures**

**Item 656: Foundations for Traffic Control Devices**

Excavating and disposing of surplus materials for lighting standard foundations are subsidiary to the roadway illumination assembly foundation. Dispose of surplus excavated material. Use rigid metal conduit (RMC) for stub-outs in foundation and concrete structures. These stub-outs are subsidiary to the drilled shaft foundations.

Using ready mix concrete for sign foundations is optional.

**Item 662: Work Zone Pavement Markings**

At the end of each day's work, mark roadways that remain open to traffic during construction operations with standard pavement markings, in accordance with the latest "Texas Manual on Uniform Traffic Control Devices."

Using raised markers for removable work zone pavement markings on final concrete surfaces is optional.

For transition lane lines and detour lane lines, use raised pavement markers as shown for solid lines on the latest Barricade and Construction standard sheet for "Work Zone Pavement Marking Details."

**Item 662: Work Zone Pavement Markings**

**Item 668: Prefabricated Pavement Markings**

**Item 6473: Multipolymer Pavement Markings (MPM)**

**Item 6986: Longitudinal Prefabricated Pavement Markings (PPM) with Warranty**

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 work zone striping and permanent striping.

Stripe 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.

**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.

Perform air blasting with a compressor that is capable of generating air at a minimum of 100 psi using 5/16 in. or larger hosing for the air blast (equipment should have sufficient capacity to remove contaminants but not damage the pavement surface). Do not clean concrete pavement by grinding.

**Item 680: Installation of Highway Traffic Signals**

Clearly mark or highlight on the shop drawings the items being furnished for this project.

Furnish labor, tools, equipment, and materials as shown on the plans and specifications for a complete and operating signal installation.

Furnish the type of controller cabinet specified on the plans. Refer to the table shown in the Departmental Material Specifications, Section 19 (DMS-11170, Fully Actuated, Solid-State Traffic Signal Controller Assembly), Page 7-142, regarding the size of the cabinet, back panel configuration, and the size of the load bay. Use the following website to view this specification: [http://www.txdot.gov/business/contractors\\_consultants/material\\_specifications/dms.htm](http://www.txdot.gov/business/contractors_consultants/material_specifications/dms.htm) or [www.txdot.gov/business](http://www.txdot.gov/business) under Contractors and Consultants, Materials Information, then Department Material Specifications.

Complete traffic signal construction work, including correcting discrepancies shown on the Department inspector's "Traffic Signal Installation Inspection Report" before the beginning of the test period.

Provide a full-time qualified traffic signal technician responsible for installing, maintaining, or replacing traffic signal devices.

Staking in the field is subject to approval.

Make adjustments in project construction, if needed, due to conflicts with underground utilities.

Do not aim the luminaire arms mounted on traffic signal poles into the intersection. Aim each arm perpendicular to the centerline of the roadway it is intended to cover, to develop the proper illumination pattern for the intersection.

Allow the electrical work to be inspected by the City. Complying with the provisions and requirements of the City electrical ordinance is not required. Such inspection does not make the City a party to this contract.

Provide continuous conductors without splices from signal controller to signal heads. Route the conductors for luminaires to the service enclosure. Splices or attachments to the terminal block in the access compartment of the mast arm pole are not permitted except for the luminaire cable.

Abrasions to the conductor insulation caused while pulling cable for the traffic signal system are cause for immediate rejection. Remove and replace the entire damaged cable at no expense to the Department.

When pulling cables or conductors through conduit, do not exceed the manufacturer's recommended pulling tensions. Lubricate the cables or conductors with a lubricant as recommended by the cable manufacturer.

Bond the controller housing, signal poles, conduit, and spans to a minimum No. 6 AWG stranded copper conductor. An equipment grounding conductor is required in every conduit to form a continuous grounding system. Effectively connect the grounding system to ground rods or concrete grounding electrodes as indicated in the plans.

Wrap signal heads with dark plastic or suitable material to conceal the signal faces from the time of installation until placing into operation. Do not use burlap.

Furnish signal heads from the same manufacturer.

Use High Specific Intensity reflective sheeting for signs mounted under or adjacent to the signal heads.

For a steel mast arm or steel strain pole assembly, hold the anchor bolts and conduits rigidly in place with a welded steel template.

Leave a minimum of one full diameter thread exposed on each anchor bolt securing a signal pole.

Set the anchor bolts for steel strain poles so that two are in compression and two are in tension.

Use a Texas Cone Penetrometer reading of 10. The drilled shaft length is from the surface elevation to the bottom of the drilled shaft. Provide an additional length of the pole foundation from the surface level to the roadway level, if required for unusual locations. Provide the drilled shaft depth regardless of the length of the pole foundation. The pole foundation depth from the surface level to the roadway level is a maximum of 4 ft., or as approved.

Place steel strain poles at a 10 ft. desirable minimum distance from the roadway curb or pavement edge.

Locate mast arm pole assemblies a minimum of 4 ft. from the roadway curb or pavement edge.

After the traffic signal pole assembly is plumb and the nuts are tight, tack-weld each anchor bolt nut in two places to its washer. Tack-weld each washer to the base plate in two places. Do not weld components to the bolt. Perform tack-welding in accordance with the Item, "Steel Structures." After tack-welding, repair galvanizing damage on bolts, nuts, and washers in accordance with Section 445.3.D, "Repairs."

The Department may test the anchor bolts using ultrasonic methods for traffic signal poles after they are installed. Replace faulty anchor bolts as directed. Do not weld the anchor bolts.

Furnish and attach compression type connectors. Install the connectors with a compression mechanical release hand-crimping tool to each individual conductor before making connections to the terminal strips.

The Contractor may use ready mix concrete.

Apply membrane curing on concrete work in accordance with Section 420.4.J.3, "Membrane Curing."

The standard 4.5-in. galvanized pipe type poles, except the breakaway type, are subject only to the Engineer's inspection for their acceptance. Mill test reports or documentation will not be required.

**Item 682: Vehicle and Pedestrian Signal Heads**

Install two set screws on vehicle signal head mounting hardware fittings.

Furnish black housings for vehicle and pedestrian signals. Furnish black vehicle signal head back plates.

Furnish black housings for vehicle and pedestrian signals. Ensure the door and visor match the mast arm and pedestrian pole color. Furnish black vehicle signal head back plates.

**Item 686: Traffic Signal Pole Assemblies (Steel)**

For a steel mast arm or steel strain pole assembly, hold the anchor bolts and conduits rigidly in place with a welded steel template.

Leave a minimum of one full diameter thread exposed on each anchor bolt securing a signal pole.

Set the anchor bolts for the steel strain poles so that two are in compression and two are in tension.

Use a Texas Cone Penetrometer reading of 10. The drilled shaft length is from the surface elevation to the bottom of the drilled shaft. Provide an additional length of the pole foundation from the surface level to the roadway level, if required for unusual locations. Provide the drilled shaft depth regardless of the length of the pole foundation. The pole foundation depth from the surface level to the roadway level is a maximum of 4 ft., or as approved.

Locate mast arm pole assemblies a minimum of 4 ft. from the roadway curb or pavement edge.

Place steel strain poles at a 10 ft. desirable minimum distance from the roadway curb or pavement edge.

After the traffic signal pole assembly is plumb and the nuts are tight, tack-weld each anchor bolt nut in two places to its washer. Tack-weld each washer to the base plate in two places. Do not weld components to the bolt. Perform tack-welding in accordance with the Item, "Steel

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Structures.” After tack-welding, repair galvanizing damage on bolts, nuts, and washers in accordance with Section 445.3.D, “Repairs.”

The Department may test the anchor bolts using ultrasonic methods for traffic signal poles after they are installed. Replace faulty anchor bolts as directed. Do not weld the anchor bolts.

Furnish black powder coated traffic signal poles. Apply powder coated finish over the galvanized surface. Prepare galvanized surfaces for powder coating in accordance with the powder coating manufacturer’s recommendations. Do not water-quench or chromate-quench galvanized surfaces to be powder coated. After preparing galvanized surfaces, powder coat with a minimum of 2.0 mils dry film thickness (DFT) of urethane powder or triglycidyl isocyanurate (TGIC) polyester powder. Provide powder coat adhesion meeting the 5A or 5B classifications of ASTM D3359. Ensure powder coating is uniform in appearance and free of scratches.

**Item 687: Pedestal Pole Assemblies**

Furnish black powder coated traffic signal poles. Apply powder coated finish over the galvanized surface. Prepare galvanized surfaces for powder coating in accordance with the powder coating manufacturer’s recommendations. Do not water-quench or chromate-quench galvanized surfaces to be powder coated. After preparing galvanized surfaces, powder coat with a minimum of 2.0 mils dry film thickness (DFT) of urethane powder or triglycidyl isocyanurate (TGIC) polyester powder. Provide powder coat adhesion meeting the 5A or 5B classifications of ASTM D3359. Ensure powder coating is uniform in appearance and free of scratches.

Furnish and install screw-in anchor foundations in accordance with Special Specification Item, “Screw-In Anchor Type Foundations.” The work performed and materials furnished in accordance with this Item are subsidiary to the Item, “Pedestal Pole Assemblies.”

**Item 688: Pedestrian Detectors and Vehicle Loop Detectors**

Provide pedestrian push buttons a minimum of 2 in. diameter in the smallest dimension.

Install a rubber grommet or bushing between the push button assembly and the signal pole to protect the conductors.

Provide a black tube loop detector wire as specified in the “International Municipal Signal Association, Inc.” (IMSA) Specification No. 51-7, 1997.

If the loop sealant supplied by the Contractor is not on the Department’s pre-qualified product list, before applying the sealant provide a 5-gal. container of loop sealant for testing.

**Item 6266: Video Imaging Vehicle Detection System**

Furnish the cable to operate the Video Imaging Vehicle Detection System (VIVDS) in accordance with the manufacturer’s recommendations or purchase it from the same manufacturer as the VIVDS equipment.

Supply VIVDS equipment that can process up to a maximum of 6 camera inputs per intersection. Additional equipment to accommodate up to 6 camera inputs is subsidiary to the various bid items. No extra compensation will be allowed for additional equipment needed to make the VIVDS equipment fully operational under this Item.

Supply a laptop computer and a video monitor as described in this Special Specification Item.

Detector zone video taping for this project will not be required.

**Special Specification 6266 Video Imaging Vehicle Detection System Requirements**

Specification Items	Description	Not Required	Required	State Supplied
1	<b>VIVDS Configuration</b>		X	
	Cameras, Connectors and Mounting Hardware		X	
	VIVDS Processor Unit		X	
	Field Setup Computer (1 Required) (Laptop)	X		
	Field Setup Video Monitor (1 EA. Controller)		X	
	Field Communications Link		X	
3	<b>Functional Capabilities</b>			
	System Software		X	
4	<b>Vehicle Detection</b>			
	Detection Zone Video Taping	X		
5	<b>VIVDS Processor Unit</b>			
	Provide both TS1 and TS2 Interfaces		X	
	12 Volt/5 Amp Power Supply		X	
6	<b>Camera Assembly</b>			
	Camera Interface Panel		X	
7	<b>Field Communications Link</b>			
	Lightning and Transient Surge Suppression Devices		X	
9	<b>Temporary Use and Retesting</b>		X	
10	<b>Operation from Central Control</b>	X		
	Telephone Interconnect	X		
	ISDN Interconnect	X		
11	<b>Installation and Training</b>		X	

Other items not specifically listed in this table are required. When shown in the plans, remove and deliver temporary VIVDS equipment to the Department’s Signal Shop, 6810 Old Katy Rd., Houston, Texas, or as directed.

**Basis of Estimate**

<b>Item</b>	<b>Description</b>	<b>Limit and Rate</b>	<b>Unit</b>
150	Blading	1 Hr. / Station	HR
260	Lime Treatment (Road-Mixed) For materials used as subgrade ** <ul style="list-style-type: none"> <li>• Lime(HYD, COM, or QK)(SLRY) or QK(DRY)</li> </ul>	6 % by weight based on 100 Lb. / Cu. Ft. subgrade	TON
275	Cement Treatment (Road-Mixed) For materials used as subgrade ** <ul style="list-style-type: none"> <li>• Cement</li> </ul>	6 % by weight based on 100 Lb. / Cu. Ft. subgrade	SY  TON
292	Asphalt Treatment (Plant-Mixed) <ul style="list-style-type: none"> <li>• Asphalt</li> <li>• Aggregate</li> </ul>	110 Lb. / Sq. Yd.-In. 5 % by weight 95 % by weight	TON
340	Dense-Graded Hot Mix Asphalt (Method) <ul style="list-style-type: none"> <li>• Asphalt</li> <li>• Aggregate</li> </ul>	110 Lb. / Sq. Yd.-In. 6 % by weight 94 % by weight	TON

\*\* If used in existing roadway base, rate will be determined on a case by case basis.

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PROJECT : C 3510-5-22  
HIGHWAY : SH 99  
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 JUNE 1, 2004.  
STANDARD SPECIFICATIONS ARE INCORPORATED  
INTO THE CONTRACT BY REFERENCE.

ITEMS 1 TO 9 INCL., GENERAL REQUIREMENTS AND COVENANTS  
ITEM 100 PREPARING RIGHT OF WAY (103)  
ITEM 104 REMOVING CONCRETE  
ITEM 105 REMOVING STABILIZED BASE AND ASPHALT PAVEMENT  
ITEM 110 EXCAVATION (132)(160)  
ITEM 132 EMBANKMENT (100)(160)(204)(210)(216)(400)  
ITEM 150 BLADING  
ITEM 160 TOPSOIL  
ITEM 161 COMPOST (160)  
ITEM 162 SODDING FOR EROSION CONTROL (166)(168)  
ITEM 164 SEEDING FOR EROSION CONTROL (162)(166)(168)  
ITEM 166 FERTILIZER  
ITEM 168 VEGETATIVE WATERING  
ITEM 260 LIME TREATMENT (ROAD-MIXED) (105)(132)(204)(210)(300)  
(310)(520)  
ITEM 276 CEMENT TREATMENT (PLANT-MIXED) (204)(210)(216)(247)(300)  
(310)(520)  
ITEM 292 ASPHALT TREATMENT (PLANT-MIXED) (300)(301)(320)(520)(585)  
ITEM 340 DENSE-GRADED HOT-MIX ASPHALT (METHOD) (210)(300)(301)  
(320)(520)(585)  
ITEM 360 CONCRETE PAVEMENT (300)(420)(421)(438)(440)(529)(585)  
ITEM 368 CONCRETE PAVEMENT TERMINALS (247)(260)(276)(292)(300)  
(349)(360)(400)(420)(421)(438)(440)(442)  
ITEM 400 EXCAVATION AND BACKFILL FOR STRUCTURES (132)(401)(420)  
(421)  
ITEM 402 TRENCH EXCAVATION PROTECTION  
ITEM 403 TEMPORARY SPECIAL SHORING (423)  
ITEM 416 DRILLED SHAFT FOUNDATIONS (420)(421)(440)(448)  
ITEM 420 CONCRETE STRUCTURES (400)(404)(421)(426)(427)(438)(440)  
(441)(448)

ITEM 422 REINFORCED CONCRETE SLAB (420)(421)(424)(426)(430)(440)  
 ITEM 423 RETAINING WALLS (110)(132)(400)(420)(421)(424)(440)(445)  
 (458)(556)  
 ITEM 425 PRECAST PRESTRESSED CONCRETE STRUCTURAL MEMBERS (420)  
 (421)(424)(426)(427)(434)(440)(442)  
 ITEM 428 CONCRETE SURFACE TREATMENT (427)  
 ITEM 432 RIPRAP (247)(420)(421)(427)(431)(440)  
 ITEM 442 METAL FOR STRUCTURES (441)(445)(446)(447)(448)(449)  
 ITEM 450 RAILING (420)(421)(424)(440)(441)(442)(445)(446)(448)  
 (540)  
 ITEM 454 BRIDGE EXPANSION JOINTS (429)(442)  
 ITEM 460 CORRUGATED METAL PIPE (400)(445)  
 ITEM 462 CONCRETE BOX CULVERTS AND STORM DRAINS (400)(420)(421)  
 (424)(440)(464)  
 ITEM 464 REINFORCED CONCRETE PIPE (400)  
 ITEM 465 MANHOLES AND INLETS (400)(420)(421)(440)(471)  
 ITEM 466 HEADWALLS AND WINGWALLS (400)(420)(421)(430)(440)(464)  
 ITEM 467 SAFETY END TREATMENT (400)(420)(421)(430)(432)(440)(445)  
 (460)(464)  
 ITEM 479 ADJUSTING MANHOLES AND INLETS (400)(421)(465)  
 ITEM 496 REMOVING STRUCTURES (430)  
 ITEM 500 MOBILIZATION  
 ITEM 502 BARRICADES, SIGNS, AND TRAFFIC HANDLING (6834)  
 ITEM 504 FIELD OFFICE AND LABORATORY  
 ITEM 506 TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL  
 CONTROLS  
 ITEM 512 PORTABLE CONCRETE TRAFFIC BARRIER (420)(421)(424)(440)  
 (442)  
 ITEM 528 COLOR TEXTURED CONCRETE AND LANDSCAPE PAVERS (132)(247)  
 (420)(421)(440)  
 ITEM 529 CONCRETE CURB, GUTTER, AND COMBINED CURB AND GUTTER (360)  
 (420)(421)(440)  
 ITEM 530 INTERSECTIONS, DRIVEWAYS, AND TURNOUTS (247)(260)(263)  
 (275)(276)(292)(316)(330)(334)(340)(360)(421)(440)  
 ITEM 531 SIDEWALKS (104)(360)(420)(421)(440)(530)  
 ITEM 540 METAL BEAM GUARD FENCE (421)(441)(445)(529)(542)(544)  
 ITEM 544 GUARDRAIL END TREATMENTS  
 ITEM 545 CRASH CUSHION ATTENUATORS (421)  
 ITEM 550 CHAIN LINK FENCE (421)(445)  
 ITEM 556 PIPE UNDERDRAINS (402)(432)  
 ITEM 610 ROADWAY ILLUMINATION ASSEMBLIES (421)(441)(442)(445)(446)  
 (449)(616)(620)  
 ITEM 618 CONDUIT (400)(445)(476)(622)  
 ITEM 620 ELECTRICAL CONDUCTORS  
 ITEM 621 TRAY CABLE  
 ITEM 624 GROUND BOXES (420)(421)(432)(440)(618)(620)  
 ITEM 628 ELECTRICAL SERVICES (441)(445)(449)(618)(620)(627)(656)  
 ITEM 636 ALUMINUM SIGNS (643)  
 ITEM 644 SMALL ROADSIDE SIGN SUPPORTS AND ASSEMBLIES (421)(440)  
 (441)(442)(445)(634)(636)(643)(656)  
 ITEM 647 LARGE ROADSIDE SIGN SUPPORTS AND ASSEMBLIES (421)(440)  
 (441)(442)(445)(643)  
 ITEM 650 OVERHEAD SIGN SUPPORTS (416)(420)(421)(441)(442)(445)  
 (449)(618)

- ITEM 654 SIGN WALKWAYS (441)(445)
- ITEM 658 DELINEATOR AND OBJECT MARKER ASSEMBLIES (445)
- ITEM 662 WORK ZONE PAVEMENT MARKINGS (666)(668)(672)(677)
- ITEM 666 REFLECTORIZED PAVEMENT MARKINGS (316)(318)(662)(677)(678)
- ITEM 668 PREFABRICATED PAVEMENT MARKINGS
- ITEM 672 RAISED PAVEMENT MARKERS (677)(678)
- ITEM 677 ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS (300)  
(302)(316)
- ITEM 678 PAVEMENT SURFACE PREPARATION FOR MARKINGS (677)
- ITEM 680 INSTALLATION OF HIGHWAY TRAFFIC SIGNALS (610)(625)(627)  
(634)(636)(656)
- ITEM 681 TEMPORARY TRAFFIC SIGNALS (628)(680)
- ITEM 682 VEHICLE AND PEDESTRIAN SIGNAL HEADS
- ITEM 684 TRAFFIC SIGNAL CABLES
- ITEM 686 TRAFFIC SIGNAL POLE ASSEMBLIES (STEEL) (416)(421)(441)  
(442)(445)(449)
- ITEM 687 PEDESTAL POLE ASSEMBLIES (445)(449)(656)(4003)

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

SPECIAL LABOR PROVISIONS FOR STATE PROJECTS (000---007)  
 WAGE RATES

- SPECIAL PROVISION "PARTNERING" (000---002)
- SPECIAL PROVISION "SMALL BUSINESS ENTERPRISE IN STATE FUNDED  
PROJECTS" (000--2189)
- SPECIAL PROVISION "IMPORTANT NOTICE TO CONTRACTORS" (000--2226)
- SPECIAL PROVISION "SCHEDULE OF LIQUIDATED DAMAGES" (000--1493)
- SPECIAL PROVISION "DEPARTMENT DIVISION MAILING AND PHYSICAL ADDRESS"  
(000---011)
- SPECIAL PROVISION TO ITEM 1 (001---015)
- SPECIAL PROVISION TO ITEM 2 (002---017)
- SPECIAL PROVISIONS TO ITEM 3 (003---015)(003---033)
- SPECIAL PROVISION TO ITEM 4 (004---017)
- SPECIAL PROVISION TO ITEM 5 (005---004)
- SPECIAL PROVISION TO ITEM 6 (006---030)
- SPECIAL PROVISION TO ITEM 7 (007---806)
- SPECIAL PROVISIONS TO ITEM 8 (008---013)(008---086)(008---134)
- SPECIAL PROVISIONS TO ITEM 9 (009---012)(009---015)
- SPECIAL PROVISION TO ITEM 100 (100---002)
- SPECIAL PROVISION TO ITEM 132 (132---005)
- SPECIAL PROVISION TO ITEM 161 (161---006)
- SPECIAL PROVISION TO ITEM 164 (164---002)
- SPECIAL PROVISION TO ITEM 166 (166---001)
- SPECIAL PROVISION TO ITEM 247 (247---033)
- SPECIAL PROVISION TO ITEM 260 (260---002)
- SPECIAL PROVISION TO ITEM 275 (275---002)
- SPECIAL PROVISION TO ITEM 300 (300---032)
- SPECIAL PROVISION TO ITEM 302 (302---010)
- SPECIAL PROVISION TO ITEM 316 (316---016)
- SPECIAL PROVISION TO ITEM 330 (330---001)

SPECIAL PROVISION TO ITEM 340 (340---003)  
 SPECIAL PROVISION TO ITEM 360 (360---003)  
 SPECIAL PROVISION TO ITEM 368 (368---001)  
 SPECIAL PROVISION TO ITEM 416 (416---001)  
 SPECIAL PROVISION TO ITEM 420 (420---002)  
 SPECIAL PROVISION TO ITEM 421 (421---035)  
 SPECIAL PROVISION TO ITEM 424 (424---002)  
 SPECIAL PROVISION TO ITEM 425 (425---001)  
 SPECIAL PROVISION TO ITEM 428 (428---001)  
 SPECIAL PROVISION TO ITEM 429 (429---008)  
 SPECIAL PROVISION TO ITEM 431 (431---001)  
 SPECIAL PROVISION TO ITEM 434 (434---003)  
 SPECIAL PROVISION TO ITEM 440 (440---005)  
 SPECIAL PROVISION TO ITEM 441 (441---006)  
 SPECIAL PROVISION TO ITEM 442 (442---016)  
 SPECIAL PROVISION TO ITEM 447 (447---002)  
 SPECIAL PROVISION TO ITEM 448 (448---002)  
 SPECIAL PROVISION TO ITEM 450 (450---001)  
 SPECIAL PROVISION TO ITEM 462 (462---011)  
 SPECIAL PROVISION TO ITEM 464 (464---003)  
 SPECIAL PROVISION TO ITEM 465 (465---001)  
 SPECIAL PROVISION TO ITEM 500 (500---005)  
 SPECIAL PROVISION TO ITEM 502 (502---033)  
 SPECIAL PROVISION TO ITEM 506 (506---012)  
 SPECIAL PROVISION TO ITEM 512 (512---002)  
 SPECIAL PROVISION TO ITEM 540 (540---023)  
 SPECIAL PROVISION TO ITEM 544 (544---001)  
 SPECIAL PROVISION TO ITEM 610 (610---010)  
 SPECIAL PROVISION TO ITEM 620 (620---001)  
 SPECIAL PROVISION TO ITEM 624 (624---014)  
 SPECIAL PROVISION TO ITEM 628 (628---003)  
 SPECIAL PROVISION TO ITEM 636 (636---014)  
 SPECIAL PROVISION TO ITEM 643 (643---001)  
 SPECIAL PROVISION TO ITEM 672 (672---034)  
 SPECIAL PROVISION TO ITEM 681 (681---002)  
 SPECIAL PROVISION TO ITEM 682 (682---001)  
 SPECIAL PROVISION TO ITEM 687 (687---004)  
 SPECIAL PROVISION TO SPECIAL SPECIFICATION ITEM 6266 (6266--017)  
 SPECIAL PROVISION TO SPECIAL SPECIFICATION ITEM 6473 (6473--001)

SPECIAL SPECIFICATIONS:

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ITEM 4003 SCREW-IN TYPE ANCHOR FOUNDATIONS (300)(301)(320)(520)  
 (585)  
 ITEM 4591 TOLL PLAZA FACILITY (360)(400)(416)(420)(432)(442)(450)  
 (530)(531)(618)(620)(624)(628)  
 ITEM 5049 BIODEGRADABLE EROSION CONTROL LOGS (161)(506)  
 ITEM 5050 PORTABLE CONCRETE TRAFFIC BARRIER CONNECTION HARDWARE  
 (442)  
 ITEM 5367 CABLE BARRIER SYSTEM (421)(658)  
 ITEM 6004 DIGITAL CARD RACK INDUCTIVE LOOP DETECTOR ASSEMBLY (8579)  
 ITEM 6005 UNINTERRUPTIBLE POWER SUPPLY (8579)

- ITEM 6011 TESTING, TRAINING, DOCUMENTATION, FINAL ACCEPTANCE AND WARRANTY (8579)
- ITEM 6013 ELECTRONIC COMPONENTS
- ITEM 6014 FIBER OPTIC CABLE (6011)(6013)(8579)
- ITEM 6016 ITS FIELD EQUIPMENT CABINET (441)(618)(656)(684)(6004)(6005)(6011)(6013)(6019)(6027)(6920)(8579)
- ITEM 6019 LOCAL CONTROL UNIT
- ITEM 6027 LANE CONTROL SIGNAL EQUIPMENT (8579)
- ITEM 6266 VIDEO IMAGING VEHICLE DETECTION SYSTEM
- ITEM 6473 MULTIPOLYMER PAVEMENT MARKING S (MPM) (677)(678)(8094)
- ITEM 6623 MULTI-DUCT CONDUIT SYSTEM (400)
- ITEM 6834 PORTABLE CHANGEABLE MESSAGE SIGN
- ITEM 6919 COMMUNICATIONS HUB BUILDING (656)
- ITEM 6920 CCTV FIELD EQUIPMENT (8579)
- ITEM 6986 LONGITUDINAL PREFABRICATED PAVEMENT MARKINGS (PPM) WITH WARRANTY (677)
- ITEM 8048 RADAR VEHICLE SENSING DEVICE (RVSD)
- ITEM 8094 MOBILE RETROREFLECTIVITY DATA COLLECTION FOR PAVEMENT MARKINGS
- ITEM 8260 LED COUNTDOWN PEDESTRIAN SIGNAL MODULE (682)
- ITEM 8445 FIBER OPTIC VIDEO DATA TRANSMISSION EQUIPMENT (6011)(6013)
- ITEM 8579 ITS SPECIFICATIONS MATERIAL SUBMITTAL REQUIREMENTS
- ITEM 8703 ACCESSIBLE PEDESTRIAN SIGNAL UNITS
- ITEM 8739 CAMERA POLE STRUCTURE (416)(441)(445)(449)(6013)
- ITEM 8756 INSTALLATION OF DYNAMIC MESSAGE SIGN SYSTEM (416)(432)(441)(445)(449)(618)(620)(650)(654)(656)(8579)

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.

## **SPECIAL PROVISION**

### **008---134**

#### **Prosecution and Progress**

For this project, Item 008, "Prosecution and Progress," 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 8.5. Failure to Complete Work on Time** is voided and replaced by the following:

The time established for the completion of the work is an essential element of the Contract. If the Contractor fails to complete the work within the number of working days specified, working days will continue to be charged.

Failure to complete toll infrastructure and facilities as specified on the plans within 482 working days, plus any additional working days granted, will result in liquidated damages in the amount of \$35,000 per day being assessed for every working day in excess of the stated number until work is complete. Completion for toll infrastructure and facilities is defined as occurring when all work for the tolling infrastructure as shown on the tolling plans is completed.

In the event of Contractor concurrent delay in substantial completion and completion of the toll infrastructure and facilities, the maximum liquidated damages that will be assessed shall be \$35,000/working day.

Failure to substantially complete the project within 561 working days, plus any additional working days granted, will result in liquidated damages in the amount of \$35,000 per day being assessed for every working day in excess of the stated number. Substantial completion of the project is defined as occurring when all work as shown on the plans is completed, and traffic is following the lane arrangement as shown on the plans. All pavement construction, resurfacing, traffic control devices, and pavement markings shall be in their final position, or as called for on the plans. An exception may be made by the Engineer for particular items of work provided that the lack thereof does not cause a disruption to traffic flow or an unsafe condition for the traveling public.

In addition, failure to complete the entire project within the 602 working days, plus any additional working days granted, will result in contract administration liquidated damages being assessed, at the rate determined from the schedule of liquidated damages shown in the proposal, for every working day in excess of the stated number.

The liquidated damages for the substantial completion of the project, completion of toll infrastructure and facilities and the contract administration liquidated damages will be assessed for lost toll revenue and added expenses incurred by the Department. These assessments will be deducted from any moneys due or to become due the Contractor, not as a penalty, but as liquidated damages.