

NOTIFICATION OF ADDENDUM

ADDENDUM NO. 2

DATED 4/29/2016

Control	2452-01-056, ETC.
Project	C 2452-1-56, ETC.
Highway	SL 1604
County	BEXAR

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 2452-1-56

CONTROL: 2452-01-056

COUNTY: BEXAR

LETTING: 05/03/2016

REFERENCE NO: 0429

PROPOSAL ADDENDUMS

- PROPOSAL COVER
- BID INSERTS (SH. NO.:
- GENERAL NOTES (SH. NO.: A TO II))

- SPEC LIST (SH. NO.:
- SPECIAL PROVISIONS:)
- ADDED:)

DELETED:

- SPECIAL SPECIFICATIONS:
- ADDED:

DELETED:

X OTHER: PLAN SHEETS AND OTHER CHANGES

DESCRIPTION OF ABOVE CHANGES
(INCLUDING PLANS SHEET CHANGES)

**** GENERAL NOTES ****

ALL GENERAL NOTES SHEETS SHIFTED PRIOR TO SHEET G AND AFTER SHEET H
SHIFTING OF NOTES AFTER SHEET H CAUSED THE ADDITION OF SHEET II

SHEET G & H: ADDED NOTES TO ITEM 8 ABOUT DEFINING SUBSTANTIAL PROJECT
COMPLETION, DAILY ROAD USER COST WITH MAX DAYS FOR COMPUTING INCENTIVE,
TOTAL WORKING DAYS FOR SUBSTANTIAL COMPLETION, LIQUIDATED DAMAGES AND THE

**** PLAN SHEETS ****

SHEET 02: ADDED SHEET 0014Q GENERAL NOTES SHEET

SHEETS 14, 14A THRU 14Q: REVISED GENERAL NOTES SHEETS; SEE GENERAL
NOTE REVISIONS ABOVE FOR REFERENCE TO CHANGES MADE. ADDED SHEET 14Q
DUE TO NOTES SHIFTING

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*****GENERAL NOTES*****

2014 Specification Book (Revised March 3, 2016)

===== Basis of Estimate =====			
Item	Description	Rate/Area	Quant-Unit
168	Vegetative Watering	15.6 Gal / 349,204 SY	5449 MG
===== Asphalt Concrete Pavement =====			
Location/Type	Depth	Rate/Area	Quant-Unit
Location: LP 1604 SBFR			
C(PG70-22)	2 inches	220 lbs/ 161,965 SY	17,842 Tons
D(PG70-22)(SAC A)	2 inches	220 lbs/ 86,831 SY	9,559 Tons
Location: LP 1604 SBML			
C(PG70-22)	2 inches	220 lbs/ 156,628 SY	17,247 Tons
D(PG70-22)(SAC A)	2 inches	220 lbs/ 79,362 SY	8,739 Tons
Location: LP 1604 NBML			
C(PG70-22)	2 inches	220 lbs/ 126,882 SY	13,980 Tons
D(PG70-22)(SAC A)	2 inches	220 lbs/ 88,098 SY	9,706 Tons
Location: LP 1604 NBFR			
B(PG70-22)	10 inches	1100 lbs/ 13,843	7,625 Tons
C(PG70-22)	2 inches	220 lbs/ 28,056 SY	3,098 Tons
D(PG70-22)(SAC A)	2 inches	220 lbs/ 96,053 SY	10,582 Tons
Location: LP 1604 Ramps			
C(PG70-22)	2 inches	220 lbs/ 24,374 SY	2,697 Tons
D(PG70-22)(SAC A)	2 inches	220 lbs/ 11,427 SY	1,266 Tons
Location: LP 1604 Turnarounds			
C(PG70-22)	2 inches	220 lbs/ 12,813 SY	1,417 Tons
Location: Potranco Intersection			
B(PG70-22)	10 inches	1100 lbs/ 267	120 Tons
D(PG70-22)(SAC A)	2 inches	220 lbs/ 9,034 SY	996 Tons
Location: Military Intersection			
B(PG70-22)	10 inches	1100 lbs/ 4,095	1,803 Tons
D(PG70-22)(SAC A)	2 inches	220 lbs/ 6,356 SY	704 Tons
Location: Wiseman Intersection			
B(PG70-22)	10 inches	1100 lbs/ 1,680	741 Tons
D(PG70-22)(SAC A)	2 inches	220 lbs/ 8,785 SY	970 Tons

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PROJECT TOTALS

Type	Quant-Tons
D(PG70-22)(SAC A)	42,522 Tons
C(PG70-22)	56,281 Tons
B(PG70-22)	10,289 Tons

===== **Surface Treatment Data** =====

<u>Description</u>	<u>RC250</u>
LP1604	385,946 SY
Asphalt--Rate(Gal/SY)	0.3/1 = 115,847 Gal
Aggregate--Type/Grade	GR-5 TY D
Aggregate--Rate(CY/SY)	1/100 = 3,928 CY

<u>Description</u>	<u>Prime Coat (MC-30)</u>
LP1604	250,925 SY
Asphalt--Rate(Gal/SY)	.3/1 = 75,323 Gal

*Rates are for estimating purposes only.

The following State, District, Local and/or Utility Standards have been modified: RW (TEW) MOD, PMBD (MOD), RAC-R(MOD), IGMS (MOD), IGTS (MOD), PCP (MOD), BL-STR (MOD), OSBC-SC-Z2 (MOD), BAS-A(MOD)

Steel Wrapped or Asbestos Utility Lines:

Existing steel wrapped natural gas and/or asbestos cement (AC) water lines that will no longer be in service are usually abandoned in place (AIP). However, if any of these lines have to be removed for whatever reason (in the way of other construction, to make tie-ins, etc.) comply with all federal, state and local laws, ordinances and regulations regarding the management of these materials. At a minimum:

1. Contact the Engineer.
2. Remove the minimum amount of pipe needed to perform the proposed work.
3. Cover and secure the ends of the pipe with a double layer of 6 mil plastic. If the pipe is damaged, cover the entire pipe.
4. Move the pipe to an approved temporary site within the project.

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5. The Engineer will determine the owner (utility company) of the pipe and will coordinate removal from the project. The contractor will load the pipe onto the removal vehicles but will NOT be responsible for removing the pipe from the project.
6. Removal of the pipe from the trench is subsidiary to the work that created the need for the removal (excavation for structures, roadway, a new line, tie-ins, etc.). The work performed in handling the pipe after it has been removed from the trench (covering with plastic, hauling to the temporary site and later loading on to the disposal vehicles will be paid for through the Force Account procedure.

Contact the Engineer or the City when construction operations are within 400 feet of a signalized intersection to determine/verify the location of loop detectors, conduit, ground-boxes, etc. Repair or replace any signal equipment damaged by construction operations. The method of repair or replacement shall be pre-approved and inspected. Depending on the type and extent of the damage, the Engineer reserves the right to perform the repair or replacement work and the Contractor will be billed for this work.

Remove existing raised pavement markings as the work progresses or as approved. This work is subsidiary to the various bid items. Properly dispose materials removed.

To better fit field conditions, the cross sections may be varied when approved.

If there are waste areas or material source areas, follow the Texas Aggregate Quarry and Pit Safety Act requirements.

Any materials removed and not reused and determined to be salvageable shall be stored within the project limits at an approved location or delivered undamaged to the storage yard as directed. Properly dispose unsalvageable materials in accordance with local, state, and federal regulations. Deface traffic signs so that they will not reappear in public as signs.

Any sign panels that are adjusted or removed and replaced, shall be done the same workday unless otherwise approved. This work shall be considered subsidiary to Item 502.

Notify the Engineer at least two weeks prior to a proposed traffic pattern change(s) that will require a revision to traffic signals.

Locate and reference all manholes and valves within the construction area with station and offset. Each manhole and valve shall be identified by its owner (SAWS, CPS, etc.). No roadwork will begin until this list has been submitted. Gas valves have to be accessible at all times, therefore; temp. CTB, material stock piles, etc. cannot be placed over these valves.

Construct all manholes and valves to final pavement elevations prior to the final mat of ACP. If, between the final elevation adjustment and the final mat of ACP, the manholes and valves are

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going to be exposed to traffic, place temporary asphalt around the manhole and valve to provide a +/- 50:1 taper. The cost of elevation adjustment will be part of the manhole and valve work, and asphalt tapers are part of the ACP work.

Hurricane Evacuation

Hurricane Season is from June 1 thru November 30. As the closest metropolitan city inland from the Texas Coast, the City of San Antonio is a major shelter destination during mandatory hurricane evacuations. As such, planned work zone lane or road closures may be restricted and/or suspended during mandatory hurricane evacuation operations. The District will coordinate these restrictions at a minimum H-120 from any projected impact to the Texas Coast.

No time charges will be made if the Engineer determines that work on the project was impacted by the hurricane.

The Engineer may order changes in the Traffic Control Plan to accommodate evacuation traffic, and may suspend the work, all or in part, to ensure timely completion of this work. All work to implement changes in the Traffic Control Plan will be paid through existing bid prices or through Item 9.5, Force Account. However, the Department will not entertain any request for delay damages, loss of efficiency that may be attributed to the restriction or suspension of road or lane closures, or to changes in the Traffic Control Plan.

The Contractor should be aware that the "City Public Service" (CPS) will be consulted by the Engineer in matters concerning the execution of the work, materials and testing related to the CPS work. As such; a CPS employee may be observing the construction and related operations as they progress.

If a sanitary sewer overflow (SSO) occurs:

1. Attempt to eliminate the source of the SSO.
2. Contain sewage from the SSO to the extent possible to prevent contamination of waterways.
3. Call SAWS at (210) 233-2015.

The Contractor should be aware that the "San Antonio Water System" (SAWS) will be consulted by the Engineer in matters concerning the execution of the joint bid Water and/or Sanitary work. This may include reviewing material submittals and testing related to this work, as well as inspection and observation of the actual work. As such, a SAWS employee may be reviewing submittals and test results as well as observing the construction and related operations as they progress.

--Item 5--

Reference all existing striping and other pavement markings to allow these markings to be re-established. Ensure the markings (lane lines, edge lines, ramp gores, etc.) are in line with signs, TMS arrows, etc. located on overhead sign supports.

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Taper ACP placed at curb inlets, traffic inlets and slotted drains.

When a bridge deck is milled, seal coated and overlaid, remove excess material. Do not just broom to the sides of the bridge, under guardrail, etc. Cover or protect all sealed expansion joints and rails on bridges and all railroad tracks encountered as approved. Clean all of these features if they weren't properly protected. This work is subsidiary work to applicable bid items.

Prior to letting, bidders may obtain a free computer diskette or a computerized transfer of files (from the Engineer's office) that contains the earthwork information. If copies of the cross-sections in addition to, or instead of, the CD are requested, they will be available at the Engineer's office for borrowing by copying companies at the bidder's expense.

When working near aerial electrical lines or utility poles, comply with Federal, State and local regulations. For electrical lines and poles shown in the plans, if the lines need to be de-energized or if poles need to be braced, contact the electrical company. Work pertaining to de-energizing lines, bracing poles and other protective measures will not be paid by TxDOT.

Prevention of Migratory Bird Nesting

It is anticipated that migratory birds, a protected group of species, may try to nest on bridges, culverts, vegetation, or gravel substrate, at any time of the year. The preferred nesting season for migratory birds is from February 15 through October 1. When practicable, schedule construction operations outside of the preferred nesting season. Otherwise, nests containing migratory birds must be avoided and no work will be performed in the nesting areas until the young birds have fledged.

Structures

Bridge and culvert construction operations can not begin until swallow nesting prevention is implemented, until after October 1 if it's determined that swallow nesting is actively occurring, or until it's determined swallow nests have been abandoned. If the State installed nesting deterrent on the bridges and culverts, maintain the existing nesting deterrent to prevent swallow nesting until October 1 or completion of the bridge and culvert work, whichever occurs earlier. If new nests are built and occupied after the beginning of the work, do not perform work that can interfere with or discourage swallows from returning to their nests. Prevention of swallow nesting can be performed by one of the following methods:

1. By February 15 begin the removal of any existing mud nests and all other mud placed by swallows for the construction of nests on any portion of the bridge and culverts. The Engineer will inspect the bridges and culverts for nest building activity. If swallows begin nest building, scrape or wash down all nest sites. Perform these activities daily unless the Engineer determines the need to do this work more frequently. Remove nests and mud through October 1 or until bridge and culvert construction operations are completed.

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2. By February 15 place a nesting deterrent (which prevents access to the bridge and culvert by swallows) on the entire bridge (except deck and railing) and culverts.

No extension of time or compensation payment will be granted for a delay or suspension of work caused by nesting swallows. This work is subsidiary to the various bid items.

Do not store equipment or work in the designated Critical Habitat Unit 16 (CHU). Place construction fencing as shown in the plans to designate this location to assist with avoiding the area.

No extension of time or compensation payment will be granted for a delay or suspension of work caused by encountering karst features. This work is subsidiary to the various bid items.

Provide a non-intrusive back-up alarm system on all heavy equipment used in close proximity to residential areas. This item is subsidiary to various bid items.

--Item 6--

Show the stockpile lot and/or sub lot numbers on all tickets for all materials.

--Item 7--

The project's total disturbed area is **175 acres**. The disturbed area in all project locations and Contractor project specific locations (PSL's), within 1/4 mile of the project limits, 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. Obtain any required authorization from the TCEQ for any PSL's on or off the ROW. When the total area disturbed on the project and PSL's within 1/4 mile of the project exceeds 5 acres, provide a copy of the Contractor NOI for PSL's to the Engineer (to the appropriate MS4 operator when the project is on an off-state system route).

Notify the Engineer of the disturbed acreage within one (1) mile of the project limits. Obtain authorization from the TCEQ for Contractor PSL's for construction support activities on or off ROW.

--Item 8--

Working days will be computed and charged in accordance with Article **8.3.1.2, Six-Day Workweek**.

Milestone 1 (Reconstruction Work at Westbound Military Drive)

Milestone 1 begins in Phase 1 at the intersection of the LP 1604 existing Southbound Mainlanes and Military Drive. Time charges for Milestone 1 shall begin when traffic is routed to the

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outside lanes in both the Eastbound and Westbound directions while Military Drive through lanes are closed and reconstructed.

The time charges for Milestone 1 will end when the Military Drive reconstruction is complete and all lanes of traffic on Military Drive are opened to traffic.

The daily road user cost for Milestone 1 shall be \$2,425.84.

The contractor shall have 10 working days to complete this milestone.

The maximum number of working days for computing the incentive credit for Milestone 1 shall be 10 days.

The Road User Cost liquidated damages for Milestone 1 shall be \$2,425.84 per day.

Working day time charges for Milestone 1 will be computed and charged in accordance with Article 8.3.1.2, Six-Day workweek.

Culvert No. 3, Station 785+50 (Existing LP 1604 Northbound Mainlanes)
Structure E7-MHE2, Station 782+50 (Existing LP 1604 Northbound Mainlanes)
Culvert No. 5, Station 810+40 (Existing LP 1604 Northbound Mainlanes)

The above noted structures must be installed in sections as shown in the plans during weekend operations beginning at 9 pm on Friday and completed by 5 am the following Monday morning. Lane Closure assessment fees will apply if the roadway is not opened by the designated time, as shown in the Lane Closure Assessment Table and as per SP 008-017.

Create and maintain a Critical Path Method schedule.

The CPM schedule shall be created and maintained using software fully compatible with version 6.1 of Primavera Project Planner or SureTrak Project Scheduler.

Provide a Project Schedule Summary Report.

A lane closure assessment fee will be assessed as per the "Lane Closure Assessment Table" in the plans.

Substantial Completion

Substantial Completion is defined as the date (day) when all mainlanes are opened to normal traffic and in its final configuration. This includes the completion of the Southbound ML work (Sta 3+00 to Sta 25+00) and Northbound ML work (Sta 4+03 to 9+47, 18+24 to 24+41, 561+00 to 569+00) in Phase 3.

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The daily road user cost for substantial completion is \$20,000 per day. The maximum number of working days for computing the incentive credit for the substantial completion of the project is 60 days.

The Contractor has 665 working days to substantially complete this project. Working days will be computed and charged in accordance with Article 8.3.1.2 Six-Day Workweek.

The Road User Cost liquidated damages for substantial completion is \$20,000 per day.

The maximum number of working days for computing the disincentive credit for the substantial completion of the project is 60 days.

--Item 9--

When approved, provide uniformed, off-duty law enforcement officers with marked vehicles during work that requires a lane closure. The officer in marked vehicles shall be located as approved to monitor or direct traffic during the closure. The method used to direct traffic at signalized intersections shall be as approved. Additional officers and vehicles may be provided when approved or directed.

Complete the daily tracking form provided by the department and submit invoices that agree with the tracking form for payment at the end of each month approved services were provided.

Show proof of certification by the Texas Commission on Law Enforcement Standards.

All law enforcement personnel used in Work Zone Traffic Control shall be trained for performing duties in work zones and are required to take "Safe and Effective Use of Law Enforcement Personnel in Work Zones" (Course #133119) which can be found online at the following site: www.nhi.fhwa.dot.gov

Certificates of completion should be available to all who finish the course. These should be kept by the officers in order to substantiate completion when reporting to the work site.

Minimums, scheduling fees, etc. will not be paid; TxDOT will consider paying cancellation fees on a case by case basis.

--Item 100--

Begin clearing operations after trees and other areas of vegetation to be protected have been identified and approved. Install fencing around features to be protected as shown in the plans or directed. Coordinate all right of way clearing operations with the SW3P.

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Trim and remove brush and trees as needed for construction operations. Obtain approval for proposed method of tree and brush trimming and removal. Vertical flailing equipment is not allowed. Treat damaged or cut branches, roots and/or stumps of all oak trees with a commercial tree wound dressing. Disinfect all pruning tools with a solution of 70% alcohol before moving from one tree to another. Unless otherwise approved remove all resulting vegetative debris from the ROW within 24 hours. The Engineer can stop all construction operations if the dressing, cut and removal requirements are not followed.

Any items not specifically called out or shown in the plans to be removed for any construction operations within the right of way / and or designated easements are included under Item 100, Preparing Right of Way. Items designated on the plans as removal items are for the Contractor's information only and are not intended to be the sole basis for the bid for Item 100 on this project. Due to the nature of this project on new location, the contractor shall anticipate encountering abandoned items and dumped trash, including but not limited to mattresses, wood, buckets, trash, brush, gardens, batting cage, etc. Any items and / or debris encountered within the ROW during construction shall be the responsibility of the contractor to properly dispose of in accordance with Item 100 and applicable laws and regulations.

--Item 110--

Where excavation extends beyond a right of way fence, remove and replace the fence to a comparable condition. This work shall be considered subsidiary to the bid item.

--Item 132--

At no time shall the retaining wall backfill material exceed the adjacent embankment operation by more than one embankment lift. At no time will the embankment adjacent to the retaining wall backfill exceed the wall backfill by any elevation.

--Item 164--

Drill seeding of permanent grasses requires the use of approved grass seeding equipment capable of properly storing and metering the release of small seeds (such as Bermuda grass) separately from fluffy type seeds (such as bluestems). Equipment manufactured for planting grain crops is acceptable for planting temporary cool season seeds, but not for planting the permanent seed mix.

When drill seeding is required, cultivate the area to a depth of 4 in. after the fertilizer has been applied and before placing the seed.

If performing a permanent seeding in an area with established temporary grass cover and mowing is performed instead of tilling, seed and fertilizer may be distributed simultaneously during "Broadcast Seeding" operations, provided each component is applied at the specified rate.

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--Item 168--

Apply vegetative watering as needed to supplement natural rainfall during the vegetation establishment period. Plan quantity of irrigation water is based on the application of a total of 1.3 gal of water each week for each sq. yd. of area that is sodded or seeded. Establishment time is estimated to be 12 weeks for both sod and permanent seed mixes. Temporary seeding will require less time for establishment. Provide a schedule and coordinate watering cycles and rates per cycle with the Engineer. Obtain approval if the quantity of water to be applied is expected to exceed the plan quantity. Adjust the amount of water applied with each cycle and the number of cycles each wk. according to actual site conditions. Drought or other conditions, as determined by the Engineer, may require the application of supplemental irrigation during hours other than normal working hours.

--Item 247--

There is no minimum PI requirement for this project.

--Item 302--

Previously tested aggregates found to contain excessive quantities of dust (more than 0.5 percent passing the No. 40 sieve) during precoating, stockpiling or hauling operations, may be rejected. Use Test Method Tex-200-F, Part I for testing.

Precoated Aggregate Type PE shall consist of crushed slag, crushed stone or natural limestone rock asphalt.

The Engineer will utilize the Ignition Oven Method (Tex 236-F) for aggregate gradation, with the option of utilizing belt or vacuum extraction gradation in the event the ignition oven malfunctions.

--Item 316--

When using latex asphalt, avoid drifting of asphalt onto traffic and adjacent properties.

Asphalt season will be year around, but meet sections 316.4.4.1 through 4.4.3.

Ensure that the asphalt for precoating the aggregate and the asphalt used for the surface treatment will not result in a reaction that may adversely affect the bonding of the aggregate and asphalt during the surface treatment operation.

Do not add bag house fines in the production of precoated material.

Clean all concrete curbs, islands, medians, etc. that get coated with asphalt.

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--Item 320--

Construct all longitudinal ACP joints adjacent to a travel lane with a joint maker device that will create a 3:1 to 6:1 taper. For placement of 2 inches or more, the device shall provide a maximum ½ inch vertical edge. Taper outside edges (next to the grass) or backfill (shoulder-up) the same day.

Provide a material transfer device capable of providing a continuous flow of material to the paver. The material transfer device will consist of a windrow elevator or better.

When placing Item 346 mixtures, provide a material transfer vehicle that is capable of providing a remixing, and continuous flow of material from the haul truck to the paver, such as a Roadtec SM-2500e/ex.

--Item 341—

1. Table 10 in Item 341, Hamburg Wheel Test Requirements tested in accordance with Tex-242-F are changed for PG 64-22 or lower and PG 70-22. Minimum number of passes at 1/2" Rut Depth, Tested at 122 degrees F will be 5,000 and 10,000 respectively.
2. Design all mixture types using a target laboratory-molded density of 96.5%, when the Texas
3. Gyrator Compactor is utilized. Increase the target laboratory-molded density to 97.0% or 97.5% at the Contractor's discretion. When utilizing SGC, design all mixture types at 50 gyrations (N-Design) and a target laboratory-molded density of 96.0%, but may be reduced to no less than 35 gyrations at the Contractor's discretion.
4. The asphalt plant shall have truck scales as defined in Item 520. Give three weight tickets bearing the date, the truck number, the gross, net & tare weights to the truck driver for the State inspector at the spreading and finishing operation. Trucks may be required to weigh on public scales or portable platform scales to verify the weight of the ticket.
5. Submit a copy of the Tex 233-F production charts on a weekly basis. At the end of the ACP work, provide all originals.
6. Crushing of aggregate for hot mix and immediate use for production of the mix is not allowed. Stockpile the aggregate until enough material is available for five days of production unless prior approval is provided. Hold a pre-placement meeting one month prior to the placement of the hot mix.

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7. The main purpose of hot mix cores taken by the State are for payment calculations. If (for quality control purposes) the core information is needed sooner, take additional cores.
8. Do not use diesel or solvents as asphalt release agents in production, transportation, or construction. A list of approved asphalt release agents is available from the District Laboratory.
9. No more than one hot mix lot will be open for any specific type of hot mix, unless authorized. After a lot is open and the Contractor gets approval to change plants, the previous lot will be closed and a new lot will be opened. The numbering for the lots produced at the new plant will start with No. 1. If allowed to switch back to the original or previous plant, the next lot from that plant will resume numbering sequentially from the last lot produced by that plant.
10. Schedule lay-down placement where uneven travel lanes are minimized and eliminated weekly.
11. If asphalt material is obtained from other than a commercial source presently inspected by TxDOT, furnish a Type D structure for the asphalt mix control laboratory for the Engineer's use. Provide a minimum height of 8 feet and a minimum of 400 square feet of gross floor area for permanently located asphalt plants or 200 square feet for a temporary plant. The floor area will be partitioned into a minimum of two rooms, with a minimum of two windows per room. The floor shall have an impervious cover and sufficient strength to support the testing equipment. Portable structures shall be support blocked for stability and shall be tied down.
12. The use of Recycled Asphalt Shingles (RAS) will not be allowed on the final riding surface.

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Minimum Roadway Placement Temperature**--Item 341--**

- Place mixture when the roadway surface temperature is equal to or higher than listed in Table 1 unless otherwise approved or shown on the plans. Measure the roadway surface temperature with a hand-held thermal camera or infrared thermometer. Placement may be allowed to begin prior to the roadway surface reaching the required temperature if conditions are such that the roadway surface will reach the required temperature within 2 hrs. of beginning placement operations. Place mixtures only when weather and moisture conditions of the roadway surface are suitable in the opinion of the Engineer. The Engineer may restrict the Contractor from paving if the ambient temperature is likely to drop below 32°F within 12 hr. of paving.

Table 1
Minimum Pavement Surface Temperatures

Specification Item Number	High Temperature Binder Grade	Minimum Pavement Surface Temperatures in Degrees Fahrenheit *	
		Subsurface Layers or Night Paving Operations	Surface Layers Placed in Daylight Operations
341	PG 64	45	50
	PG 70	55	60
	PG 76	60	60

* Except for PG 64, may pave at temperatures 10° F lower than the values shown in Table 1 when utilizing a Material Transfer Vehicle that is capable of providing a remixing, and continuous flow of material from the haul truck to the paver, such as a Roadtec SM-2500e/ex, that eliminates thermal segregation. In these cases, use either an infrared bar attached to the paver, or a hand held thermal camera or infrared thermometer, or a hand held infrared thermometer operated in accordance with Text Method 244-F to demonstrate that the uncompacted mat has no more than 10° F of thermal segregation.

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Substitute Binder**--Item 341—**

The Contractor may use a substitute PG binder listed below in Table 1 instead of the PG binder originally specified in Table 5 of the Standard Specification, if the substitute PG binder and mixture made with the substitute PG binder meet the following:

- ◆ The substitute binder meets the specification requirements for the substitute binder grade in accordance with Section 300.2.10., “Performance-Graded Binders;” and
- ◆ The mixture has less than 10.0 mm of rutting on the Hamburg Wheel test (Tex-242-F) after the number of passes required for the originally specified binder. Use of substitute PG binders may only be allowed at the discretion of the Engineer if the Hamburg Wheel test results are between 10.0 mm and 12.5 mm.

Table 1
Allowable Substitute PG Binders and Maximum Recycled Binder Ratios

Originally Specified PG Binder	Allowable Substitute PG Binder	Maximum Ratio of Recycled Binder ¹ to Total Binder (%)		
		Surface	Intermediate	Base
HMA				
76-22 ^{2,5}	70-22	20.0	20.0	20.0
	70-28	20.0	35.0	40.0
70-22 ²	64-22	20.0	20.0	20.0
	64-28 or 58-28	20.0	35.0	40.0
64-22 ²	58-28	20.0	35.0	40.0
76-28 ^{2,5}	70-28	20.0	20.0	20.0
70-28 ²	64-28 or 58-28	20.0	20.0	20.0
	64-34 or 58-34	20.0	35.0	40.0
64-28 ²	58-28	20.0	20.0	20.0
	58-34	20.0	35.0	40.0
WMA³				
76-22 ^{2,5}	70-22	20.0	35.0	40.0
70-22 ²	64-22 or 58-28	20.0	35.0	40.0
64-22 ⁴	58-28	20.0	35.0	40.0
76-28 ^{2,5}	70-28	20.0	35.0	40.0
70-28 ²	64-28 or 58-28	20.0	35.0	40.0
64-28 ⁴	58-28	20.0	35.0	40.0

1. Combined recycled binder from RAP and RAS.
2. Use no more than 20.0% recycled binder when using this originally specified PG binder.
3. WMA as defined in Section 341.2.6.2., “Warm Mix Asphalt (WMA).”
4. When used with WMA, this originally specified PG binder is allowed for use at the maximum recycled binder ratios shown in this table.
5. No more than 1-PG grade lower than what is show on the plans will be permitted for Surface mixtures

--Item 354—

Retain planed material.

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Take precaution to avoid damage to existing bridge decks and armor joints. Repair any damage to the bridge decks and/or armor joints as approved. This work will not be paid directly, but will be performed at the Contractor's expense.

--Item 401--

A shrinkage compensator is not required for when used for backfilling pipes. Strength of the Flowable Backfill will be verified by the District Laboratory. Field testing is not required, unless deemed necessary.

Rapid Set flash fill may be used for any pipe or box crossings in limits of cut and restore pavement, as approved by Engineer. This will be considered subsidiary to the flowable backfill item.

--Item 420--

Mass concrete will be measured in place.

Restrict large aggregate size to $\frac{3}{4}$ " maximum for class "C" concrete used in aesthetic details requiring form liners.

--Item 421--

Use an automated ticket that contains the same information as TxDOT's ticket. Submit the ticket for approval prior to use. The concrete producer will contact the District Laboratory or the Engineer's Office (outside the San Antonio area) to inform TxDOT of scheduled structural concrete batching. Structural concrete includes bridge drill shafts, columns, caps, abutments, deck or top slabs of direct traffic culverts.

Entrained air is allowed for Class P and Class HES concrete only. Air content testing is waived for all classes of concrete.

Poly-fiber reinforced concrete may be used as an option, with the approval by the Engineer, for riprap, sidewalk, curb/gutter, and mow strip. Use a TxDOT approved manufacturer or producer for the poly-fiber. The poly-fibers shall be combined with the concrete in proportions as recommended by the manufacturer. A concrete mix design must be approved by the Engineer.

--Item 422--

For construction of approach slabs, longitudinal joints shall be placed on lane lines. Joints may be either a saw-cut crack control joint or a construction joint. Saw cut joints shall terminate 1'-0" before reaching the edge of the slab, must be saw cut as soon as possible after placement of concrete, and will be cut within 12 hours of concrete placement. Once sawing begins, it should be a continuous operation and should only be stopped if raveling occurs. Saw cut will be to a depth of 1.5" and filled with approved joint sealant.

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--Item 423--

The backfill material for pre cast retaining walls shall be approved before placement. Build stockpile(s) in lifts not to exceed 2 feet and a minimum working face of not less than 10 feet, but not more than 20 feet.

Use the approved Concrete Block Retaining wall systems listed at:

http://www.dot.state.tx.us/business/contractors_consultants/bridge/retaining_wall.htm

Use the approved Mechanically Stabilized Earth (MSE) wall systems listed at:

http://www.dot.state.tx.us/business/contractors_consultants/bridge/retaining_wall.htm

TxDOT does not allow the use of experimental systems on projects with over 50,000 square feet walls over 25 ft. tall, or walls supporting or immediately adjacent to interstate highways.

When proprietary wall systems are used, a qualified representative of the retaining wall manufacturer must be available upon request during wall construction. As requested or required the manufacturer's representative must be on site to assist with the initial stages of wall construction, provide training to the Contractor wall crew and ensure proper interpretation of MSE wall shop drawings and details. Specific attention must be given to nonstandard wall installation details. The Contractor's wall crew foreman must be on site for the duration of wall construction. Any change to the wall crew foreman may require additional training by the wall supplier. The Contractor will ensure that the retaining walls are installed per the details presented in the construction drawings and as per the proprietary wall system requirements. The Engineer reserves the right to suspend wall construction activities due to any construction issue encountered.

Horizontal and vertical nail spacing on temp or permanent soil nail walls shall not exceed 4 ft.

Type DS material will be required on MSE walls in the area of the reinforcement mats.

Retaining wall foundation soil (Ty C Embankment): $8 < PI < 28$, $LL < 40$

--Item 432--

In all riprap slopes, provide 3 inch diameter weep holes at 10 foot maximum spacing and backed with loose graded gravel or crushed stone and galvanized hardware cloth.

In areas where guard fence posts are to be placed in riprap, the riprap shall have an 18 inch +/- blocked out area (round or square). Blocked out areas shall be backfilled with 2 sack flowable backfill and considered subsidiary to the various bid items.

Match the slope of the Riprap (Mow Strip) to the slope of the adjacent roadway.

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--Item 454--

The list of approved Header Type Expansion Joints can be found at:
http://www.txdot.gov/txdot_library/publications/producer_list.htm title is "Elastomeric Concrete".

--Item 462--

Use lean concrete or 2 sack flowable backfill for fill between pre-cast boxes. Lean concrete and 2 sack flowable backfill shall be considered subsidiary to this bid item.

The following structures shall be cast-in-place:

UNNAMED TRIBURARY 5 TO CARACOL CREEK MBC NO.2 and
CULVERT NO. 2

The following structures shall be pre-cast:

CULVERT NO. 1, CULVERT NO. 3, CULVERT NO. 4, AND
CULVERT NO. 5.

--Item 465--

Concrete Class B invert shaping is required at all inlets, manholes and junction boxes in order to insure positive flow. The material and work performed for the placement of the inverts shall be considered subsidiary to this item.

--Item 496--

The Contractor will submit a demolition plan for all structures to be replaced and/or removed in accordance with Item 496.

Provide for the safety and health of employees and abide by all OSHA Standards and Regulations. All costs incurred for proper management, shall be subsidiary to this Item.

--Item 500--

"Materials on Hand" payments will not be considered in determining percentages for mobilization payments.

--Item 502--

The Contractor Force Account "Safety Contingency" that has been established for this project is intended to be utilized for work zone enhancements, to improve the effectiveness of the Traffic Control Plan, that could not be foreseen in the project planning and design stage. These enhancements will be mutually agreed upon by the Engineer and the Contractor's Responsible Person based on weekly or more frequent traffic management reviews on the project. The

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Engineer may choose to use existing bid items if it does not slow the implementation of enhancement.

Place standard markings no later than 14 days after surface treatment operations are completed.

When advanced warning flashing arrow panels and/or changeable message sign is specified, have one standby unit in good condition at the job site. Standby time shall be considered subsidiary to the bid item.

Treat the pavement drop-offs as shown in the TCP.

After written notification, the time frame to provide properly maintained signs and barricades before considered in non-compliance is 48 hours from receipt of the notification. Failure to make corrections as noted may result in payment for this item being withheld.

There are traffic signals at the intersection of Potranco Rd. and Loop 1604, Military Rd. and Loop 1604, and Wiseman Blvd and Loop 1604. Keep the signals in operation except when necessary for specific installation operations.

Moving an existing sign to a temporary location is subsidiary to this Item. Installations with permanent supports at permanent locations will be paid for under the applicable bid item (s).

Mount temporary mailboxes on plastic drum in accordance with Compliant Work Zone Traffic Control Devices, Section K. Mounting and moving the mailbox as needed for the various construction phases is subsidiary to this Item.

Notify the Engineer in writing 10 business days in advance of any temporary or permanent lane, ramp, connector, etc. closures/detours, restrictions to lane widths, alterations to vertical clearances, or modifications to radii. Any other modifications to the roadway that may adversely affect the mobility of oversized/overweight trucks also require 10 business days advance written notice to the Engineer. Unless shown in the TCP, no lane, ramp, connector, etc. closures are allowed during special events. At least one lane has to remain open at all times. Lane closures will not be allowed if this reporting requirement is not met.

Avoid placing stockpiles within the roadway's horizontal clear zone. If a stockpile is placed within the clear zone, address in accordance with the TMUTCD.

Do not place barricades, signs, or any other traffic control devices where they interfere with sight distance at driveways or side streets.

In addition to providing a Contractor's Responsible Person and a phone number for emergency contact, have an employee available to respond on the project for emergencies and for taking

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corrective measures within 2 hours or within a reasonable time frame as specified by the Engineer.

Temporary Rumble Strips are to be used according to WZ (RS)-14.

Use 2_number of rumble strip arrays.

If Nighttime work is required and work is not behind positive barrier then full TY 3 reflective gear is required to be worn by all workers, hard hat halos are required to be worn by the flaggers at flagging stations, TY III barricades are required to be spaced at 500 ft, and a mandatory night work meeting is required.

--Item 504--

Furnish one field office Type B with a working alarm system.

Enclose the field office and the parking area as shown in 504.2.1.1 and provide security lighting.

Provide wi-fi internet connectivity (minimum of 30 GB), a color printer/fax/scanner/copier, and telephone(s) as directed.

Provide laboratory equipment necessary for testing (moist cabinet, moist room or water storage tank in accordance with Tex-498-A, Table 32 and Concrete Testing Machine in accordance with Tex-498-A, Table 18)

--Item 506--

An Inspector will perform a regularly scheduled SWP3 inspection every 7 calendar days.

Failure to address items noted on the SW3P inspection report within two report cycles may result in the Department stopping all construction operations, exclusive of time charges, or withholding that month's estimate until the SW3P deficiencies are corrected unless the Engineer determines that the area is too wet to correct SW3P deficiencies.

New Single Slope or F-Shape CTB (cast in accordance with the Standard Sheets in the plans) may be furnished or the same pre-used shapes (that meet the requirements of this Item) may be furnished. New Safety Shape (New-Jersey) CTB is not allowed, but pre-used New-Jersey (that meets the requirements of this Item) may be furnished. More than one type may be furnished but do not mix the types when placed along the roadway.

--Item 514--

The Type 3 CTB taper from the Type 2 at obstructions (OSB's, bridge, columns, etc.) shall be 40:1. If gravel is used between the barriers as shown by the Standard Sheet, the top six inches shall be CL A concrete.

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--Item 529--

Class "C" concrete is required for machine extruded curb.

Curb inlets and extensions are based on an exposed curb height of 7 inches. The roadway curb height and shape will be transitioned to the inlet's curb with a 40: 1 taper.

--Item 531--

The curb ramp locations shown in the plans have taken into account the geometric features of the intersection, traffic signals, and the pavement markings. If anything changes during construction, the location of curb ramps must be adjusted to ensure they meet TAS requirements.

--Item 540--

MBGF posts shall be round with domed tops, and not painted. If 10 or less timber posts are needed, they may be purchased locally and will be accepted by visual inspection.

Guard fence posts placed in proposed and/or existing areas of riprap, sidewalks or other concrete shall have an 18 inch +/- (square or round) block out in the concrete. After the posts are installed, the blocked out area shall be topped off with 4 inches of low strength grout/mortar consisting of about 1 sack of cement per cubic yard of mix.

When connecting a Thrie-Beam to a concrete wingwall, bridge rail, CTB, etc., drill the holes for bolt placement using rotary or core type equipment. Use a core type drill when reinforcing steel is encountered. Do not use percussion or impact drilling. Repair damage to the concrete and spalls exceeding ½" from the edge of the hole.

--Item 542--

Salvage all undamaged/acceptable radius guardrail and deliver to the TxDOT maintenance section yard.

--Item 545--

See the Crash Cushion Summary Sheet.

--Item 585--

Use Surface Test Type B, pay adjustment schedule 1 to evaluate ride quality of travel lanes.

--Item 610--

Fabricate steel roadway illumination poles in accordance with the RIP standards. Poles fabricated according to RIP require no shop drawings. Alternate designs or the use of aluminum to fabricate poles will require the submission of shop drawings electronically.

For instructions on submitting shop drawings electronically go to:

<http://www.dot.state.tx.us/publications/bridge.htm>. File is titled: Guide to Electronic Shop Drawing Submittal.

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Provide lamps from the pre-qualified Materials Producers List, Category is “Roadway Illumination and Electrical Supplies” located on the Construction Divisions (CST) web site.

Ballast/capacitors removed from the light assembly, will remain the property of the State. Assume all ballast/capacitors contain Polychlorinated Biphenyl (PCB), unless a notation appears on the outside of the unit that specifies it does not contain PCB's. All ballast/capacitors with PCB's shall be placed in 55 gallon open top drum in accordance with Department of Transportation (DOT) specifications. Place six (6) inches of sawdust or other absorbent material in the bottom of the drum. Furnish and place a DOT approved PCB warning label on the outside of the drum. Do not fill a drum more than $\frac{3}{4}$ of capacity. Avoid rupturing the ballast/capacitor(s). If a ballast/capacitor is ruptured, use proper procedures, specialist trained staff and personal protective equipment for the clean-up operations.

The lamps in light fixtures may contain hazardous levels of mercury, halide, and sodium vapors. Observe and comply with all federal, state and local laws, ordinances and regulations regarding the management of these lamps. Prevent the breakage of the lamps. At a minimum, package all lamps removed from the light fixture(s) in a container that minimizes the breakage of the lamps. Broken lamps shall be collected in a sealed plastic bag (i.e. Ziploc). Broken lamps shall be stored in separate containers from unbroken lamps. Furnish a suitable container and attach a label stating “Universal Waste Lamps” on the container. Write the date the first lamp was placed in the container on the “Universal Waste Lamp” label. Within one (1) week after the first lamp is placed in a container, notify the Engineer. The lamps and PCB containing ballast/capacitors, placed in properly labeled containers, will remain the property of the State. Place the container in an area where it is protected from damage and the elements. The Engineer will make arrangements to collect, transport, and dispose/recycle the container. The ballast/capacitor and lamp's removal and storage is subsidiary to this item.

Stencil each illumination assembly with the circuit, light and relay numbers in black paint on the roadway side of the pole at a 45 degree angle. The numbers shall be in 3” tall and begin 6’ from the top of the foundation. This work will be considered subsidiary to this item.

--Item 618--

It might be necessary to cut concrete for placement of conduit. Saw cut existing concrete, remove the concrete from the steel reinforcement (bars or fabric) and bend the steel to install the conduit. After the conduit has been placed, bend the steel back to its original position and back-fill the trench with an approved concrete. This work is subsidiary to this Item.

The conduit depth for illumination under the City of San Antonio streets is 36 inches.

Use materials from Material Producers list as shown on the Construction Division's (CST) web site. Category is “Roadway Illumination and Electrical Supplies.”

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--Item 620--

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

Provide 10 amp time delay fuses.

--Item 628--

Make all arrangements for electrical service, and compliance with local standards and practices for proper installations.

--Item 644--

The wedge anchor system shown on State Standard Sheet SMD (TWT) is not allowed.

--Item 658--

CTB reflectors will not be paid for directly but will be considered subsidiary to the barrier.

--Item 666--

If TY II material is used (vs. an acrylic or epoxy) as the sealer for the TY I markings, place the TY II a minimum of 14 calendar days (to provide adequate curing) before placing the TY I markings.

--Item 672--

Place all adhesive material directly from the heated dispenser to the pavement. Do not use portable or non-heated containers. Use adhesive of sufficient thickness so that when the marker is pressed into the adhesive, 1/8" or more adhesive will remain under 100% of the marker. The adhesive should extend not less than 1/2" but not more than 1 1/2" beyond the perimeter of the marker.

--Item 677--

Obtain approval before using the mechanical method for the elimination of existing thermoplastic pavement markings.

--Item 680--

Furnish and install all required materials and equipment necessary for the complete and operating traffic signal installation at the following intersections:

Potranco Rd. and Loop 1604, Military Rd. and Loop 1604, and Wiseman Blvd and Loop 1604.

The locations shown on the plans for signal pole foundations, controller foundations, conduit and other items may be adjusted to better fit field conditions as approved.

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Demonstrate that the field wiring is properly installed, install the controller assembly, connect the wiring and turn on the controller.

All existing signal equipment with the exception of the signal controller and related equipment become the property of the Contractor. Deliver the controller and related equipment to the Signal shop, located at 4615 NW Loop 410 (corner of IH 410 and Callaghan Road) in San Antonio, Texas or to the Area Office as directed.

--Item 682—

Provide all signal heads from the same manufacturer. Pedestrian signals may be by a different manufacturer than the vehicle signal heads.

Cover all signal faces until placed in operation.

All pedestrian signal faces shall be single section LED Type. Die cast polycarbonate is acceptable in lieu of die cast aluminum. All mounting attachments shall be constructed of steel pipe and mounted as shown on the plans.

For all proposed mast arm pole assemblies, use mounting bracket assembly as shown on the State Standard Sheet(s) "Single Mast Arm Assemblies".

--Item 684—

Provide an extra 10' for each cable terminating in the controller cabinet. All cables shall be continuous without splices from terminal point to terminal point. All proposed signal cable shall be #14 AWG stranded copper.

--Item 686 & 687—

Provide all signal poles from the same manufacturer. Pedestrian poles may be from a different manufacturer.

--Item 688—

The pedestrian push button shall be raised or flush and a minimum of 2 inches in the smallest dimension. The force to activate the control shall be no greater than 5 lb/f. The button placement has to be coordinated with the concrete pad to access the button. The concrete pad (if required) shall be paid separately.

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--Item 730--

Mow full-width and hand trim the right of way, including newly seeded or sodded areas, when vegetation reaches a height of 16" or when directed. Removal of brush sprouts growing within guardrail, concrete barriers or at other locations where mowing or hand trimming is done within the limits of construction is required and subsidiary to this item. Mowing may be required more often in newly sodded or seeded areas than in other parts of the project because of the supplemental irrigation these areas receive and the resulting weed growth. Coordinate mowing to avoid rutting or compaction of the soil when mowing where supplemental irrigation is being used. Use mowing equipment that will not adversely affect soil retention blankets or mulches that have been applied. Work performed under this item does not replace the mowing required when placing permanent seeding in an area that has established temporary seeding as described in Article 164.3, Construction.

Mowing Locations are described below.

Phase 1

Mow Area between existing Loop 1604 NB and SB mainlanes.

Mow area outside existing Loop 1604 NB mainlanes.

Total Acres = 37 ac

Phase 2

Mow area outside Proposed Loop 1604 Frontage Rd.

Mow area outside existing Loop 1604 NB mainlanes

Total Acres = 25 ac

--Item 734 & 738--

Perform Litter Removal and Cleaning and Sweeping Highways once a month or as directed.

Litter Removal

1 cycle per month. = 29 cycles

--Item 4001--

For Asphalt-Plug Expansion Joints, the following suppliers are approved:

FlexAble Bridge Joint System
Deery American Corporation.
PO Box 4099
Grand Junction, CO 81502
Attn: San Kearn
800-227-4059

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Matrix 502 Asphalt Plug
D.S. Brown Co.
300 E. Cherry St.
North Baltimore, OH 45872
419-257-3561

Thorma-Joint
Dynamic Surface Applications, Ltd.
373 Village Road
Pennsdale, PA 17756
Attn: Mike Stachowicz
800-491-5663 Ext. 1

Wabo-Expandex
BASF
3011 Heatherpark Drive
Kingwood, TX 77345
Attn: Mark Huff
713-392-4833

--Item 4051--

Overhead electric and telecommunication lines are present and located in the vicinity of Sound Wall N. CPS Overhead Electric will require de-energizing of the neutral line during the construction of Sound Wall N. De-energizing can only occur between November and March. This will be paid for under Contractor's Force Account "De-Energize Overhead Utility Lines". Provide 4 weeks advance notice to CPS for de-energizing. Contact John Offer (210-416-4561) or Claudia Valles-Tovar (210-353-2226) for coordination details. A horizontal boom is recommended for construction to provide more vertical clearance during construction of Sound Wall N.

CPS Energy poles will require bracing during the construction of Sound Wall N. Contact CPS Energy Utility Coordination group (John Offer (jeoffer@cpsenergy.com), Anna Esquivel (apesquivel@cpsenergy.com) or Claudia Valles-Tovar (cvalles-tova@cpsenergy.com) eight (8) weeks prior to starting work on Sound Wall N to request pole bracing. This will be paid for under Contractor's Force Account "Utility Pole Bracing".

--Item 6001-- PORTABLE CHANGEABLE MESSAGE SIGN

Estimated Quantity For Message Sign

Phase 1

Total Number of Signs = 1

Southbound : 14 day advance notice for PCTB installation

5 day for PCTB installation

= 19 days

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Phase 1A

Total Number of Signs = 1

Southbound: 14 day advance notice for PCTB installation.
5 day for PCTB installation
=19 days

Phase 2

Total Number of Signs = 1

Northbound: 14 day advance notice for PCTB installation.
5 day for PCTB installation
=19 days

Phase 3

Total Number of Signs = 1

Northbound: 14 day advance notice for PCTB installation.
5 day for PCTB installation
=19 days

Phase 3 (Overlay)

Total Number of Signs = 1

Southbound: 7 day advance notice for nighttime closure.
10 day for nighttime work
Northbound: 7 day advance notice for nighttime closure.
10 day for nighttime work.
=34 days

Intersection Work

Total Number of Signs = 4

7 day advance notice for nighttime closure.
10 day for nighttime work
(17 days @ 6 intersections x 4 signs = 408 days)

TOTAL DAYS = 518 days.

--Item 7078--

The LF unit bid measure for Extra Deep Manholes will be understood to be the vertical depth in feet of the manhole greater than six feet in vertical depth.

--Item 7077--

There is approximately 639 LF of Asbestos-Cement (AC) pipe to be removed as shown in the plans. Notify the Engineer 2 weeks in advance of performing work in this location so that arrangements can be made to contact the Specialty Contractor who will remove and dispose of this material.

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TMS GENERAL NOTES

“TMS” is abbreviation for Traffic Management System.

Install proposed TMS equipment including TMS conduit, manholes, ground boxes, 96 and 12 strand Fiber Optic cables, and devices (DMS, CCTV, RVSD) within the project limits on Loop 1604. Establish wireless Ethernet radio connection to equipment on adjacent (to the north) segment of Loop 1604 bypassing the future SH-151 interchange. Establish a communication path (back to TransGuide) for all the TMS equipment. Install solar flashing wrong way signs at exit ramps.

Coordinate the installation of permanent TMS equipment, conduit, manholes, ground boxes, etc. with the roadway construction phasing so as to prohibit any open cuts across new construction.

Cover Dynamic Message Signs (DMS) that are not in service with a blue tarp until such time that they are fully operational with the TRANSGUIDE system, subsidiary to the various bid items.

All references to the TRANSGUIDE mainframe are references to the TRANSGUIDE computer network.

Provide a submittal compliance matrix with all TMS submittals.

Perform all TMS Prototype approval, Design approval, and Demonstration tests within the State of Texas.

Not previously used TMS equipment: Test any TMS Equipment (including but not limited to CCTV field equipment), which has not previously been proven to be fully operational and fully compatible with the existing TRANSGUIDE software and hardware in the following manner:

Conduct tests for each type of TMS equipment, as directed by the Engineer, to determine compatibility of the equipment with the existing TRANSGUIDE software and hardware. Prior to field installation, test one complete unit with all components to ensure that it is fully compatible with the existing TRANSGUIDE system. Mount the equipment to a trailer and connect in the field to an existing Fiber Hub. Make all hardware connections and configuration (in the operations center and in the field) and provide all incidentals (cable, connectors, etc.) to make the unit operational. Test all aspects of the system to show full functionality of the equipment and to show full compatibility with the TRANSGUIDE software and hardware. Failure to perform to the requirements of any test will be considered as a defect, and the equipment will be subject to rejection by the Engineer. Rejected equipment may be offered again for retest provided all noncompliance's have been corrected and retested by the Contractor and evidence thereof submitted to the Engineer. Testing is considered subsidiary to the particular bid item, with no payment made.

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Partial payments:

The contractor will receive partial payments for the following TMS items unless otherwise approved by the Engineer.

Radar Vehicle Sensing Device
CCTV Field Equipment
ITS Cabinet
ITS Radio (Dual)
Dynamic Message Sign System

Partial Payments Consist of The Following:

Materials On Hand: The Contractor's paid amount is based on the invoices for the material received and stored in his/her yard.

Field Installation: When the Contractor has completed the installation of the Radar Vehicle Sensing Device (RVSD), the department will pay up to 80% of the bid item.

Stand-Alone Test: When the Radar Vehicle Sensing Device (RVSD) has passed the stand-alone test, the department will pay up to 95% of the bid item.

When the Radar Vehicle Sensing Device (RVSD) has passed the test portion of the Final Acceptance Test, the Department will pay the final 5% of the bid item.

Field Installation for CCTV Field Equipment, ITS Cabinet: When the Contractor has completed the support structure, mounted the CCTV camera, installed the ITS Cabinet(s), the Department will pay up to 80% of the bid item.

Stand-Alone Test: When the CCTV Field Equipment and ITS Cabinet has passed the stand-alone test, the Department will pay up to 95% of the bid item.

When the CCTV Field Equipment and ITS Cabinet has passed the test portion of the final acceptance test, the Department will pay the final 5% of the bid item.

Field Installation for "ITS Radio (Dual)":

When the contractor has completed installation of the ITS Radio (Dual) Link, the Department will pay up to 50% of the bid item.

Integration for "Install ITS Radio (Dual)":

When the ITS Radio Link has been installed, configured, and made operational with the TransGuide system, the Department will pay the final 50% of the bid item.

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Field Installation: When the Contractor has completed the installation of the Dynamic Message Sign (DMS), the department will pay up to 80% of the bid item.

Stand-Alone Test: When the Dynamic Message Sign (DMS) has passed the stand-alone test, the department will pay up to 95% of the bid item.

When the Dynamic Message Sign (DMS) has passed the test portion of the final acceptance test, the Department will pay the final 5% of the bid item.

The above percentages do not include the deduction of standard Retainage.

TMS Submittals:

Include in all TMS submittals the respective bid item (specification number and descriptive code). Indicate compliance on a paragraph-by-paragraph basis. Ensure that the statements claiming compliance reference the appropriate documentation and the referenced documentation supporting this claim is included with the submittal. Provide referenced documentation that contains the same numbering system as referenced in the submittal. For example, submittal item XXXX-XXXX, Section 2.3, Paragraph 3, Meets Requirements (See Attachment “B”). The supporting documentation for Item XXXX-XXXX, Section 2.3, Paragraph 3, would be titled as Attachment “B”. Provide submittals with the same numbering system as stated in the specification. Failure to submit accordingly will result in rejection by the Engineer.

A TMS submittal will be considered as incomplete and therefore rejected, if it contains items listed as “being furnished by others”. It is the responsibility of the Contractor to make sure the submittal addresses all items of the specification.

Provide the following TMS submittals (to be received by TxDOT San Antonio Traffic Management office) within the designated time. The time frame is in calendar days.

Item Description	Submitted By Contractor W/I Days After Authorization To Begin Work	Returned By State W/I Days
Equipment & Interconnect Wiring Schematic	30	30
Fiber Optic Cable (Single Mode)	30	30
CCTV Field Equipment	30	30
ITS Pole (55 ft)(90 mph)	30	30
ITS Pole (30 ft)(90 mph)	30	30
ITS Pole Mnt. Cab. (TY 1)	30	30
ITS Pole Mnt. Cab. (TY 2)	30	30
Radar Vehicle Sensing Device (RVSD)	30	30
Communication Cable	90	15
Final Acceptance Plan	90	30

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Submit those items designated with the (*), if any, together as a Package.

Submit the Final Acceptance Plan in electronic form.

The Contractor may submit items sooner if needed for construction, but no later than the dates stated above.

Provide, to the Engineer, as-built plans in MicroStation format (.dgn files) of the TMS portion of this project when the project is complete. TxDOT will provide the .dgn files of the TMS plan sheets. Update these files with all TMS items as ACTUALLY CONSTRUCTED in the field. Cost to provide as-built plans as described above is subsidiary to the various bid items with no direct payment.

Customize all training specifically for the TRANSGUIDE system; generic training will not be accepted on this project. Training materials and labor are subsidiary to the various Bid Items with no direct payment.

TMS equipment and conduit locations are approximate; the precise location is to be determined in the field, therefore the Contractor should not scale equipment off plan sheets. Plan sheets are to be used for visual location (vicinity). Equipment locations may have to be adjusted due to conflicts with utilities or other structures, as approved by the Engineer. Do not obstruct the natural flow of water with Traffic Management equipment. In low water areas, place Traffic Management equipment on high side of ditch.

Replace or repair any existing to remain Traffic Management Equipment, conduit, cables, etc. damaged during construction, subsidiary to the various bid items with no direct payment. Replace all pavement, sidewalk, curb, rip-rap or any item damaged during construction, subsidiary to the various bid items with no direct payment.

Stencil structure numbers on all new TMS structures for permanent identification as directed by the Engineer.

Ensure that all TMS equipment furnished and installed is completely compatible with the existing hardware and software located within the TRANSGUIDE operations center (i.e. TRANSGUIDE central software). TRANSGUIDE is unique and complicated. The Contractor should contact the Traffic Management Engineer for details on the system network architecture.

All new TMS equipment will be incorporated into the existing Network Management System, subsidiary to the various bid items.

Security against theft and vandalism of all Traffic Management equipment is the full responsibility of the Contractor until the date of final acceptance of the project by the Engineer.

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Maintenance of all Traffic Management equipment furnished and installed on this project is the full responsibility of the Contractor until date of final acceptance of the project by the Engineer. All required documentation must be turned in before TxDOT will accept project for maintenance.

Submit a layout of equipment and interconnect wiring schematic for the TRANSGUIDE Control Center and Fiber Hubs for approval by the Engineer prior to ordering materials. Consider all interconnect wiring within the TRANSGUIDE Control Center and all interconnect wiring for all equipment in the plans and described within the specifications as subsidiary to the various Bid Items with no direct payment.

Perform all TMS electrical work and provide all TMS electrical materials in accordance with the National Electrical Code.

The location of utilities (including TMS), either underground or overhead, if shown within the right of way are approximate and must be verified by the Contractor before beginning construction operations. TRANSGUIDE will provide the approximate location of TMS equipment; however, it is the responsibility of the Contractor to determine the depth of the Traffic Management conduit.

In accordance with the Underground Facility Damage Prevention Act (One Call Bill) the phone number for a utility locator is 1-800-545-6005. It is the Contractor's responsibility to make arrangements for utility locators as needed.

TxDOT (Traffic Management)	(210)731-5109
TxDOT (Sign Lighting)	(210)615-6995
TxDOT (Traffic Signal)	(210)615-5975

In preparing holes for TMS posts and/or foundations, use care so as not to rupture existing drainage structures, sprinkler systems, electrical conduits and public utilities.

Place small signs on ramps and frontage roads at a lateral clearance of 8 feet to 12 feet from the edge of pavement or as directed by the Engineer.

When installing TMS foundations where rip-rap presently exists, use care in breaking out existing rip-rap. Do not break out area greater than is required for placement of the foundations. Replace broken out rip-rap with class "B" concrete to the exact slope, pattern and thickness of the existing rip-rap in accordance with item 432, subsidiary to the various bid items with no direct payment.

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Work on TMS equipment that integrates into the operational system only between the hours of 12:00 am (midnight) and 4:00 am when the work requires an interface with the TRANSGUIDE operational system. Notify the TransGuide maintenance manager (210-731-5109) 48 hrs prior to this work.

The contractor is fully responsible for all necessary cross connects, provisioning and cabling in the TRANSGUIDE computer room and Fiber Hubs, subsidiary to the various bid items.

--Item 421 & 427--

Finish all TMS concrete structures with a Grade I Class B, Type I finish or as approved by the Engineer.

--Item 465—

Install 50 feet of trunkline fiber optic cable (single mode) inside all manholes or as shown on plans, racked to the side of manhole. Provide rack and hooks to support the cable, subsidiary to the various bid items with no direct payment. Partial construction of manholes will not be permitted unless the contractor provides adequate protection.

Protect all TMS equipment with metal beam guard fence, terminal anchor sections and single guard rail terminals. Install metal beam guard fence with terminal anchor sections and single guardrail terminal immediately after the creation of the TMS obstruction. Failure to do so will result in stoppage of all other work on the project until the installation of guard fence is complete.

Do not install metal beam guard fence for TMS equipment until the exact location of the TMS equipment to be protected has been determined. Obtain prior approval from the engineer before the metal beam guard fence is installed and prior to ordering materials. Due to field conditions the quantity may be reduced. The engineer's approval does not relieve the contractor of his/her responsibility for correctness. Any adjustments to TMS equipment or metal beam guard fence with TAS and SGT's will be at no cost to the department.

---Item 618---

Make all TMS underground conduit bends of 45 degrees or more in PVC systems, including bends into ground boxes, with rigid metal conduit, subsidiary to the various bid items with no direct payment. Ensure that grounding is in accordance with ED sheets.

Steel case all TMS PVC bores, subsidiary to the item "conduit" with no direct payment for labor or materials.

Install a permanent pull cord all new TMS conduit and innderducts which do not contain cables. Provide pull cords that have a minimum tensile strength of 1250 lbs. and are flat with footage markings for determining length installed. Provide pull cords that are water-resistant and resistant to environmental conditions within conduit. Pull cords installed will be considered incidental to the various bid items with no direct payment made for labor and materials.

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Install a single 1/C #14 AWG insulated wire (tracer wire) in TMS conduit that does not contain copper cables or contains fiber optic cable only and no copper cables, for the purpose of locating that conduit after installation, subsidiary to the item "conduit".

When installing TMS conduit in areas where riprap presently exists, use care and do not break out more riprap than is necessary for placement of conduit. Replace riprap with concrete to the exact slope, pattern and thickness of existing riprap, subsidiary to the various bid items with no direct payment.

Where shown in plans, install TMS concrete encased conduit with a minimum of 2 inches of encasement. Provide a template at 10 foot intervals to ensure that the conduit remains in its original position as approved by the engineer. Templates are considered subsidiary to the item "conduit" with no direct payment.

TMS bore lengths shown on plan sheets are approximate. Length of bore is measured starting 3 feet from each edge of pavement, curb and gutter, or any unforeseen existing utility, and balance of conduit run is measured as trenched conduit.

--Item 620--

Wire nuts for TMS installation are not permitted.

In locations where TMS service conductors are routed through ground boxes with other cables, install a section of flexible PVC conduit in the ground box. Route the service conductors through this conduit to keep it separated from other cables. Isolate all other cables in the ground box in the same manner. Furnishing and installing the flexible PVC conduit is subsidiary to the various bid items with no direct payment.

To ensure immediate identification, consistently color code and permanently identify all TMS power conductors, twisted wire pair cables, shielded cables, control cables, and fiber optic cables in all manholes, ground boxes, and at all termination points and splices. Submit a chart or list identifying all cables and conductors in a logical and sequential manner.

Install all TMS conductors and cables continuous and without splices from terminal point to terminal point unless otherwise shown on the plans.

The TMS plans show the conduits numbered and specified cables in specific conduits. The purpose of these notes is to instruct the contractor on how to group the cables in the conduits and not to specify the exact conduit to carry the cables. The numbering system is arbitrary and may be set by the contractor.

Provide an electrical conductor insulated ground in accordance with the National Electrical Code for any TMS conduit containing electrical conductors (insulated).

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Test all TMS circuits to be clear of faults, grounds or open circuits.

--Item 624—

Place concrete aprons around all TMS ground boxes installed in sodded areas or as directed/approved by the Engineer.

Complete construction of TMS ground boxes within 48 hours after beginning construction for that ground box.

Provide TMS ground boxes as shown as state standard sheet ED (3)-03. Construct the cover of polymer concrete. Legibly imprint the cover with the letters "TMS" – "Danger High Voltage" in minimum 1 inch letters.

--Item 628—

Construct the TMS electrical services as shown on the TMS Electrical Service Data sheets.

--Item 6003 -- ITS SYSTEM SUPPORT EQUIPMENT

Furnish the following TMS equipment to TRANSGUIDE maintenance (210-731-5109), meeting the specifications in this contract:

- 2 ea Radar Vehicle Sensing Devices with all mounting hardware
- 4 ea Radar Vehicle Sensing Device lighting surge protectors
- 2 ea CCTV Field Equipment

--Item 6010 -- CCTV FIELD EQUIPMENT

CCTV Field Equipment standard manufacturers' warranty will not begin until the Final Acceptance Test begins. Any CCTV Field Equipment not having 100% of the standard manufacturer's warranty remaining when Final Acceptance testing begins will be rejected by TxDOT.

Ensure that all underground coaxial cable is RG-11 (double shielded) or as recommended by the manufacturer of the CCTV Field Equipment.

Furnish and install CCTV communication/power cables recommended or supplied by the manufacturer of CCTV Field Equipment.

If no recommendation for communication/power cables is made by manufacturer of CCTV Field Equipment, the following cable to conduit assignment will be followed:

Conduit #1: Install coaxial drop cable and CCTV control cable.

Conduit #2: Install CCTV power cable.

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If the CCTV Field Equipment power cable carries 24 VDC, then the power cable may be installed in the same conduit with the coaxial drop cable. If the CCTV control cables carry 115 VAC, then the control cables must be installed with the 115 VAC power cable in conduit #2.

In cases where the CCTV Field Equipment and conduit are to be mounted on an existing or proposed structure, review the structure and submit the mounting details to the engineer for approval.

--Item 6005-- FINAL ACCEPTANCE PLAN

The 60 day test will begin only when all TMS equipment installation, cabling, wiring, testing, field work, TRANSGUIDE operations center work, etc. for the entire project is completed and acceptable to TxDOT. Partial testing is not allowed.

--Item 6064—ITS POLE

The camera pole may be twelve (12) sided.

--Item 6071—FIBER OPTIC CABLE (SINGLE MODE)

This project requires the placement of fiber optic cable. Splicing fiber optic cable of different manufacturers may result in signal degradation as measured through splice loss and DB loss per mile. The contractor must supply documentation of the compatibility of the fiber types with the fiber optic cable submittals. If testing of the new fiber optic cable after installation shows evidence of signal degradation outside of tolerable specifications due to the use of different fiber types, the contractor is responsible for replacing the newly installed fiber optic cable with material that results in signal quality with specifications. A TxDOT representative will be present while the contractor is splicing fibers from two different manufacturers.

If any TMS fiber optic cable is damaged during construction, it will be repaired within 48 hours after detection of damage. The Contractor will be required to test the fiber and provide such tests to the Engineer for determining suitability for splicing. If no splice is permitted, the Contractor will replace the entire run (approx. 15,000 ft or actual length) at no direct cost to the Department. All fiber provided, tested and spliced will be in accordance with special specification "Fiber Optic Cable (Single Mode)".

Install 50 feet of slack of "trunkline" fiber optic cable in each manhole that fiber passes through, racked to side of manholes using support hooks. Rack and hooks are subsidiary to the item manhole with no direct payment.

Use ST connectors where fiber optic cables terminate in TMS equipment.

All fiber optic cable splices and connectors are subsidiary to the item "Fiber Optic Cable (Single Mode)", with no direct payment.

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