ATTACHMENT C

SERVICES TO BE PROVIDED BY THE ENGINEER

The ENGINEER shall provide Construction Engineering and Inspection (CEI) services for the IH-35 Capital Express Central Downtown (Advance Construction) Project (CSJs: 0015-13-437 and 0015-13-452), extending from Holly Street/Lady Bird Lake to 290 East in Travis County, Austin District. The project involves advanced bridge, roadway, and utility relocation improvements in preparation for the future Capital Express Central Downtown Project. The scope of work includes reconstruction of IH-35 cross streets and bridges, mainlanes, frontage roads, intersections, and ramps; construction of bypass lanes and drainage facilities; development of shared-use paths; and relocation of major water and wastewater utilities located within State and City of Austin ROW.

As used throughout this Attachment C, “ensure” means to make certain that something has happened or will happen and includes an obligation to deploy the appropriate level of engineering or other technical expertise, consistent with the complexity, cost, and level of risk associated with a task. Ensure does not require or guarantee the completion of any task assigned to a separate entity under any other agreement.

The work to be performed by the Engineer shall consist of managing the construction contract, which includes monitoring during and verifying after, that construction of specific operations are in accordance with the plans, and providing Engineer Led Inspection Teams (ELIT) to perform various CEI services, that include the services described in this Attachment.

1. GENERAL REQUIREMENTS

The Engineer shall provide all labor, equipment, tools, and incidentals to inspect, sample, test, and recommend acceptance to the State on the specific construction operations as defined in the scope of services.

The Engineer shall be responsible for Engineer Led Inspection Teams (ELITs) to ensure the specific operations as defined within the work authorizations are conducted in accordance with the construction plans, standard specifications, special specifications, and special provisions.

The Engineer shall assist and advise the State in matters of policy and procedure, and generally accepted industry practices. The Engineer shall identify deficiencies in the work of the contractor, its subcontractors, vendors, and consultants in the specific construction operations and inform the State of these deficiencies within 24 hours of obtaining knowledge.

The Engineer shall coordinate with the TxDOT district’s Area Engineer or the Area Engineer’s designee to schedule inspection of contractor work activities. The Engineer shall be on-site performing inspection duties at any time said work is being performed including nighttime hours and weekends as required by the planned construction work. No overtime will be paid without approval from the State.

The scope of the project is based on the construction contract construction schedule, added days to the schedule, as well as a closeout period. The Engineer shall close out the project and ensure that documentation and project related issues have been resolved and submitted to the State by the Engineer.

The Engineer shall attend any meetings required by the State to discuss specifications and action plans with regards to the pertinent bid items, e.g., Pre-Con meetings, Safety meetings, Pre-Paving meetings, or other types of meetings. The Engineer shall provide required documentation for these meetings.

The Engineer shall perform Construction Engineering Inspection (CEI) services, to assist the State in managing its construction operations before, during, and after the construction of improvements.

The Engineer shall provide “work around” ideas to keep the project moving when there is a utility or right of way (ROW) conflict.

The Engineer shall assist the State throughout all aspects and phases of construction operations and shall, when requested by the State, fully support the State in its dealings with the contractor, suppliers, subcontractors, other engineers, legal counsel, accountants, other consultants, government entities, utilities, property owners, and the general public.

The Engineer shall provide qualified technical and professional personnel that adhere to professional standards consistent with those typically met by nationally known and highly regarded construction management firms. Unless otherwise instructed by the State, the Engineer shall minimize the need for the State to apply its own resources to assignments.

1.1. Quality Assurance Program (QAP).

The Engineer shall provide certified personnel, as outlined in the Quality Assurance Program for Design-Bid-Build Projects (DBB QAP), that are knowledgeable of all materials testing procedures. All personnel performing acceptance tests must have current certification(s) to perform project testing. The Engineer shall provide copies of current certifications and a completed form 2682, Design-Bid-Build Quality System Inspection – Commercial Laboratory documenting pre-accreditation of the testing laboratory, equipment calibration and verification, and technician certifications to the Area Office within 10 days after execution of this contract.

The Engineer shall perform all tests and services at the Engineer’s facility as shown on this contract, except tests performed at the plant or on the roadway. The laboratory shall be accredited by the State Lab Qualification Program outlined in the DBB QAP within 30 days of contract execution. The Engineer shall meet the requirements for certification and accreditation according to TxDOT's DBB QAP. TxDOT may terminate this contract if the Engineer does not meet the requirements within 30 days of execution of this contract.

In addition to submitting form 2682 at the beginning of the project, the Engineer shall perform an audit follow up every twelve months for the remaining duration of this contract.

1.2. Quality Control Plan (QCP).

The Engineer shall develop a QCP that is project-specific and developed in accordance with the DBB QAP. The Engineer shall submit the written QCP to the State within 10 days after execution of this contract and before the mandatory kick-off meeting. The Engineer shall receive written approval of the QCP from the TxDOT Area Office prior to beginning inspection, sampling, and testing. If the QCP is revised, the Engineer shall submit the addendum for the QCP changes to the State and receive approval from the TxDOT Area Office before performing inspection, sampling, and testing.

The Engineer shall include the following procedures and items in the QCP.

A. Project and Personnel.

For the CEI project and personnel, the Engineer shall include all the following:

1. Control-Section-Job (CSJ) number, District, County, Area Engineer, and Highway
2. A dedicated person responsible for quality, with their current contact information (cell phone number and email address), who will ensure that all CEI and Contractor technician certifications and equipment calibrations are current, including updates to test methods, and proficiencies are performed in time and independently.
3. A list of the subprovider firms and a defined scope of responsibility maintained by the Engineer to comply with the QAP for DBB projects. This list must include the names of individuals and their sampling and testing responsibilities.

4. Current electronic copies of certification documents for individuals performing specified sampling and testing functions.
5. Procedures for ensuring technicians participate and perform proficiency samples independently without sharing results.
6. Procedures for handling accusations of misconduct covering neglect, abuse, or breach of trust.

B. Laboratory.

For the CEI laboratory equipment and calibration, the Engineer shall include all the following:

1. Current electronic copies of the most recent equipment calibration checks where applicable and in accordance with the following:
   a. Tex 198-E, “Minimum Standards for Acceptance of a Laboratory for Soils and Flexible Base Testing”;
   b. Tex 237-F, “Minimum Standards for Acceptance of a Laboratory for Hot Mix Testing”;
   c. Tex 498-A, “Minimum Standards for Acceptance of a Laboratory for Concrete and Aggregate Testing”; and
   d. Tex 900-K Series, procedures for calibrating, verifying, and certifying equipment and devices.
2. Equipment and calibration information including only the equipment required for testing on the specific project and the support equipment such as calipers and weights.
3. Annual equipment calibration schedule that shows date(s) on which annual calibrations are due.
4. Maintenance and repair plan for laboratory equipment.
5. Electronic copies of all standards used for calibrations or verifications.
6. Procedures for ensuring quality is attained through laboratory testing equipment beyond the normal calibration cycle.

C. Quality.

For the CEI firm to achieve quality through inspection, sampling, and testing, the Engineer shall include all the following:

1. A designated person responsible for the Engineer’s adherence to the QCP.
2. A description of how QCP information will be communicated to all members of the CEI team.
3. A description of how the CEI firm will ensure that employees (both prime provider and sub-provider) receive a copy of and understand the construction contractor’s quality control plan or paving plan for each material.
4. All reference document resources available to technicians.
5. In-house equipment available to technicians for equipment calibration and repair.
6. Instructions for how to properly care for laboratory equipment.
7. Procedures for establishing which equipment can be shared between the CEI firm and the construction contractor and the corresponding approval process.
8. Procedures and time limits for reporting test results to the Engineer and Contractor.

9. Timely review of Quality Assurance (QA) test results for reasonableness and comparison of Quality Control (QC) and QA data.
10. Description of how the CEI firm shall protect the integrity of quality assurance data, by performing all the following:
    a. The Engineer shall not provide the construction contractor with the random numbers for material sampling in advance;
    b. The Engineer shall separate review and authorization functions in SiteManager;
    c. The Engineer shall provide instructions showing how test results will be documented in SiteManager when the tester does not directly enter the results; and
    d. The Engineer shall provide a description of how the Engineer will ensure that the correct QC and QA data is saved in SiteManager.

1.3. QC and QA Data Integrity.

A. The Engineer shall protect the integrity and process for uploading QC and QA data to SiteManager.

B. The Engineer shall enter all QC and QA data into SiteManager, unless directed otherwise by the State.

C. The Engineer shall review all data prior to uploading to SiteManager.

D. The Engineer's certified testing technicians must make sure the test data submitted for entry into SiteManager is correct.

E. The Engineer's certified technicians performing QA testing must not rely on the QC staff to enter QA test data into a spreadsheet for entry into SiteManager.

F. The QC test data and QA test data for each day's production must be placed in "clean" separate excel templates then submitted directly to the person responsible for entry into SiteManager. The QC staff must not have access to the QA excel template.

G. When the QA technician that performed the test does not enter their data directly into SiteManager, the technician's signed and dated raw data calculation sheet (not the excel spreadsheet) must be attached within the Basic Sample tab in SiteManager.

1.4. Relevant Standards, Manuals, and Policies.

The Engineer shall be responsible for the Construction Engineering Inspection of an assigned project to verify it is constructed in accordance with the construction plans, specifications, special specifications special provisions, standard drawings, and Department Material Specifications. The Engineer shall verify compliance with the DBB QAP approved for use at the time of letting, all relevant TxDOT standards, manuals, and policies, including the *TxDOT Construction Contract Administration Manual (CCAM)*, and TxDOT's *Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges (Spec Book)*, special specifications, and special provisions, unless otherwise noted. The Engineer shall follow the TxDOT *Guide Schedule of Sampling and Testing for Design Bid-Build (DBB) Projects – (DBB Guide Schedule)* approved for use at the time of letting, the appropriate district procedures, the guidelines in the TxDOT *ROW Utilities Manual*, the *Texas Manual on Uniform Traffic Control Devices (TMUTCD)*, and all manuals accessible on the State's external website. The Engineer shall use appropriate TxDOT or other test methods.

The Engineer shall have knowledge in grading of permanent metal deck forms and precast concrete panels. The Engineer shall have knowledge and proficiency with the Bridge Geometry

System (BGS). The Engineer shall have knowledge in Bridge Foundation and Design Utilizing the American Association of State Highway and Transportation Officials (AASHTO) Load Resistance Factor Design (LRFD) for foundations methodology in accordance with the *TxDOT Geotechnical Manual - LRFD*, knowledge of OSHA regulations and knowledge in Bridge Structural analysis, specifically the ability to analyze structures which may be subjected to construction loading (cranes, heavy construction equipment).

1.5. Level of Authority as Granted by the State.

The State may delegate to the Engineer a level of decision-making authority the State deems appropriate. To be effective, any delegation of authority by the State to the Engineer must be in writing. This will be further described under the appropriate tasks. The Engineer shall assist and advise the State in matters of policy and procedure, and generally accepted industry practices. The State may, at any time, remove the delegation of decision-making authority from the Engineer.

1.6. Plan Errors and Omissions by Others.

The Engineer shall provide services including identification and recommendation of corrections of plan errors and omissions, substitutions, defects, and deficiencies in the work of the contractor, its subcontractors, its vendors, and its consultants and coordinate all efforts to meet the project budget and schedule. Any plan errors submitted by the contractor shall be addressed with the State immediately.

1.7. Hours of Work.

The Engineer shall coordinate with the Area Engineer or the Area Engineer's designee to schedule inspection of contractor work activities. The Engineer shall be required to work during nighttime hours and on weekends as required by the planned construction work.

During the project, weather conditions, project delays, or work stoppages might reduce the need for personnel. If requested by the State, the Engineer shall reduce the weekly individual work hours of its and its subcontractor's personnel to the number of hours instructed by the State, which may be less than 40. The Engineer shall manage the overtime accordingly.

No overtime will be paid without approval from the State. The scope is based on the construction contract construction schedule and added days to the schedule, as well as a closeout period. The Engineer shall close out the project, which includes verifying that all documentation and project related issues have been resolved and submitted to the State by the Engineer.

1.8. Progress Reporting and Invoicing.

The Engineer shall invoice according to the Function Code breakdowns as shown in Attachment C – Services to be Provided by the Engineer, of this Contract for Engineering Services and Exhibit D – Fee Schedule, of each Work Authorization. The Engineer shall submit each invoice electronically directly to the Professional Engineering Procurement Services (PEPS) Invoice Center using the appropriate method of payment template provided by the State.

On a monthly basis, the Engineer shall enter the Historically Underutilized Business (HUB) or Disadvantaged Business Enterprise (DBE) Reporting information and Projected vs. Actual information directly into the Professional Services-Contract Administration Management System (PS-CAMS) Consultant Portal.

The Engineer shall submit a monthly written progress report to the State's Project Manager regardless of whether the Engineer is invoicing for that month. The Engineer's written progress report shall describe activities during the reporting period; activities planned for the following period; problems encountered, and actions taken to remedy them; list of meetings attended; and overall status, including a percent complete by task.

1.9. Railroad Right of Way Requirements.

For any projects that require railroad coordination, prior to entering or performing any work within the railroad right of way, the Engineer shall:

A. Provide proof of appropriate insurance

B. Secure the required permit or agreement from the railroad

C. Provide contractor or worker awareness training to all of its employees, subprovider employees, and TxDOT personnel assigned to the project.

1.10. Field Office Equipment.

Unless otherwise provided by the construction contractor, the Engineer shall provide and maintain all computer equipment, software applications, printers, and phones necessary for the Engineer to perform the work. At the completion of this contract, the Engineer shall retain all computer equipment, printers, cell phones, and software that were provided by the Engineer.

The Engineer shall not attempt to access TxDOT's business or ITS networks with the Engineer provided equipment except where all of the following conditions are satisfied:

A. The Engineer requires limited access to use specific software application or applications necessary to perform work under this contract (e.g., SiteManager, ProjectWise);

B. TxDOT's Information Technology Division (ITD) has approved the:

1. Specific access requested,

2. Software application or applications to be used, and

3. Method by which the Engineer provided equipment will access the TxDOT network or networks;

C. The Engineer utilizes only computer or computers that meet or exceed the minimum system requirements specified for a software application to run that software application; and

D. The Engineer has completed and provided to the State the following TxDOT forms:

1. Forms 1828 – Information Security Compliance,

2. Form 1980 – Request for External Access to the State's Information Systems, and

3. Form 2526 – SiteManager/EPRS/LCPtracker Access Request.

At the end of this contract, State will revoke any access rights granted under this contract. Additionally, the State may revoke any and all access granted under this contract at any time if the State deems that it is necessary to protect the integrity and the security of its networks.

1.11. Personal Protective Equipment (PPE).

A. The Engineer shall, and shall require its subcontractors to:

1. Provide personal protective equipment (PPE) to their personnel,

2. Provide business vehicles for their personnel, and

3. Require their personnel to use PPE and drive only business vehicles while performing work on or near roadways or in any field laboratories.

B. The PPE must meet all:

1. Current standards set by the Occupational Safety and Health Administration (OSHA) and

2. TxDOT requirements (e.g., safety glasses, Type 3 (TY 3) pants for night work).

C. Each business vehicle must be clearly marked with the Engineer's business name, or the name of the appropriate subcontractor, such that the name can be identified from a distance.

1.12. Training Requirements.

A. Each key staff member of the Engineer's project team that is performing or overseeing construction inspection tasks must complete the Environmental Management System (EMS) courses prescribed by the State prior to working on the project. In addition, each member of the Engineer's project team that is conducting Form 2118-Construction Stormwater Pollution Prevention Plan Field Inspection and Maintenance Report inspections or overseeing those inspections must complete the EMS courses prescribed by the State prior to working on the project. The required training for key staff members and Form 2118 inspection staff members on the CEI project team is listed on the EMS training matrix, which may be accessed at: https://ftp.txdot.gov/pub/txdot-info/env/ems/070-04-fig.pdf

The courses listed on the EMS training matrix are e-learning (online), unless otherwise noted as classroom learning. Information about the online courses may be accessed at: https://www.txdot.gov/inside-txdot/division/environmental/ems-courses.html. Contact TxDOT training for information about the classroom learning courses at 512-416-2000.

The SWP3 Applied Concepts (ENV302) training requirement may be fulfilled by substituting the completion of Certified Professional in Erosion and Sediment Control (CPESC) or Construction Site Inspectors of Sediment and Erosion Control (CISEC) or equivalent training.

The Engineer shall ensure that each staff member of the Engineer's project team that is required to complete EMS training has completed the required training listed on the EMS training matrix prior to working on the project. In addition, the Engineer shall ensure that the staff members that are required to complete EMS training repeat the EMS training based on the repeat requirements stated in the EMS training matrix.

B. Deliverables for Training Requirements:

The Engineer shall provide a list, signed by the Engineer's Project Manager that includes the following:

1. The names and titles of all key staff personnel performing or overseeing construction inspection tasks or performing or overseeing Form 2118 inspection tasks
2. The names of the training courses completed by each person on the list
3. The completion dates for the training courses completed by each person on the list

The Engineer shall update this list and submit it to the State any time new key staff personnel or Form 2118 inspection personnel are assigned to the project team and any time training is repeated by the personnel on the project.

1.13. Construction Issues and Conflicts.

The Engineer shall identify, track, and assist in the resolution of construction issues and conflicts. The Engineer shall provide data to the Area Engineer and the Area Engineer's representatives to support monitoring and recording of construction activities.

1.14. Shared Use of Testing Equipment.

The Engineer shall not share use of the testing equipment furnished by the construction contractor unless all the following requirements are met:

A. The specification specifically allows shared use.

B. The testing equipment is located in the Engineer's field laboratory or in a location where the Engineer has oversight of the equipment.

C. The Engineer maintains records of testing equipment calibrations necessary to demonstrate that the equipment was calibrated during the period of use; all calibration records are provided to TxDOT by the Engineer; and the calibration records are maintained by the Engineer through final completion of the construction contract.

D. The Engineer ensures that the testing equipment in its custody is properly maintained and cared for continuously; and

E. The Engineer obtains written approval from TxDOT Area Office prior to using any testing equipment furnished by the construction contractor.

1.15. Information Resources and Security Requirements.

Engineer (as "Contractor" in Attachment I) shall perform its work in accordance with Attachment I, Information Resources and Security Requirements. A Contractor-Related Entity might create, access, transmit, store, or use <<Public | Sensitive | Confidential | Regulated> choose one > TxDOT data in a Contractor-Related Entity Environment. The Engineer shall ensure that Contractor-Related Entity Environments comply with the TxDOT <<Low | Moderate | High> choose one > Security Baseline <with the <Sensitive | Privacy | PCI | CJIS> Overlay; choose one or remove if no Overlays apply>.

2. CONTRACT ADMINISTRATION

The Engineer shall be knowledgeable about contract administration and administer this contract in accordance with Items 1-9 of TxDOT's *Standard Specifications for the Construction and Maintenance of Highways, Streets and Bridges (Spec Book)*. The Engineer shall:

2.1. Engineer's Scope of Work.

A. Attend pre-bid conferences

B. Attend and document formal and informal partnering meetings.

C. Changes in the Work

1. Provide the estimated cost of change orders and assist with negotiations, if requested.
2. Develop plans to address design needs due to field changes. Inspection of this work shall be done by a firm other than the one providing the design. This work must not address errors and omissions.
3. Identify and make recommendations to the State for the corrections of plan errors and omissions, substitutions, defects, and deficiencies in the work of the contractor, subcontractors, vendors, or others.
4. Perform utility coordination and investigation (i.e. subsurface utility engineering) including coordination with the State's district whenever unforeseen utility issues are encountered.
5. Identify and address differing site conditions.
6. Assist with negotiations related to requests for additional compensation.
7. Assist negotiating dispute resolutions.

2.2. Control of Work.

A. Track all shop drawing submittals, reviews, and approvals.

B. Review work schedule, plan changes, construction issues, traffic changes, and public information topics, including review and approval of the contractor's baseline schedule as well as monitoring the schedule.

C. Evaluate conformity with plans, specifications, and special provisions

D. Review construction surveying

E. Perform inspection related to the following

1. Environmental requirements
2. Traffic control plans, traffic control setup, and devices
3. Preparing right of way (ROW), clearing and grubbing, removing concrete, and others
4. Excavation, embankment, borrow and flex base
5. Lime fly ash or lime-fly ash treated subgrade and base, cement treated subgrade and base, asphalt treatment (plant mix)
6. Surface treatments, hot-mix asphalt pavements, permeable friction course
7. Basic reinforced concrete, batch plant inspection
8. Drainage systems and pre-cast items, earthwork for structures, miscellaneous concrete structures (sidewalks, driveways, curb & gutter, medians, islands)
9. Landscape and revegetation, topsoil, compost
10. Sodding, seeding, soil retention blanket
11. Mechanically stabilized earth (MSE) retaining walls, soil nail retaining walls
12. Foundations (pile driving), foundations (drilled shafts), substructures (columns, caps, footings, culverts)
13. Superstructures (decks, setting and grading beams, girders and rails)
14. Concrete pavements, cleaning and sealing joints and cracks
15. Concrete traffic barrier, metal beam guard fence (MBGF), guardrail end treatments, crash cushion attenuators
16. Permanent signing and supports, striping, prefab pavement markings, raised pavement markers
17. Traffic signals and illumination, high mast illumination
18. Structural bolting and large diameter foundation bolts
19. Other assets as installed.

F. Final Acceptance

1. Prepare and maintain a punch list
2. Perform final Inspection
3. Verify cleanup
4. Verify removal of traffic control devices
5. Verify final quantities

2.3. Control of Materials.

A. Verify that materials are procured in compliance with Buy America and Buy Texas provisions (Form 1818 and Mill Test Report).

B. Verify all materials meet specifications and are performing as designed.

C. Verify that all manufacturer warranties are provided as required.

D. Perform material testing and inspection at various locations, including laboratory, field, plant, and stockpile, utilizing required methods and equipment. Sources of materials to be tested might include

1. Stored materials
2. Materials found on the ROW
3. Recycled materials
4. Hazardous materials
5. Surplus materials

2.4. Legal Relations and Responsibilities.

A. Ensure CEI team members follow the State's ethics policy regarding relationship with the contractor. Engineer shall notify State when any ethics-related issues arise.

B. Safety

1. Organize and attend a safety preconstruction meeting.
2. Monitor the project for public safety and report any observed unsafe operations, to TxDOT's Area Engineer or designee recommending appropriate corrective action.
3. Monitor the contractors' traffic control verifying clarity and appropriateness of all traffic control devices per the project plans and specifications.
4. Perform monthly day and nighttime inspection of Traffic Control devices.

C. Monitor contractor's and subcontractors' compliance with applicable laws

D. Verify that contractor has acquired all required permits, training, and licenses.

E. Perform inspections required by storm water pollution prevention plan (SWP3), erosion control measures, and municipal separate storm sewer system (MS4) inspections.

F. Monitor cultural or natural resource sites within the project limits as shown on the plans or as discovered.

G. Verify that contractor has satisfactorily completed all work for which he is responsible.

H. Verify that all electrical requirements have been satisfied.

I. Verify contractor's payroll and perform appropriate wage rate surveys.

J. As a representative of TxDOT, the Engineer shall notify the State and the contractor of the contractor's failure to comply with the construction plans, standard specifications, special specifications, and special provisions. The Engineer is obligated to notify the State and contractor of compliance issues. The Engineer does not have the authority to direct the contractor's operations.

2.5. Monitor Prosecution and Progress.

A. Monitor prosecution of work

B. Prior to Contractor's use of a subcontractor on the project, verify that the subcontractor has been approved by State. If that subcontractor has not been approved by State, notify State of Contractor's intended use of an unapproved subcontractor.

C. Contract time charges

1. Develop daily work reports (DWRs) in SiteManager. Engineer personnel developing DWRs in SiteManager must have the required knowledge of SiteManager necessary to perform recordkeeping tasks.
2. Maintain all job records including documents such as test reports, emails and other correspondence, and material tickets.
3. Maintain all documentation using the electronic filing system preferred by the TxDOT district.
4. Track road user cost and milestone incentives and disincentives.

D. Project Schedules

1. Analyze time impact analysis (TIA's) if contractor requests more time.
2. Analyze contractor's schedules on a monthly basis.
3. Perform critical path methodology (CPM) schedule analysis.
4. Create and maintain the project schedule status report (PSSR)

2.6. Measurement and Payment.

A. Perform measurement and documentation of quantities on appropriate forms and in accordance with appropriate specifications and bid item descriptions.

B. Prepare progress payments by established deadlines.

C. Monitor materials on hand and provide for payment in monthly progress payments.

D. Develop change orders as appropriate for payment of extra work.

E. Monitor Contractor's compliance with contract provisions related to payments to subproviders.

2.7. Prepare Project Closeout.

A. Perform final inspection in conjunction with the State's Engineer as requested by the State.

B. Provide as-built plans.

C. Prepare all project records for electronic storage as requested or approved by the State.

TASK DESCRIPTIONS AND FUNCTION CODES

The Engineer shall categorize each task performed to correspond with the Function Codes (FC) and Task Descriptions.

FUNCTION CODE 135 (135) – RIGHT-OF-WAY – UTILITY ACTIVITIES

RIGHT-OF-WAY UTILITY ACTIVITIES

135.1. Engineer Designees.

The Engineer is responsible for designating and providing the services of the following individuals or entities:

A. Utility Coordinator is the individual or entity performing Utility-related Services that are not required to be performed by a licensed engineer under Texas law.

B. Utility Engineer is the individual or entity performing Utility-related Services that are required to be performed by a licensed engineer under Texas law.

135.2. Utility Engineering Investigation.

Utility engineering investigation includes utility investigations subsurface and above ground prepared in accordance with ASCE/CI Standard 38-22

[(http://www.fhwa.dot.gov/programadmin/asce.cfm)] and Utility Quality Levels.

A. Utility Quality Levels (QL)

Utility Quality Levels are defined in cumulative order (least to greatest) as follows:

1. Quality Level D - Quality level value assigned to a utility segment or utility feature after a review and compilation of data sources such as existing records, oral recollections, One-Call markings, and data repositories.
2. Quality Level C - Quality level value assigned to a utility segment or utility feature after surveying aboveground (i.e., visible) utility features and using professional judgement to correlate the surveyed locations of these features with those from existing utility records.
3. Quality Level B - Designate: Quality level value assigned to a utility segment or subsurface utility feature whose existence and position is based upon appropriate surface geophysical methods combined with professional judgment and whose location is tied to the project survey datum. Horizontal accuracy of Designated Utilities is 18" (including survey tolerances) unless otherwise indicated for a specific segment of the deliverable. Quality Level B incorporates quality levels C and D information. A composite plot is created.
4. Quality Level A – Quality level value assigned to a portion (x, y, and z geometry) of a point of a subsurface utility feature that is directly exposed, measured, and whose location and dimensions are tied to the project survey datum. Other measurable, observable, and judged utility attributes are also recorded (per District Best Practices). The utility location must be tied to the project survey datum with an accuracy of 0.1 feet (30-mm) vertical and to 0.2 feet (60-mm) horizontal. As test holes may be requested up front or during the project, test holes done prior to completion of QL D, C, or B deliverables must be symbolized on the QL B deliverable with a call out indicating test holes number. This is in addition to and not in lieu of the test hole.

B. Utility Investigations Methodology

1. Utility Investigation Quality Level D

The Engineer shall:

a. Perform records research from all available resources. Sources include: Texas811, Railroad Commission of Texas (Texas RRC), verbal recollection, as-built information from plans, plats, permits and any other applicable information provided by the utility owners or other stakeholders.

b. Document utility owners and contact information.

c. Create a utility drawing of information gathered.

2. Utility Investigation Quality Level C

The Engineer shall:

a. In combination with existing Quality Level D information, utilize surveyed above-ground utility features and professional judgement to upgrade Quality Level D information to Quality Level C. For those utilities unable to be upgraded, retain as Quality Level D.

b. Overhead utilities information must be gathered and depicted. Sag elevations of lowest utility must be documented at road crossings, per best practices document.

c. Storm and sanitary sewer information must be gathered from Level D and upgraded to Level C as possible, unless otherwise directed by the state.

d. Mapping of underground vaults may be requested by the State.

e. Create composite utility drawing of information gathered.

3. Designate (Quality Level B)

Designate means to indicate the horizontal location of underground utilities by the application and interpretation of appropriate non-destructive surface geophysical techniques and reference to established survey control. Designating (Quality Level B) services are inclusive of Quality Levels C and D.

The Utility Engineer must:

a. As requested by the State, compile "as-built" information from plans, plats and other location data as provided by the utility owners.

b. Coordinate with utility owner when utility owner's policy is to designate their own facilities at no cost for preliminary survey purposes. The Engineer shall examine utility owner's work to ensure accuracy and completeness.

c. Designate, record, and mark the horizontal location of the existing utility facilities using non-destructive surface geophysical techniques.

d. Using both active and passive scans to attempt to locate any additional utilities, including unrecorded and abandoned storm and sanitary sewer facilities, at the direction of the State, may be investigated using additional methods such as rodding that would then classify them as Quality Level B. A non-water based pink paint or pink pin flags must be used on all surface markings of underground utilities.

e. Correlate utility owner records with designating data and resolve discrepancies using professional judgment. The Utility Engineer must prepare and deliver to State a color-coded composite utility facility plan with utility owner names, quality levels, line sizes, and subsurface utility locate (test hole) locations. The Utility Engineer and State acknowledge that the line sizes of designated utility facilities detailed on the deliverable will be from the best available records and that an actual line size is normally determined from a test hole vacuum excavation. A note must be placed on the designate deliverable only that states "lines sizes are from best available records". All above-ground utility feature locations must be included in the deliverable to the State. This information must be provided in the latest version of OpenRoads civil design system used by the State. The electronic file will be delivered on CD, DVD, or USB flash drive, as required by the State. A hard copy is required and must be signed, sealed, and dated by the Utility Engineer. When requested by the State, the designated utility information must be over laid on the State’s design plans.

f. Determine and inform the State of the approximate electronic utility depths at critical locations as determined by the State. The limits of this additional

information should be determined prior to the commencement of work. This depth indication is understood by both the Engineer and the State to be approximate only and is not intended to be used preparing the right of way and construction plans.

g. Provide a monthly summary, with weekly updates, of work completed and in process with adequate detail to verify compliance with agreed work schedule.

h. Close-out permits as required.

i. Clearly identify all utilities that were discovered from Quality Levels C and D investigation but cannot be depicted in Quality Level B standards. These utilities must have a unique line style and symbology in the designate (Quality Level B) deliverable.

j. Comply with all applicable TxDOT policy and procedural manuals.

4. Subsurface Utility Locate (Test Hole) Service (Quality Level A)

Locate is the process used to obtain precise horizontal and vertical position, material type, condition, size, and other data that may be obtainable about the utility facility and its surrounding environment through exposure by non-destructive excavation techniques that ensures the integrity of the utility facility. Subsurface Utility Locate (Test Hole) Services (Quality Level A) are inclusive of Quality Levels B, C, and D.

The Utility Engineer must:

a. Review requested test hole locations and advise the State in the development of an appropriate locate (test hole) work plan relative to the existing utility infrastructure and proposed highway design elements.

b. Coordinate with utility owner inspectors as may be required by law or utility owner policy.

c. Place Texas 811 ticket 48 hours prior to excavation.

d. Neatly cut and remove existing pavement material, such that the cut does not exceed 0.10 square meters (1.076 square feet) unless unusual circumstances exist.

e. Measure and record the following data on an appropriately formatted test hole data sheet that has been sealed and dated by the Engineer:

(1) Elevation of top of utility tied to the datum of the furnished plan.

(2) Minimum of two benchmarks utilized. Elevations must be within an accuracy of 15mm (.591 inches) of utilized benchmarks.

(3) Elevation of existing grade over utility at test hole location.

(4) Horizontal location referenced to project coordinate datum.

(5) Outside diameter of pipe or width of duct banks and configuration of non-encased multi-conduit systems.

(6) Utility facility material(s).

(7) Utility facility condition.

(8) Pavement thickness and type.

(9) Coating/wrapping information and condition.

(10) Unusual circumstances or field conditions.

f. Excavate test holes in such a manner as to prevent any damage to wrappings, coatings, cathodic protection, or other protective coverings and features. Water excavation can only be utilized with written approval from the appropriate State District Office.

g. Be responsible for any damage to the utility during the locating process. In the event of damage, the Utility Engineer must stop work, notify the appropriate utility facility owner, the State, and appropriate regulatory agencies. The regulatory agencies include: the Railroad Commission of Texas and the Texas Commission on Environmental Quality. The Utility Engineer must not resume work until the utility facility owner has determined the corrective action to be taken. The Utility Engineer must be liable for all costs involved in the repair or replacement of the utility facility.

h. Back fill all excavations with appropriate material, compact backfill by appropriate mechanical means, and restore pavement and surface material. The Engineer is responsible for the integrity of the backfill and surface restoration for a period of three years.

i. Furnish and install a permanent above-ground marker, as specified by the State, directly above center line of the utility facility.

j. Provide complete restoration of work site and landscape to equal or better condition than before excavation. If a work site and landscape is not appropriately restored, the Utility Engineer must return to correct the condition at no extra charge to the State.

k. Plot utility location position information to scale and provide a comprehensive utility plan signed and sealed by the responsible Engineer. This information must be provided in the latest version of MicroStation and be fully compatible with the OpenRoads civil design system used by the State. The electronic file will be delivered on CD, DVD, or USB flash drive as requested. When requested by the State, the locate information must be over laid on the State's design plans.

l. Return plans, profiles, and test hole data sheets to the State. If requested, conduct a review of the findings with the State.

m. Close-out permits as required.

FUNCTION CODE 160 (150) – ROADWAY DESIGN

DESIGN SURVEYS AND CONSTRUCTION SURVEYS

For Function Code 150, the term Surveyor means the firm (prime provider or subprovider) that is providing the surveying services shown in this scope.

The Engineer shall ensure that the following general standards for survey work are followed for Function Code 150:

Unless otherwise indicated, any reference in this attachment to a manual, specification, policy, rule or regulation, or law means the version in effect at the time the work is performed. TxDOT manuals are available at: http://onlinemanuals.txdot.gov/manuals/.

All surveys must meet or exceed all applicable requirements and standards provided by: (1) Professional Land Surveying Practices Act, (2) General Rules of Procedures and Practices promulgated by the Texas Board of

Professional Engineers and Land Surveyors (TBPELS), and (3) *TxDOT Survey Manual*. The Surveyor shall perform all work in an organized and professional manner. All surveys are subject to the approval of the State.

The Surveyor shall use TxDOT's *ROW Preliminary Procedures for Authority to Proceed Manual* and *TxDOT Survey Manual* as the basis for the format and preparation of all right of way (ROW) documents produced, including ROW maps, written parcel descriptions, parcel plats, and other ROW work products, unless otherwise specified by the State.

Unless otherwise directed by the State, the Surveyor shall use (1) the North American Datum of 1983 (NAD83), Texas Coordinate System of 1983 (State Plane Coordinates) applicable to the zone or zones in which the work is performed, with values in U.S. survey feet, as the basis for all horizontal coordinates derived and (2) the datum adjustment currently in use by TxDOT.

Project or surface coordinates must be calculated by applying a combined adjustment factor (CAF) to State Plane Coordinate values. If provided by the State, the Surveyor shall use a project specific CAF.

Elevations must be based on the North American Vertical Datum 88 (NAVD88), unless otherwise specified by the State.

All work using the Global Positioning System (GPS), whether primary control surveys or other, must meet or exceed the requirements provided by the *TxDOT Survey Manual* to the order of accuracy specified in the categories listed below or in a work authorization. If the order of accuracy is not specified in this attachment or in a work authorization, the work must meet or exceed the order of accuracy specified in the publication listed in this paragraph.

All conventional horizontal and vertical control surveys must meet or exceed the order of accuracy specified in the *TxDOT Survey Manual* unless specified otherwise in this contract.

All boundary determination surveys, whether for ROW acquisition, ROW re-establishment, or other boundary needs, must meet or exceed the accuracy specified in the *TxDOT Survey Manual* unless specified otherwise in this contract.

The State may authorize the Surveyor to use an Unmanned Aircraft System (UAS) to perform services under this contract. The use of UAS is regulated by the Federal Aviation Administration (FAA). All UAS operators must comply with Federal Aviation Administration (FAA) regulations and the *TxDOT Unmanned Aircraft System (UAS) Flight Operations and User's Manual*.

The survey data must be fully compatible with the State's computer system and with programs in use by the State at the time of the submission, without further modification or conversion. The current programs used by TxDOT are: Microsoft Word, Bentley MicroStation, Bentley OpenRoads civil design system, Bentley GEOPAK Survey, Excel, and ESRI ArcGIS. Data collection programs must be compatible with the current import formats allowed by GEOPAK Survey and be attributed with current feature codes. These programs may be replaced at the discretion of the State.

Drawing sizes are defined, based on American National Standards Institute (ANSI) standard paper sizes, as follows: A-size means 8.5 inches by 11.0 inches, B-size means 11.0 inches by 17.0 inches, C-size means 17.0 inches by 22.0 inches, and D-size means 22 inches by 34.0 inches.

Variations from these software applications or other requirements listed above shall only be allowed if requested in writing by the Surveyor and approved by the State.

The Surveyor shall perform quality control/quality assurance on all procedures, field surveys, data, and products prior to delivery to the State. The State may also require the Surveyor to review the survey work performed by others. If, at any time, during the course of reviewing a submittal of any item it becomes apparent to the State that the submittal contains a substantial number of errors, omissions, and inconsistencies, the State may cease its review and return the submittal to the Surveyor immediately for appropriate corrective action. A submittal returned to the Surveyor for this reason is not a submittal for purposes of the submission schedule.

The standards for services that are not boundary-related but that relate to surveying for engineering projects may be determined by the construction specifications, design specifications, or as specified by the State.

150.1. Design and Construction Survey.

A. Definitions

1. Design Survey (15.2.1)

   A design survey gathers data in support of transportation systems design. A design survey includes the research, field work, analysis, computation, and documentation necessary to provide detailed topographic (3-dimensional) mapping of a project site (e.g. locating existing ROW, surveying cross-sections or developing data to create cross-sections and digital terrain models, horizontal and vertical location of utilities and improvements, collecting details of bridges and other structures, review of ROW maps, establishing control points).

2. Construction Survey (15.2.2)

   A construction survey provides data in support of transportation systems construction. A construction survey may include reconnaissance, field work, analysis, computation, and documentation necessary to provide horizontal and vertical positions of specific ground points to establish lines or grades or for the validation of quantities of materials placed or removed. Construction layout and staking is included in this category.

B. Technical Requirements for Design and Construction Surveys

1. Design surveys and construction surveys must be performed under the supervision of a RPLS currently registered with the TBPELS.

2. All control must meet the accuracy requirements of the State.

   The Surveyor shall comply with the standards of accuracy for control traverses provided in the *TxDOT Survey Manual* or the *TSPS Manual of Practice for Land Surveying in the State of Texas*, as may be applicable.

3. Short traverse procedures used to determine horizontal and vertical locations must meet the following criteria:

   a. Short traverses must begin and end on horizontal and vertical ground control as described above.

   b. Required horizontal accuracy (unless otherwise stated):

      (1) Bridges and other roadway structures: less than 0.1 feet.

      (2) Utilities and improvements: less than 0.2 feet.

      (3) Cross-sections and profiles: less than 1 foot.

      (4) Bore holes: less than 3 feet.

   c. Required vertical accuracy:

      (1) Bridges and other roadway structures: less than 0.02 feet.

      (2) Utilities and improvements: less than 0.1 feet.

      (3) Cross-sections and profiles: less than 0.2 feet.

      (4) Bore holes: less than 0.5 feet.

C. Data Requirements for Design and Construction Surveys

1. Planimetric DGN files must be fully compatible with the version of the MicroStation graphics program currently used by TxDOT without further modification or conversion.
2. Electronically collected and processed field survey data files must be fully compatible with TxDOT's computer systems without further modification or conversion. All files must incorporate only those feature codes currently being used by TxDOT.
3. Digital terrain models (DTMs) must be fully compatible with the version of the Bentley OpenRoads civil design system currently used by TxDOT without further modification or conversion. All DTM must be fully edited to provide a complete digital terrain model with all necessary break lines.

150.2. Design Survey (15.2.1).

A. Tasks to be Completed

If requested by the State, the Surveyor shall perform one or more Design Surveys. Design Survey tasks include the following:

1. Collect data to create cross-sections and DTMs.
2. Locate existing utilities.
3. Locate existing improvements.
4. Provide details of existing bridge structures, including bridge limits, bents, columns, retaining walls, and natural ground elevations.
5. Locate details of existing drainage features including culverts, manholes, retention and detention ponds, flowlines, and associated features.
6. Locate all waters of the United States (WOTUS), including wetlands.
7. Review existing ROW maps and locate the existing ROW.
   a. Review existing ROW maps

      The Surveyor shall review ROW maps prepared by others for completeness using the current schematic and the checklist provided by the TxDOT district.

   b. Locate existing ROW

      The Surveyor shall resurvey the existing ROW where it is necessary to update or redefine ROW lines. All standard surveying procedures must be adhered to including record research, recovering existing monuments, and replacing monuments as appropriate. The Surveyor shall prepare an abstract map, preliminary map, final map, GIS graphics file, and a Surveyor's report. The final map must also include a monument table showing the property monuments that were found and set and certified by the Surveyor. The Surveyor shall prepare maps either in standard map sheets format or roll map format as requested by the TxDOT district.
8. Locate boreholes.
9. Perform hydrographic surveys, according to details requested by the TxDOT district.
10. Verify the condition and usefulness of existing control points including verification of the values. Establish additional control as needed. Tie to other control points in the project vicinity including points established by NOAA's National Geodetic Survey NGS, the Federal Emergency Management Agency (FEMA), and any other local entities as directed by the State.

11. Update existing control information and prepare new survey control data sheets, as directed by the State to be included in the construction plan set as described below:
    a. The Surveyor shall prepare, sign, seal, and date a survey control index sheet and horizontal and vertical control sheet(s) to be inserted into the plan set.
    b. The survey control index sheet provides an overview of the primary project control and must include:
        (1) An unscaled vicinity map showing the general location of the project in relation to nearby towns or other significant cultural features.
        (2) A scaled project map showing the extents of the project and the location of the primary control points. The map must show street networks, selected street names, control point identification, and significant cultural features necessary to provide a general location of the primary control.
        (3) A table containing the primary control point values including the point number, northing, easting, elevation, stationing, and stationing offset values.
        (4) Map annotation including a graphic scale bar, north arrow, and standard TxDOT title block. The title block shall contain a section for the district name, county, highway, and CSJ number. The title block shall also contain a section for a Texas registered engineer to sign, seal, and date the sheet to include the following statement, “The survey control information has been accepted and incorporated into this PS&E.” The required format of the survey control index sheet can be downloaded from the TxDOT website.
        (5) In the title block under the heading “Notes”, identification of the horizontal and vertical datum on which the primary control is based with the date of the current adjustment, the surface adjustment factor used, and unit of measure. The Surveyor shall include a note stating that the coordinates are State Plane and a notation specifying either grid or surface adjusted coordinates.
    c. The Surveyor shall prepare horizontal and vertical control sheets providing detailed information about the construction, location, and monumentation of the primary control, which must include:
        (1) An unscaled location map for each primary control point showing the location of the monument in relation to physical features located in the vicinity. The location map must include a north arrow, the monument designation, the monument northing, easting, and elevation.
        (2) Directly below the location map a text description of the monument including size, material, and construction followed by a description of the location of the monument starting with the county and state followed by a description suitable to locate the monument on the ground.
        (3) Map annotation including a graphic scale bar, north arrow, and a standard TxDOT title block. The title block must contain a section for the district name, county, highway, and CSJ number and contain a section for a Texas registered engineer to sign, seal, and date the sheet to include the following statement, “The survey control information has been accepted and incorporated into this PS&E.” The required format of the survey control index sheet can be downloaded from the TxDOT website.

(4) In the title block under the heading “Notes”, identification of the horizontal and vertical datum on which the primary control is based with the date of the current adjustment, the surface adjustment factor used, and unit of measure. The Surveyor shall include a note stating that the coordinates are either grid or surface adjusted coordinates.

150.3. Construction Survey (15.2.2).

A. Tasks to be Completed

If requested by the State, the Surveyor shall perform Construction Surveying. Construction Surveying tasks include the following:

1. Recover and check existing control points.
2. Establish additional control points.
3. Stake existing or proposed ROW.
4. Stake existing or proposed baseline/centerline.
5. Stake proposed bridge structures.
6. Stake proposed drainage structures (e.g., manholes, culverts, or other drainage structures).
7. Set grade stakes.
8. Check elevations and locations of structures.
9. Determine and resolve conflicts within the survey data.

150.4. Deliverables for Design and Construction Surveys.

The Surveyor shall prepare and submit the deliverables as specified in individual work authorizations for design surveys and construction surveys. The deliverables might be any combination of the following:

A. Digital terrain models (DTM) and the triangular irregular network (TIN) files in a format acceptable by the State.

B. Maps, plans, or sketches prepared by the Surveyor showing the results of field surveys.

C. Computer printouts or other tabulations summarizing the results of field surveys.

D. Digital files or media acceptable by the State containing field survey data (ASCII data files).

E. Maps, plats, plans, sketches, or other documents acquired from utility companies, private corporations, or other public agencies, the contents of which are relevant to the survey.

F. Field survey notes, as electronic and hard copies.

G. TxDOT Form 2462 for each primary and secondary control point. This form must be submitted in printed format on letter (i.e., A-size) and submitted electronically in PDF format.

H. A digital and hard copy of all computer printouts of horizontal and vertical conventional traverses, GPS analysis and results, and survey control data sheets.

I. All GEOPAK files and OpenRoad files.

J. Survey reports in a format requested by the State.

FUNCTION CODE 300 (310) – GENERAL FUNCTION

PROJECT MANAGEMENT AND CONTRACT ADMINISTRATION

310.1. Project Management and Administration.

A. The Engineer shall direct and coordinate all activities associated with the project to comply with State policies and procedures and to deliver that work on time.

B. Project Management and Coordination, The Engineer shall coordinate all subconsultant activity including quality of and consistency of work and monthly progress reports. The Engineer shall coordinate with necessary local entities.

C. The Engineer shall:

1. Prepare monthly written progress reports for each project.
2. Develop and maintain a detailed project schedule to track project conformance to Exhibit C, Work Schedule, for each work authorization. All schedule submittals must be provided in a hard copy and electronic format.
3. Meet on a scheduled basis with the State to review project progress.
4. Prepare, distribute, and file both written and electronic correspondence.
5. Prepare and distribute meeting minutes.
6. Document phone calls and conference calls as required during the project to coordinate the work for various team members.

310.2. Deliverables for Task 310.1.

The Engineer shall provide the following:

A. Monthly written Progress Reports

B. Detailed Work Schedule for approval by the State

C. Project Meeting minutes

D. Written and electronic correspondence and other work-related communication documentation

E. Phone and Conference call log and other related documentation

310.3. Project Supervision.

A. For Traffic Control Inspection, the Engineer shall:

1. Review plan sheets for Traffic Control Plan (TCP) changes or modifications.
2. Verify that all lane and ramp closures follow State guidelines and lane restrictions as found in the project plans.
3. Ensure that all lane closure information is sent to the assigned District Public Information Office (PIO), Corridor Mobility Coordinator, and others as directed one week prior to the closure.
4. Ensure that if scheduled lane closures are cancelled, a District's PIO, the Corridor Mobility Coordinator, and others, as directed, are notified immediately with updated information.
5. Coordinate lane closures with the Area Office (AO) staff.

6. Oversee project barricades and signs on a daily basis and coordinate corrections with the contractor as required.
7. Perform inspections of barricades and report to contractor on Form 599. A minimum of two barricade inspections (one daytime and one nighttime at approximately two-week intervals) must be performed per month. The first monthly night inspection must be performed as soon as possible after the initial set-up of the barricades.
8. Coordinate with the AO so that a barricade inspection report is performed by the District Construction office and coordinate corrections with contractor.
9. Complete Form 599, documenting deficiencies or actions needed and submit to contractor for corrective actions. The Engineer shall document when the deficiencies or actions are addressed and escalate as required. Once completed, the Engineer shall send to AO for review. The Engineer shall not retain or distribute copies of Form 599 to any individual via email.
10. Ensure that contractor makes repairs to critical items immediately, that other deficiencies or actions are addressed as soon as possible per item 502 Barricades, Signs, and Traffic Handling, and, if needed enforce non-payment of item.
11. Ensure all items meet requirements of TMUTCD, TCP, standards and specifications, and State compliant list, which include at a minimum:
    a. proper devices are used
    b. devices are clean and free of damage
    c. devices are properly aligned and spaced
    d. devices have proper reflectivity
    e. pavement markings are performing properly
    f. proper flagging procedures are followed
    g. signs are properly mounted and not leaning
    h. the overall set up is in compliance

B. For Project Coordination, the Engineer, as directed by the State, shall provide the following in writing (e.g., meeting minutes and e-mails):
1. Conduct weekly coordination meetings on the project with the State representative, contractor, subcontractors, and other interested parties.
2. Prepare logs to track status of items such as change orders, issues, requests for information (RFIs), and shop drawings.
3. Participate in safety meetings with the State on the job site or Area Office or as required by the State.
4. Conduct pre-activity meetings for major operations or traffic control changes.
5. Review the work schedule, plan changes, construction issues, submittal progress, traffic changes, public information topics, and all other relevant matters including reviewing and approving the contractor's baseline schedule to verify the contractor has followed the approved Traffic Control Plan and all work has been incorporated into the schedule.
6. Monitor the progress of the contractor's approved schedule and the progress of the work with the goal of meeting the contract completion date, review and monitor the contractor's work schedule monthly and recommend to the State any changes or

needed changes to the schedule, and notify the State if the schedule does not adequately reflect appropriate completion dates, reasonable resources, or errors in logic. If additional time is requested by the contractor, the Engineer shall review the contractor's request and verify the time impact analysis.

7. Analyze the contractor's monthly Critical Path Methodology (CPM) schedule, provide recommendations for modifications or acceptance, and verify the CPM schedules follow all guidelines described in the specifications. Any revisions to the schedule must be approved by the State.

C. For Project Correspondence, the Engineer shall:

1. Upon receipt of written correspondence from the contractor, draft a response within five working days for the State to review, comment, approve, and sign. The Engineer shall track all correspondence, approved or outstanding. The Engineer shall send all informal correspondence to the State via e-mail. The Engineer shall send all formal correspondence to the State on the Engineer's letterhead.
2. Manage project issues and work directly with the contractor as directed in writing by the State.
3. Escalate any major project issues to the State.
4. Copy the State's Project Manager (PM) on all internal and external correspondence.

310.4. Deliverables for Task 310.3.

The Engineer shall provide the following:

A. Monthly Barricade Inspection Reports

B. Baseline Schedule review

C. Monthly Update Reviews and preview of upcoming month

D. Weekly meeting minutes

E. Project logs with status, responsible party, and impact

F. Time Impact Analysis Reviews

310.5. Contract Administration.

The Engineer shall perform the contract administration tasks described in the Items 2.1 through 2.7 of the Contract Administration section of this scope.

FUNCTION CODE 300 (320) – GENERAL FUNCTION

INSPECTION OF WORK IN PROGRESS AND PROJECT RECORDS

320.1. Inspection of Work in Progress and Project Records.

A. The Engineer shall inspect work incorporated into the project as assigned by the State. The Engineer shall:

1. Verify that the project is built according to the plans and specifications, and all contract documents.
2. Verify the accuracy of the work and determine pay quantities by making measurements as assigned by the State.

3. Verify all the specifications and special provision requirements are met for inspected items of work, such as, materials, construction, measurement, and payment.
4. Verify daily quantities for each item of work performed and tabulate into a monthly pay estimate to the contractor. The Engineer shall furnish estimate to the State for execution of payment via SiteManager.
5. Enter measurement and payment information daily into SiteManager for the items inspected by the Engineer personnel.
6. Complete all fields in SiteManager, unless otherwise directed by the District's construction personnel.
7. Verify all material sourcing information is entered into SiteManager and address all material or testing deficiencies on a monthly basis.

B. The Engineer shall maintain all records on the project in compliance with State and District procedures including Daily Work Reports (DWR), diaries, shop drawings and submittals, RFI drawings and sketches of measured items, sets of plans, record set plans, material on hand forms, and general correspondence.

C. The Engineer shall verify whether drilled shaft or pile installations have been properly performed. Inspector must have knowledge in geological materials to ensure proper founding is achieved, proper underwater and slurry displacement concrete placement procedures are used, and proper use of steel casing for dewatering and stability applications are implemented.

D. The Engineer shall verify appropriate mill tests, materials approval, and Buy America certifications are available as required.

E. The Engineer shall verify Historically Underutilized Business (HUB) documentation; Commercially Useful Function reviews; and Prompt Pay and Wage rate surveys are complete and correct. The Engineer shall verify corrections are made by the contractor.

F. The Engineer shall verify and document all contractors' Form CST-C_1 (Additional Classification and Wage Rate Request) and Form 2182 (Commercially Useful Function Site Review) as directed by the State in writing (e.g. meeting minutes, emails).

G. For Monthly Progress Estimates, the Engineer shall:

1. Prepare all monthly progress estimates in SiteManager for approval by the State and submit them on the date that is determined by the State for each estimate cycle.
2. Prepare a preliminary estimate each month for the contractor and State to review.
3. Verify all quantities and coordinate with the contractor when discrepancies arise.
4. Submit a copy of the SiteManager installed work report or equivalent at the end of each week to the contractor for concurrence.
5. Make recommendation for payment for work inspected during the month.

H. The Engineer shall maintain a log of all contractor submittals including RFIs, shop drawings, concrete, police officer hours, material testing requirements, material on hand, reviews, approvals, and any other logs deemed necessary by the State. The Engineer shall deliver the log to the State at State's request.

I. The Engineer shall administer the material on hand, process necessary paperwork, and shall:

1. Verify eligibility for payment of any material requested for payment of material on hand.

2. Monitor and verify material on hand before processing the payment per the requirements of the specification.
3. Perform on-site and off-site checks, as directed by the State, to verify material are part of the contractor's inventory.
4. Collect paid invoices, certifications, and testing information from the contractor to justify the use of material on hand within 60 days of the progress payment.
5. Remove the material from the estimate if no invoices are provided within 60 days.
6. Spot check on-site and off-site the material on hand and document for accuracy.
7. Maintain a log per State District procedures.

J. For the Environmental Process, the Engineer shall:

1. Follow all current Storm Water Management guidelines and verify SWP3 and Environmental Permits Issues and Commitments (EPIC) sheet requirements are followed.
2. Verify appropriate permits are in place for all contractor Project Specific Locations (PSL's).
3. Maintain the SWP3 working drawings, which must be located in the field office at all times. If no field office is located on the project site, the SWP3 working drawings must be located in the specific location (such as the TxDOT Area Engineer's Office) designated for storage of the working drawings at all times.
4. Maintain documentation in accordance with the Texas Pollutant Discharge Elimination System (TPDES) and Construction General Permit (CGP).
5. Perform SWP3 inspections in accordance with the frequency required on the TxDOT Form 2118. Ensure use of the most current form.
6. Verify that the contractor follows the guidelines of the CGP.
7. Notify the State immediately in the event the contractor fails to make the corrections required by the CGP in accordance with Item 506 and the material manufacturer's installation and maintenance requirements.
8. Provide all environmental documents and correspondence to the State.
9. If there are any change orders or added construction that will impact the Environmental document, coordinate with the State to provide the necessary documentation.
10. Maintain a separate SWP3 working copy of plan set and verify it is updated as required to remain in compliance.
11. Provide personnel that have completed the required EMS Training courses listed in the Training Requirements section of this Attachment.

K. For Documenting and Reporting, the Engineer shall:

1. Prepare a DWR for each day of work from the begin work date until final acceptance. All inspectors must prepare their own DWR each day they are on the project. Each DWR must have the weather recorded for that day, including temperature high and low, weather conditions, all visitors to the project, traffic conditions, lane closure hours, police officer names and hours worked, portable message sign hours, instructions given to the contractor, the contractor work hours, the contractor's equipment and utilization, equal employment opportunity (EEO) issues, safety concerns, SWP3 information, and accidents. When recording information pertaining to accidents, record only factual

information as observed; not personal opinion. Include the subcontractors on the project, the number of hours on the project, the work they are performing, and items for payment.

2. Maintain all relevant subcontractor forms, contract assurance logs, agreements, and statements of compliance.
3. Submit subcontractor approval requests to the Area Office (including hauling trucks). The State will input the approval date into SiteManager. Once the State has approved subcontractor approval requests, the State will pay the contractor for the work performed by the subcontractor.
4. Fill out the DWR work items tab as a means to pay for items of work inspected. Input the station number, supporting calculations, quantity being paid, any comments or remarks necessary, and any other information to properly distinguish the item being paid. Refer to specific plan sheets in comments provided in the DWR.
5. Maintain hard copies of measurements and attachments that support the calculations and quantities listed in the DWRs.
6. Maintain a daily diary on the project in SiteManager. This diary will allow the Engineer to recommend payment for the items listed in the DWR and to charge time on the project and maintain milestone charges, if applicable. No paper diary will be maintained.
7. Identify items that will overrun and underrun during the course of the project. These must be addressed via change order per the State policy.
8. Follow State's Concrete Procedures for field concrete specimens.
9. Provide a person certified to inspect electrical work for all electrical items. This certified electrical inspector must also complete TxDOT training courses TRF 450 and TRF 453 before performing electrical inspection work on the project. Information about TxDOT training courses is available at http://ftp.dot.state.tx.us/pub/txdot-info/hrd/training/training-catalog.pdf.
10. Follow all railroad procedures and certifications required when working on the railroad ROW.
11. Maintain a set of project records and setup according to State procedures.
12. Coordinate with the State for the State District Audits to be performed. Track resolution of audit deficiencies.

L. Construction Scheduling Support Services (Primavera Scheduling Software)

1. Preliminary and Baseline Schedules

   a. The Engineer shall review, analyze, and provide recommendations and submit a review report on Contractor's preliminary schedule.

   b. The Engineer shall review, analyze, and provide recommendations and submit a review report on the contractor's baseline schedule.

   c. The Engineer shall attend Preconstruction Meeting and any other required meetings.

2. Schedule Updates (Progress and Revised)

   The Engineer shall:

a. Review and analyze: contractor's monthly progress schedule updates and submit updated Schedule Review Report. Include a detailed review of critical and near critical activities. Compare current update to previous updates using Claim Digger.

b. Review and analyze contractor's monthly schedule updates for revisions and submit Revised Schedule Review Report. Compare revision to previous version of schedule using Claim Digger.

c. Coordinate with the State's field personnel or District Construction Office, to compare actual construction status with the contractor's monthly update. Verify accuracy of the schedule, actual start dates, actual finish dates, and percent complete or remaining duration. Review the monthly Daily Work Reports (DWR).

d. Schedule monthly site visits with the State's District Construction Office or Field personnel.

e. Upon the State's request, coordinate with the State's personnel on adjacent projects to determine possible conflicts or impacts.

f. From interim schedule updates provided by the contractor, identify changes in critical path or changes in controlling delays.

g. Identify possible future scheduling conflicts and report.

h. Develop a Project Schedule Status Report (PSSR) to monitor project completion dates, identify actual and potential critical path slippage, and recommend strategies for mitigating critical path delays.

i. Monitor the effects of weather (calendar-day projects) and other non-excusable impacts on the schedule and provide means to separate these from excusable impacts.

j. Verify that schedule updates are separate: Progress Schedule vs. Schedule Revisions (Revisions require the State's approval) in accordance with the specifications.

k. Attend meetings on an as needed basis.

3. Time Impact Analysis (TIA)

The Engineer shall:

a. Review and analyze TIAs from the contractor in accordance with the Special Provision or the latest version or applicable TxDOT Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges (Spec Book).

b. Coordinate with State's Area Office and District Construction Office personnel to determine the validity of the TIAs.

c. Assist in analyzing Delay Claims.

d. Provide report for the justification of granting or rejecting time requested to the State.

e. Review overhead documentation for compensable delays.

f. Recommend scheduling alternatives to mitigate impact resulting from conflict to the State.

g. Perform independent TIA as an alternative to Contractor submittal.

h. Monitor PSSR to verify the TIA process.

4. General

The Engineer shall:

a. Investigate, analyze, and recommend resolution to mitigate schedule impacts between adjacent construction contracts as directed by the State.

b. Inform the State's Area Engineer and District Construction Office of upcoming lane closures and high demand inspection needs.

c. Inform the State of milestone status; major traffic changes, and project completion for posting on the project web page by the State.

d. Review contract time determination schedules and provide written summary of findings.

320.2. Deliverables for Task 320.1, Items A-K.

The Engineer shall provide the following:

A. Monthly Project Estimates (with hard copies of measurements and attachments that support the calculations and quantities listed in the estimate).

B. Monthly 3rd party estimates.

C. Monthly Material on Hand forms (TxDOT Forms 1914 and 1915) HMA CX2 forms.

D. Paid invoices for material on hand.

E. Documentation for extra work.

F. SWP3 Working Plan Set.

G. Weekly SWP3 inspections (TxDOT Form 2118 Form).

H. One DWR per day by each person, inspection items of work on the project (record in SiteManager) and supporting hard copy documentation.

I. All drilled shaft or pile logs (record in SiteManager).

J. One Diary per day by the Project Engineer or Project Manager (record in SiteManager).

320.3. Deliverables for Task 320.1, Item L.

The Engineer shall provide the following:

A. Baseline Schedule Review Reports, which include the following:

1. Transmittal letters to State's Area Engineer and District Construction Office providing summary of findings and recommendations to accept or reject the preliminary or detailed (baseline) schedule.

2. Draft letters for State's Area Engineer's signature notifying Contractor of schedule acceptance or rejection.

3. Completed Checklists for Schedule Review.

4. Detailed listings of schedule deficiencies.
5. Any other documentation to support findings.

B. Schedule Updates (Progress and Revised) Review Reports, which include the following:

1. Progress Schedule Review Report
    a. Transmittal letter to State's Area Engineer and District Construction Office providing the following:
        (1) Summary of findings
        (2) Lists identifying potential critical path impacts; and
        (3) Recommendations to accept or reject the update.
    b. Draft letter for State's Area Engineer's signature notifying Contractor of schedule update acceptance or rejection.
    c. Completed Checklist for Progress Schedule review.
    d. Detailed listing of schedule deficiencies.
    e. Claim Digger output with written explanation of the results summary form.
    f. Updated Project Schedule Status Report (PSSR)
    g. Plots of look-ahead schedules showing work planned for next 2 months.
    h. Any other documentation to support findings.
2. Revised Schedule Review Report
    a. Transmittal letter to State's Area Engineer and District Construction Office providing summary of findings and detailed discussions of revisions including the following:
        (1) Changes to critical path due to the revision,
        (2) Changes to the project calendars,
        (3) Changes to resources or sequencing,
        (4) Discussions of the positive and negative effects of the revisions, and
        (5) Recommendations to accept or reject the revision
    b. Draft letters for State's Area Engineer's signature notifying Contractor of schedule update acceptance or rejection.
    c. Updated Project Schedule Status Reports (PSSR)
    d. Claim Digger output with written explanation of the results summary form.
    e. Any other documentation to support findings.

C. Time Impact Analysis Review Report, which includes the following:

1. Transmittal letter to state's Area Engineer and District Construction Office providing summary of findings and recommendations to accept or reject the time impact analysis.

2. Draft letter for State's Area Engineer's signature notifying Contractor of TIA acceptance or rejection.
3. Copies of recommended scheduling alternatives to mitigate impacts resulting from conflicts
4. Independent TIA(s) as an alternative to Contractor's TIA submittals.

D. Progress Report, which includes the following:

1. A progress report that compares planned construction performance, expressed as percentage complete, with actual performance.
2. Summary statements regarding accomplishments during the reporting period and listings of major concerns and issues pertaining to construction progress.
3. A summary progress report will be developed and maintained that shows the overall status of the entire construction project for presentation.
4. A 90 day look ahead of critical and near critical activities.

320.4. Utility Construction Management and Verification.

A. The Engineer shall provide a Utility Coordinator to coordinate all activities with the State, or the State's designee, for the orderly progress and timely completion of the State construction phase.

B. Engineer shall provide a Utility Coordinator to perform non-engineering utility coordination services consisting of coordinating with State, or State's designee, all utility-related activities for the orderly progress and timely completion of the construction phase of the project. Utility Coordinator, at a minimum, must:

1. Work Plan.

   Coordinate a work plan including a list of the proposed meetings, coordination activities, and related tasks to be performed; a schedule; and an estimate. The work plan must satisfy the requirements of the project and must be approved by the State prior to commencing work.

2. Conflict Matrix.

   Create and maintain a list of utility conflicts and their impact to the project. Update the list following each progress meeting.

3. Initial Project Meeting.

   Attend an initial meeting and an on-site inspection (when appropriate) to ensure familiarity with existing conditions, project requirements, and prepare a written report of the meeting.

4. External Communications.

   Coordinate all activities with the State and its consultants or other contractors or representatives, as authorized by the State. Provide the State copies of diaries, correspondence, and other documentation of work-related communications between the Utility Coordinator, utility owners, and other outside entities when requested by the State.

5. Progress Meetings.

   Implement a schedule of periodic meetings in the field with each utility company and owner or owner's representatives for coordination purposes. Such meetings must

commence as early as possible and continue until completion of the project. Notify the State at least two business days in advance of each meeting to allow the State the opportunity to participate in the meeting. Provide and produce meeting minutes of all meetings between State (or State's representatives) and utility companies within seven business days. The frequency of such meetings must be appropriate to the matters under discussion with each utility owner.

320.5. Deliverables for Task 320.4.

The Engineer shall provide the following:

A. Work Plan for approval by the State

B. Conflict Matrix

C. Initial Project Meeting notes and On-site Inspection notes

D. Copies of diaries, correspondence, and other work-related communication documentation

E. Progress Meeting notification

F. Progress Meeting minutes

FUNCTION CODE 300 (330) – GENERAL FUNCTION

JOB CONTROL

330.1. Job Control.

A. The Engineer shall perform all sampling and testing of components and materials in accordance with the standard specifications, and all other standard and special specifications and special provisions applicable in this agreement. The Engineer shall meet the minimum sampling frequencies set out in the TxDOT Guide Schedule, approved for use at the time of letting, applicable to the project for Sampling and Testing of materials. The testing must include the following materials and all the components of the materials listed: Asphalt, Concrete, Soils, and Aggregates. The estimated number of samples and tests are based on quantities in the executed construction contract.

1. The Engineer shall ensure the testing is completed and input into SiteManager. NOTE: The contractor is responsible for testing Item 360 Concrete Paving.

2. The Engineer shall provide certified personnel, outlined in their Quality Assurance and Quality Control (QA and QC) plan, that are knowledgeable of all materials sampling and testing procedures. All personnel performing acceptance tests must provide certifications and must maintain the certifications throughout the project.

3. The Engineer shall provide technicians certified in accordance with TxDOT Quality Assurance Programs for Construction (QAP) or other State approved programs, such as the Texas Asphalt Pavement Association (TXAPA) for Hot Mix Asphalt, American Concrete Institute (ACI) for concrete, and the Soils and Base Certification Program, as listed below.

4. The Engineer shall provide certified technicians to perform the following tests:

   a. Hot Mix Asphalt Testing, HMAC

      (1) Level 1A

      (2) Level 1B

(3) Level 2

(4) All other tests in the TxDOT Test Procedures 200-F Series or American Society for Testing and Materials (ASTM) Procedures not covered in Level 1A, Level 1B, or Level 2 will be administered by the state central lab per the QAP.

b. Concrete Testing, ACI

(1) Concrete Field Testing Technician - Grade I

(2) Concrete Strength Testing Technician

(3) Other tests outlined in the TxDOT Test Procedures 400-A Series or ASTM Procedures that are not covered by ACI Field and Strength Testing will be administered by the state central lab per the QAP.

c. Soils and Base, HMAC

(1) SB 101 Properties Specialist

(2) SB 102 Field Specialist

(3) SB 103 Materials Analyst Specialist

(4) SB 201 Strength Specialist

(5) SB 202 Compressive Strength Specialist

(6) AGG101 Aggregate Specialist

(7) Other tests outlined in the TxDOT Test Procedures 100-E Series or ASTM Procedures that are not covered in AGG101, SB101, SB102, SB103, SB201 and SB202 testing will be administered by the state district lab per the DBB QAP.

5. The Engineer shall perform testing on the project. These tests include all tests listed in the TxDOT Guide Schedule of Sampling and Testing approved for use at the time of letting. The Engineer shall follow the current TxDOT Guide Schedule of Sampling and Testing to establish testing frequencies. Testing frequencies may be increased if directed by the State.

6. When appropriate, the Engineer may request that one or more tests be waived by State. The Engineer shall perform all required tests unless otherwise instructed by State in writing.

7. The Engineer shall attend preconstruction QA and QC testing meetings prior to beginning work.

   The Engineer shall:

   a. Review and recommend approval or rejection for all sampling and testing documentation submitted by the contractor for compliance with applicable State and federal regulations, standards, and contract requirements.

   b. Verify all materials used meet specifications or identify materials that do not meet specifications and recommend action that should be taken.

   c. Certify that all materials used during construction meet the specifications as outlined in the SiteManager Support System.

   d. Work closely with the State to resolve all material discrepancies before the next monthly estimate is processed by utilizing the Xite Report in SiteManager.

e. Enter all test data in SiteManager.

f. Enter all mix designs, for both concrete and asphalt, into SiteManager.

g. Report failing tests to the State within 24 hours.

330.2. Deliverables for Task 330.1.

The Engineer shall provide the following:

A. Monthly Deficiency Reports to track material issues (one per month)

B. Certification Verifications

C. Testing documentation as applicable

D. Letters of Certification

E. Test Exception Letter

FUNCTION CODE 300 (351) – DESIGN VERIF/CHANGES/ALTER

DESIGN VERIFICATION, CHANGES, AND ALTERATIONS

351.1. Design Verification, Changes, and Alterations.

A. Change Orders

1. The Engineer shall review the CCAM on change orders to understand the State's policy.
2. The Engineer shall provide an estimated cost of change orders to the State and aid the State in price negotiations of new pay items added by change order. The Engineer shall review the information submitted by the contractor to verify the prices are within the current Statewide or district bid averages. If the price exceeds the bid averages, the Engineer shall review the breakdown to ensure the contractor is using the allowed mark-ups as specified in the Spec Book. The Engineer shall verify that prices are fair and reasonable based on the time, material, equipment, and labor necessary to perform the work.
3. The Engineer shall provide appropriate documentation including justification for the change order, revised drawings and plan sheets with appropriate design backup documentation, cost breakdowns, time impacts, and change order descriptions. The Engineer shall record this information in SiteManager for execution by the State.
4. The Engineer shall work with the State on submitting change orders. The State must sign change orders.
5. The Engineer shall coordinate with the State by sending all change orders to the assigned district for funding before a change order is sent to the contractor.
6. The Engineer shall provide all documentation supporting the need for any change orders.
7. The Engineer shall provide all plan sheets associated with change orders. The plan sheets must be signed, sealed, and dated by a Texas Registered Professional Engineer. The Engineer shall not perform inspections on their design. The State will perform, or the State will use another provider to perform inspections on the Engineer's design.

8. The Engineer shall provide completed district's Change Order Checklist, signed by the Engineer.
9. The Engineer shall follow any current and new processes that are mandated by the State.
10. If third party funds are associated with the change order, the Engineer shall assist Area Office (AO) as needed.

B. Submittal, Tracking and Approval of the Shop Drawings

1. The Engineer shall log, monitor, and coordinate the contractor's submittals of fabrication plans, erection plans, shop drawings, change orders, Material on Hand, time extensions, product and material submittals, and RFIs.
2. The Engineer shall forward submittals and shop drawings to the appropriate party and verify return of documents.
3. The Engineer shall address RFIs as directed by the State.
4. The Engineer shall make recommendations to the State for resolution of any RFIs and draft any correspondence necessary for the resolution of the RFI.
5. The Engineer shall coordinate RFI resolutions with appropriate party as directed by the State.
6. The Engineer shall submit all shop drawing electronically as outlined in the "Guide to Electronic Shop Drawing Submittal".
7. The Engineer shall track all shop drawing submittals, reviews, and approvals.

351.2. Deliverables for Task 351.1.

The Engineer shall provide the following:

A. One or more sealed, revised plan sheets for applicable changes made, and corresponding recommended change orders
B. All change orders funded by the State and by the contractor
C. All documentation supporting the need for any change orders
D. All plan sheets associated with change orders must be sealed by an engineer
E. Completed district's Change Order Checklist, signed by an engineer
F. SiteManager Change Order sheets
G. Log of change orders
H. Logs of Shop Plan submittals (paper or electronic or both)
I. Shop Plan submittals and shop drawings (paper or electronic or both)
J. RFI(s) (paper and electronic)
K. Recommendations on RFI(s) and draft correspondence on resolution (paper and electronic)

FUNCTION CODE 300 (352) – GENERAL FUNCTION

FINAL CONSTRUCTION DOCUMENTS

352.1. Final Construction Documents.

For Final Construction Documents, the Engineer shall:

A. Provide a comprehensive punch list to the contractor when work nears completion.

B. Verify that all punch list work is complete before recommending acceptance to the State.

C. Provide the contractor punch list to the State.

D. Provide final complete construction records in the format required by the State. The final complete construction records must include as-built plans, final quantities, complete test reports, final HUB reports, and project documentation (including all general correspondence that occurred during the project) within 30 days of final acceptance of the project by the State. Final project documentation shall include the following: folder labeled by item number for items requiring additional back-up; copies of all of the change orders with back-up; Material Invoices back-up; Manifest tickets for all material paid by weight (e.g., Asphalt, Concrete, Lime, or other materials); Material on Hand forms 1914 and 1915; Texas Department of Licensing and Regulation (TDLR) Inspections; and any other applicable records necessary to complete the review. The Engineer shall submit the correspondence folder with the final records including the as-builts when submitting the final documents.

E. Provide a letter to the Area Office recommending certification that the project was constructed in substantial compliance with the plans and specifications and that materials incorporated in the construction work and operations were in conformity with the approved plans and specifications.

F. Contact TDLR for inspection of work performed.

352.2. Deliverables for Task 352.1.

The Engineer shall provide the following:

A. Final Records labeled by item number

B. Manifest Tickets (Asphalt, Concrete, Hot Mix, Lime)

C. Copies of all change orders created on the project

D. Material on Hand forms for the duration of the project

E. Barricade Inspection Forms

F. TDLR Inspection Report

G. Correspondence File

H. As-built Plans

I. Test Certification Report

J. Failing Samples Report

FUNCTION CODE 300 (390) – GENERAL FUNCTION

CONSTRUCTION ENGINEERING NOT OTHERWISE CLASSIFIED

390.1. Construction Engineering Not Otherwise Classified.

The Engineer shall perform:

A. Post Letting Activities Prior to Construction, which include:

1. Schedule and assist in conducting a preconstruction conference for the project, document the conference in accordance with State procedures as outlined in CCAM, District Procedures, and the QAP.
2. Sign the TxDOT - Contractor Project Pledge form and submit the signed form to the State.
3. Monitor known existing utility facilities on the project, which includes:
    a. Coordinate any and all relocations or conflicts with the appropriate utility companies and the contractor.
    b. Document any project delay or potential delay caused by utility conflicts.
    c. Verify that new utility structures and component materials as identified in the Utility Agreement Estimate are compliant with BUY AMERICA and coordinate the submittal of Form 1818 by the utility to the State.

B. Activities during Construction, which include preparing or performing the following:

1. Disputes and Claims
    a. Upon notice from the contractor of pending claims for extra work or changes in scope of the work or delay to the work, maintain records indicating the cost of such work and delay.
    b. Analyze the schedule and make recommendations to the Area Engineer regarding such claims, time extensions, contract changes, extra work, or delay costs.
    c. Assist the State in dispute negotiations and claim resolution through all levels of escalation.
2. Utilities & ROW

    Coordinate with the State and their representative on utility and ROW issues as needed and attend meetings as required.
3. Internal and External Agency Audits
    a. Assist the State in any internal and external agency audits that may be performed during the life of the construction project.
    b. Provide documentation as requested.

C. For the Quality Assurance and Quality Control Plan (QA and QC), the Engineer shall:

1. Develop and maintain a QA and QC plan for inspections, record keeping, and testing and submit to the State for review.
2. Complete Form 2682 and submit to the district lab for review.
3. Submit documentation to the State for verification of quality control checks.
4. Include steps to ensure the State is receiving trained personnel on the project.
5. Submit this plan to the State. If changes to the plan are made by the Engineer or as directed by the State, provide updated version to the State. Address all State comments on the plan.
6. Provide a quarterly comparison of estimated manpower versus actual manpower versus budgeted manpower.
7. Provide monthly schedule of predicted manpower showing the estimated, actual, and budgeted manpower.

D. For Public Information and Coordination, the Engineer shall:

1. Assist the State in the public relations activities including the preparation of public information, attending public meetings for the purposes of providing information to the public, and notifying State personnel of lane closures including press releases. All news conferences and media interviews will be handled by the State.

2. Initiate and conduct meetings, which include the following parties: contractor representatives, neighboring construction projects, public works agencies, utilities, federal officials, the State, and other interested parties. The goal of these meetings will be to maintain adequate cooperation and communication among all partners to this project.

3. Coordinate with the State's District Public Information Office (PIO) to resolve any issues from the public.

4. If information about the project will be posted on a project website, the Engineer shall:

a. Submit to the State a request for development and maintenance of a website to disseminate information on the transportation activity or project and to gather comments from the public.

b. Provide materials and information regarding the transportation activity or project to the State to be posted on the State-developed website.

c. Ensure the website conforms to state law, Texas Department of Information Resources requirements, TxDOT policies and procedures, and TxDOT Brand Guidelines.

390.2. Deliverables for Task 390.1.

The Engineer shall provide the following:

A. Pre-Construction Conference Agenda and Roster

B. Signed TxDOT - Contractor Project Pledge form

C. QA and QC quality control plan

D. Quarterly QA and QC quality control checks

E. Monthly schedule of predicted manpower

F. Graph showing the estimated, actual, and budgeted manpower

Note: Due dates and format of deliverables will be determined by the State's districts.