



City of Rockwall

The New Horizon

GENERAL INFORMATION

CITY OF ROCKWALL, TEXAS
BIDS WILL BE ACCEPTED IN THE OFFICE OF THE PURCHASING AGENT

ADVERTISEMENT FOR BID
BID No. 1014-03-063

**FM 740 RIDGE RD MEDIAN LANDSCAPE
IMPROVEMENTS PROJECT**

BID PACKETS ARE DUE TO THE
PURCHASING AGENT PRIOR TO:

Thursday, July 30, 2026 @ 2:00 PM CST

NO LATE BIDS WILL BE ACCEPTED

SUBMIT ORIGINAL BID AND TWO COPIES

BID PACKETS
SHALL BE DELIVERED OR MAILED TO:

**CITY OF ROCKWALL, PURCHASING
AGENT, 385 S GOLIAD ST
ROCKWALL, TX 75087
972-771-7700 x 6415**

Project Manual for the Construction of:
Landscape Improvements on
FM 740 from SH 205 to I30 frontage
Road CSJ 1014-03-063
Federal Project: F2026(971)

Notice to Proposers: Any references in this RFP to electronic, email, or online proposal submission are not applicable to this solicitation. All proposals must be submitted as hard copies in a sealed envelope in accordance with the Proposal Submission Requirements.

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ADVERTISEMENT FOR BIDS
Bid No. 1014-03-063

Sealed competitive bids or proposals as set forth and required in the plans and specifications (either of which shall hereinafter be referred to as the "Bid") addressed to the City of Rockwall, Texas will be received at the office of Misty Farris, Purchasing Agent, 385 S. Goliad, Rockwall, Texas 75087 until 2:00 p.m. on Thursday, July 30, 2026, for the following project:

FM 740 RIDGE RD MEDIAN LANDSCAPE IMPROVEMENTS PROJECT

As set forth in the Plans and Specifications, the Project consists of the reconstruction of the existing landscape improvements within 18 medians located along approximately 1.796 miles of FM 740 (Ridge Road), extending from State Highway 205 to the IH 30 frontage road. The scope of work includes landscape and scenic enhancements consisting of tree, shrub, and groundcover installation; flagstone and boulder placement; grading; soil amendments; drainage improvements; and irrigation.

Bids will be opened and publicly read at 2:00 p.m. on Thursday, July 30, 2026, at the City of Rockwall, City Hall located at 385 S. Goliad, City Hall, 2nd Floor, Rockwall, Texas 75087, in the Council Chambers.

A pre-bid conference will be held at 2:00 p.m. on Monday, July 13, 2026, at the City of Rockwall, City Hall located at 385 S. Goliad, City Hall, 2nd Floor, Rockwall, Texas 75087, in the Council Chambers.

Instructions to Bidders, proposal forms, plans and specifications (the "Bid Documents") may be obtained online from the following website: <https://www.rockwall.com/finance.asp>

*Bid Documents will be available beginning **July 2, 2026.**

The Bid shall be submitted on the form provided in the Bid Documents.

Bidder must submit, with their Bid, a Cashier's check, Certified check or a Bid Bond from an approved surety company, in the amount of five percent (5%) of their Bid as a guarantee that the Bidder will enter into a contract and guarantee forms, if required, within 10 days after notice of award of contract.

The successful bidder must furnish Performance Bond and Payment Bond, each in the amount of 100 percent (100%) of the contract price, from an approved Surety company holding a permit from the State of Texas to act as surety, and acceptable according to the latest list of companies holding Certificates of Authority from the Secretary of the Treasury of the United States, or another Surety acceptable to the City. A ten percent (10%) Maintenance Bond (2-year) is required for this project.

The right is reserved by the City of Rockwall to reject any and all bids.

CITY OF ROCKWALL, TEXAS

Bid Timeline:

- | | |
|--|------------------------------|
| • Pre-Bid Meeting | Monday, July 13th @ 2:00 pm. |
| • Bidder's & Confidential Questionnaires due | Monday, July 20th |
| • Bidder Question Cutoff | Monday, July 20th @ 2:00 pm. |
| • Addendums Posted on Website | Monday, July 27th @ 2:00 pm. |

GENERAL

The construction, operation and maintenance of the proposed project will be consistent with the state implementation plan as prepared by the Texas Commission on Environmental Quality.

The disturbed area for this project, as shown on the plans is 1.00 acres. However, the Total Disturbed Area (TDA) will establish the required authorization for storm water discharges. The TDA of this project will be determined by the sum of the disturbed area in all project locations in the contract, and all disturbed area on all Project-Specific Locations (PSL) located in the project limits and/or within 1 mile of the project limits. The department will obtain an authorization to discharge storm water from the Texas Commission on Environmental Quality (TCEQ) for the construction site as shown on the plans, according to the TDA of the project. The contractor will obtain any required authorization from the TCEQ for the discharge of storm water from any PSL for construction support activities on or off of the project row according to the TDA of the project. When the TDA for the project exceeds 1 acre, provide a copy of the appropriate application of permit (NOI, or Construction Site Notice) to the engineer, for any PSL located in the project limits or within 1 mile of the project limits. Follow the directives and adhere to all requirements set forth in the TCEQ, Texas Pollution Discharge Elimination System, Construction General Permit (TPDES, CGP).

This project required no formal consultation or permitting with environmental resources agencies. There is a high probability that an environmentally sensitive area could be encountered on the contractor designated Project-Specific Locations (PSL) for this project (haul roads, equipment staging areas, borrow pits, disposal sites, field offices, storage areas, parking areas, etc.). Item 7.6 "Project-Specific Locations", provides a listing of regulatory agencies that may need to be contacted regarding this project.

Install traffic marking signs prior to sealcoat application and remove within three days after placement of traffic markings.

Leave all right of way areas undisturbed until actual construction is to be performed in said areas.

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

Travis Sales - City of Rockwall
Director of Parks Recreation and Animal Services
TSales@rockwall.com
972-772-6467

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

All contractor questions will be reviewed by the Engineer. Once a response is developed, it will be posted to City of Rockwall's Public FTP at the following Address:

<https://www.rockwall.com/finance.asp>

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

Paper copies of cross-sections may be produced by using the provided .pdf file located on the above FTP Website at the bidders' expense and at copying companies. This data is for non-construction purposes only and it is the responsibility of the prospective bidder to validate the enclosed data with appropriate plans, specifications and estimate for the project(s).

Item 5:

Underground utilities owned by the Texas Department of Transportation may be present within the Right-Of-Way on this project. For signal, illumination, surveillance, and communications & control maintained by TxDOT, call the TxDOT Traffic Signal Office (214-320-6682) for locates a minimum of 48 hours in advance of excavation. For irrigation systems, call TxDOT Landscape Office (214-320-6205) for locates a minimum of 48 hours in advance of excavation. If city or town owned irrigation facilities are present, call the appropriate department of the local city or town a minimum of 48 hours in advance of excavation. The Contractor is liable for all damages when utilities are damaged due to Contractor's negligence including, but not limited to, repair or replacement at the Contractor's expense.

For the project to be deemed complete, permanently stabilize all unpaved disturbed areas of the project with a vegetative cover at a minimum of 70% density for the control of erosion.

Place construction stakes/station markings at intervals of no more than 100 feet or as directed by the Engineer. Place stakes and markings so as not to interfere with normal construction operations.

Submit all shop drawings, working drawings, or other documents which require review sufficiently in advance of scheduled construction to allow no less than thirty (30) calendar days for review and response.

When a precast or cast-in-place concrete element is included in the plans, a precast concrete alternate may be submitted in accordance with "Standard Operating Procedure for Alternate Precast Proposal Submission" found online at <https://www.txdot.gov/inside-txdot/forms-publications/consultants-contractors/publications/bridge.html#design>. Acceptance or denial of an alternate is at the sole discretion of the Engineer. Impacts to the project schedule and any additional costs resulting from the use of alternates are the sole responsibility of the Contractor.

Item 7:

Repair or replace any structures and utilities that might have been damaged by negligence or a failure to have utility locates performed.

Perform all electrical work in accordance with the National Electrical Code and Texas Department of Transportation Specifications.

Consult with appropriate electric company representatives according to their respective area to coordinate electrical services installations.

No significant traffic generator events identified.

Item 8:

This Project will be a Standard work week in accordance with Article 8.3.1.1.

Meet weekly with the engineer to notify him or her of planned work for the upcoming week.

Item 100:

Remove the existing roadway small signs, delineators and object markers as shown on the plans, or as directed, during construction within the right of way. Small sign, delineator and object marker removals are subsidiary to this Item.

The limits of preparing right of way will be measured from Sta. [139+00](#) to Sta. [208+00](#) along the centerline of construction.

Item 160:

Sequence construction operations to salvage topsoil from one location and spread on areas ready to receive topsoil. Keep stockpiling of topsoil to a minimum.

Use fertile clay or loam from the project site not more than six inches below natural grade as topsoil.

Item 161:

Provide tickets representing quantity of compost delivered to site.

Item 192:

No planting shall occur between June 1st and September 15th without written approval from the Engineer.

Perform soil percolation test at least 24 hours prior to planting trees in plant pits. Excavate plant pit and fill entirely with water. Inspect planting pit within 24 hours to verify water has percolated into surrounding soil. In the event the water is present after 24 hours, contact Engineer before continuing tree planting in pits.

Prior to installing any plant material, ensure the irrigation system (if included in project) is pressurized up to the valves.

Begin the 90-day maintenance period only after all live plant material and functional irrigation systems have been installed as shown on plans.

Item 427:

Finish concrete structures surface area I with an opaque sealer of the color(s) shown elsewhere in the plans in accordance Item 427.

Apply a 4-SF sample of each color on the project surfaces for approval. Adjust color as required by Engineer to compensate for surroundings and natural lighting conditions on the project site.

Ensure that surfaces are free of weak surface material, curing compounds and other surface contaminants prior to coating.

FORM LINER FINISHES: Place architectural concrete treatments as shown. Placement is subsidiary to this item.

Where used, provide fractured fin/ribs/striations that are continuous with no apparent curves or discontinuities. Variations of the fractured ribs from true vertical exceeding $\frac{1}{4}$ " for each 4'-0" of panel height are not acceptable.

Provide form liners that release without leaving pieces of liner material on the concrete and without pulling or breaking concrete from the textured surface. Provide form release agents as recommended by the manufacturer. Replace form liners as directed that have become damaged or worn. Replacement of form liners is considered incidental to the work and no additional compensation is provided.

No horizontal splices in the form liner are permitted. Vertical splices may occur only in valleys between fractured ribs.

Provide sample panels a minimum of ten days in advance of starting construction of the textured concrete surfaces. Construct sample panel(s) in accordance with Item 427.4.3.5 "Form Liner Finish" using each type of approved form liner. Sample panels must meet the requirements of the plans and specifications and be approved before any construction form liners may be ordered, obtained or used. Provide panels having a textured portion at least 5'-0" by 5'-0" with a representative un-textured surrounding surface. If directed, construct and finish additional test panels until a satisfactory concrete surface texture is obtained.

The approved sample panel is the standard of comparison for the production concrete surface texture. If directed, build a new test panel to demonstrate acceptability of any proposed change in construction method.

Tool or replace areas requiring surface treatment that do not match their associated sample panels. Upon completion, tooled or replaced panels must match the associated sample panel. Tooling or replacement is at the contractor's expense.

For proper placement of the expansion joint behind the rail, omit surface finish from the top of T551 (RW) (DAL) rail to bottom of panel as directed.

Joint reveal details and location may vary slightly from what is shown to match the adjacent MSE walls as directed. No additional compensation will be allowed.

Item 500:

Material On Hand (MOH) will not be used in calculating partial payments for Mobilization.

Item 502:

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

Access will be provided to all business and residences at all times. Where turning radii are limited during phased construction at intersections, provide all weather surfaces such as RAP or base in turning movements to accommodate and to protect the traffic from edge drop-offs. Materials, labor, maintenance and removal for these temporary accesses and radii will not be paid for directly but will be considered subsidiary to the various bid items. Place barricades and signs in locations that do not obstruct the sight distance of drivers entering the highway from driveways or side streets.

Do not commence work on the road before sunrise. Do not operate or park any equipment/machinery closer than 30 feet from the traveled roadway after sunset unless authorized by the engineer.

When moving unlicensed equipment on or across any pavement or public highways, protect the pavement from all damage using an acceptable method.

As approved by the Engineer, provide uniformed off duty police officers and squad cars during lane or ramp closures, night time work or other situations that indicate a need for additional traffic control to protect the traveling public or the construction workforce. Provide documentation such as payroll, log sheets with signatures and badge number, or invoices from the government entity providing the officers for reimbursement. Complete the weekly tracking form provided by the department and submit invoices that agree with the tracking form for payment at the end of each month approved services were provided. Reimbursement will not be made for coordination fees charged by any party.

Holiday restrictions – The Engineer may decide that no lane closures or construction operations shall be allowed during the restricted periods listed in the following holiday schedule. TxDOT has the right to lengthen, shorten, or otherwise modify these restricted periods as actual, or expected, traffic conditions may warrant. Working days will not be charged for these restricted periods. No additional compensation will be allowed for these closures (i.e., overhead, delays, stand-by, barricades or any other associated cost impacts).

- New Year’s Eve and Day (5 am on December 31 thru 10:00 pm January 1)
- Easter Holiday weekend (5 am on Friday thru 10:00 pm Sunday)
- Memorial Day weekend (5 am on Friday thru 10:00pm Monday)
- Independence Day (5 am on July 3 thru 10:00 pm on July 5)
- Labor Day weekend (5 am on Friday thru 10:00 pm Monday)
- Thanksgiving Holiday (5 am on Wednesday thru 10:00 pm Sunday)
- Christmas Holiday (5 am on December 23 thru 10:00 pm December 26)

Item 506:

Take all practicable precautions to prevent debris from being discharged into the Waters of Texas or a designated wetland. Install Best Management Practices before demolition begins and maintain them during the demolition. Remove any debris or construction material that escapes containment devices and are discharged into the restricted areas, before the next rain event or within 24 hours of the discharge.

Concrete Washouts are required per the CGP. The Concrete Washout Area(s) structural controls must consist of temporary berms, temporary shallow pits, and/or temporary storage tanks to prevent contaminated runoff and must be lined as to prevent contamination of underlying soil. Ensure pits properly maintained including removal of concrete as not to allow over flow. The location(s) of washout area will be approved by the Engineer. When washout pits are no longer needed, they will be removed and area will be restored to original condition. This work, materials and labor will not be measured or paid for directly but will be subsidiary to Item 506, "Temporary Erosion, Sedimentation, and Environmental Controls."

**REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS**

- I. General
- II. Nondiscrimination
- III. Non-segregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
- XI. Certification Regarding Use of Contract Funds for Lobbying
- XII. Use of United States-Flag Vessels:

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work

performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (see 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action

within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide

sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

- (1) Withholding monthly progress payments;
- (2) Assessing sanctions;
- (3) Liquidated damages; and/or
- (4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than \$10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway

Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act ([29 CFR part 3](#))), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act ([40 U.S.C. 3141\(2\)\(B\)](#)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH-1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in [29 CFR part 1](#), a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

(i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

(ii) The classification is used in the area by the construction industry; and

(iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

c. *Conformance.* (1) The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is used in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(3) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to DBAconformance@dol.gov. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to DBAconformance@dol.gov, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division

under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

d. *Fringe benefits not expressed as an hourly rate.* Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

e. *Unfunded plans.* If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, That the Secretary of Labor has found, upon the written request of the contractor, in accordance with the criteria set forth in § 5.28, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

f. *Interest.* In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

2. Withholding (29 CFR 5.5)

a. *Withholding requirements.* The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with paragraph

2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901–3907](#).

3. Records and certified payrolls (29 CFR 5.5)

a. *Basic record requirements (1) Length of record retention.* All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

(2) *Information required.* Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

(3) *Additional records relating to fringe benefits.* Whenever the Secretary of Labor has found under paragraph 1.e. of this section that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act, the contractor must maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

(4) *Additional records relating to apprenticeship.* Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

b. *Certified payroll requirements (1) Frequency and method of submission.* The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the contracting

agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

(2) *Information required.* The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (e.g., the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH-347 or in any other format desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division website at <https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh347.pdf> or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

(3) *Statement of Compliance.* Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(i) That the certified payroll for the payroll period contains the information required to be provided under paragraph 3.b. of this section, the appropriate information and basic records are being maintained under paragraph 3.a. of this section, and such information and records are correct and complete;

(ii) That each laborer or mechanic (including each helper and apprentice) working on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in [29 CFR part 3](#); and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

(4) *Use of Optional Form WH-347.* The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 will satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(3) of this section.

(5) *Signature*. The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(6) *Falsification*. The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under [18 U.S.C. 1001](#) and [31 U.S.C. 3729](#).

(7) *Length of certified payroll retention*. The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

c. *Contracts, subcontracts, and related documents*. The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

d. *Required disclosures and access* (1) *Required record disclosures and access to workers*. The contractor or subcontractor must make the records required under paragraphs 3.a. through 3.c. of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(2) *Sanctions for non-compliance with records and worker access requirements*. If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under [29 CFR part 6](#) any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(3) *Required information disclosures*. Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address

of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity (29 CFR 5.5)

a. *Apprentices (1) Rate of pay*. Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) *Fringe benefits*. Apprentices must be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits must be paid in accordance with that determination.

(3) *Apprenticeship ratio*. The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(4) *Reciprocity of ratios and wage rates*. Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

b. *Equal employment opportunity*. The use of apprentices and journeyworkers under this part must be in conformity with

the equal employment opportunity requirements of Executive Order 11246, as amended, and [29 CFR part 30](#).

c. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeyworkers shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility. a. By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

c. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, [18 U.S.C. 1001](#).

11. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#); or

d. Informing any other person about their rights under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#).

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchpersons and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1. of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or

mechanic, including watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1. of this section.

* \$31 as of January 15, 2023 (See 88 FR 88 FR 2210) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

3. Withholding for unpaid wages and liquidated damages

a. *Withholding process.* The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this section on this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901](#)–3907.

4. **Subcontracts.** The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the

event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

5. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or

d. Informing any other person about their rights under CWHSSA or this part.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
- (2) the prime contractor remains responsible for the quality of the work of the leased employees;

- (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
- (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and

health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of \$150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

1. Instructions for Certification – First Tier Participants:

- a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.
- b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.
- c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.
- d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 180.300.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>). 2 CFR 180.300, 180.320, and 180.325.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

3. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which

this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov>), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily

excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

4. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000. 49 CFR Part 20, App. A.

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or

cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

Wages by Classification for Proposal

The wage rates listed herein are those predetermined by the Secretary of Labor and State Statute and listed in the United States Department of Labor's (USDOL) General Decisions dated 01-02-2026 and are the minimum wages to be paid accordingly for each specified classification. To determine the applicable wage rate zone, a list entitled "TEXAS COUNTIES IDENTIFIED BY WAGE RATE ZONES" is provided in the contract. Any wage rate that is not listed in the USDOL's general decision, must be requested by the contractor through the completion of an Additional Classification and Wage Rate Request and be submitted for approval. A blank cell indicates that the classification and wage rate are not listed on the USDOL's general decision and therefore must be requested by the contractor through the completion of an Additional Classification and Wage Rate Request. IMPORTANT NOTICE FOR STATE PROJECTS: only the controlling wage rate zone applies to the contract. Effective 01-02-2026.

Table 1 - Wage Rates.

CLASS. #	CLASSIFICATION DESCRIPTION	ZONE TX46 *(TX20250046)	ZONE TX51 *(TX20250051)	ZONE TX55 *(TX20250055)	ZONE TX291 *(TX20250291)	ZONE TX292 *(TX20250292)	ZONE TX293 *(TX20250293)	ZONE TX294 *(TX20250294)	ZONE TX295 *(TX20250295)	ZONE TX296 *(TX20250296)	ZONE TX297 *(TX20250297)	ZONE TX298 *(TX20250298)	ZONE TX299 *(TX20250299)	ZONE TX300 *(TX20250300)
1106	Asphalt Raker	\$18.97	\$15.02	\$18.76	\$19.40	\$18.20	\$16.28	\$19.87	\$19.53	\$17.40	\$15.22	\$19.58	\$20.41	\$19.02
1124	Concrete Finisher, Paving and Structures	\$20.92	\$19.13	\$21.11	\$20.61	\$18.72	\$17.99	\$22.48	\$20.66	\$21.16	\$18.15	\$20.77	\$20.79	\$20.04
1139	Electrician	\$23.70			\$30.54			\$25.73	\$36.10	\$32.38				\$31.46
1143	Telecommunication Technician							\$23.14						
1145	Traffic Signal/Light Pole Worker	\$25.43			\$21.99									
1150	Flagger	\$13.50	\$14.56	\$15.30	\$15.52	\$15.00		\$14.80	\$13.99	\$14.59	\$15.81	\$14.82	\$16.63	\$15.16
1151	Form Builder/Setter, Structures	\$21.78	\$18.59	\$19.31	\$20.63	\$20.18	\$19.37	\$22.50	\$20.05	\$19.82	\$18.26	\$22.09	\$19.93	\$19.89
1160	Form Setter, Paving & Curb	\$20.39	\$17.31	\$18.50	\$19.18			\$20.89	\$18.25	\$18.16	\$17.56	\$19.44	\$19.32	\$20.25
1172	Laborer, Common	\$17.76	\$14.88	\$16.80	\$17.52	\$17.12	\$15.16	\$18.01	\$16.72	\$16.63	\$15.22	\$18.10	\$17.12	\$16.69
1175	Laborer, Utility	\$18.51	\$16.79	\$17.91	\$19.05	\$17.46	\$16.73	\$19.32	\$18.80	\$18.42	\$16.75	\$18.10	\$19.11	\$18.40
1187	Mechanic	\$27.08	\$23.80	\$25.11	\$26.15	\$28.00	\$23.84	\$27.44	\$24.13	\$25.51	\$22.98	\$25.47	\$23.38	\$23.35
1194	Service	\$21.29	\$20.03		\$23.75	\$21.51	\$17.87	\$24.86	\$20.94		\$19.11	\$21.31	\$20.33	\$20.75
1196	Painter, Structures				\$23.76					\$27.93				\$26.40
1202	Piledriver												\$21.48	
1205	Pipelayer	\$17.76	\$15.48		\$19.23		\$17.11	\$22.46	\$19.97	\$19.40	\$15.22	\$18.10	\$20.03	\$17.56
1300	Asphalt Distributor Operator	\$22.68	\$19.62	\$23.09	\$24.07	\$23.76	\$21.93	\$24.40	\$22.69	\$23.20	\$24.54	\$23.46	\$23.26	\$23.99
1303	Asphalt Paving Machine Operator	\$20.34	\$15.99	\$20.95	\$22.12	\$22.45	\$19.02	\$22.52	\$21.26	\$19.14	\$17.58	\$21.32	\$22.67	\$20.70
1305	Broom or Sweeper Operator	\$17.76	\$15.22	\$17.75	\$18.09	\$17.12		\$18.01	\$17.58	\$16.63	\$16.92	\$18.10	\$17.63	\$17.30
1306	Crawler Tractor Operator	\$20.95	\$20.27	\$20.00	\$20.92				\$19.82	\$23.23		\$22.51	\$20.33	\$20.83
1315	Concrete Paving, Curing, Float, Texturing Machine Operator								\$23.12				\$22.62	
1318	Concrete Pavement Finishing Machine Operator	\$20.00		\$24.85	\$22.81			\$24.07	\$23.11				\$22.18	
1329	Joint Sealer						\$15.16							
1333	Concrete Saw Operator	\$25.25		\$20.69	\$25.97			\$20.34	\$25.50				\$21.57	\$22.93
1341	Small Slipform Machine Operator							\$25.09						
1342	Crane Operator, Lattice Boom 80 Tons or Less	\$24.25	\$29.80	\$25.57	\$26.47			\$29.90	\$24.33			\$24.40	\$25.74	\$26.15
1343	Crane Operator, Lattice Boom Over 80 Tons				\$28.87			\$33.55	\$23.75	\$34.20			\$23.85	\$31.28
1344	Crane Operator, Hydraulic 80 Tons or less				\$29.24		\$23.37	\$31.32	\$27.22	\$27.88	\$28.75	\$27.09	\$24.75	\$23.89
1345	Crane Operator, Hydraulic Over 80 Tons									\$30.25				\$31.44
1346	Loader/Backhoe Operator	\$20.99	\$16.37	\$20.20	\$20.32	\$18.00	\$17.92	\$23.22	\$20.42	\$19.01	\$16.93	\$21.03	\$21.37	\$19.94
1347	Excavator Operator, 50,000 pounds or less	\$25.59	\$18.99		\$22.93	\$22.91	\$19.70	\$25.08	\$21.05	\$19.69	\$21.86	\$24.67	\$21.53	\$22.25
1348	Excavator Operator, Over 50,000 pounds		\$19.29	\$20.36	\$22.90			\$25.34	\$22.80	\$22.05	\$25.35		\$22.24	\$22.47
1360	Foundation Drill Operator, Crawler Mounted							\$29.25					\$22.25	
1363	Foundation Drill Operator, Truck Mounted				\$24.28			\$29.86	\$25.95		\$27.81	\$32.17	\$26.04	\$24.05
1369	Front End Loader Operator, 3 CY or Less	\$19.42	\$15.59	\$18.40	\$20.33	\$18.28	\$17.42	\$20.93	\$18.58	\$18.80	\$17.47	\$19.06	\$19.72	\$19.34
1372	Front End Loader Operator, Over 3 CY	\$19.52	\$16.41	\$17.25	\$20.20	\$19.83	\$18.26	\$22.56	\$19.55	\$18.71	\$18.12	\$20.11	\$20.34	\$20.00
1380	Milling Machine Operator	\$20.98	\$18.47	\$19.48	\$21.73	\$18.49	\$23.02	\$20.94	\$19.99	\$22.53	\$19.21	\$20.37	\$21.65	\$19.88
1384	Reclaimer/Pulverizer Operator	\$21.17			\$19.05	\$23.25		\$22.17	\$18.15	\$18.83				\$19.67
1390	Motor Grader Operator, Fine Grade	\$27.00	\$21.55	\$23.01	\$26.56	\$26.38	\$20.04	\$27.09	\$24.43	\$26.88	\$22.98	\$26.74	\$23.91	\$24.96
1393	Motor Grader Operator, Rough	\$23.50	\$18.78	\$19.00	\$22.95	\$23.69		\$24.90	\$21.43	\$23.06	\$19.60	\$23.08	\$21.20	\$21.04
1396	Pavement Marking Machine Operator	\$20.62		\$16.80	\$22.00	\$18.99		\$22.35	\$22.96		\$19.26	\$23.48	\$17.12	\$17.50
1402	Roller Operator, Asphalt	\$17.76	\$14.88	\$18.35	\$20.24	\$17.12		\$20.35	\$18.34	\$17.27	\$16.83	\$18.76	\$19.79	\$18.13
1405	Roller Operator, Other	\$17.76	\$14.88	\$16.80	\$17.52	\$17.12		\$18.60	\$17.09	\$16.90	\$15.38	\$18.10	\$18.93	\$16.94
1411	Scraper Operator	\$20.00	\$14.88		\$17.52		\$18.33	\$21.54	\$17.71		\$15.33	\$19.49		\$17.21
1413	Off Road Hauler				\$17.52			\$23.70	\$16.90			\$18.10	\$17.12	
1428	Agricultural Tractor Operator				\$19.14				\$19.97			\$23.21		
1445	Directional Drilling Operator				\$25.19									
1446	Directional Drilling Locator				\$21.39		\$16.50							
1500	Reinforcing Steel Worker	\$22.94	\$19.62	\$24.99	\$22.46		\$20.57	\$23.50	\$22.24	\$22.76	\$20.91	\$25.70	\$22.34	\$23.47
1509	Structural Steel Worker												\$22.64	
1513	Sign Erector				\$17.52			\$18.01						

CLASS. #	CLASSIFICATION DESCRIPTION	ZONE TX46 *(TX20250046)	ZONE TX51 *(TX20250051)	ZONE TX55 *(TX20250055)	ZONE TX291 *(TX20250291)	ZONE TX292 *(TX20250292)	ZONE TX293 *(TX20250293)	ZONE TX294 *(TX20250294)	ZONE TX295 *(TX20250295)	ZONE TX296 *(TX20250296)	ZONE TX297 *(TX20250297)	ZONE TX298 *(TX20250298)	ZONE TX299 *(TX20250299)	ZONE TX300 *(TX20250300)
1515	Spreader Box Operator	\$18.50		\$19.28	\$19.31			\$23.59	\$18.52	\$20.63	\$23.00	\$18.31	\$17.84	\$19.96
1520	Work Zone Barricade Servicer	\$17.76	\$15.81	\$16.80	\$17.75	\$17.12		\$18.01	\$16.89	\$17.52	\$16.49	\$18.10	\$17.37	\$17.66
1600	Truck Driver, Single Axle	\$21.59	\$17.93	\$19.19	\$19.70	\$18.24	\$15.16	\$20.60	\$19.22	\$17.99	\$19.02	\$22.02	\$21.93	\$19.20
1606	Truck Driver, Single or Tandem Axle Dump Truck	\$20.87	\$18.50	\$21.94	\$20.91	\$21.14	\$16.58	\$22.64	\$20.30	\$20.30	\$18.63	\$21.04	\$18.60	\$19.19
1607	Truck Driver, Tandem Axle Tractor with Semi-Trailer	\$21.52	\$19.81	\$20.66	\$21.71	\$21.97		\$23.22	\$20.32	\$22.08	\$23.00	\$21.91	\$20.17	\$19.52
1609	Truck Driver Lowboy-Float	\$23.01	\$27.10	\$23.18	\$25.96			\$25.57	\$23.97	\$22.90	\$25.75	\$23.22	\$25.94	\$22.60
1612	Truck Driver Transit-Mix		\$18.00					\$21.97						
1615	Boom Truck Operator				\$27.82									
1706	Welder		\$21.35		\$23.38		\$17.34	\$23.72				\$22.00	\$20.97	

Notes:
 *Represents the USDOL wage decision.
 Any worker employed on this project shall be paid at the rate of one and one half (1-1/2) times the regular rate for every hour worked in excess of forty (40) hours per week.

For reference, the titles and descriptions for the classifications listed here are detailed further in the Associated General Contractors (AGC) of Texas' Standard Job Classifications and Descriptions for Highway, Heavy, Utilities, and Industrial Construction in Texas posted on the AGC's Web site for any contractor.

**Texas Counties Identified By
Wage Rate Zones: 46, 51, 55, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300**

Table 2 - Counties by Zone.

County Name	Zone	County Name	Zone	County Name	Zone	County Name	Zone
Anderson	295	Donley	298	Karnes	300	Reagan	298
Andrews	298	Duval	297	Kaufman	294	Real	298
Angelina	295	Eastland	298	Kendall	291	Red River	295
Aransas	296	Ector	46	Kenedy	297	Reeves	292
Archer	46	Edwards	292	Kent	298	Refugio	300
Armstrong	46	El Paso	293	Kerr	300	Roberts	298
Atascosa	291	Ellis	294	Kimble	298	Robertson	291
Austin	299	Erath	295	King	298	Rockwall	294
Bailey	298	Falls	295	Kinney	292	Runnels	298
Bandera	291	Fannin	295	Kleberg	300	Rusk	55
Bastrop	291	Fayette	300	Knox	298	Sabine	295
Baylor	298	Fisher	298	Lamar	295	San Augustine	295
Bee	300	Floyd	298	Lamb	298	San Jacinto	299
Bell	291	Foard	298	Lampasas	291	San Patricio	296
Bexar	291	Fort Bend	299	LaSalle	297	San Saba	298
Blanco	300	Franklin	295	Lavaca	300	Schleicher	298
Borden	298	Freestone	295	Lee	300	Scurry	298
Bosque	295	Frio	297	Leon	295	Shackelford	298
Bowie	55	Gaines	298	Liberty	299	Shelby	295
Brazoria	299	Galveston	299	Limestone	295	Sherman	298
Brazos	291	Garza	298	Lipscomb	298	Smith	55
Brewster	292	Gillespie	300	Live Oak	300	Somervell	295
Briscoe	298	Glasscock	298	Llano	300	Starr	297
Brooks	297	Goliad	296	Loving	298	Stephens	298
Brown	298	Gonzales	300	Lubbock	46	Sterling	298
Burleson	291	Gray	298	Lynn	298	Stonewall	298
Burnet	300	Grayson	294	Madison	295	Sutton	292
Caldwell	291	Gregg	55	Marion	295	Swisher	298
Calhoun	296	Grimes	295	Martin	298	Tarrant	294
Callahan	46	Guadalupe	291	Mason	300	Taylor	46
Cameron	51	Hale	298	Matagorda	300	Terrell	292
Camp	295	Hall	298	Maverick	297	Terry	298
Carson	46	Hamilton	295	McCulloch	298	Throckmorton	298
Cass	295	Hansford	298	McLennan	291	Titus	295
Castro	298	Hardeman	298	McMullen	297	Tom Green	46
Chambers	299	Hardin	299	Medina	291	Travis	291
Cherokee	295	Harris	299	Menard	298	Trinity	295
Childress	298	Harrison	55	Midland	46	Tyler	295
Clay	46	Hartley	298	Milam	295	Upshur	55
Cochran	298	Haskell	298	Mills	298	Upton	298
Coke	298	Hays	291	Mitchell	298	Uvalde	297
Coleman	298	Hemphill	298	Montague	298	Val Verde	292
Collin	294	Henderson	295	Montgomery	299	Van Zandt	295
Collingsworth	298	Hidalgo	51	Moore	298	Victoria	296
Colorado	300	Hill	295	Morris	295	Walker	295
Comal	291	Hockley	298	Motley	298	Waller	299
Comanche	298	Hood	295	Nacogdoches	295	Ward	298
Concho	298	Hopkins	295	Navarro	295	Washington	295
Cooke	298	Houston	295	Newton	295	Webb	51
Coryell	291	Howard	298	Nolan	298	Wharton	300
Cottle	298	Hudspeth	292	Nueces	296	Wheeler	298
Crane	298	Hunt	294	Ochiltree	298	Wichita	46
Crockett	292	Hutchinson	298	Oldham	298	Wilbarger	298
Crosby	46	Irion	46	Orange	299	Willacy	297
Culberson	292	Jack	295	Palo Pinto	295	Williamson	291
Dallam	298	Jackson	300	Panola	295	Wilson	291
Dallas	294	Jasper	295	Parker	294	Winkler	298
Dawson	298	Jeff Davis	292	Parmer	298	Wise	294
Deaf Smith	298	Jefferson	299	Pecos	292	Wood	295
Delta	294	Jim Hogg	297	Polk	295	Yoakum	298
Denton	294	Jim Wells	300	Potter	46	Young	298
DeWitt	300	Johnson	294	Presidio	292	Zapata	297
Dickens	298	Jones	46	Rains	295	Zavala	297
Dimmit	297			Randall	46		

CONTRACTOR'S ASSURANCE
(Subcontracts-Federal Aid Projects)

By signing this proposal, the contractor is giving assurances that all subcontract agreements will incorporate the Standard Specification and Special Provisions to Section 9.9., Payment Provisions for Subcontractors, all subcontract agreements exceeding \$2,000 will incorporate the applicable Wage Determination Decision, and all subcontract agreements will incorporate the following:

- Special Provision Certification of Nondiscrimination in Employment

- Special Provision Standard Federal Equal Employment Opportunity

- Form FHWA 1273 Required Contract Provisions Federal-aid Construction Contracts (Form FHWA 1273 must also be physically attached to subcontracts and all lower-tier subcontracts)

- Special Provision Nondiscrimination (Include provisions of Sections 3.1 – 3.6 in all subcontracts and agreements for materials)

- Special Provision Cargo Preference Act Requirements in Federal-Aid Contracts

CERTIFICATION TO NOT BOYCOTT ENERGY COMPANIES

Pursuant to Texas Government Code §809.051, the Department must include a provision requiring a written verification affirming that the Contractor does not boycott energy companies, as defined in Government Code §809.001, and will not boycott energy companies during the term of the contract. This provision applies to a contract that:

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

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

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

CERTIFICATION TO NOT BOYCOTT ISRAEL

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

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

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

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

CERTIFICATION REGARDING DISCLOSURE OF PUBLIC INFORMATION

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

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

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

By entering into Contract, the Contractor agrees to:

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

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

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

CERTIFICATION TO NOT DISCRIMINATE AGAINST FIREARM ENTITIES OR FIREARM TRADE ASSOCIATIONS

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

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

This provision applies to a contract that:

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

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

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

State of Texas Child Support Business Ownership Form

County: _____

Project Name: _____

TxDOT CSJ: _____

LG Project Number: _____

Business Entity Submitting Bid: _____

Section 231.006, Family Code, requires a bid for a contract paid from state funds to include the names and social security number of individuals owning 25% or more of the business entity submitting the bid.

1. In the spaces below please provide the names and social security number of individuals owning 25% or more of the business.

Name	Social Security Number
_____	_____
_____	_____
_____	_____
_____	_____

2. Please check the box below if no individual owns 25% or more of the business.

() No individual own 25% or more of the business.

Except as provided by Section 231.302(d), Family Code, a social security number is confidential and may be disclosed only for the purpose of responding to a request for information from an agency operating under the provisions of Part A and D to Title IV of the Federal Social Security Act (42 USC Section 601-617 and 651-699).

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

The information collected on this form will be maintained by _____. With few exceptions, you are entitled on request to be informed about the information collected about you. Under Sections 552.021 and 552.023 of the Texas Government Code, you also are entitled to receive and review the information. Under Section 559.004 of the Government Code, you are also entitled to have information about you corrected that you believe is incorrect.

Signature

Date

Printed Name

IF THIS PROJECT IS A JOINT VENTURE,
ALL PARTIES TO THE JOINT VENTURE MUST PROVIDE A COMPLETED FORM.

CHILD SUPPORT STATEMENTÁ

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Prohibition on Certain Telecommunications Equipment or Services

The Federal Register Notice issued the Final Rule and states that the amendment to 2 CFR 200.216 is effective on August 13, 2020. The new 2 CFR 200.471 regulation provides clarity that the telecommunications and video surveillance costs associated with 2 CFR 200.216 are unallowable for services and equipment from these specific providers. [OMB's Federal Register Notice](#) includes the new 2 CFR 200.216 and 2 CFR 200.471 regulations.

Per the Federal Law referenced above, use of services, systems, or services or systems that contain components produced by any of the following manufacturers is strictly prohibited for use on this project. Therefore, for any telecommunications, CCTV, or video surveillance equipment, services or systems cannot be manufactured by, or have components manufactured by:

- Huawei Technologies Company,
- ZTE Corporation (any subsidiary and affiliate of such entities),
- Hyatera Communications Corporation,
- Hangzhou Hikvision Digital Technology Company,
- Dahua Technology Company (any subsidiary and affiliate of such entities).

Violation of this requirement will require replacement of the equipment at the contractor's expense.

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

FORM CIQ

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 Name of vendor who has a business relationship with local governmental entity.

2 Check this box if you are filing an update to a previously filed questionnaire. (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 Name of local government officer about whom the information is being disclosed.

Name of Officer

4 Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

Yes No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

Yes No

5 Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.

6 Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7

Name of signatory

Signature

Date

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at <http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm>. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

- (A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;
- (B) a transaction conducted at a price and subject to terms available to the public; or
- (C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds \$2,500 during the 12-month period preceding the date that the officer becomes aware that

- (i) a contract between the local governmental entity and vendor has been executed;
- or
- (ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than \$100 in the 12-month period preceding the date the officer becomes aware that:

- (i) a contract between the local governmental entity and vendor has been executed; or
- (ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

- (1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);
- (2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or
- (3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

- (A) begins discussions or negotiations to enter into a contract with the local governmental entity; or
- (B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

- (A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);
- (B) that the vendor has given one or more gifts described by Subsection (a); or
- (C) of a family relationship with a local government officer.

NON-COLLUSION AFFIDAVIT

STATE OF TEXAS §

§

COUNTY OF TRAVIS §

By the signature below, the signatory for the bidder certifies that neither he nor the firm, corporation, partnership or institution represented by the signatory or anyone acting for the firm bidding this project has violated the antitrust laws of this State, codified at Section 15.01, *et seq.*, Texas Business and Commerce Code, or the Federal antitrust laws, nor communicated directly or indirectly the bid made to any competitor or any other person engaged in the same line of business, nor has the signatory or anyone acting for the firm, corporation or institution submitting a bid committed any other act of collusion related to the development and submission of this bid proposal.

Signature:

Printed Name: _____

Title: _____

Company: _____

Date: _____

SUBSCRIBED and sworn to before me the undersigned authority by _____ the _____ of, _____ on behalf of said bidder.

Notary Public in and for the
State of Texas

My commission expires: _____

Disclosure of Lobbying Activities

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352
(See reverse for public burden disclosure)

1. Type of Federal Action: a. contract _____ b. grant c. cooperative agreement d. loan e. loan guarantee f. loan insurance	2. Status of Federal Action: a. bid/offer/application _____ b. initial award c. post-award	3. Report Type: a. initial filing _____ b. material change For material change only: Year _____ quarter _____ Date of last report _____
4. Name and Address of Reporting Entity: _____ Prime _____ Subawardee Tier _____, if Known: Congressional District, if known:		5. If Reporting Entity in No. 4 is Subawardee, Enter Name and Address of Prime: Congressional District, if known:
6. Federal Department/Agency:	7. Federal Program Name/Description: CFDA Number, if applicable: _____	
8. Federal Action Number, if known:	9. Award Amount, if known: \$ _____	
10. a. Name and Address of Lobbying Registrant <i>(if individual, last name, first name, MI):</i>	b. Individuals Performing Services <i>(including address if different from No. 10a)</i> <i>(last name, first name, MI):</i>	
11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.	Signature: _____ Print Name: _____ Title: _____ Telephone No.: _____ Date: _____	
Federal Use Only	Authorized for Local Reproduction Standard Form - LLL (Rev. 7-97)	

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a followup report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, State and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in item 4 checks "Subawardee," then enter the full name, address, city, State and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitations for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Included prefixes, e.g., "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.
10. (a) Enter the full name, address, city, State and zip code of the lobbying registrant under the Lobbying Disclosure Act of 1995 engaged by the reporting entity identified in item 4 to influence the covered Federal action.

(b) Enter the full names of the individual(s) performing services, and include full address if different from 10(a). Enter Last Name, First Name, and Middle Initial (MI).
11. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB control Number. The valid OMB control number for this information collection is OMB No. 0348-0046. Public reporting burden for this collection of information is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, DC 20503

Introduction

Local Government General Requirements

For all projects with State or Federal funds, and/or all projects on the State Highway System regardless of funding source, a Local Government must either adopt the latest TxDOT Standard Specifications, Special Specifications, and required Special Provisions or request TxDOT written approval of alternate, equivalent specifications. TxDOT's *"2024 Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges"* are the latest TxDOT Standard Specifications. These "General Requirements" along with additional requirements specified by the particular local government, are intended as a template for Items 1-10 in TxDOT's Standard Specifications on projects let by a local government that is on the State Highway System or includes reimbursement to the local government using FHWA or TxDOT funds.

This document is intended to be used as a template that allows local governments to modify Items 1-10 to meet their particular needs while assuring that all local, state, and federal statutory requirements are addressed. As this document modifies a TxDOT publication, there may be a question about terminology. In general, the "Owner" or the "Engineer" references the local government or its representatives (Consulting Engineers, etc.). Reference to "Department" or "Engineer" in the construction and maintenance specifications refers to the local government, except when it is referencing a TxDOT specification, manual, material specification, Material Producers List or test method.

Foreword

OUTLINE OF SPECIFICATIONS

Each specification is outlined by articles and sections. The basic articles required for a specification are:

1. DESCRIPTION
2. MATERIALS
3. EQUIPMENT
4. CONSTRUCTION OR WORK METHODS
5. MEASUREMENT
6. PAYMENT

Some articles are not used in every item. Measurement and Payment articles are combined when the work described is subsidiary to bid items of the Contract.

HIERARCHY OF ORGANIZATIONAL ELEMENTS

Here "XXX" represents the item number. The hierarchy of organizational elements available below the item level is as follows:

XXX.1., Article
XXX.1.1., Section
XXX.1.1.1., Section
XXX.1.1.1.1., Section
XXX.1.1.1.1.1., Section
XXX.1.1.1.1.1.1., Section

The term section is used for all breaks below the article.

Items 1L–9L

Local Government General Requirements and Covenants

Item 1L

Abbreviations and Definitions



1. APPLICABILITY

Wherever the following terms are used in these specifications or other Contract documents, the intent and meaning will be interpreted as shown below.

2. ABBREVIATIONS

AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
ACPA	American Concrete Pipe Association
AI	Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALSC	American Lumber Standard Committee, Inc.
AMPP	Association for Materials Protection and Performance
AMRL	AASHTO Materials Reference Laboratory
ANLA	American Nursery and Landscape Association
ANSI	American National Standards Institute
APA	The Engineered Wood Association
API	American Petroleum Institute
APWA	American Public Works Association
AREMA	American Railway Engineering and Maintenance-of-Way Association
ASBI	American Segmental Bridge Institute
ASCE	American Society of Civil Engineers
ASLA	American Society of Landscape Architects
ASME	American Society of Mechanical Engineers
ASNT	American Society for Nondestructive Testing
ASTM	American Society for Testing and Materials
AWC	American Wood Council
AWG	American Wire Gage
AWPA	American Wood Protection Association
AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
BMP	Best Management Practices
CFR	Code of Federal Regulations
CMP	Corrugated Metal Pipe
COE	U.S. Army Corps of Engineers
CRSI	Concrete Reinforcing Steel Institute
DBE	Disadvantaged Business Enterprise
DMS	Departmental Materials Specification
EIA	Electronic Industries Alliance
EPA	U.S. Environmental Protection Agency
FHWA	Federal Highway Administration, U.S. Department of Transportation
FSS	Federal Specifications and Standards (General Services Administration)
GSA	General Services Administration
HUB	Historically Underutilized Business
ICEA	Insulated Cable Engineers Association

IEEE	Institute of Electrical and Electronics Engineers
IESNA	Illuminating Engineering Society of North America
IMSA	International Municipal Signal Association
ISO	International Organization for Standardization
ITE	Institute of Transportation Engineers
ITS	Intelligent Transportation System
LG	Local Government
LRFD	Load and Resistance Factor Design
MASH	Manual for Assessing Safety Hardware
MPL	Material Producer List
NCHRP	National Cooperative Highway Research Program
NCR	Nonconformance Report
NEC	National Electrical Code (Published by NFPA)
NEMA	National Electrical Manufacturers Association
NEPA	National Environmental Policy Act
NESC	National Electrical Safety Code
NFPA	National Fire Protection Association
NIST	National Institute of Standards and Technology
NPCA	National Precast Concrete Association
NRM	Nonhazardous Recyclable Material
NRMCA	National Ready Mixed Concrete Association
NSBA	National Steel Bridge Alliance
OSHA	Occupational Safety and Health Administration, U.S. Department of Labor
PCA	Portland Cement Association
PCI	Precast/Prestressed Concrete Institute
PPI	Plastics Pipe Institute
PS&E	Plans, Specifications, and Estimates
PSL	Project Specific Location
PTI	Post-Tension Institute
QA	Quality Assurance
QC	Quality Control
RCP	Reinforced Concrete Pipe
RPLS	Registered Public Land Surveyor
RRC	Railroad Commission of Texas
SBE	Small Business Enterprise
SFPA	Southern Forest Products Association
SI	International System of Units
SPIB	Southern Pine Inspection Bureau
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TDLR	Texas Department of Licensing and Regulation
TMUTCD	Texas Manual on Uniform Traffic Control Devices
UL	Underwriters Laboratory, Inc.
USC	United States Code
WRI	Wire Reinforcement Institute
WWPA	Western Wood Products Association

3. DEFINITIONS

- 3.1. **Abrasive Blasting.** Spraying blasts of pressurized air combined with abrasive media.
- 3.2. **Actual Cost.** Contractor's actual cost to provide labor, material, equipment, and project overhead necessary for the work.
- 3.3. **Addendum.** Change in proposal forms developed between advertising and bid submittal deadline.

- 3.4. **Additive Alternate.** A bid item contained in a proposal that is not a regular item or a replacement alternate bid item. The additive alternate item(s) include work that may be added to the base bid at the time of letting.
- 3.5. **Advertisement.** The public announcement required by law inviting bids for work to be performed or materials to be furnished.
- 3.6. **Affiliates.** Two or more Bidders are affiliated if they share common officers, directors, or stockholders; a family member of an officer, director, or stockholder of one Bidder serves in a similar capacity in another of the Bidders; an individual who has an interest in, or controls a part of, one Bidder either directly or indirectly also has an interest in, or controls a part of, another of the Bidders; the Bidders are so closely connected or associated that one of the Bidders, either directly or indirectly, controls or has the power to control another Bidder; one Bidder controls or has the power to control another Bidder; or the Bidders are closely allied through an established course of dealings, including, but not limited to, the lending of financial assistance. Refer to 43 TAC § 9.12(g), "Affiliated Entities."
- 3.7. **Air Blasting.** Spraying blasts of pressurized air free of oil and moisture.
- 3.8. **Air Temperature.** The temperature measured in degrees Fahrenheit (°F) in the shade, not in the direct rays of the sun, and away from artificial heat.
- 3.9. **Anticipated Profit.** Profit for work not performed.
- 3.10. **Apparent Low Bidder.** The Bidder determined to have the numerically lowest total bid as a result of the tabulation of bids by the Owner.
- 3.11. **Architect of Record.** A person registered as an architect or licensed as a landscape architect, in conformance with State law, exercising overall responsibility for the design or a significant portion of the design and performing certain Contract administration responsibilities as described in the Contract; or a firm employed by the Owner to provide professional architectural services.
- 3.12. **Arterial Highway.** A highway used primarily for through traffic and usually on a continuous route.
- 3.13. **Available Bidding Capacity.** Not applicable to Locally Let projects.
- 3.14. **Award.** The Owner's acceptance of a Contractor's bid for a proposed Contract that authorizes the Owner to enter into a Contract.
- 3.15. **Bid.** The offer from the Bidder for performing the work described in the proposal.
- 3.16. **Bid Bond.** The security executed by the Contractor and the Surety furnished to the Owner to guarantee payment of liquidated damages if the Contractor fails to enter into an awarded Contract.
- 3.17. **Bid Error.** A mathematical mistake made by a Bidder in the unit price entered into the proposal.
- 3.18. **Bidder.** An individual, partnership, limited liability company, corporation, or joint venture submitting a bid for a proposed Contract.
- 3.19. **Bidders Questionnaire.** A prequalification form that reflects detailed equipment and experience data but waives audited financial data.
- 3.20. **Bidding Capacity.** Not applicable to Locally Let projects.
- 3.21. **Blast Cleaning.** Using one of the blasting methods including, but not limited to water blasting, low-pressure water blasting, high-pressure water blasting, abrasive blasting, water-abrasive blasting, shot blasting, slurry blasting, water -injected abrasive blasting, and brush blasting.

- 3.22. **Bridge.** A structure, including supports, erected over a depression or an obstruction (e.g., water, a highway, or a railway) with a roadway or track for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 ft. between faces of abutments, spring lines of arches, or extreme ends of the openings for multiple box culverts.
- 3.23. **Brush Blasting.** Sweeping lightly with an abrasive blast to remove loose material.
- 3.24. **Building Contract.** Not applicable to Locally Let projects.
- 3.25. **Callout Work.** Contracts, or work items in Contracts, that require a Contractor's response on an as-needed basis (e.g., see Item 351, "Flexible Pavement Structure Repair").
- 3.26. **Certificate of Insurance.** A form approved by the Owner covering insurance requirements stated in the Contract.
- 3.27. **Change Order.** Written order to the Contractor detailing changes to the specified work, item quantities, or any other modification to the Contract.
- 3.28. **Commission.** The Texas Transportation Commission or authorized representative.
- 3.29. **Concrete Construction Joint.** A joint formed by placing plastic concrete in direct contact with concrete that has attained its initial set.
- 3.30. **Concrete Repair Manual.** TxDOT manual specifying methods and procedures for concrete repair as an extension of the standard specifications.
- 3.31. **ConcreteWorks®.** TxDOT-owned software for concrete heat analysis. Software is available on the TxDOT's website.
- 3.32. **Confidential Questionnaire.** A prequalification form that reflects detailed financial and experience data.
- 3.33. **Construction Contract.** A Contract entered under state law for the construction, reconstruction, repair, or maintenance of a segment of the Owner's or State transportation highway system.
- 3.34. **Consultant.** The licensed professional engineer or engineering firm, or the architect or architectural firm, registered in the State of Texas and under Contract to the Owner to perform professional services. The consultant may be the Engineer or architect of record or may provide services through and be subcontracted to the Engineer or architect of record.
- 3.35. **Contract.** The agreement between the Owner and the Contractor establishing the obligations of the parties for furnishing of materials and performance of the work prescribed in the Contract documents.
- 3.36. **Contract Documents.** Elements of the Contract including, but not limited to, the plans, specifications incorporated by reference, special provisions, special specifications, Contract bonds, change orders, and supplemental agreements.
- 3.37. **Contract Time.** The number of working days specified for completion of the work, including authorized additional working days.
- 3.38. **Contractor.** The individual, partnership, limited liability company, corporation, or joint venture and all principals and representatives with which the Contract is made by the Owner.
- 3.39. **Control of Access.** The condition in which the right to access of owners or occupants of abutting land or other persons in connection with a highway is fully or partially controlled by public authority.

- 3.40. **Control Point.** An established point shown on the plans to provide vertical and horizontal references for geometric control for construction.
- 3.41. **Controlled Access Highway.** Any highway to or from which access is denied or controlled, in whole or in part, from or to abutting land or intersecting streets, roads, highways, alleys, or other public or private ways.
- 3.42. **Cross-Sections.** Graphic representations of the original ground and the proposed facility, at right angles to the centerline or base line.
- 3.43. **Culvert.** Any buried structure providing an opening under a roadway for drainage or other purposes. Culverts may also be classified as bridges. (See Section 1.3.22., "Bridge.")
- 3.44. **Cycle.** The activity necessary for performing the specified work within the right of way project limits once.
- 3.45. **Daily Road-User Cost.** Damages based on the estimated daily cost of inconvenience to the traveling public resulting from the work.
- 3.46. **Debar (Debarment).** Disqualification of an entity from bidding on or entering into a Contract with the Owner, from participating as a subcontractor under a Contract with the Owner, and from participating as a supplier of materials or equipment to be used under a Contract with the Owner.
- 3.47. **Department.** The Texas Department of Transportation (TxDOT).
- 3.48. **Departmental Materials Specifications.** Reference specifications for various materials published by the Materials and Tests Division.
- 3.49. **Detour.** A temporary traffic route around a closed portion of a road.
- 3.50. **Direct Traffic Culvert.** Concrete box culvert whose top slab is used as the final riding surface or is to have an overlay or other riding surface treatment.
- 3.51. **Disadvantaged Business Enterprise.** A for-profit small business certified through the Texas Unified Certification Program in accordance with 49 CFR Part 26, that is at least 51% owned by one or more socially and economically disadvantaged individuals, or in the case of a publicly owned business, in which at least 51% of the stock is owned by one or more socially and economically disadvantaged individuals, and whose management and daily business operations are controlled by one or more of the individuals who own it.
- 3.52. **Divided Highway.** A highway with separate roadways intended to move traffic in opposite directions.
- 3.53. **Easement.** A real property right acquired by one party to use land belonging to another party for a specified purpose.
- 3.54. **Electronic Vault.** The Owner's bidding system where electronic bids are stored before bid opening.
- 3.55. **Engineer.** The Chief Engineer of the Owner or the authorized representative of the Chief Engineer.
- 3.56. **Equipment Watch.** Publication containing equipment rental rates.
- 3.57. **Escalation Ladder.** A process to determine issue resolution during the course of the Contract.
- 3.58. **Expressway.** A divided arterial highway for through traffic with full or partial control of access and generally with grade separations at intersections.
- 3.59. **Family Member.** A family member of an individual is the individual's parent, parent's spouse, stepparent, stepparent's spouse, sibling, sibling's spouse, spouse, child, child's spouse, spouse's child, spouse's child's

spouse, grandchild, grandparent, uncle, uncle's spouse, aunt, aunt's spouse, first cousin, or first cousin's spouse. Refer to 43 TAC § 9.12(g), "Affiliated Entities."

- 3.60. **Force Account.** Payment for directed work based on the actual cost of labor, equipment, and materials furnished with markups for project overhead and profit.
- 3.61. **Freeway.** An expressway with full control of access.
- 3.62. **Frontage Road.** A local street or road auxiliary to and located along an arterial highway for service to abutting property and adjacent areas and for control of access (sometimes known as a service road, access road, or insulator road).
- 3.63. **Hazardous Materials or Waste.** Hazardous materials or waste include, but are not limited to, explosives, compressed gas, flammable liquids, flammable solids, combustible liquids, oxidizers, poisons, radioactive materials, corrosives, etiologic agents, and other material classified as hazardous by 40 CFR 261, or applicable state and federal regulations.
- 3.64. **High-Pressure Water Blasting.** Water blasting with pressures between 5,000 and 10,000 psi.
- 3.65. **Highway, Street, or Road.** General terms denoting a public way for purposes of and related to vehicular, pedestrian, and bicycle travel, including the entire area within the right of way including Intersections and Easements; all related structures, improvements, and appurtenances, including but not limited to the roadside and roadside facilities, drainage systems, signal systems, and other traffic in formation and control systems; or other structures or improvements that directly or indirectly serve public travel. Recommended usage in urban areas is highway or street, and in rural areas, highway or road.
- 3.66. **Historically Underutilized Business (HUB).** A corporation, sole proprietorship, partnership, or joint venture formed for the purpose of making a profit certified by the Texas Building and Procurement Commission, and 51% owned by one or more persons who are economically disadvantaged because of their identification as members of certain groups, including African Americans, Hispanic Americans, Asian-Pacific Americans, Native Americans, or women, and have a proportionate interest and demonstrate active participation in the control, operation, and management of the business' affairs. Individuals meeting the HUB definition are required to be residents of the State of Texas. Businesses that do not have their primary headquarters in the State of Texas are not eligible for HUB certification.
- 3.67. **In Writing.** Communication memorialized, including written or electronic documentation by email or letter only.
- 3.68. **Incentive and Disincentive Provisions.** An adjustment to the Contract price of a predetermined amount for each day the work is completed ahead of or behind the specified milestone, phase, or Contract completion dates. The amount of the incentive and disincentive is determined based on estimated costs for engineering, traffic control, delays to the motorists, and other items involved in the Contract.
- 3.69. **Independent Assurance Tests.** Tests used to evaluate the sampling and testing techniques and equipment used in the acceptance program. The tests are performed by the Owner and are not used for acceptance purposes.
- 3.70. **Inspector.** The person assigned by the Engineer to inspect for compliance with the Contract any or all parts of the work and the materials used.
- 3.71. **Intelligent Transportation System.** An integrated system that uses video and other electronic detection devices to monitor traffic flows.
- 3.72. **Intersection.** The general area where two or more highways, streets, or roads join or cross, including the roadway and roadside facilities for vehicular, pedestrian, and bicycle traffic movements within it.

- 3.73. **Island.** An area within a roadway from which vehicular traffic is intended to be excluded, together with any area at the approach occupied by protective deflecting or warning devices.
- 3.74. **Joint Venture.** Any combination of individuals, partnerships, limited liability companies, or corporations submitting a single bid proposal.
- 3.75. **Lane Rental.** A method to assess the Contractor daily or hourly rental fees for each lane, shoulder, or combination of lanes and shoulders taken out of service.
- 3.76. **Letting.** The receipt, opening, tabulation, and determination of the apparent low Bidder.
- 3.77. **Letting Official.** The employee empowered by the Owner to officially receive bids and close the receipt of bids at a letting.
- 3.78. **Licensed Professional Engineer.** A person who has been duly licensed by the Texas Board of Professional Engineers to engage in the practice of engineering in the State of Texas; also referred to as a Professional Engineer.
- 3.79. **Limits of Construction.** An area with established boundaries, identified within the highway right of way and easements, where the Contractor is permitted to perform the work.
- 3.80. **Local Street or Road.** A street or road primarily for access to residence, business, or other abutting property.
- 3.81. **Low-Pressure Water Blasting.** Water blasting with pressures between 3,000 and 5,000 psi.
- 3.82. **Major Item.** An item of work included in the Contract that has a total cost equal to or greater than 5% of the original Contract or \$100,000 whichever is less. A major item at the time of bid will remain a major item. An item not originally a major item does not become one through the course of the Contract.
- 3.83. **Material Producer List.** TxDOT-maintained list of approved products, materials, laboratories, service providers, manufacturers, and producers.
- 3.84. **Materially Unbalanced Bid.** A bid that generates a reasonable doubt that award to the Bidder submitting a mathematically unbalanced bid will result in the lowest ultimate cost to the Owner.
- 3.85. **Materials Contract.** Not applicable to Locally Let projects.
- 3.86. **Materials Supplier's Questionnaire.** A prequalification form that reflects basic information, such as company contact, signature authority, and other requirements, but waives financial, equipment, and experience data.
- 3.87. **Mathematically Unbalanced Bid.** A bid containing bid prices that do not reflect reasonable actual costs plus a reasonable proportionate share of the Bidder's anticipated profit, overhead costs, and other indirect costs.
- 3.88. **Median.** The portion of a divided highway separating the traffic lanes in opposite directions.
- 3.89. **Milestone Date.** The date that a specific portion of the work is to be completed before the completion date for all work under the Contract.
- 3.90. **Monolithic Concrete Placement.** The placement of plastic concrete in such manner and sequence to prevent a construction joint.
- 3.91. **National Holidays.** January 1, the last Monday in May, July 4, the first Monday in September, the fourth Thursday in November, December 24, and December 25.

- 3.92. **Nonhazardous Recyclable Material.** A material recovered or diverted from the nonhazardous waste stream for the purposes of reuse or recycling in the manufacture of products that may otherwise be produced using raw or virgin materials.
- 3.93. **Nonresident Bidder.** A Bidder whose principal place of business is not in Texas. This includes a Bidder whose ultimate parent company or majority owner does not have its principal place of business in Texas.
- 3.94. **Nonresponsive Proposal.** A proposal that does not meet the criteria for acceptance contained in the proposal form.
- 3.95. **Non-Site-Specific Contracts.** Contracts where a geographic region is specified for the work and work orders, with or without plans, detail the limits and work to be performed.
- 3.96. **Notification.** Either written or oral instruction to the Contractor. Voice mail is oral notification.
- 3.97. **Pavement.** That part of the roadway with a constructed surface for the use of vehicular traffic.
- 3.98. **Pavement Structure.** Combination of surface course and base course placed on a subgrade to support the traffic load and distribute it to the roadbed.
- 3.98.1. **Base Course.** One or more layers of specified material thickness placed on a subgrade to support a surface course.
- 3.98.2. **Subgrade.** The top surface of a roadbed upon which the pavement structure, shoulders, and curbs are constructed.
- 3.98.3. **Subgrade Treatment.** Modifying or stabilizing material in the subgrade.
- 3.98.4. **Surface Course.** Pavement structure layers designed to accommodate the traffic load. The top layer resists skidding, traffic abrasion, and the disintegrating effects of climate and is sometimes called the wearing course.
- 3.99. **Payment Bond.** The security executed by the Contractor and the Surety, furnished to the Owner to guarantee payment of all legal debts of the Contractor pertaining to the Contract.
- 3.100. **Performance Bond.** The security executed by the Contractor and the Surety, furnished to the Owner to guarantee the completion of the work in accordance with the terms of the Contract.
- 3.101. **Plans.** The drawings approved by the Engineer, including true reproductions of the drawings that may show the location, character, dimensions, and details of the work and are a part of the Contract. Documents may include drawings or digital files.
- 3.102. **Power of Attorney for Surety Bonds.** An instrument under corporate seal appointing an attorney-in-fact to act on behalf of a Surety in signing bonds.
- 3.103. **Prequalification.** The process for determining a Contractor's eligibility to bid work.
- 3.104. **Prequalification Statement.** The forms on which required information is furnished concerning the Contractor's ability to perform and finance the work.
- 3.105. **Project-Specific Location.** A material source, plant, waste site, parking area, storage area, field office, staging area, haul road, or other similar location either outside the project limits or within the project limits but not specifically addressed in the Contract.
- 3.106. **Proposal.** The offer from the Bidder submitted on the prescribed form, including addenda issued, giving unit bid prices for performing the work described in the plans and specifications.

- 3.107. **Proposal Form.** The form printed and sent to the Bidder by the Owner or printed by the Bidder from the Owner's bidding system.
- 3.108. **Proposal Guaranty.** The security furnished by the Bidder as a guarantee that the Bidder will enter into a Contract if awarded the work.
- 3.109. **Quality Assurance (QA).** Sampling, testing, inspection, and other activities conducted by the Engineer to determine payment and make acceptance decisions.
- 3.110. **Quality Control (QC).** Sampling, testing, and other process control activities conducted by the Contractor to monitor production and placement operations.
- 3.111. **Ramp.** A section of highway for the primary purpose of making connections with other highways.
- 3.112. **Recurring Maintenance Work Contracts.** Contracts or work for which maintenance is needed at the same location on more than one occasion (e.g., mowing Contracts for which mowing cycles are requested on multiple occasions).
- 3.113. **Referee Tests.** Tests requested to resolve differences between Contractor and Engineer test results.
- 3.114. **Regular Item.** A bid item contained in a proposal and not designated as an additive alternate or replacement alternate bid item.
- 3.115. **Rental Rate Blue Book for Construction Equipment.** Publication containing equipment rental rates.
- 3.116. **Repair.** Performed under Transportation Code §223, Subchapter A for Highway Improvement Contracts and includes restoration of a Highway, Street, or Road by replacing or putting together, in whole or in part, what is torn, broken, or otherwise damaged. Repair denotes the process of restoring all or part of a Highway, Street, or Road that has been subjected to decay, waste, injury, partial destruction, erosion, dilapidation, degradation, etc.
- 3.117. **Replacement Alternate.** A bid item identified the proposal form that a Bidder may substitute for a specific regular item of work.
- 3.118. **Responsive Bid.** A proposal that meets all requirements of the proposal form for acceptance.
- 3.119. **Right of Way.** A general term denoting land or property devoted to transportation purposes.
- 3.120. **Roadbed.** The graded portion of a highway prepared as foundation for the pavement structure and shoulders. On divided highways, the depressed median type and the raised median type highways are considered to have two roadbeds. Highways with a flush median are considered to have one roadbed. Frontage roads are considered separate roadbeds.
- 3.121. **Road Master.** A railroad maintenance official in charge of a division of railway.
- 3.122. **Roadside.** The areas between the outside edges of the shoulders and the right of way boundaries. Unpaved median areas between inside shoulders of divided highways and areas within interchanges are included.
- 3.123. **Roadway.** The portion of the highway (including shoulders) used by the traveling public.
- 3.124. **Routine Maintenance Contract.** Not applicable to Locally Let projects.
- 3.125. **Sandblasting, Dry.** Spraying blasts of pressurized air combined with sand.
- 3.126. **Sandblasting, Wet.** Spraying blasts of pressurized water combined with sand.

- 3.127. **Shot Blasting.** Spraying blasts of pressurized air combined with metal shot.
- 3.128. **Shoulder.** That portion of the roadway contiguous with the traffic lanes for accommodation of stopped vehicles for emergency use or for lateral support of base and surface courses.
- 3.129. **Sidewalk.** Portion of the right of way constructed exclusively for pedestrian use.
- 3.130. **Slurry Blasting.** Spraying blasts of pressurized air combined with a mixture of water and abrasive media.
- 3.131. **Small Business Enterprise.** A firm (including affiliates) whose annual gross receipts do not exceed the U.S. Small Business Administration's size standards for 4 consecutive yr.
- 3.132. **Special Provisions.** Additions or revisions to these standard specifications or special specifications.
- 3.133. **Special Specifications.** Supplemental specifications applicable to the Contract not covered by these standard specifications.
- 3.134. **Specifications.** Directives or requirements issued or made pertaining to the method and manner of performing the work or to quantities and qualities of materials to be furnished under the Contract. References to DMSs, ASTM or AASHTO specifications imply the latest standard or tentative standard in effect on the date of the proposal. The Engineer will consider incorporation of subsequent changes to these documents in accordance with Item 4, "Scope of Work."
- 3.135. **State.** The State of Texas.
- 3.136. **State Holiday.** A holiday authorized by the State Legislature excluding optional State holidays and not listed in Section 1.3.91., "National Holidays." A list of State holidays can be found on the TxDOT's website.
- 3.137. **Station.** A unit of measurement consisting of 100 horizontal ft.
- 3.138. **Subcontract.** The agreement between the Contractor and subcontractor establishing the obligations of the parties for furnishing of materials and performance of the work prescribed in the Contract documents.
- 3.139. **Subcontractor.** An individual, partnership, limited liability company, corporation, or any combination thereof that the Contractor sublets, or proposes to sublet, any portion of a Contract, excluding a material supplier, a hauling firm hauling only from a commercial source to the project, a truck owner-operator, a wholly owned subsidiary, or specialty-type businesses such as security companies and rental companies.
- 3.140. **Subsidiary.** Materials, labor, or other elements that because of their nature or quantity have not been identified as a separate item and are included within the items on which they necessarily depend.
- 3.141. **Substantial Completion of Work.** The date (day) when all project work requiring lane or shoulder closures or obstructions is completed, and traffic is following the lane arrangement as shown on the plans for the finished roadway; all pavement construction and surfacing are complete; and traffic control devices and pavement markings are in their final position, unless otherwise shown on the plans. The Engineer may make an exception for permanent pavement markings provided the lack of markings does not cause a disruption to traffic flow or an unsafe condition for the traveling public, and work zone pavement markings are in place.
- 3.142. **Substructure.** The part of the structure below the bridge seats but not including bearings, drilled shafts, or piling. Parapets, back walls, wing walls of the abutments, and drainage structures are considered parts of the substructure.
- 3.143. **Superintendent.** The representative of the Contractor who is available at all times and able to receive instructions from the Engineer or authorized Owner representatives and to act for the Contractor.

- 3.144. **Superstructure.** The part of the structure above the bridge seats or above the springing lines of arches and including the bearings. Flatwork construction may be considered superstructure.
- 3.145. **Supplemental Agreement.** Written agreement entered into between the Contractor and the Owner and approved by the Surety, covering alterations and changes in the Contract. A supplemental agreement is used by the Owner whenever the modifications include assignment of the Contract from one entity to another or other cases as desired by the Owner.
- 3.146. **Surety.** The corporate body or bodies authorized to do business in Texas bound with and for the Contractor for the faithful performance of the work covered by the Contract and for the payment for all labor and material supplied in the prosecution of the work.
- 3.147. **Surplus Materials.** Any debris or material related to the Contract not incorporated into the work.
- 3.148. **Suspension.** Action taken by the Owner or federal government pursuant to regulation that prohibits a person or company from entering into a Contract, or from participating as a subcontractor, or supplier of materials or equipment used in a highway improvement Contract as defined in Transportation Code, Chapter 223, Subchapter A.
- 3.149. **Traffic Lane.** The strip of roadway intended to accommodate the forward movement of a single line of vehicles.
- 3.150. **Traveled Way.** The portion of the roadway for the movement of vehicles, exclusive of shoulders and auxiliary lanes.
- 3.151. **Truck Owner-Operator.** An individual who owns and operates one truck for hire.
- 3.152. **UT-Bridge.** TxDOT-owned software for steel girder erection. Software is available on the TxDOT's website.
- 3.153. **UT-Lift.** TxDOT-owned software for steel girder erection. Software is available on the TxDOT's website.
- 3.154. **Utility.** Privately, publicly, or cooperatively owned lines, facilities, and systems for producing, transmitting, or distributing communications, power, heat, gas, oil, water, waste, or stormwater that are not connected with the highway drainage, signal systems, or other products that directly or indirectly serve the public; the utility company.
- 3.155. **Verification Tests.** Tests used to verify accuracy of QC and QA and mixture design testing.
- 3.156. **Water-Abrasive Blasting.** Spraying blasts of pressurized water combined with abrasive media.
- 3.157. **Water Blasting.** Spraying blasts of pressurized water of at least 3,000 psi.
- 3.158. **Water-Injected Abrasive Blasting.** Abrasive blasting with water injected into the abrasive and air stream at the nozzle.
- 3.159. **Wholly Owned Subsidiary.** A legal entity owned entirely by the Contractor or subcontractor.
- 3.160. **Work.** The furnishing of all labor, materials, equipment, and incidentals necessary for the successful completion of the Contract.
- 3.161. **Work Order.** Written notice to the Contractor to begin the work. The work order may include the date when work and time charges will begin, the allowable number of working days, and plan sheets providing details specific to a location or to an item of work for non-site-specific work. A work order is part of the Contract.
- 3.162. **Written Notice.** Written notice is considered to have been duly given if delivered in person to the individual or member to whom it is intended or if sent by regular, registered, or certified mail and delivered to the last

known business address; sent by facsimile to the last known phone number; or sent by email to the last known address. The date of the letter will serve as the beginning day of notice. Unclaimed mail or failure to provide current contact information will not be considered a failure to provide written notice.

Item 2L

Instructions to Bidders



1. INTRODUCTION

Instructions to the Contractor in these specifications are generally written in active voice, imperative mood. The subject of imperative sentences is understood to be "the Contractor." The Owner's responsibilities are generally written in passive voice, indicative mood. Phrases such as "as approved," "unless otherwise approved," "upon approval," "as directed," "as verified," "as ordered," and "as determined" refer to actions of the Engineer unless otherwise stated, and it is understood that the directions, orders, or instructions to which they relate are within the limitations of and authorized by the Contract.

2. ELIGIBILITY OF BIDDERS

Obtain a prequalification form from the Department's website. A Bidder must be prequalified by submitting a Confidential Questionnaire at the time of bid opening. Comply with all technical prequalification requirements in the proposal.

- 2.1. **Confidential Questionnaire (CQ).** Submit a CQ and an audited financial statement for approval. Once prequalified, a Bidder's eligibility is valid for a period of 1 yr. from the balance sheet statement date.

3. ISSUING PROPOSAL FORMS

The Owner will issue a proposal form to a prequalified Bidder if the Engineer's estimate is within that Bidder's available bidding capacity. Request a proposal form electronically from the Owner's website. ~~A proposal form printed directly from the Owner's website is for informational purposes only and will not be accepted as an official proposal form.~~ In the case of a joint venture (JV), all JV participants must be prequalified. An equally divided portion of the Engineer's estimate must be within each participant's available bidding capacity.

The Owner will not issue a proposal form if one or more of the following apply:

- the Bidder is suspended or debarred by the Commission or TxDOT,
- the Bidder has not fulfilled the requirements for prequalification,
- the Bidder does not have the available bidding capacity,
- the Bidder is prohibited from rebidding a specific proposal form due to a bid error on the original proposal form,
- the Bidder failed to enter into a Contract on the original award,
- the Bidder was defaulted or terminated on the original Contract, unless the Owner terminated in the best interest of the State or the public,
- the Bidder or a subsidiary or affiliate of the Bidder has received compensation from the Owner to participate in the preparation of the plans or specifications on which the bid or Contract is based,
- the Bidder is ineligible to bid on any proposed Contract in accordance with Article 7L.15., "Responsibility for Damage Claims,"

4. INTERPRETING ESTIMATED QUANTITIES

The quantities listed on the proposal form are approximate and will be used for the comparison of bids. Payments will be made for the work performed in accordance with the Contract.

5. EXAMINING DOCUMENTS AND WORK LOCATIONS

Examine the proposal form, plans, specifications, and specified work locations before submitting a bid for the work. Submitting a bid will be considered evidence that the Bidder has performed this examination. Borings, soil profiles, water elevations, and underground utilities shown on the plans were obtained for the Owner's use in the preparation of the plans. This information is provided for the Bidder's information only, and the Owner makes no representation as to the accuracy of the data. Be aware of the difficulty of accurately classifying all material encountered in making foundation investigations, the possible erosion of stream channels and banks after survey data have been obtained, and the unreliability of water elevations other than for the date recorded.

Oral explanations, instructions, or consideration for Contractor-proposed changes on the proposal form given during the bidding process are not binding. Only requirements included on the proposal form, associated specifications, plans, and Owner-issued addenda are binding. Request explanations of documents in adequate time to allow the Owner to reply before the bid opening.

Immediately notify the Owner of any error, omission, or ambiguity discovered in any part of the proposal form and Contract documents. The Owner will issue addenda when appropriate.

6. PREPARING THE BID

Prepare the bid on the proposal form furnished by the Owner. ~~Informational proposal forms printed from the Owner's website will not be accepted.~~

Specify a unit price in dollars and cents for each regular item and additive alternate item, or replacement alternate item for which an estimated quantity is given.

When "Working Days" is an item, submit the number of working days to be used to complete the Contract or phases of the Contract shown on the plans.

The Owner will not accept an incomplete bid. A bid that has one or more of the deficiencies listed below is considered incomplete:

- certifications were not acknowledged,
- a regular item or the additive alternate item is left blank,
- a regular item and the corresponding replacement alternate item are left blank,
- the proposal form submitted had the incorrect number of items,
- the Bidder did not acknowledge all addenda, or
- additionally, for printed bids:
 - the blank spaces for each item as required on the bid form are not filled in by writing in words in ink,
 - the bid was not signed in ink in the complete and correct name of the bidder making the bid, and signed by the person or persons authorized to bind the bidder, or
 - unit prices were not stated in dollars and cents for each bid item listed on the bid form, except in the case of a regular bid item that has an alternate bid item.

7. NONRESPONSIVE BID

The Owner will not accept a nonresponsive bid. A bid that has one or more of the deficiencies listed below is considered nonresponsive:

- the bid was not in the hands of the Letting Official at the time and location specified in the advertisement,

- a proposal form was submitted for the same project by a Bidder or Bidders and one or more of its partners or affiliates, the Bidder was not authorized to receive a proposal form under Article 2L.3., “Issuing Proposal Forms,”
- the Bidder failed to acknowledge receipt of all addenda issued,
- the proposal form was signed by a person who was not authorized to bind the Bidder or Bidders,
- the proposal guaranty did not comply with the requirements contained in this Item,
- the bid was in a form other than the official proposal form issued by the Owner,
- the Bidder modified the bid in a manner that altered the conditions or requirements for work as stated in the proposal form,
- the Bidder bid more than the maximum or less than the minimum number of allowable working days shown on the plans when working days was an item,
- a typed proposal form does not contain the information in the format shown on the “Example of Bid Prices Submitted by Computer Printout” on the proposal form,
- the Bidder did not meet the requirements of the technical qualification,
- The bidder is not prequalified by TxDOT

8. ELECTRONIC BID _ BIDS MUST BE SUBMITTED IN PAPER FORMAT

The Bidder is responsible for taking the appropriate measures to submit a bid. These measures include, but are not limited to acquiring hardware, software, and Internet connectivity needed for submitting a bid via the Owner’s bidding system.

8.1. **Proposal Form.** Use the electronic proposal form in the Owner’s bidding system. When regular bid items have corresponding replacement alternate items, select the bid item or group of items to be used for the bid tabulation. Acknowledge all addenda listed in the Owner’s bidding system.

The electronic proposal form does not contain the special provisions, special specifications, general notes, and other Contract documents. These documents are included by reference.

8.2. **Proposal Guaranty.** Provide a proposal guaranty in the amount indicated on the proposal form. Use an electronic bid bond. Guaranty checks or printed bid bonds will not be accepted.

For a JV, the bond must be in the name of all JV participants. Enter the bond authorization code into the Owner’s bidding system.

It is the Bidder’s responsibility to ensure the electronic bid bond is issued in the name or Owner vendor identification numbers of the Bidder or Bidders.

Submittal of Bid. Submit the bid to the vault using the Owner’s bidding system.

8.3. **Revising the Proposal Form.** Make desired changes in the Owner’s bidding system up until the time and date set for the opening of bids. The last bid submitted to the vault will be used for tabulation purposes.

8.4. **Withdrawing a Bid.** Submit an electronic or written request to withdraw a bid before the time and date set for the opening. The Owner will not accept oral requests. An electronic request must be made using the

8.5. Owner’s bidding system.

If a bidder is unable to withdraw an electronic bid using the Owner’s bidding system, a written request may be submitted. A written request must be signed and submitted to the Letting Official conducting the letting, with proof of identification. The request must be made by a person authorized to bind the Bidder or Bidders. In the case of a JV, the Owner will accept a request from any person authorized to bind a party to the JV. The Owner may require written delegation of authority to withdraw a bid when the individual sent to withdraw the bid is not authorized to bind the Bidder or Bidders.

9. PRINTED BID

- 9.1. **Proposal Form.** Mark all entries in ink. As an alternative to hand writing the unit prices on the proposal form, submit a typed proposal form. A typed proposal form must contain the information in the format shown on the "Example of Bid Prices Submitted by Computer Printout" on the proposal form.

When regular bid items have corresponding replacement alternate items, select the bid item or group of items to be used for the bid tabulation. Acknowledge all addenda by checking the appropriate box on the addendum acknowledgement page. Provide the complete and correct name of the Bidder submitting the bid. A person authorized to bind the Bidder must sign the proposal form. In the case of a JV, provide the complete and correct name of all Bidders submitting the bid. In the case of a JV, the person signing the proposal form must be authorized to bind all JV participants.

- 9.2. **Proposal Guaranty.** Provide a proposal guaranty in the amount indicated on the proposal form. Use either a guaranty check or a printed bid bond. An electronic bid bond may be used as the guaranty. Ensure the electronic bid bond meets the requirements of Section 2L.8.2., "Proposal Guaranty," and submit the electronic bid bond with the printed bid.

- 9.2.1. **Guaranty Check.** When used, make the check payable to the Owner. The check must be a cashier's check, money order, or teller's check drawn by or on a state or national bank, or a state or federally chartered credit union (collectively referred to as "bank"). The check must be dated on or before the date of the bid opening. Postdated checks will not be accepted. The type of check or money order must be indicated on the face of the instrument, except in the case of a teller's check, and the instrument must be no more than 90 days old. A check must be made payable at or through the institution issuing the instrument, be drawn by a bank and on a bank, or be payable at or through a bank. The Owner will not accept personal checks, certified checks, or other types of money orders.

- 9.2.2. **Bid Bond.** When a bond is used, use the bid bond form provided by the Owner. Submit the bid bond in the amount specified with the powers of attorney dated and attached. The bond must be dated on or before the date of the bid opening, bear the impressed seal of the Surety, and be signed by the Bidder or Bidders and an authorized individual of the Surety. As an alternative for JV Bidders, each Bidder may submit a separate bid bond completed as outlined in this Section. Bid bonds will only be accepted from Sureties authorized to execute a bond under and in accordance with state law.

- 9.3. **Submittal of Bid.** Place the completed proposal form and the proposal guaranty in a sealed envelope marked to indicate the contents.

When submitting by mail or delivery service, place the envelope in another sealed envelope and address as indicated in the official advertisement. It is the Bidder's responsibility to ensure that the sealed bid arrives at the location described on or before the time and date set for the bid opening. To be accepted, the bid must be in the hands of the Letting Official by that time of opening regardless of the method chosen for delivery.

- 9.4. **Revising the Proposal Form.** Make desired changes to the proposal form in ink, initial each change made, and submit the proposal to the Letting Official. Correction fluid or tape will be considered a change to the bid and requires the initials of the Bidder. The Owner will not revise a bid on behalf of a Bidder.

- 9.5. **Withdrawing a Bid.** Submit to the Letting Official conducting the letting a written request to withdraw a bid before the time and date set for the opening. The Owner will not accept oral requests. A written request must be signed and submitted to the Letting Official conducting the letting, with proof of identification. The request must be made by a person authorized to bind the Bidder or Bidders. In the case of a JV, the Owner will accept a request from any person authorized to bind a party to the JV. The Owner may require written delegation of authority to withdraw a bid when the individual sent to withdraw the bid is not authorized to bind the Bidder or Bidders.

10. OPENING AND READING OF BIDS

At the time, date, and location specified in the official advertisement, the Letting Official will publicly open and read bids.

11. TABULATING BIDS

11.1. **Official Total Bid Amount.** The Owner will sum the products of the quantities and the unit prices bid on the proposal form to determine the official total bid amount, except as provided in Section 2L.11.5., "Consideration of Unit Prices." The official total bid amount is the basis for determining the apparent low Bidder. The total bid amounts will be compared and the results made public.

11.2. **Consideration of Bid Format.** When a Bidder submits both an electronic bid and a printed bid that are responsive, the unit bid prices in the electronic bid will be used to determine the total bid amount. If the electronic bid is incomplete or nonresponsive, the printed bid will be used in the tabulation of the total bid amount.

If a Bidder submits two or more printed bids, all responsive bids will be tabulated. The bid with the lowest tabulation will be used to determine the total bid amount.

11.3. **Rounding of Unit Prices.** The Owner will round off all unit bids involving fractional parts of a cent to the nearest one-tenth cent (\$0.001) in determining the amount of the bid as well as computing the amount due for payment of each item under the Contract. For rounding purposes, entries that contain five-hundredths of a cent (\$0.0005) or more will be rounded up to the next highest tenth of a cent, while entries that contain less than five-hundredths of a cent will be rounded down to the next lowest tenth of a cent and in accordance with Section 2L.11.5., "Consideration of Unit Prices." Bids less than one-tenth of a cent (\$0.001) will be rounded to one-tenth of a cent (\$0.001). When credit items are included (negative unit prices), rounding is performed on the absolute value.

11.4. **Interpretation of Unit Prices.** The Owner will make a documented determination of the unit bid price if a unit bid price is illegible or conflicting in the case of replacement alternate items. The Owner's determination will be final.

11.5. **Consideration of Unit Prices.** Unit bid price entries such as no dollars and no cents, zero dollars and zero cents, or numerical entries of less than \$0.001 will be tabulated as one-tenth of a cent (\$0.001). Proposals in which unit bid prices have been left blank are incomplete and nonresponsive.

11.5.1. **Alternate Items.** If a proposal has a regular and corresponding alternate item or group of items, the proposal will be considered complete if:

- the regular item or group of regular items has unit prices entered,
- the alternate item or group of alternate items has unit prices entered, or
- both regular item or group of regular items and alternate item or group of alternate items have unit prices entered. The Owner will use the price bid for the regular or the alternate item, or group of items, that will result in the lowest cost to the State.

The bid will be considered incomplete and nonresponsive if:

- a regular item or group of regular items is left blank, or
- a corresponding alternate item or group of alternate items is left blank.

11.5.2. **Additive Alternate Items.** The Owner will sum the products of the quantities and the unit prices bid for the regular items on the proposal form to determine the total bid amount for the base bid. The official total bid amount will be determined by the summation of the base bid plus a predetermined order of additive alternate items, not to exceed the Owner's budgeted amount for the Contract. An estimate of the budgeted amount may be shown on the plans.

The Contract will identify the base bid work and additive alternate work to be performed. The Owner makes no guarantee that the additive alternate work will be required.

- 11.5.3. **A + B Bidding.** The official total bid amount will be determined by the summation of the Contract amount and the time element. The Owner will use the following formula to make the calculation:

$$A + B1 + B2 + BX + \dots + BT$$

The Contract amount, equal to A in the formula, is determined by the summation of the products of the approximate quantities shown in the proposal and the unit bid prices bid, and the time element, equal to B1, B2, BX (when phases are included as bid components), and BT (substantial completion of the project when included as a bid component), of the bid is determined by multiplying the number of working days bid to substantially complete the project, or phases, by the daily road-user cost (RUC) shown on the plans. When partial days are bid, they will be rounded up to the nearest whole day.

The formula above determines the low Bidder and establishes the Contract time or time for specific phases of the Contract.

- 11.5.4. **Rubber Additives.** For proposed Contracts without federal funds, if an alternate item for “Hot Asphalt-Rubber Surface Treatments” or “Hot-Mix Asphalt Concrete Pavement” that contains ground tire rubber is shown on the proposal form and the Bidder bids that alternate item, the amounts bid for “Hot Asphalt-Rubber” and “Aggregate” or “Hot-Mix Asphalt Concrete” will be reduced to 85% of the amounts actually bid. This reduction will only be used for the purposes of determining the lowest Bidder. To qualify, the ground tire rubber used must be produced from scrap tire ground in a facility in Texas. Payment for “Hot Asphalt-Rubber” and “Aggregate” or “Hot-Mix Asphalt Concrete” will be at the actual unit prices bid.

- 11.5.5. **Home State Bidding Preference.** For the purpose of determining the apparent low Bidder on proposed Contracts without federal funds, the Owner will select the option that results in the greatest bidding preference to the resident Bidder.

- 11.5.5.1. **Reverse Application of Non-Resident Bidder’s Home State Bidding Preference.** The total bid amount will be based upon the reverse application of the non-resident Bidder’s home state bidding preference, if any. This will also apply to another state’s preference for a Bidder that offers materials grown, produced, processed, or manufactured in that state.

Any reverse application of the home state bidding preference will be the greater of the following:

- the amount by which a resident Bidder would be required to underbid the non-resident Bidder to obtain a comparable contract in the state in which the non-resident’s principal place of business is located; or
- the amount by which a resident Bidder would be required to underbid the non-resident Bidder to obtain a comparable contract in the state in which a majority of the manufacturing relating to the Contract will be performed.

- 11.5.5.2. **Texas Home State Bidding Preference.** A Bidder will be considered the apparent low Bidder if the Bidder’s home office is located in this state and their bid does not exceed an amount equal to 105% of the apparent low bid received from a Bidder whose home office is not located in this state. This will not apply to a Bidder from a bordering state whose state does not give a preference to a Bidder in a manner similar to this Section.

12. CONSIDERATION OF BID ERRORS

The Owner will consider a claim of a bid error by the apparent low Bidder if the following requirements have been met:

- a written notification is submitted to the Owner within 5 business days after the date the bid is opened and
- the submittal identifies the items of work involved and includes bidding documentation. The Owner may request clarification of submitted documentation.

The Owner will evaluate the claim of a bid error by the apparent low Bidder by considering the following:

- the bid error relates to a material item of work,
- the bid error amount is a significant portion of the total bid,
- the bid error occurred despite the exercise of ordinary care, and
- the delay of the proposed work will not impact cost and safety to the public.

Acceptance of the bid error claim by the Owner will result in the rejection of all bids. The erring Contractor will not be allowed to bid the project when it is re-let. Rejection of bids due to the Contractor's bid error may result in the application of remedial actions by the Owner.

13. TIE BIDS

If the official total bid amount for two or more Bidders is equal and those bids are the lowest submitted, each tie Bidder will be given an opportunity to withdraw their bid. If two or more tie Bidders do not withdraw their bids, the low Bidder will be determined by a coin toss or a series of coin tosses when there are more than two Bidders. If all tie Bidders request to withdraw their bids, no withdrawals will be allowed and the low Bidder will be determined by a coin toss or a series of coin tosses when there are more than two Bidders. The Letting Official will preside over the proceedings.

14. NOT USED

15. NOT USED

Item 3L

Award and Execution of Contract



1. AWARD OF CONTRACT

The Owner or original award authority will award, reject, or defer the Contract within 90 days after the opening of the proposal. The Owner reserves the right to reject any or all proposals and to waive technicalities in the best interest of the Owner.

1.1. **Award.** The Owner or original award authority will award the Contract to the low Bidder as determined in accordance with Article 2L.11., "Tabulating Bids." The Owner may award a Contract to the second lowest Bidder when the following requirements have been met:

- the low Bidder withdraws their bid or fails to enter into Contract,
- the second lowest Bidder agrees to perform the work at the unit bid prices of the low Bidder,
- the Owner recommends in writing the award of the Contract to the second lowest Bidder, and
- the Owner's governing body agrees with the Owner recommendation for award to the second lowest Bidder.

1.2. **Rejection.** The Owner or original award authority will reject the Contract if:

- collusion may have existed among the Bidders. Collusion participants will not be allowed to bid future proposals for the same Contract,
- the low bid is mathematically and materially unbalanced. The Bidder will not be allowed to bid future proposals for the same Contract,
- the lowest bid is higher than the Owner's estimate, and re-advertising for bids may result in a lower bid,
- the low bid contains a bid error that satisfies the requirements and criteria in Article 2L.12., "Consideration of Bid Errors," or
- rejection of the Contract is in the best interest of the Owner.

1.3. **Deferral.** The Owner may defer the award or rejection of the Contract when deferral is in the best interest of the Owner.

2. RESCINDING OF AWARD

The Owner or original award authority reserves the right to cancel the award of any Contract before Contract execution with no compensation due when the cancellation is in the best interest of the Owner. The Owner will return the proposal guaranty to the Contractor.

3. DISADVANTAGED BUSINESS ENTERPRISE (DBE) AND SMALL BUSINESS ENTERPRISE (SBE)

Submit all DBE and SBE information in the timeframe specified when required by the proposal.

4. EXECUTION OF CONTRACT

Provide the following within 15 days after written notification of award of the Contract.

4.1. **Contract.** Execute the Contract as prescribed by the Owner.

- 4.2. **Bonds.** Execute and date the performance and payment bond in the full amount of the Contract with the powers of attorney. Provide bonds in accordance with Table 1. Furnish the payment and performance bonds as a guaranty for the protection of the claimants and the Owner for labor and materials and the faithful performance of the work.

Table 1
Bonding Requirements

Contract Amount	Required Bonds
Less than \$25,000	None
\$25,000–\$100,000	Payment
More than \$100,000	Performance and payment

- 4.3. **Insurance.** For construction and building Contracts, submit a certificate of insurance showing coverages in accordance with the Contract requirements.

Insurances must cover the work for the duration of the Contract and must remain in effect until final acceptance. Provide project-specific insurance, not listed in Table 2, until acceptance of the work covered by the project-specific insurance or as approved by the Engineer. Failure to obtain and maintain insurance for the contracted work may result in suspension of work or default of the Contract. If the insurance expires and coverage lapses for any reason, stop all work until the Owner receives an acceptable certificate of insurance.

Provide the Owner with a certificate of insurance verifying the types and amounts of coverage shown in Table 2. The certificate of insurance must be in a form approved by the Texas Department of Insurance. Certificates of insurance for commercial general liability, auto liability, and workers' compensation must include the Contractor's prequalified name in the "Insured" field. Any certificate of insurance provided must be available for public inspection.

Table 2
Insurance Requirements

Type of Insurance	Amount of Coverage
Commercial general liability insurance	Not less than: \$600,000 each occurrence
Business automobile policy	Not less than: \$600,000 combined single limit
Workers' compensation	Not less than: Statutory
All risk builder's risk insurance (for building-facilities contracts only)	100% of Contract price

By signing the Contract, the Contractor certifies compliance with all applicable laws, rules, and regulations pertaining to workers' compensation insurance. This certification includes all subcontractors. Pay all deductibles stated in the policy. Subcontractors must meet the requirements shown in Table 2, either through their own coverage or through the Contractor's coverage.

The workers' compensation policy must include a waiver of subrogation endorsement in favor of the Owner.

For building-facilities contracts, provide all risk builder's risk insurance to protect the Owner against loss by storm, fire, or extended coverage perils on work and materials intended for use on the project, including the adjacent structure. Name the Owner under the Lost Payable clause.

For contracts with railroad requirements, see project-specific details for additional insurance requirements.

Provide a substitute Surety on the Contract bonds in the original full Contract amount within 15 days of notification if the Surety is declared bankrupt or insolvent, the Surety's underwriting limitation drops below the Contract amount or the Surety's right to do business is terminated by the Owner. The substitute Surety must be authorized by the laws of the Owner and acceptable to the Owner. Work will be suspended until a substitute Surety is provided. Working day charges will be suspended for 15 days or until an acceptable Surety is provided, whichever is sooner.

The work performed under this Section will not be measured or paid for directly, but will be subsidiary to pertinent Items.

- 4.4. **Business Ownership Information.** Submit the names and Social Security numbers of all individuals owning 25% or more of the firm, or firms in the case of a joint venture, on the Owner's form.
- 4.5. **Railroad Documents.** Provide all required documents for satisfaction of railroad requirements for projects that have work involving railroad right of way. Comply with the requirements of Article 5L.8., "Cooperation with Railroads."

5. FAILURE TO ENTER CONTRACT

If the Contractor fails to comply with all the requirements in Article 3L.4., "Execution of Contract," the proposal guaranty will become the property of the Owner, not as a penalty, but as liquidated damages. The Contractor forfeiting the proposal guaranty will not be considered in future proposals for the same work unless there has been a substantial change in design of the work.

6. APPROVAL AND EXECUTION OF CONTRACT

The Contract will be approved and signed under authority of the Owner.

7. RETURN OF PROPOSAL GUARANTY

The proposal guaranty check of the low Bidder will be retained until after the Contract has been rejected or awarded and executed. Bid bonds will not be returned.

8. BEGINNING OF WORK

Do not begin work until authorized in writing by the Owner.

Verify all quantities of materials shown on the plans before ordering.

9. ASSIGNMENT OF CONTRACT

Do not assign, sell, transfer, or otherwise dispose of the Contract or any portion of the rights, title, or interest (including claims) without the approval of the Owner or original award authority. The Owner must deem any proposed assignment justified and legally acceptable before the assignment can take place.

10. EXCLUDED PARTIES

The Contractor certifies by signing the Contract that the Contractor will not enter into any subcontract with a subcontractor that is debarred or suspended by the Owner or any federal agency.

Item 4L

Scope of Work



1. CONTRACT INTENT

The intent of the Contract is to describe the completed work to be performed. Furnish materials, supplies, tools, equipment, labor, and other incidentals necessary for the proper prosecution and completion of the work in accordance with Contract documents.

2. PRECONSTRUCTION CONFERENCE

Before starting work, schedule and attend a preconstruction conference with the Engineer. Failure to schedule and attend a preconstruction conference is not grounds for delaying the beginning of working day charges. The preconstruction conference may be scheduled with the safety preconstruction meeting described in Section 7L 2.2., "Safety Preconstruction Meeting" and the railroad coordination meeting described in Article 5L 8., "Cooperation with Railroads." Work with the Engineer to resolve or escalate all issues. Execute the project pledge and establish an issue escalation ladder.

- 2.1. **Project Pledge.** Contractor representatives at the level of foreman and above will certify in writing they will approach the construction of this project in a manner consistent with delivering a high-quality project in a safe, cost-effective, and timely manner, and they will be committed to not allowing personality conflicts or personal interests to interfere with providing the public with a quality project. Failure to uphold this commitment may result in grounds for removal from the project.
- 2.2. **Issue Resolution Process.** An issue is any aspect of the Contract where parties of the Contract do not agree. The individuals identified at the lowest level of the issue escalation ladder will initiate the issue resolution process by escalating any issue that remains unresolved within the timeframe outlined in the issue escalation ladder.
- Work with the Engineer to resolve all issues during the course of the Contract. Refer to Article 4L 7., "Dispute or Claims Procedure," for all unresolved issues.

3. PARTNERING

The intent of this Article is to promote an environment of trust, mutual respect, integrity, and fair dealing between the Owner and the Contractor.

Informal partnering does not make use of a facilitator and is led by the Engineer in charge of the work and the Contractor's counterpart, while formal partnering uses the services of a facilitator (internal or external).

- 3.1. **Procedures for Partnering Meetings and Format.** Informal partnering is required, unless formal partnering is mutually agreed upon instead of the informal partnering.
- 3.2. **Facilitators.** The facilitator is to act as a neutral party seeking to initiate cooperative working relationships. This individual must have the technical knowledge and ability to lead and guide discussions. Choose either an internal or external facilitator. The facilitator must be acceptable to the Engineer.
- 3.2.1. **Internal Facilitators.** An Owner or Contractor staff member may be selected as the facilitator at no additional cost to either party.

3.2.2. **External Facilitators.** A private firm or individual that is independent of the Contractor and the Owner may be selected as the facilitator. Submit the facilitator's name and estimated fees for approval before contracting with the facilitator.

3.3. **Meetings and Arrangements.** Coordinate with the Engineer for meeting dates and times, locations including third party facilities, and other needs and appurtenances including but not limited to audio or visual equipment. Make all meeting arrangements for formal partnering. Use Owner facilities or facilities in the vicinity of the project if available. Submit the estimated meeting costs for approval before finalizing arrangements.

Coordinate facilitator discussions before the partnering meeting to allow the facilitator time to prepare an appropriate agenda. Prepare a list of attendees with job titles and include critical Contractor, subcontractor, and supplier staff on the list. Provide the facilitator with the list of attendees and invite the attendees listed.

The Owner will invite and provide a list of attendees that includes, but is not limited to Owner, TxDOT, other local governments, law enforcement, railroad, and utility representatives.

Participate in additional partnering meetings as mutually agreed upon.

3.4. **Payment.** Expenses for labor, Contractor equipment, or overhead will not be allowed. Markups as prescribed in Article 9L 7., "Payment for Extra Work and Force Account Method," will not be allowed.

Informal partnering will be conducted with each party responsible for their own costs.

For formal partnering using internal facilitators, the Contractor will be responsible for arrangements and for expenses incurred by their internal facilitator, including but not limited to meals, travel, and lodging. Owner facilitators may be used at no additional cost.

For formal partnering using external facilitators, submit an invoice to the Engineer for reimbursement. The Owner will reimburse the Contractor for half of the eligible expenses as approved. For external facilitators not approved by the Owner but used at the Contractor's option, the Contractor will be responsible for all costs of the external facilitator.

For meeting facilities and appurtenances, submit an invoice to the Engineer for reimbursement. The Owner will reimburse the Contractor for half of the eligible expenses as approved.

4. CHANGES IN THE WORK

The Engineer reserves the right to make changes in the work, including addition, reduction, or elimination of quantities and alterations needed to complete the Contract. Perform the work as altered. These changes will not invalidate the Contract nor release the Surety. The Contractor is responsible for notifying the sureties of any changes to the Contract.

If the changes in quantities or the alterations do not significantly change the character of the work under the Contract, the altered work will be paid for at the Contract unit price. If the changes in quantities or the alterations significantly change the character of the work, the Contract will be amended by a change order. If no unit prices exist, this will be considered extra work and the Contract will be amended by a change order. Provide cost justification as requested, in an acceptable format.

Payment will not be made for anticipated profits on work that is eliminated.

Agree on the scope of work and the basis of payment for the change order before beginning the work. If there is no agreement, the Engineer may order the work to proceed under Article 9L 7., "Payment for Extra Work and Force Account Method," or by making an interim adjustment to the Contract. In the case of an adjustment, the Engineer will consider modifying the compensation after the work is performed.

A significant change in the character of the work occurs when:

- the character of the work for any item as altered differs materially in kind or nature from that in the Contract, or
- a major item of work varies by more than 25% from the original Contract quantity,

When the quantity of work to be done under any major item of the Contract is more than 125% of the original quantity stated in the Contract, then either party to the Contract may request an adjustment to the unit price on the portion of the work that is above 125%.

When the quantity of work to be done under any major item of the Contract is less than 75% of the original quantity stated in the Contract, then either party to the Contract may request an adjustment to the unit price.

If the changes require additional working days to complete the Contract, Contract working days will be adjusted in accordance with Item 8L, "Prosecution and Progress."

5. DIFFERING SITE CONDITIONS

During the progress of the work, differing subsurface or latent physical conditions may be encountered at the site. The two types of differing site conditions are defined as:

- those that differ materially from those indicated in the Contract, and
- unknown physical conditions of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the Contract.

Notify the Engineer in writing when differing site conditions are encountered. The Engineer will notify the Contractor in writing when the Owner discovers differing site conditions. Unless directed otherwise, suspend work on the affected items and leave the site undisturbed. The Engineer will investigate the conditions and determine whether differing site conditions exist. The Engineer will provide written notification of the determination whether or not an adjustment of the Contract is warranted. If the differing site conditions cause an increase or decrease in the cost or number of working days specified for the performance of the Contract, the Engineer will make adjustments, excluding the loss of anticipated profits, in accordance with the Contract. Additional compensation will be made only if the required written notice has been provided by either the Contractor or the Engineer.

6. REQUESTS FOR ADDITIONAL COMPENSATION AND DAMAGES

Notify the Engineer in writing of any intent to request additional compensation once there is knowledge of the basis for the request. An assessment of damages is not required to be part of this notice but is desirable. The intent of the written notice requirement is to provide the Engineer an opportunity to evaluate the request and to keep an accurate account of the actual costs that may arise. Minimize impacts and costs.

If written notice is not given, the Contractor waives the right to additional compensation unless the circumstances could have reasonably prevented the Contractor from knowing the cost impact before performing the work. Notice of the request and the documentation of the costs will not be construed as proof or substantiation of the validity of the request. Submit the request in enough detail to enable the Engineer to determine the basis for entitlement, adjustment in the number of working days specified in the Contract, and compensation.

Compensable damages occur when impacts that are the responsibility of the Owner result in additional costs to the Contractor that could not have been reasonably anticipated at the time of letting. Costs of performing additional work are not considered damages. Notify the Engineer in writing as soon as possible for Contractor damages. The intent is to reimburse the Contractor for actual expenses arising from a compensable impact. No profit or markups, other than labor burden, will be allowed. For damages, labor burden will be reimbursed at 35% unless the Contractor can justify higher actual cost. Justification for a higher percentage must be in conformance with the methodology provided by the Owner, submitted

separately for project overhead labor and direct labor, and determined and submitted by a Certified Public Accountant (CPA). Submit CPA-prepared labor burden rates directly to the Owner for approval.

The Owner will not consider fees and interest on requests for additional compensation and damages. Fees include, but are not limited to preparation, attorney, printing, shipping, and various other fees.

If the Contractor requests compensation for damages and the damages are determined to be compensable, then standby equipment costs and project overhead compensation will be based on the duration of the compensable damage and will be limited as follows.

- 6.1. **Standby Equipment Costs.** Payment will be made in accordance with Section 9L 7.1.4.3., "Standby Equipment Costs."
- 6.2. **Project Overhead.** Project overhead is defined as the administrative and supervisory expenses incurred at the work locations. When delay to project completion occurs, reimbursement for project overhead for the Contractor will be made using the following options at the Contractor's discretion:
- reimbursed at 6% (computed as daily cost by dividing 6% of the original Contract amount by the number of original Contract work days), or
 - actual documented costs for the impacted period.

Project overhead for delays impacting subcontractors will be determined from actual documented costs submitted by the Contractor.

Time extensions and suspensions alone will not be justification for reimbursement for project overhead.

- 6.3. **Home Office Overhead.** The Owner will not compensate the Contractor for home office overhead.

7. DISPUTE OR CLAIMS PROCEDURE

The dispute resolution policy promotes a cooperative attitude between the Engineer, Contractor, and Contractor's subcontractors working through the Contractor. Emphasis is placed on resolving issues while they are still current, at the Owner's office, and in an informal manner. Open sharing of information is encouraged by all parties involved so the information provided completely and accurately reflects the issues and facts. If information is not shared, decisions may be limited to relying on the documentation that is available for review.

The Owner's goal is to have a dispute settled by the Engineer before elevating it as a claim to the Owner.

If a dispute cannot be resolved, initiate the Contract claim procedure by submitting a claim to the Owner.

The Contractor, or subcontractor through the Contractor, will file a Contract claim request and a detailed report that provides the basis for the claim. The detailed report will include relevant facts of the claim, cost or other data supporting the claim, a description of any additional compensation requested, and documents supporting the claim.

The claim must include the following certification: "I certify that the claim is made in good faith; that the supporting data are accurate and complete to the best of my knowledge and belief; that the amount requested accurately reflects the contract adjustment for which the Contractor believes the Owner is liable; and that I am duly authorized to certify the claim on behalf of the Contractor."

File a claim after completion of the Contract or when required for orderly performance of the Contract. For a claim resulting from enforcement of a warranty period, file the claim no later than 1 yr. after expiration of the warranty period. For all other claims, file the claim no later than 1 yr. after the date the Owner issues notice to the Contractor that they are in default, the date the Owner terminates the Contract, or the date of final acceptance of the Contract. It is the Contractor's responsibility to submit requests in a timely manner.

Item 5L

Control of the Work



1. AUTHORITY OF ENGINEER

The Engineer has the authority to observe, test, inspect, approve, and accept the work (either in writing or orally). The Engineer decides all questions about the quality and acceptability of materials, work performed, work progress, Contract interpretations, applicability of standard details, and acceptable Contract fulfillment. The Engineer has the authority to enforce and make effective these decisions.

- Unless noted elsewhere in the Contract or by the Engineer, payment for Contractor work is in accordance with the Contract requirements at that time. This payment does not eliminate the Contractor's responsibilities for the work as defined in Article 7L.17., "Contractor's Responsibility for Work," or Article 5L.12., "Final Acceptance."
- The Engineer acts as a referee in all questions arising under the terms of the Contract.
- The Engineer's decisions are final and binding.

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

- requiring the Contractor to remove and replace defective work, or reducing payment for defective work,
- removing an individual from the project,
- suspending the work without suspending working day charges,
- assessing standard liquidated damages to recover the Owner's administrative costs, including additional project-specific liquidated damages when specified in the Contract withholding estimates, and
- declaring the Contractor to be in default of the Contract

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

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

2. PLANS AND WORKING DRAWINGS

When required, provide working drawings to supplement the plans with all necessary details not included on the Contract plans. Prepare and furnish working drawings in a timely manner and obtain approval, if required, before the beginning of the associated work. For all working drawing submittal requirements, the Engineer may allow electronic and other alternative submission procedures. Have a licensed professional engineer sign, seal, and date the working drawings as shown in Table 1.

Prepare working drawings using United States standard measures in the English language. The routing of submittals for review and approval will be established at the preconstruction conference. The Contractor is responsible for the accuracy, coordination, and conformity of the various components and details of the working drawings. Owner approval of the Contractor's working drawings will not relieve the Contractor of any responsibility under the Contract. The work performed in accordance with this Article will not be measured or paid for directly, but will be subsidiary to pertinent Items.

Table 1
Signature and Approval Requirements for Working Drawings

Working Drawings For		Requires Licensed Professional Engineer's Signature, Seal, and Date	Requires Owner Approval
1. Alternate or optional designs submitted by Contractor		Yes	Yes
2. Supplementary shop and fabrication drawings for structural Items		No unless required on the plans	See applicable Item
3. Contractor-proposed temporary facilities that affect the public safety, not included on the plans		Yes	Yes
4. Form and falsework details	Bridges, retaining walls, and other major structures	Yes unless otherwise shown on the plans	No ¹
	Minor structures	No unless otherwise shown on the plans	No
5. Erection drawings		Yes	No ^{1,2}
6. Contractor-proposed major modifications to traffic control plan		Yes	Yes

1. The Engineer may require that the Contractor have a licensed professional engineer certify that the temporary works are constructed according to the sealed drawings.
2. Approval is required for items spanning over live traffic or where safety of the traveling public is affected, as determined by the Engineer.

Submit shop drawings electronically for the fabrication of structural items in accordance with the Owner's procedures and as directed for other items required by the Contract. References to 11 × 17-in. sheets in individual specifications for structural items imply electronic computer-aided design sheets.

3. CONFORMITY WITH PLANS, SPECIFICATIONS, AND SPECIAL PROVISIONS

Furnish materials and perform work in reasonably close conformity with the lines, grades, cross-sections, dimensions, details, gradations, physical and chemical characteristics of materials, and other requirements shown in the Contract. Reasonably close conformity limits are defined in the respective Items of the Contract or, if not defined, as determined by the Engineer. Obtain approval before deviating from the plans and approved working drawings. Do not perform work beyond the lines and grades shown on the plans or any extra work without the Engineer's authority. Work performed beyond the lines and grades shown on the plans or any extra work performed without authority is considered unauthorized and excluded from pay consideration. The Owner will not pay for material rejected due to improper fabrication, excess quantity, or any other reasons within the Contractor's control.

- 3.1. **Acceptance of Defective or Unauthorized Work.** When work fails to meet Contract requirements, but is adequate to serve the design purpose, the Engineer will decide the extent to which the work will be accepted and remain in place. The Engineer will document the basis of acceptance by letter and may adjust the Contract price.
- 3.2. **Correction of Defective or Unauthorized Work.** When work fails to meet Contract requirements and is inadequate to serve the design purpose, it will be considered defective. Correct, or remove and replace, the work at the Contractor's expense, as directed.

The Owner has the authority to correct or to remove and replace defective or unauthorized work. The cost may be deducted from any money due or to become due to the Contractor.

4. COORDINATION OF PLANS, SPECIFICATIONS, AND SPECIAL PROVISIONS

The specifications, accompanying plans, special provisions, change orders, and supplemental agreements are intended to work together and be interpreted as a whole.

Numerical dimensions govern over scaled dimensions. Special provisions govern over plans (including general notes), which govern over standard specifications and special specifications. Job-specific plan sheets govern over standard plan sheets.

However, in the case of conflict between plans (including general notes) and specifications regarding responsibilities for hazardous materials and traffic control in Items 1L–10L, “Local Government General Requirements and Covenants,” and Item 502, “Barricades, Signs, and Traffic Handling,” special provisions govern over standard specifications and special specifications, which govern over the plans.

Notify the Engineer promptly of any omissions, errors, or discrepancies upon discovery so necessary corrections and interpretations can be made. Failure to promptly notify the Engineer of discovered omissions, errors, or discrepancies will constitute a waiver of all Contract claims against the Owner for misunderstandings or ambiguities that result from the errors, omissions, or discrepancies.

5. COOPERATION OF CONTRACTOR

Cooperate with the Engineer. Respond promptly to instructions from the Engineer. Provide all information necessary for the successful completion of the Contract.

Designate in writing a competent, English-speaking Superintendent employed by the Contractor. The Superintendent must be experienced in the work being performed and capable of reading and understanding the Contract. Ensure the Superintendent is available at all times and able to receive instructions from the Engineer or authorized Owner representatives and to act for the Contractor. The Engineer may suspend work without suspending working day charges if a Superintendent is not available or does not meet the above criteria.

At the written request of the Engineer, immediately remove from the project any employee or representative of the Contractor or a subcontractor who, in the opinion of the Engineer, does not perform work in a proper and skillful manner or who is disrespectful, intemperate, disorderly, uncooperative, or otherwise objectionable. Do not reinstate these individuals without the written consent of the Engineer.

Furnish suitable machinery, equipment, and construction forces for the proper prosecution of the work.

Provide adequate lighting to address quality requirements and inspection of nighttime work.

6. COOPERATING WITH UTILITIES

Use established safety practices when working near utilities. Consult with the appropriate utilities before beginning work. Notify the Engineer immediately of utility conflicts. The Engineer will decide whether to adjust utilities or adjust the work to eliminate or lessen the conflict. Unless otherwise shown on the plans, the Engineer will make necessary arrangements with the utility owner when utility adjustments are required.

Use work procedures that protect utilities or appurtenances that remain in place during construction. Cooperate with utility companies to remove and rearrange utilities to avoid service interruption or duplicate work by the utility companies. Allow utilities access to the right of way.

Immediately notify the appropriate utility of service interruptions resulting from damage due to construction activities. Cooperate with utilities until service is restored. Maintain access to fire hydrants when necessary.

7. COOPERATION BETWEEN CONTRACTORS

Cooperate and coordinate with other Contractors working within the limits or adjacent to the limits.

8. COOPERATION WITH RAILROADS

Plan and prosecute portions of the work involving a railway to avoid interference with or hindrance to the railroad company.

If the work is on railroad right of way, do not interfere with the operation of the railroad company's trains or other property.

- 8.1. **Railroad Coordination Meeting.** When shown on the plans or directed by the Engineer, schedule and attend a railroad coordination meeting with the Engineer before beginning work or as agreed upon (may be a part of the preconstruction conference described in Article 4L.2., "Preconstruction Conference"). Prepare a list of attendees and invite personnel, including, but not limited to Owner, Contractor, subcontractor, and railroad representatives.

Provide the invitation to the railroad representatives at least 21 calendar days before the railroad coordination meeting.

- 8.2. **Project-Specific Information.** Refer to project-specific plan sheets in the Contract for specific information concerning the work to be completed by the Contractor and the railroad within railroad right of way; railroad right of way locations impacted by construction; percentage of Contract work at each location; train movements at each location; and requirements for railroad insurance, flagging, and Right of Entry (ROE) Agreements.

- 8.3. **Right of Entry Agreement by the Owner.** When shown on the plans, the process for obtaining a fully executed ROE Agreement is as follows.

- The Owner will send the unexecuted ROE Agreement to the Contractor with the unexecuted Contract.
- Partially execute the ROE Agreement and return it to the Owner with the partially executed Contract and required insurance.
- The Owner will coordinate with the railroad company regarding the further execution of the ROE Agreement and associated fees. The Owner will pay any ROE Agreement fees directly to the railroad company.
- Once the Owner has received the fully executed ROE Agreement from the railroad company, the Owner will forward the fully executed ROE Agreement to the Contractor.

- 8.4. **Right of Entry Agreement by the Contractor.** When shown on the plans, contact the railroad company to obtain the ROE Agreement before beginning work on the Contract.

Provide the required insurance to the Owner before beginning work on the Contract.

Execute the ROE Agreement and pay any associated fees to the railroad company. Provide a copy of the fully executed ROE Agreement to the Owner.

9. CONSTRUCTION SURVEYING

Use Method C unless otherwise specified in the Contract. Upon request, the Engineer will allow the Contractor to copy available earthwork cross-sections, computer printouts or data files, and other information necessary to establish and control work. Preserve all control points, stakes, marks, and right of way markers. Assume cost and responsibility of replacing disturbed control points, stakes, marks, and right of way markers damaged by the Contractor's or its subcontractor's operations. If the Owner repairs disturbed control points, stakes, marks, or right of way markers, the cost of repair may be deducted from money due or to become

due to the Contractor. Replace right of way markers under the direction of an RPLS. This work performed under this Article will not be measured or paid for directly, but will be subsidiary to pertinent Items.

The Engineer reserves the right to make measurements and surveys to determine the accuracy of the work and determine pay quantities. The Engineer's measurements and surveys do not relieve the Contractor's responsibility for accuracy of work. Allow the Engineer adequate time to verify the surveying.

- 9.1. **Method A.** The Engineer will set control points for establishing lines, slopes, grades, and centerlines and for providing both vertical and horizontal control.

At minimum, provide a controlling pair of monument points at both the beginning and end of construction project for projects less than 2 mi. in length. For projects greater than 2 mi. in length, monuments will be set in pairs at a minimum of 2 mi. based on the overall length of the project. Use these control points as reference to perform the work.

Furnish materials, equipment, and qualified workforce necessary for the construction survey work. Place construction points, stakes, and marks at intervals sufficient to control work to established tolerances. Place construction stakes at intervals of no more than 100 ft., or as directed. Place stakes and marks so as not to interfere with normal maintenance operations.

- 9.2. **Method B.** The Engineer will set adequate control points, stakes, stationing, and marks to establish lines, slopes, grades, and centerlines. Furnish additional work, stakes, materials, and templates necessary for marking and maintaining points and lines.

- 9.3. **Method C.** Set adequate control points, stakes, and marks to establish lines, slopes, grades, and centerlines. Place construction points, stakes, and marks at intervals sufficient to control work to established tolerances. Place construction stakes at intervals of no more than 100 ft., or as directed. Place stakes and marks so as not to interfere with normal maintenance operations.

10. INSPECTION

Inspectors are authorized representatives of the Engineer. Inspectors are authorized to examine all work performed and materials furnished, including preparation, fabrication, and material manufacture. Inspectors inform the Contractor of failures to meet Contract requirements. Inspectors may reject work or materials and may suspend work until any issues can be referred to and decided by the Engineer. The Engineer may authorize Inspectors to adjust the traffic control. Inspectors cannot alter, add, or waive Contract provisions, issue instructions contrary to the Contract, act as foremen for the Contractor, or interfere with the management of the work. Inspection or lack of inspection will not relieve the Contractor from obligation to provide materials or perform the work in accordance with the Contract.

Provide safe access to all parts of the work and provide information and assistance to the Engineer to allow a complete and detailed inspection. Give the Engineer sufficient notice to inspect the work. Work performed without suitable inspection, as determined by the Engineer, may be ordered removed and replaced at Contractor's expense. Remove or uncover portions of finished work as directed. Once inspected, restore work to Contract requirements. If the uncovered work is acceptable, the costs to uncover, remove, and replace or make good the parts removed will be paid for in accordance with Article 4L.4., "Changes in the Work." If the work is unacceptable, assume all costs associated with repair or replacement, including the costs to uncover, remove, and replace or make good the parts removed.

When a government entity, utility, railroad company, or other entity accepts or pays a portion of the Contract, that organization's representatives may inspect the work but cannot direct the Contractor. The right of inspection does not make that entity a party to the Contract and does not interfere with the rights of the parties to the Contract.

11. FINAL CLEANUP

Upon completion of the work, remove construction project litter, debris, objectionable material, temporary structures, excess materials, and equipment from the work locations. Clean and restore property damaged by the Contractor's operations during the prosecution of the work. Leave the work locations in a neat and presentable condition.

Remove from the right of way cofferdams, construction buildings, material and fabrication plants, temporary structures, excess materials, and debris resulting from construction. Where work is in a stream, remove debris to the ground line of the bed of the stream. Leave stream channels and rights of way in a neat and presentable condition. Clean structures to the flow line or the elevation of the outfall channel, whichever is higher. Dispose of all excess material in accordance with federal, state, and local regulations.

The work performed under this Article will not be paid for directly, but will be subsidiary to Items of the Contract.

12. FINAL ACCEPTANCE

12.1. **Routine Maintenance Contracts.** Not applicable to Locally Let projects.

12.2. **Construction Contracts.** Final acceptance is made when all work is complete and the Engineer, in writing, accepts all work for the work locations in the Contract. Final acceptance relieves the Contractor from further Contract responsibilities.

12.2.1. **Work Completed.** Work completed must include work for vegetative establishment and maintenance, test and performance periods, and work to meet the requirements of Article 5L.11., "Final Cleanup."

12.2.2. **Final Inspection.** After all work is complete, the Engineer in charge of the work will request a final inspection by the Engineer authorized to accept the work.

The final inspection will be made as soon as possible and not later than 10 calendar days after the request. No working day charges will be made between the date of request and final inspection.

After the final inspection, if the work is satisfactory, the Engineer will notify the Contractor in writing of the final acceptance of the work. If the final inspection finds any work to be unsatisfactory, the Engineer will identify in writing all deficiencies in the work requiring correction. Correct the deficiencies identified. Working day charges will resume if these deficiencies are not corrected within 7 calendar days, unless otherwise authorized by the Engineer. Upon correction, the Engineer will inspect to verify that all deficiencies were corrected satisfactorily. The Engineer will provide written notice of the final acceptance.

12.2.3. **Final Measurement.** Final measurements and pay quantity adjustments may be made after final acceptance. Final acceptance will not be held for final measurements or pay quantity adjustments.

12.2.4. **Removal of Traffic Control Devices.** Remove any remaining construction traffic control devices and advance warning signs upon final acceptance or as directed.

12.3. **Multiple Work Orders.** Not applicable to Locally Let projects.

Item 6L

Control of Materials



1. SOURCE CONTROL

Use only materials that meet Contract requirements. Unless otherwise specified or approved, use new materials for the Work. Secure the Engineer's approval of the proposed source of materials to be used before their delivery. Materials can be approved at a supply source or staging area but may be inspected in accordance with Article 6L.4., "Sampling, Testing, and Inspection."

- 1.1. **Buy America.** Comply with the latest provisions of Buy America pertaining to steel and iron in accordance with 23 CFR § 635.410. Use steel or iron materials manufactured in the United States except when waived in accordance with Section 6L 1.2., "Buy America Exceptions."

Submit a notarized original of the TxDOT FORM D-9-USA-1 (Department Form 1818 or equivalent) with the proper attachments for verification of compliance.

Manufacturing includes any process that modifies the chemical content, physical shape or size, or final finish of a product. The manufacturing process begins with initial melting and mixing and continues through fabrication (e.g., cutting, drilling, welding, and bending) and coating (e.g., paint, galvanizing, and epoxy).

- 1.2. **Buy America Exceptions.** Use of iron and steel manufactured in the United States is required unless the material meets an exception below.

- A waiver exists exempting the material from Buy America compliance.
- The total value of foreign iron and steel products, including delivery, does not exceed 0.1% of the total Contract cost or \$2,500, whichever is greater. The Contractor must provide documentation showing under threshold in advance for the Engineer's consideration.
- Foreign iron or steel may be allowed when the Contract contains an alternate item for a foreign source iron or steel product and the Contract is awarded based on the alternate item.
- The materials are temporarily installed or are supplies, tools, and equipment not incorporated into the project. Temporarily installed means the materials and products must be removed at the end of the project or may be removed at the Contractor's convenience with the Engineer's approval.

- 1.3. **Buy Texas.** For construction or maintenance Contracts without federal funds, buy materials produced in Texas when the materials are available at a comparable price and in a comparable period of time. Provide documentation of purchases or a description of good-faith efforts on request.

2. MATERIAL QUALITY

Correct or remove materials that fail to meet Contract requirements or that do not produce satisfactory results. Reimburse the Owner for cost incurred if additional sampling and testing are required by a change of source.

Materials not meeting Contract requirements will be rejected unless the Engineer approves corrective actions. Upon rejection, immediately remove and replace rejected materials.

If the Contractor does not comply with this Article, the Owner may remove and replace defective material. The cost of testing, removal, and replacement will be deducted from the payments due to the Contractor.

3. MANUFACTURER WARRANTIES

Transfer to the Owner warranties and guarantees required by the Contract or received as part of normal trade practice.

4. SAMPLING, TESTING, AND INSPECTION

Incorporate into the work only material that has been inspected, tested, and accepted by the Engineer. Remove, at the Contractor's expense, materials from the work locations that are used without prior testing and approval or written permission of the Engineer.

The material requirements and standard test methods in effect at the time the proposed Contract is advertised govern. Unless otherwise specified, the Engineer will perform testing at Owner's expense. In addition to facilities and equipment required by the Contract, furnish facilities and calibrated equipment required for tests to control the manufacture of construction items. If requested, provide a complete written statement of the origin, composition, and manufacture of materials.

All materials used are subject to inspection or testing at any time during preparation or use. Material that has been tested and approved at a supply source or staging area may be inspected or tested before or during incorporation into the work and rejected if it does not meet Contract requirements. Copies of test results are available upon request. Do not use material that, after approval, becomes unfit for use.

Unless otherwise specified in the Contract, all testing must be performed within the United States and witnessed by the Engineer. If materials or processes require testing outside the contiguous 48 United States, reimburse the Owner for inspection expenses.

5. PLANT INSPECTION AND TESTING

The Engineer may but is not obligated to inspect materials at the acquisition or manufacturing source. Material samples will be obtained and tested for compliance with quality requirements.

If inspection is at the plant, meet the following conditions unless otherwise specified:

- cooperate fully and assist the Engineer during the inspection,
- ensure the Engineer has full access to all parts of the plant used to manufacture or produce materials,
- in accordance with pertinent items and the Contract provide a facility at the plant for use by the Engineer as an office or laboratory
- provide and maintain adequate safety measures and restroom facilities, and
- furnish and calibrate scales, measuring devices, and other necessary equipment in accordance with the Contract.

The Engineer may provide inspection for periods other than daylight hours if:

- continuous production of materials for Owner's use is necessary due to the production volume being handled at the plant, and
- the lighting is adequate to allow satisfactory inspection.

6. STORAGE OF MATERIALS

Store and handle materials to preserve their quality and fitness for the work. Store materials so that they can be easily inspected and retested. Place materials under cover, on wooden platforms, or on other hard, clean surfaces as necessary or when directed.

Obtain approval to store materials on the right of way. Storage space off the right of way is at the Contractor's expense.

7. OWNER-FURNISHED MATERIAL

The Owner will supply materials as shown on the plans. The cost of handling and placing materials supplied by the Owner will not be paid for directly, but will be subsidiary to the Item in which they are used. Assume responsibility for materials upon receipt.

8. USE OF MATERIALS FOUND ON THE RIGHT OF WAY

Material found in the excavation areas and meeting the Owner's specifications may be used in the work. This material will be paid for at the Contract bid price for excavation and under the Item for which the material is used.

Do not excavate or remove any material from within the right of way that is not within the limits of the excavation without written permission. If excavation is allowed within a right of way project-specific location, replace the removed material with suitable material at no cost to the Owner as directed.

9. RECYCLED MATERIALS

The Owner will not allow hazardous wastes, as defined in 30 TAC § 335, proposed for recycling to be used on the project. Use nonhazardous recyclable materials (NRMs) only if the specification for the Item does not disallow or restrict use. Determine whether NRMs are regulated under 30 TAC §§ 312, 330, 332, 334, or 335, and comply with all general prohibitions and requirements. Use NRMs in accordance with [DMS-11000](#), "Evaluating and Using Nonhazardous Recyclable Materials Guidelines," and furnish all documentation in the manner prescribed by the Owner.

10. HAZARDOUS MATERIALS

Comply with the requirements of Article 7L.12., "Responsibility for Hazardous Materials."

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

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

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

Removing Paint from Steel. For contracts that are specifically for painting steel, include the cleaning and painting of steel under Item 446, "Field Cleaning and Painting Steel," as a pay item. Perform work in accordance with that Item.

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

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

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

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

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

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

The Owner retains the right to determine the actual advance notice needed for the change in date to address post office business days and staff availability.

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

11. SURPLUS MATERIALS

Take ownership of surplus materials unless otherwise shown on the plans or directed. Remove and dispose of materials in conformance with federal, state, and local regulations. If requested, provide an appropriate level of documentation to verify proper disposal. When materials are disposed of on private property, provide written authorization from the property owner for the use of the property for this purpose upon request.

Item 7L

Legal Relations and Responsibilities



1. ETHICS – NOT APPLICABLE TO LOCALLY LET PROJECTS

2. SAFETY

- 2.1. **Safety Point of Contact.** Designate, in writing, a Contractor Safety Point of Contact (CSPOC). The Owner will assign an employee for their point of contact designated as Owner's Safety Point of Contact OSPOC. The Contract requires that the Contractor's and subcontractor's employees use the appropriate personal protective equipment (PPE) (e.g., hardhats, safety vests, and protective toe footwear) to meet regulations.

The Contractor will require that crew leaders and foremen (including subcontractors) have attended the required training.

- 2.2. **Safety Preconstruction Meeting.** In cooperation with the Engineer, schedule and attend a safety preconstruction meeting (may be a part of the preconstruction conference in accordance with Article 4L.2., "Preconstruction Conference"). Attendees for this safety preconstruction meeting will be:

- the Contractor,
- subcontractors,
- the Owner,
- local law enforcement, and
- other personnel who play an active role on the project.

- 2.3. **Safety Contingency.** To improve the effectiveness of traffic handling and enhance safety during the course of this project, a safety contingency fund may have been included in the project budget for traffic control plan adjustments and other safety-related improvements.

Costs associated with the adjustments or improvements will be paid for in accordance with Article 9L.7., "Payment for Extra Work and Force Account Method." Article 9L.7., "Payment for Extra Work and Force Account Method," is not intended to be used in lieu of bid items established by the Contract.

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

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

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

Store all equipment not in use in a manner and at locations that will not interfere with the safe passage of traffic.

If the Engineer determines that any of the requirements of this Article have not been met, the Engineer may take corrective action. This will not change the legal responsibilities set forth in the Contract. The cost to the Owner for this work will be deducted from any money due or to become due to the Contractor.

- 2.5. **Use of Blue Warning Lights.** Texas Transportation Code § 547.105 authorizes the use of warning lights to promote safety and provides an effective means of gaining the traveling public's attention as they drive in areas where construction crews are present. To influence the public to move over when high-risk construction activities are taking place, minimize the use of blue warning lights. These lights must be used only while performing work on or near the travel lanes or shoulder where the traveling public encounters construction crews that are not protected by a standard work zone setup, such as a lane closure, a shoulder closure, or one-way traffic control. Refrain from leaving the warning lights engaged while traveling from one work location to another or while parked on the right of way away from the pavement or a work zone.

- 2.6. **Barricades, Signs, and Traffic Handling.** Comply with the requirements of Item 502 "Barricades, Signs, and Traffic Handling," and as directed. Provide traffic control devices as shown on the plans and in accordance with the TMUTCD. When authorized or directed, provide additional signs or traffic control devices not required by the plans.

If an unexpected situation arises that causes the Contractor to believe that the traffic control should be changed, make all reasonable efforts to promptly contact the Engineer. Take prudent actions until the Engineer can be contacted.

The Engineer will inspect the traffic control devices. Comply with the results of the inspection in the prescribed timeframe.

The work performed and materials furnished in accordance with this Section and Item 502 have no bearing on the prosecution of Items 1L–10L, "General Requirements and Covenants," of the Contract. This includes, but is not limited to installing, relocating, and removing project limit advance warning signs.

- 2.6.1. **Contractor Responsible Person and Alternate.** Designate in writing a Contractor's Responsible Person (CRP) and an alternate to be the representative of the Contractor who is responsible for taking or directing corrective measures regarding the traffic control. The CRP or alternate must be accessible by telephone 24 hr. per day and able to respond when notified. The CRP and alternate must comply with the requirements of Section 7L.2.6.5., "Training."
- 2.6.2. **Flaggers.** Designate, in writing, a flagger instructor who will serve as a flagging supervisor and is responsible for training and assuring that all flaggers are qualified to perform flagging duties. Certify to the Engineer that all flaggers will be trained and make available upon request a list of flaggers trained to perform flagging duties.
- Provide flaggers as directed. Flaggers must be courteous and able to effectively communicate with the public. When directing traffic, flaggers must dress appropriately; wear high-visibility safety apparel; use flags, signs, stop-slow paddles, and other hand-signaling devices; and follow the flagging procedures in the TMUTCD. Comply with the requirements of Section 7L.2.6.5., "Training."
- 2.6.3. **Law Enforcement Personnel.** Provide uniformed law enforcement personnel with patrol vehicles as directed. Document the work zone traffic services provided in the manner prescribed by the Owner. Law enforcement personnel providing work zone traffic services must be trained for the service they perform. Comply with Section 7L.2.6.5., "Training."
- 2.6.4. **Other Work Zone Personnel.** Workers involved with traffic control, including the maintenance of the traffic control, must comply with the requirements of Section 7L.2.6.5., "Training."
- 2.6.5. **Training.** Train workers involved with the traffic control using Department-approved training as shown on the "Traffic Control Training" MPL.

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

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

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

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

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

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

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

2.6.5.1.2. **Other Contractor-Developed Training for Other Work Zone Personnel.** For other work zone personnel, the Contractor may provide training meeting the curriculum described below instead of TxDOT-approved training.

Minimum curriculum for Contractor-provided training is as follows.

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

- Adopt a company safety motto: "The Life You Save May Be Your Own," or similar.
- Purpose of the training includes the following.
 - "It's the Law."
 - Make work zones safer for workers and motorists.
 - Understand what is needed for traffic control.
 - Save lives including your own.
- Personal and co-worker safety includes the following.
 - **High-Visibility Safety Apparel.** Discuss compliant requirements; inspect regularly for fading and reduced reflective properties; if night operations are required, discuss the additional and appropriate required apparel in addition to special night work risks; and if moving operations are underway, discuss appropriate safety measures specific to the situation and traffic control plan.

- **Blind Areas.** A blind area is the area around a vehicle or piece of construction equipment not visible to the operators, either by line of sight or indirectly by mirrors. Discuss the “Circle of Safety” around equipment and vehicles; use of spotters; maintaining eye contact with equipment operators; and use of hand signals.
- **Runovers and Backovers.** Remain alert at all times; keep a safe distance from traffic; avoid turning your back to traffic, and if you must, then use a spotter; and stay behind protective barriers, whenever possible. It is not safe to sit on or lean against a concrete barrier; these barriers can deflect 4 ft. or more when struck by a vehicle.
- Look out for each other and warn co-workers.
- Be courteous to motorists.
- Do not run across active roadways.
- Workers must obey traffic laws and drive courteously while operating vehicles in the work zones.
- Workers must be made aware of company distracted driving policies.
- **Nighttime Operations.** Focus on projects with a nighttime element.
- **Traffic Control Training.** Basics of traffic control include the following.
 - Identify work zone traffic control supervisor and other appropriate persons to report issues to when they arise.
 - Emphasize that work zone traffic control devices must be in clean and undamaged condition. If devices have been hit but not damaged, return them to their correct place and report to the traffic control supervisor. If devices have been damaged, replace with new devices and report to the traffic control supervisor. If devices are dirty, faded, or have missing or damaged reflective tape, clean or replace them and report to the traffic control supervisor. Show examples of unacceptable device conditions. Discuss various types of traffic control devices to be used and where spacing requirements can be found.
 - **Channelizing Devices and Barricades with Slanted Stripes.** Stripes must slant in the direction in which you want traffic to stay or move; demonstrate this with a device.
 - **Traffic Queuing.** Workers must be made aware of traffic queuing and the dangers created by it. Workers must be instructed to immediately notify the traffic control supervisor and other supervisory personnel if traffic is queuing beyond advance warning sign and devices or construction limits.
 - **Signs.** Signs must be straight and not leaning. Report problems to the traffic control supervisor or other as designated for immediate repair. Covered signs must be fully covered. If covers are damaged or out of place, report to the traffic control supervisor or other as designated.

3. LAWS TO BE OBSERVED

Comply with all federal, state, and local laws, ordinances, and regulations that affect the performance of the work. The Contractor is not required to comply with city electrical ordinances not included in this Contract. Indemnify and save harmless the Owner and its representatives against any claim arising from violation by the Contractor of any law, ordinance, or regulation.

This Contract is between the Owner and the Contractor only. No person or entity may claim third-party beneficiary status under this Contract or any of its provisions, nor may any non-party sue for personal injuries or property damage under this Contract.

4. PERMITS, LICENSES, AND TAXES

Procure all permits and licenses; pay all charges, fees, and taxes; and give all notices necessary and incidental to the due and lawful prosecution of work, except for permits provided by the Owner and as specified in Article 7L.7., “Preservation of Cultural and Natural Resources and the Environment.”

5. PATENTED DEVICES, MATERIAL, AND PROCESSES

Indemnify and save harmless the Owner from any claims for infringement from the Contractor's use of any patented design, device, material, process, trademark, or copyright selected by the Contractor and used in connection with the work. Indemnify and save harmless the Owner against any costs, expenses, or damages that it may be obliged to pay, by reason of this infringement, at any time during the prosecution or after the completion of the work.

6. PERSONAL LIABILITY OF PUBLIC OFFICIALS

Owner employees are agents and representatives of the Owner and will incur no liability, personal or otherwise, in carrying out the provisions of the Contract or in exercising any power or authority granted under the Contract.

7. PRESERVATION OF CULTURAL AND NATURAL RESOURCES AND THE ENVIRONMENT

Project-specific information pertinent to cultural and natural resources is included in the plan set in the General Notes and on the Environmental Permits, Issues, and Commitments (EPIC) sheet. Adhere to all guidance, Best Management Practices (BMPs), and permits shown on the plans. Signing the Contract certifies compliance with all applicable laws, rules, and regulations pertaining to the preservation of cultural resources, natural resources, and the environment as issued by the following or other agencies.

- OSHA
- TCEQ
- Texas Department of Transportation
- Texas Historical Commission
- Texas Parks and Wildlife Department
- Texas Railroad Commission
- U.S. Army Corps of Engineers (USACE)
- U.S. Department of Energy
- U.S. Department of Transportation
- EPA
- Federal Emergency Management Agency
- U.S. Fish and Wildlife Service

All subcontractors must also comply with applicable environmental laws, rules, regulations, and requirements in the Contract.

- 7.1. **Cultural Resources.** Cease all work immediately if a site, building, or location of historical, archeological, educational, or scientific interest is discovered within the right of way. The site, building, or location will be investigated and evaluated by the Owner.
- 7.2. **Protected and Imperiled Species and Wildlife.** Cease all work immediately and within 50 ft. if a protected or imperiled species, or any species assumed to be protected or imperiled, or wildlife is encountered onsite. Allow any animals to leave the area. Do not kill any wildlife. Contact Owner's environmental staff to investigate and evaluate any species or wildlife issues.
- 7.3. **Migratory Birds.** Bird and nest removal must not occur during vegetation clearing, construction, or maintenance activities on structures where birds or nests are present during the nesting season, as shown on the plans. If work will occur during the nesting season, measures to prevent nest establishment must be used before the start of nesting season or any activity. Contact Owner's environmental staff for assistance with birds and nests.

7.4. **Texas Pollutant Discharge Elimination System (TPDES) Permits and Stormwater Pollution Prevention Plans (SWP3s).**

7.4.1. Projects with Less than 1 Acre of Soil Disturbance Including Required Associated Project Specific Locations (PSLs) in Accordance with TPDES Construction General Permit (CGP) No. TXR150000. No construction site notice (CSN) posting will be required for soil disturbances within the right of way. Adhere to the requirements of the SWP3 and environmental layout as shown on the plans.

7.4.2. Projects with 1 Acre but Less than 5 Acres of Soil Disturbance Including Required Associated PSLs in Accordance with TPDES CGP No. TXR150000. The Owner and the Contractor will operate under a shared SWP3 for portions of the project in the right of way.

The Owner will be considered the primary operator with operational control over plans and specifications as defined in TPDES CGP No. TXR150000 for construction activity in the right of way. The Owner will post a small CSN and follow other requirements as defined in TPDES CGP No. TXR150000 as the entity having operational control over plans and specifications for work shown on the plans in the right of way.

The Contractor will be considered the primary operator with day-to-day operational control as defined in TPDES CGP No. TXR150000 for construction activity in the right of way. In addition to the Owner's actions, the Contractor will post a small CSN and follow other requirements as defined in TPDES CGP No. TXR150000 as the entity having day-to-day operational control of the work shown on the plans in the right of way. This is in addition to the Contractor being responsible for TPDES CGP No. TXR150000 requirements for on-right-of-way and off-right-of-way PSLs. The Contractor will adhere to all requirements of the SWP3 and environmental layout as shown on the plans. The Contractor will be responsible for implementing the SWP3 for the project site as shown on the plans, in conformance with specifications, in accordance with TPDES CGP No. TXR150000, and as directed. Notification to Municipal Separate Storm Sewer System (MS4) operators (when applicable) upon project initiation and completion must be provided in accordance with TPDES CGP No. TXR150000 requirements. A signed copy of the small CSN will be provided to MS4 operators (where applicable) at least 2 days before commencing construction.

With the Engineer's concurrence upon the completion of soil disturbing activities and achieving permanent stabilization of 70% native background vegetation cover, the CSN may be removed.

7.4.3. **Projects with 5 Acres or More of Soil Disturbance Including Required Associated PSLs in Accordance with TPDES CGP No. TXR150000.** The Owner and the Contractor will operate under a shared SWP3 for portions of the project in the right of way. The Owner will be considered the primary operator with operational control over plans and specifications as defined in TPDES CGP No. TXR150000 for construction activities in the right of way. The Owner will post a large CSN and file a Notice of Intent (NOI); Notice of Change (NOC), if applicable; and Notice of Termination (NOT), along with other requirements in accordance with TPDES CGP No. TXR150000, as the entity having operational control over plans and specifications for work shown on the plans in the right of way.

The Contractor will be considered the primary operator for day-to-day operational control as defined in TPDES CGP No. TXR150000 for construction activities in the right of way. In addition to the Owner's actions, the Contractor will file an NOI; NOC, if applicable; and NOT and post a large CSN along with other requirements as the entity having day-to-day operational control of the work shown on the plans in the right of way. This is in addition to the Contractor being responsible for TPDES CGP No. TXR150000 requirements for on-right-of-way and off-right-of way PSLs. Adhere to all requirements of the SWP3 and environmental layout as shown on the plans.

7.4.3.1. **Notice of Intent (NOI).** Contractor will submit an NOI to TCEQ in accordance with TPDES CGP No. TXR150000 requirements. NOI must be submitted at least 7 days before commencement of construction activities at the project site. Contractor must file NOI under the same Regulated Entity Number (RN) as the Owner. Provide a signed copy to the Engineer and any other MS4 operators (where applicable) at the time of submittal. The Owner will submit their NOI before Contractor submission and will provide a copy for Contractor's use in completing the Contractor's NOI form.

- 7.4.3.2. **Notice of Change (NOC).** Upon concurrence of the Engineer, submit an NOC to TCEQ within 14 days of discovery of a change or revision to the NOI as required by the CGP. Provide a signed copy of the NOC to the Engineer and any other MS4 operators (where applicable) at the time of submittal.
- 7.4.3.3. **Notice of Termination (NOT).** Upon concurrence of the Engineer, submit an NOT to TCEQ within 30 days of the Engineer's approval that 70% native background vegetative cover is met or equivalent permanent stabilization has been employed in accordance with TPDES CGP No. TXR150000. Provide a signed copy of the NOT to the Engineer and any other MS4 operators (where applicable) at the time of submittal.
- 7.4.4. **Training.** Not applicable to Locally Let Projects.
- 7.5. **Work in Waters of the United States.** For work in the right of way, the Owner will obtain any required Section 404 permits from U.S. Army Corps of Engineers USACE before work begins. Adhere to all agreements, mitigation plans, and standard BMPs required by the permit. When Contractor-initiated changes in the construction method change the impacts on Waters of the United States, obtain new or revised Section 404 permits.
- 7.6. **Work in Navigable Waters of the United States.** For work in the right of way, the Owner will obtain any required Section 9 permits from the U.S. Coast Guard before work begins. Adhere to the stipulations of the permits and associated BMPs. When Contractor-initiated changes in the construction method change the impacts on Navigable Waters of the United States, obtain new or revised Section 9 permits.
- 7.7. **Work over Recharge or Contributing Zone of Protected Aquifers.** Make every reasonable effort to minimize the degradation of water quality resulting from impacts relating to work over the recharge or contributing zones of protected aquifers, as defined and delineated by TCEQ. Use BMPs and perform work in accordance with the Contract requirements.
- 7.8. **Project Specific Locations.** For all PSLs on or off the right of way (e.g., material sources, waste sites, parking areas, storage areas, field offices, staging areas, and haul roads), comply with all applicable laws, rules, and regulations pertaining to the preservation of cultural resources, natural resources, and the environment in accordance with Section 7L 7.1., "Cultural Resources." All subcontractors must also comply with applicable environmental laws, rules, regulations, and requirements in the Contract. Maintain documentation of environmental compliance activities, including environmental consultant reports and correspondence with the resource agencies. Provide documentation upon request. Obtain written approval from the Engineer for all PSLs in the right of way not specifically addressed on the plans. Prepare an SWP3 for all Contractor facilities, such as asphalt or concrete plants located within right of way. Comply with all TCEQ permit requirements for portable facilities, such as concrete batch plants, rock crushers, and asphalt plants. Ensure compliance with all environmental issues, such as Section 404 permits, wetland delineation, endangered species consultation requirements, or archeological and historic site impacts. Obtain all permits and clearances in advance.
- 7.9. **Contractor Responsibility.** If the Contractor initiates changes to the Contract and the Owner approves the changes, the Contractor is responsible for obtaining clearances and coordinating with the appropriate regulatory agencies.

8. AGRICULTURAL IRRIGATION

Regulate the sequence of work and make provisions as necessary to provide for agricultural irrigation or drainage during the work. Meet with the service provider or landowner to determine the proper time and sequence when irrigation demands will permit shutting off water flows to perform work.

Unless otherwise shown on the plans, the work performed in accordance with this Article will not be measured or paid for directly, but will be subsidiary to pertinent Items.

9. SANITARY PROVISIONS

Provide and maintain adequate, neat, and sanitary toilet accommodations for employees, including State employees, in compliance with the requirements and regulations of the Texas Department of State Health Services or other authorities having jurisdiction.

10. ABATEMENT AND MITIGATION OF EXCESSIVE OR UNNECESSARY NOISE

Minimize noise throughout all phases of the Contract. Exercise particular and special efforts to avoid the creation of unnecessary noise impact on adjacent noise-sensitive receptors in the placement of non-mobile equipment, such as air compressors, generators, and pumps. Place mobile and stationary equipment to cause the least disruption to normal adjacent activities.

All equipment associated with the work must be equipped with components to suppress excessive noise, and these components must be maintained in their original operating condition considering normal depreciation. Noise attenuation devices installed by the manufacturer, such as mufflers, engine covers, and insulation, must not be removed or rendered ineffectual, or be permitted to remain off the equipment while the equipment is in use.

11. USING EXPLOSIVES

Do not endanger life or property. When required by the plans or requested, provide a written blasting plan. The Owner retains the right to reject the blasting plan. Store all explosives securely, and clearly mark all storage places with "DANGER—EXPLOSIVES." Store, handle, and use explosives and highly flammable material in compliance with federal, state, and local laws, ordinances, and regulations. Assume liability for property damage, injury, or death resulting from the use of explosives.

Give at least 48-hr. advance notice to the appropriate railroad representative before doing any blasting work involving the use of electric blasting caps within 200 ft. of any railroad track.

12. RESPONSIBILITY FOR HAZARDOUS MATERIALS

Comply with the requirements of Article 6L.10., "Hazardous Materials." Indemnify and save harmless the Owner and its agents and employees from all suits, actions, or claims and from all liability and damages for any injury or damage to any person or property arising from the generation or disposition of hazardous materials introduced by the Contractor on any work done by the Contractor on Owner-owned or controlled sites. Indemnify and save harmless the Owner and its representatives from any liability or responsibility arising out of the Contractor's generation or disposition of any hazardous materials obtained, processed, stored, or shipped, on sites not owned or controlled by the Owner. Reimburse the Owner for all payments, fees, or restitution the Owner is required to make as a result of the Contractor's actions.

13. RESTORING SURFACES OPENED BY PERMISSION

Do not authorize anyone to make an opening in the highway for utilities, drainage, or any other reason without written permission from the Engineer. Repair all openings as directed. Payment for repair of surfaces opened by permission will be made in conformance with pertinent Items or in accordance with Article 4L.4., "Changes in the Work." Costs associated with openings made with Contractor authorization but without Owner approval will not be paid.

14. PROTECTING ADJACENT PROPERTY

Protect adjacent property from damage. If any damage results from an act or omission on the part of or on behalf of the Contractor, take corrective action to restore the damaged property to a condition similar or equal to that existing before the damage was done.

15. RESPONSIBILITY FOR DAMAGE CLAIMS

Indemnify and save harmless the Owner and its agents and employees from all suits, actions, or claims and from all liability and damages for any injury or damage to any person or property due to the Contractor's negligence in the performance of the work and from any claims arising or amounts recovered under any laws, including workers' compensation and the Texas Tort Claims Act. Indemnify and save harmless the Owner and assume responsibility for all damages and injury to property of any character occurring during the prosecution of the work resulting from any act, omission, neglect, or misconduct on the Contractor's part in the manner or method of executing the work; from failure to properly execute the work; or from defective work or material.

Pipelines and other underground installations that may or may not be shown on the plans may be located within the right of way. Indemnify and save harmless the Owner from any suits or claims resulting from damage by the Contractor's operations to any pipeline or underground installation. Make available the scheduled sequence of work to the respective utility owners so that they may coordinate and schedule adjustments of their utilities that conflict with the proposed work.

16. HAULING AND LOADS ON ROADWAYS AND STRUCTURES

Comply with federal and state laws concerning legal gross and axle weights. Except for the designated Interstate system, vehicles with a valid yearly overweight tolerance permit may haul materials to the work locations at the permitted load. Provide copies of the yearly overweight tolerance permits to the Engineer upon request. Construction equipment is not exempt from oversize or overweight permitting requirements on roadways open to the traveling public.

Protect existing bridges and other structures that will remain in use by the traveling public during and after the completion of the Contract. Construction traffic on roadways, bridges, and culverts within the limits of the work, including any structures under construction that will remain in service during and after completion of the Contract, is subject to legal size and weight limitations.

Additional temporary fill may be required by the Engineer for hauling purposes for the protection of certain structures. This additional fill will not be paid for directly, but will be subsidiary to pertinent Items.

Replace or restore to original condition any structure damaged by the Contractor's operations.

The Engineer may allow equipment with oversize or non-divisible overweight loads to operate without a permit within the work locations on pavement structures not open to the traveling public. Submit Contractor-proposed changes to traffic control plans for approval, in accordance with Item 502. The following Sections further address overweight allowances. The Owner will make available to the Contractor any available plans and material reports for existing structures.

- 16.1. **Overweight Construction Traffic Crossing Structures.** The Engineer may allow crossing of a structure not open to the public within the work locations when divisible or non-divisible loads exceed legal weight limitations, including limits for load-posted bridges. Obtain written permission to make these crossings. Submit for approval a structural analysis by a licensed professional engineer indicating that the excessive loads should be allowed. Provide a manufacturer's certificate of equipment weight that includes the weight distribution on the various axles and any additional parts, such as counterweights, the configuration of the axles, or other information necessary for the analysis. Submit the structural analysis and supporting documentation sufficiently in advance of the move to allow for review by the Engineer. Permission may be granted if the Engineer finds that no damage or overstresses exceeding those normally allowed for occasional overweight loads will result to structures that will remain in use after Contract completion. Provide temporary matting or other protective measures as directed.

Schedule loads so that only one vehicle is on any span or continuous unit at any time. Use barricades, fences, or other positive methods to prevent other vehicular access to structures at any time the overweight load is on any span or continuous unit.

- 16.2. **Construction Equipment Operating on Structures.** Cranes and other construction equipment used to perform construction operations that exceed legal weight limits may be allowed on structures. Before any operation that may require placement of equipment on a structure, submit for approval a detailed structural analysis prepared by a licensed professional engineer.
- Submit the structural analysis and supporting documentation sufficiently in advance of the use to allow for review by the Engineer. Include all axle loads and configurations, spacing of tracks or wheels, tire loads, outrigger placements, center of gravity, equipment weight, and predicted loads on tires and outriggers for all planned movements, swings, or boom reaches. The analysis must demonstrate that no overstresses exceeding those normally allowed for occasional overweight loads will occur.
- 16.3. **Loads on Structures.** Do not store or stockpile material on bridge structures without written permission. If required, submit a structural analysis and supporting documentation by a licensed professional engineer for review by the Engineer. Permission may be granted if the Engineer finds that no damage or overstresses exceeding those normally allowed for occasional overweight loads will result to structures that will remain in use after Contract completion. Provide temporary matting or other protective measures as directed.
- 16.4. **Hauling Divisible Overweight Loads on Pavement Within Work Locations.** The Engineer may allow divisible overweight loads on pavement structures within the work locations not open to the traveling public. Obtain written approval before hauling the overweight loads. Include calculations to demonstrate that there will be no damage or overstress to the pavement structure.

17. CONTRACTOR'S RESPONSIBILITY FOR WORK

Until final acceptance of the Contract, take every precaution against injury or damage to any part of the work by the action of the elements or by any other cause, whether arising from the execution or from the non-execution of the work. Protect all materials to be used in the work at all times, including periods of suspension.

When any roadway or portion of the roadway is in suitable condition for travel, it may be opened to traffic as directed. Opening of the roadway to traffic does not constitute final acceptance.

Repair damage to all work until final acceptance. Repair damage to existing facilities in accordance with the Contract or as directed by the Engineer. Repair damage to existing facilities or work caused by Contractor operations at the Contractor's expense. Repair work for damage that was not due to the Contractor's operations will not be paid for except as provided below.

- 17.1. **Reimbursable Repair.** Except for damage to appurtenances listed in Section 7L.17.2.1., "Unreimbursed Repair," the Contractor will be reimbursed for repair of damage caused by:
- motor vehicle, watercraft, aircraft, or railroad-train incident;
 - vandalism; or
 - Acts of God, such as earthquake, tidal wave, tornado, hurricane, or other cataclysmic phenomena of nature.
- 17.2. **Appurtenances.**
- 17.2.1. **Unreimbursed Repair.** Except for destruction (not reusable) due to Acts of God, reimbursement will not be made for repair of damage to the following temporary appurtenances, regardless of cause:
- signs,
 - barricades, and
 - other work zone traffic control devices.

Crash cushion attenuators and guardrail end treatments are reimbursed in accordance with Section 7L.17.2.2., "Reimbursed Repair." Truck-mounted attenuators, trailer attenuators, and portable changeable message signs are eligible for reimbursed repair in accordance with Section 7L.17.2.2.,

"Reimbursed Repair." Reimbursement will only be made when the Engineer directs the placement of the device in a location other than what is depicted in the Contract and the Contractor is unable to seek reimbursement from third-party insurance.

Where the Contractor retains replaced appurtenances after completion of the project, the Owner will limit the reimbursement to the cost that is above the salvage value at the end of the project.

- 17.2.2. **Reimbursed Repair.** Reimbursement will be made for repair of damage due to the causes listed in Section 7L.17.1, "Reimbursable Repair."
- 17.3. **Roadways and Structures.** Until final acceptance, the Contractor is responsible for all work constructed under the Contract. The Owner will not reimburse the Contractor for repair work to new construction, unless the failure or damage is due to one of the causes listed in Section 7L.17.1, "Reimbursable Repair."
- The Owner will be responsible for the cost for repair of damage to existing roadways and structures not caused by the Contractor's operations.
- 17.4. **Detours.** The Contractor will be responsible for the cost of maintenance of detours constructed under the Contract, unless the failure or damage is due to one of the causes listed in Section 7L.17.1, "Reimbursable Repair." In addition, the Engineer will reimburse the Contractor for repairs to detours when failures occur for reasons beyond the Contractor's control. Reimbursement will be made for repairs to detours constructed unless the failure was due to materials and workmanship. The Owner will be responsible for the cost of maintenance of existing streets and roadways used for detours or handling traffic.
- 17.5. **Relief from Maintenance.** The Engineer may relieve the Contractor from responsibility of maintenance in accordance with this Section. This relief does not release the Contractor from responsibility for defective materials or work or constitute final acceptance. The Engineer will direct the Contractor to remove advance warning signs upon issuance of relief from maintenance.
- 17.5.1. **Isolated Work Locations.** For isolated work locations, when all work is completed, including work in accordance with Article 5L.11., "Final Cleanup," the Engineer may relieve the Contractor from responsibility for maintenance.
- 17.5.2. **Work Except for Vegetative Establishment and Test Periods.** When all work for all or isolated work locations has been completed, including work in accordance with Article 5L.11., "Final Cleanup," with the exception of vegetative establishment and maintenance periods and test and performance periods, the Engineer may relieve the Contractor from responsibility for maintenance of completed portions of work.
- 17.5.3. **Work Suspension.** When all work is suspended for an extended period of time, the Engineer may relieve the Contractor from responsibility for maintenance of completed portions of work during the period of suspension.
- 17.5.4. **When Directed by the Engineer.** The Engineer may relieve the Contractor from the responsibility for maintenance when directed.
- 17.6. **Basis of Payment.** When reimbursement for repair work is allowed and performed, payment will be made in conformance with pertinent Items or in accordance with Article 4L.4., "Changes in the Work."

18. ELECTRICAL REQUIREMENTS

- 18.1. **Definitions.**
- 18.1.1. **Electrical Work.** Electrical work is work performed for:
- Item 610, "Roadway Illumination Assemblies,"
 - Item 614, "High Mast Illumination Assemblies,"
 - Item 616, "Performance Testing of Lighting Systems,"

- Item 617, "Temporary Roadway Illumination,"
- Item 618, "Conduit,"
- Item 620, "Electrical Conductors,"
- Item 621, "Tray Cable,"
- Item 622, "Duct Cable,"
- Item 628, "Electrical Services,"
- Item 680, "Highway Traffic Signals,"
- Item 681, "Temporary Traffic Signals,"
- Item 684, "Traffic Signal Cables,"
- Item 685, "Roadside Flashing Beacon Assemblies,"
- other Items that involve either the distribution of electrical power greater than 50 volts or the installation of conduit and duct banks,
- the installation of conduit and wiring associated with Item 624, "Ground Boxes" and Item 656, "Foundations for Traffic Control Devices," and
- the installation of the conduit system for communication and fiber optic cable.

Electrical work does not include the installation of communications or fiber optic cable, or the connections for low-voltage and inherently power-limited circuits, such as electronic or communications equipment. Assembly and placement of poles, structures, cabinets, enclosures, manholes, or other hardware will not be considered electrical work if no wiring, wiring connection, or conduit work is done at the time of assembly and placement.

18.1.2. **Specialized Electrical Work.** Specialized electrical work is work that includes the electrical service and feeders, sub-feeders, branch circuits, controls, raceways, and enclosures for the following:

- pump stations,
- moveable bridges,
- ferry slips,
- motor control centers,
- facilities required in accordance with Item 504, "Field Office and Laboratory,"
- rest area or other public buildings,
- weigh-in-motion stations,
- electrical services larger than 200 amps,
- electrical services with main or branch circuit breaker sizes not shown in the Contract, and
- any three-phase electrical power.

18.1.3. **Certified Person.** A certified person is a person who has passed the test from TxDOT's course TRF450, "TxDOT Roadway Illuminations and Electrical Installations," or other courses as approved by the Traffic Safety Division. Submit a current and valid TRF certification upon request. Texas A&M Engineering Extension Service (TEEX) certifications for "TxDOT Electrical Systems" course will not be accepted.

18.1.4. **Licensed Electrician.** A licensed electrician is a person with a current and valid unrestricted master electrical license, or unrestricted journeyman electrical license, who is supervised or directed by an unrestricted master electrician. An unrestricted master electrician need not be on the work locations at all times while electrical work is being done, but the unrestricted master electrician must approve work performed by the unrestricted journeyman. Licensed electrician requirements by city ordinances do not apply to on State system work.

The unrestricted journeyman and unrestricted master electrician licenses must be issued by the Texas Department of Licensing and Regulation or by a city in Texas with a population of 50,000 or greater that issues licenses based on passing a written test and demonstrating experience.

The Engineer may accept other states' electrical licenses. Submit documentation of the requirements for obtaining that license. Acceptance of the license will be based on sufficient evidence that the license was issued based on:

- passing a test based on the NEC like that used by Texas licensing officials, and
- sufficient electrical experience commensurate with general standards for an unrestricted master and unrestricted journeyman electrician in the State of Texas.

18.2. **Work Requirements.** The qualifications required to perform electrical work and specialized electrical work are shown in Table 1.

**Table 1
Work Requirements**

Type of Work	Qualifications to Perform Work
Electrical work with plans	Licensed electrician, certified person, or workers directly supervised by a licensed electrician or certified person
Electrical work without plans	Licensed electrician or workers directly supervised by a licensed electrician
Specialized electrical work	Licensed electrician or workers directly supervised by a licensed electrician
Replace lamps, starting aids, and changing fixtures	Licensed electrician, certified person, or workers directly supervised by a licensed electrician or certified person
Conduit in precast section with approved working drawings	Inspection by licensed electrician or certified person
Conduit in cast-in-place section	Inspection by licensed electrician or certified person
All other electrical work (e.g., troubleshooting, repairs, and component replacement)	Licensed electrician or workers directly supervised by a licensed electrician

“Directly supervised by a licensed electrician” means that a licensed electrician is physically present during all electrical work. “Directly supervised by a licensed electrician or certified person” means that a licensed electrician or certified person is physically present during all electrical work.

A non-certified person may install conduit in cast-in-place concrete sections if the work is verified by a certified person before concrete placement.

When IMSA certification is specified on the plans, the requirements shown in Table 1 will still apply to the installation of the conduit, ground boxes, electrical services, pole grounding, and electrical conductors installed in accordance with Item 620.

19. PAYROLLS

Pay employees and contract labor no less than the predetermined wage rates shown in the Contract. Require that subcontractors pay no less than the predetermined wage rates shown in the Contract.

Payroll records must contain the information required by law. As an option, Form WH-347, “Payroll,” is provided by the U.S. Department of Labor.

Maintain payroll and related records during the course of the Contract and preserve these records for 3 yr. following the completion of the Contract or as required by law.

19.1. **Minimum Wage Requirements for Federally Funded Contracts.** Comply with the requirements of FHWA-1273, “Required Contract Provisions Federal-Aid Construction Contracts.”

For construction contracts, submit payroll records to the Engineer using the manner prescribed by the Owner.

19.2. **Minimum Wage Requirements for State-Funded Contracts.** Comply with the requirements of 29 USC § 206 unless otherwise shown in the Contract.

For construction contracts, submit payroll records to the Engineer in the manner prescribed.

20. **SECURITY INCIDENTS – NOT APPLICABLE TO LOCALLY LET PROJECTS**

Item 8L

Prosecution and Progress



1. PROSECUTION OF WORK

Begin work within 30 calendar days after the authorization date to begin work. Prosecute the work continuously to completion within the working days specified. Unless otherwise shown on the plans, work may be prosecuted in concurrent phases if no changes are required to the traffic control plan or if a revised traffic control plan is approved. Notify the Engineer at least 24 hr. before beginning work or before beginning any new operation. Do not start new operations to the detriment of work already begun. Minimize interference to traffic.

2. SUBCONTRACTING

Do not sublet any portion of a construction Contract without the Engineer's written approval. A subcontract does not relieve any responsibility under the Contract and bonds. Ensure that all subcontracted work complies with all governing labor provisions.

The Contractor certifies by signing the Contract that the Contractor will not enter into any subcontract with a subcontractor that is debarred or suspended by the Commission, Owner, or any federal agency.

For federally funded contracts, ensure the required federal documents are physically attached to each subcontract agreement, including all tiered subcontract agreements.

For all DBE subcontracts, including all tiered DBE subcontracts, submit a copy of the executed subcontract agreement.

Upon request, submit a copy of the executed non-DBE subcontracts, including all tiered non-DBE subcontracts.

- 2.1. **Construction Contracts and Federally Funded Maintenance Contracts.** Perform work with own organization on at least 30% of the total original Contract cost (25% if the Contractor is an SBE on a wholly State- or local-funded Contract), excluding any specialty items as determined by the Engineer. Specialty items are those that require highly specialized knowledge, abilities, or equipment not usually available in the contracting firm expected to bid on the proposed Contract as a whole.

Specialty items will be shown on the plans or as determined by the Engineer. Bid cost of specialty items performed by subcontractors will be deducted from the total original Contract cost before computing the required amount of work to be performed by the Contractor's own organization.

The term "perform work with own organization" includes only:

- workers employed and paid directly by the Contractor or wholly owned subsidiary;
- equipment owned by the Contractor or wholly owned subsidiary;
- rented or leased equipment operated by the Contractor's employees or wholly owned subsidiary's employees;
- materials incorporated into the work if the majority of the value of the work involved in incorporating the material is performed by the Contractor's own organization, including a wholly owned subsidiary's organization; and

- labor provided by staff leasing firms licensed under Chapter 91 of the Texas Labor Code for nonsupervisory personnel if the Contractor or wholly owned subsidiary maintains direct control over the activities of the leased employees and includes them in the weekly payrolls.

Mobilization is not included in calculation of 30%.

When staff leasing firms provide materials or equipment, they are considered subcontractors. In these instances, submit staff leasing firms for approval as a subcontractor.

Copies of canceled checks and certified statements may be required to verify compliance with the requirements of this Section.

- 2.2. **State-Funded Maintenance Contracts.** Not applicable to locally let projects.
- 2.3. **Payments to Subcontractors.** Report payments for DBE subcontracts, including tiered DBE subcontracts, in the manner as prescribed by the Owner by the 20th day of each month.
- 2.3.1. **Payment Records.** Make payment and related records, including but not limited to copies of canceled checks, available for inspection by the Owner. Retain payment records for a period of 3 yr. following the completion of the Contract.
- 2.4. **Payrolls.** Comply with Article 7L.19., "Payrolls."

3. COMPUTATION OF CONTRACT TIME FOR COMPLETION

The number of working days is established by the Contract. For Contracts with work orders, the number of working days is established in each work order. Working day charges will begin when work begins as prescribed in Article 8L.1., "Prosecution of Work." Working day charges will continue in accordance with the Contract.

The development of the conceptual time determination is intended to establish the number of working days on the Contract. Upon request, the Engineer will provide the conceptual time determination schedule to the Contractor for informational purposes only. The schedule assumes generic resources, production rates, sequences of construction and average weather conditions based on historic data. Schedule labor, equipment, procurement of materials, subcontractor work, and all other necessary means to prosecute the work within the number of working days specified by the Contract.

- 3.1. **Working Day Charges.** Working days will be charged in accordance with Section 8L.3.1.4., "Standard Workweek," unless otherwise shown on the plans. Working days will be computed and charged in accordance with one of the following:
- 3.1.1. **Five-Day Workweek.** Working days will be charged Monday–Friday, excluding national holidays, regardless of weather conditions or material availability. The Contractor has the option of working on Saturdays. Provide sufficient advance notice to the Engineer when scheduling work on Saturdays. Work on Sundays and national holidays will not be permitted without written permission of the Engineer. If work requiring an Inspector to be present or if critical path activities are performed on a Saturday, Sunday, or national holiday, and weather and other conditions permit the performance of work for 7 hr. between 7 A.M. and 6 P.M., a working day will be charged.
- 3.1.2. **Six-Day Workweek.** Working days will be charged Monday–Saturday, excluding national holidays, regardless of weather conditions or material availability. Work on Sundays and national holidays will not be permitted without written permission of the Engineer. If work requiring an Inspector to be present or if critical path activities are performed on a Sunday or a national holiday, and weather or other conditions permit the performance of work for 7 hr. between 7 A.M. and 6 P.M., a working day will be charged.

- 3.1.3. **Seven-Day Workweek.** Working days will be charged Monday–Sunday, excluding national holidays, regardless of weather conditions or material availability. Work on national holidays will not be permitted without written permission of the Engineer. If work or critical path activities requiring an Inspector to be present are performed on any of these holidays, and weather or other conditions permit the performance of work for 7 hr. between 7 A.M. and 6 P.M., a working day will be charged.
- 3.1.4. **Standard Workweek.** Working days will be charged Monday–Friday, excluding national or State holidays, if weather or other conditions permit the performance of the principal unit of work underway, as determined by the Engineer, for a continuous period of at least 7 hr. between 7:00 A.M. and 6:00 P.M., unless otherwise shown in the Contract. The Contractor has the option of working on Saturdays or State holidays. Provide sufficient advance notice to the Engineer when scheduling work on Saturdays. Work on Sundays and national holidays will not be permitted without written permission of the Engineer. If work requiring an Inspector to be present or critical path activities are performed on a Saturday, Sunday, or holiday, and weather or other conditions permit the performance of work for 7 hr. between 7 A.M. and 6 P.M., a working day will be charged.
- 3.1.5. **Calendar Day.** Working days will be charged Sunday–Saturday, including all holidays, regardless of weather conditions, material availability, or other conditions not under the control of the Contractor.
- 3.1.6. **Other.** Working days will be charged as shown on the plans.
- 3.2. **Restricted Work Hours.** Restrictions on Contractor work hours and the related definition for working day charges are as prescribed in this Article unless otherwise shown on the plans.
- 3.3. **Nighttime Work.** Nighttime work is allowed only when shown on the plans or directed or allowed by the Engineer. Nighttime work is defined as work performed from 30 min. after sunset to 30 min. before sunrise.
- 3.3.1. **Five-, Six-, and Seven-Day Workweeks.** Nighttime work that extends past midnight will be assigned to the following day for the purposes of approval for allowing work on Sundays or national holidays.
- 3.3.2. **Standard Workweek.**
- 3.3.2.1. **Nighttime Work Only.** When nighttime work is allowed or required and daytime work is not allowed, working day charges will be made when weather and other conditions permit the performance of the principal unit of work underway, as determined by the Engineer, for a continuous period of at least 7 hr. for the nighttime period, as defined in Section 8L.3.3., “Nighttime Work,” unless otherwise shown in the Contract.
- 3.3.2.2. **Nighttime Work and Daytime Work Requiring Inspector.** When nighttime work is performed or required and daytime work is allowed, working day charges will be made when weather and other conditions permit the performance of the principal unit of work underway, as determined by the Engineer, for a continuous period of at least 7 hr. for the nighttime period, as defined in Section 8L.3.3., “Nighttime Work,” or for a continuous period of at least 7 hr. for the alternative daytime period unless otherwise shown in the Contract. Only one day will be charged for each 24hr. period. When the Engineer agrees to restrict work hours to the nighttime period only, working day charges will be in accordance with Section 8L.3.3.2.1., “Nighttime Work Only.”
- 3.4. **Time Statements.** The Engineer will furnish the Contractor a monthly time statement. Review the monthly time statement for correctness. Report protests in writing, no later than 30 calendar days after receipt of the time statement, providing a detailed explanation for each day protested. Not filing a protest within 30 calendar days will indicate acceptance of the working day charges, and future consideration of that statement will not be permitted.

4. TEMPORARY SUSPENSION OF WORK OR WORKING DAY CHARGES

The Engineer may suspend the work, wholly or in part, and will provide notice and reasons for the suspension in writing. Suspend and resume work only as directed in writing.

When part of the work is suspended, the Engineer may suspend working day charges only when conditions not under the control of the Contractor prohibit the performance of critical path activities. When all of the work is suspended for reasons not under the control of the Contractor, the Engineer will suspend working day charges.

5. PROJECT SCHEDULES

Prepare, maintain, and submit project schedules for the work to be performed under this Contract. Project schedules are used to convey the Contractor's intended work plan to the Owner.

The work performed under this Article will not be measured or paid for directly, but will be subsidiary to pertinent Items.

- 5.1. **Project Scheduler.** Designate an individual who will develop and maintain the progress schedule. The project scheduler will be prepared to discuss, in detail, the proposed sequence of work and methods of operation, and how that information will be communicated through the progress schedule at the preconstruction meeting. This individual will also attend the project meetings and make site visits to prepare, develop, and maintain the progress schedules.
- 5.2. **Progress Schedule.** Before starting work, prepare and submit a progress schedule based on the sequence of work and traffic control plan shown in the Contract. Prepare the progress schedule as a bar chart or critical path method (CPM) as shown on the plans. Include all planned work activities and sequences and show Contract completion within the number of working days specified. Incorporate major material procurements, known utility relocations, and other activities that may affect the completion of the Contract in the progress schedule. Show a beginning date, ending date, and duration in whole working days for each activity. Do not use activities exceeding 20 working days, unless agreed upon with the Engineer. Show an estimated production rate per working day for each work activity, unless otherwise agreed upon with the Engineer.
- 5.3. **Schedule Format.** Format all project schedules in accordance with the following.
- Begin the project schedule on the date of the start of Contract time or start of activities affecting work on the project.
 - Show the sequence and interdependence of activities required for complete performance of the work. If using a CPM schedule, show a predecessor and a successor for each activity.
 - Ensure all work sequences are logical and show a coordinated plan of the work.
- CPM schedules must also:
- clearly and accurately identify the critical path as the longest continuous path;
 - provide a legend for all abbreviations, run date, data date, project start date, and project completion date in the title block of each schedule submittal; and
 - using calendars, incorporate seasonal weather conditions into the schedule for work (e.g., earthwork, concrete paving, structures, asphalt, and drainage) that may be influenced by temperature or precipitation. Also, incorporate non-work periods such as holidays, weekends, or other non-work days as identified in the Contract.
- 5.4. **Activity Format.** For each activity on the project schedule, provide:
- a concise description of the work represented by the activity,
 - an activity duration in whole working days, and
 - code activities so that organized plots of the schedule may be produced.

CPM schedules must also include the quantity of work and estimated production rate for major items of work. Provide enough information for review of the work being performed.

Total float is defined as the amount of time (in whole days) that an activity can be delayed before impacting the project's completion date. Total float is a shared commodity between the Owner and the Contractor.

5.5. **Schedule Types and Schedule Impacts.**

5.5.1. **Bar Chart.** Seven calendar days before the preconstruction meeting, prepare and submit a hard or electronic copy of the schedule using the bar chart method.

5.5.1.1. **Progress Schedule Reviews.** Update the project schedule and submit a hard or electronic copy when changes to the schedule occur or when requested.

5.5.2. **Critical Path Method.** Prepare and submit the schedule using the CPM. Submit an electronic copy to the Engineer within the timeframes specified. An electronic copy is defined as the scheduling software's native file, saved in a format acceptable to the Engineer. In all cases, an electronic format (.xer) of Primavera Project Planner and Enterprise Project Portfolio Management (P6) will be acceptable.

5.5.2.1. **Preliminary Schedule.** Unless otherwise agreed for a later submission, 7 calendar days before the preconstruction meeting, submit an electronic copy of the project schedule showing activities beginning with the authorization date to begin work and including activities to be performed within the first 90 calendar days from the work start date.

5.5.2.2. **Baseline Schedule.** The baseline schedule will be considered the Contractor's plan to successfully construct the project within the timeframe and construction sequencing indicated in the Contract. Submit electronic copies of the baseline schedule. When requested, submit two plots of the schedule: one organized with the activities logically grouped using the activity coding, and the other plot showing only the critical path determined by the longest path, not based on critical float.

Develop and submit the baseline schedule for review within the first 45 calendar days from the work start date unless the time for submission is extended by the Engineer.

5.5.2.2.1. **Review.** Within 15 calendar days of receipt of the schedule, the Engineer will evaluate and inform the Contractor if the schedule has been accepted. If the schedule is not accepted, the Engineer will provide comments to the Contractor for incorporation. Provide a revised schedule based on the Engineer's comments, or reasons for not doing so, within 10 calendar days. The Engineer's review and acceptance of the project schedule is for conformance to the requirements of the Contract documents only and does not relieve the Contractor of any responsibility for meeting the interim milestone dates (if specified) or the Contract completion date. Review and acceptance does not expressly or by implication warrant, acknowledge, or admit the reasonableness of the logic or durations of the project schedule. If the Contractor fails to define any element of work, activity, or logic and the Engineer's review does not detect this omission or error, the Contractor is responsible for correcting the error or omission.

Submit an acceptable baseline schedule before the 90th calendar day from the work start date unless the time for submission is extended by the Engineer.

5.5.2.3. **Progress Schedule.** Maintain and submit the progress schedule monthly for use by the Contractor and the Engineer. Submit an electronic copy as it will become an as-built record of the daily progress achieved on the project. If continuous progress of an activity is interrupted for any reason except non-work periods (e.g., holidays, weekend, or interference from temperature or precipitation), then the activity will show the actual finish date as that date of the start of the interruption and the activity will be broken into a subsequent activity (or activities, based on the number of interruptions) similarly numbered with successive alpha character as necessary. The original duration of the subsequent activity will be that of the remaining duration of the original activity. Relationships of the subsequent activity will match those of the original activity so that the integrity of the project schedule logic is maintained. Once established, the original durations and actual dates of all activities must remain unchanged. Revisions to the schedule may be made as necessary.

The project schedule must be revised when changes in construction phasing and sequencing occur or other changes that cause deviation from the original project schedule occur. Any revisions to the schedule must be

listed in the monthly update narrative with the purpose of the revision and description of the impact on the project schedule's critical path and project completion date. Create the schedule revision using the latest update before the start of the revision.

Monthly updating of the project schedule will include updating of:

- the actual start dates for activities started,
- the actual finish dates for activities completed,
- the percentage of work completed and remaining duration for each activity started but not yet completed, and
- the calendars to show days actual work was performed on the various work activities.

The cutoff day for recording monthly progress will be the last day of each month. Submit the updated project schedule no later than the 20th calendar day of the following month. The Engineer will evaluate the updated schedule within 5 calendar days of receipt and inform the Contractor if it has or has not been accepted. If the schedule is not accepted, the Engineer will provide comments to the Contractor for incorporation. Provide a revised schedule based on the Engineer's comments, or reasons for not doing so, within 5 calendar days.

Provide a brief narrative in a bulleted statement format for major items that have impacted the schedule. Notify the Engineer if resource-leveling is being used.

5.5.2.3.1. **Project Schedule Summary Report (PSSR).** When shown on the plans, provide the PSSR instead of the narrative required in Section 8L.5.5.2.3., "Progress Schedule." The PSSR includes a listing of major items that have impacted the schedule and a summary of progress in days ahead or behind schedule. Include an explanation of the project progress for the period represented on the form provided by the Owner.

5.5.3. **Notice of Potential Time Impact.** Submit a notice of potential time impact when a Contract time extension or adjustment of milestone dates may be justified or when directed.

Failure to provide this notice in the timeframes specified above will compromise the Owner's ability to mitigate the impacts, and the Contractor forfeits the right to request a time extension or adjustment of milestone dates unless the circumstances are such that the Contractor could not reasonably have had knowledge of the impact at the time.

5.5.4. **Time Impact Analysis.** When directed, provide a time impact analysis. A time impact analysis is an evaluation of the effects of impacts on the project. A time impact analysis consists of the following steps.

- **Step 1.** Establish the status of the project immediately before the impact.
- **Step 2.** Predict the effect of the impact on the schedule update used in Step 1.
- **Step 3.** Track the effects of the impact on the schedule during its occurrence.
- **Step 4.** Establish the status of the project after the impact's effect has ended and provide details identifying any mitigating actions or circumstances used to keep the project ongoing during the impact period.

Determine the time impact by comparing the status of the work before the impact (Step 1) to the prediction of the effect of the impact (Step 2), if requested, and to actual effects of the impact once it is complete (Step 4). Unless otherwise approved by the Engineer, Steps 1, 3, and 4 must be completed before consideration of a Contract time extension or adjustment of a milestone date will be provided. Time extensions will be considered only when delays that affect milestone dates or the Contract completion date are beyond the Contractor's control. Submit Step 4 no later than 15 calendar days after the impact's effects have ended or when all the information on the effect has been realized.

Submit one electronic backup copy of the complete time impact analysis and a copy of the full project schedule incorporating the time impact analysis. If the project schedule is revised after the submittal of a time impact analysis, but before its approval, indicate in writing the need for any modification to the time impact analysis.

The Engineer will review the time impact analysis upon completion of Step 4. If this review detects revisions or changes to the schedule that had not been performed and identified in a narrative, the Engineer may reject the time impact analysis. If the Engineer is in agreement with the time impact analysis, a change order may be issued to grant additional working days, or to adjust interim milestones. Once a change order has been executed, incorporate the time impact analysis into the project schedule. The time impact analysis may also be used to support the settlement of disputes and claims. Compensation related to the time impact analysis may be provided at the completion of the analysis or the completion of the project to determine the true role the impact played on the final completion.

6. FAILURE TO COMPLETE WORK ON TIME

The time established for the completion of the work is an essential element of the Contract. If the Contractor fails to complete the work within the number of working days specified, working days will continue to be charged. Failure to complete the Contract, callout work, or a work order within the number of working days specified, including any approved additional working days, will result in liquidated damages for each working day charged over the number of working days specified. The dollar amount specified in the Contract will be deducted from any money due or to become due the Contractor for each working day the Contract, callout work, or work order remains incomplete. This amount will be assessed not as a penalty but as liquidated damages. The amount assessed for non-site-specific Contracts will be based on the estimated amount for each work order unless otherwise shown in the Contract. The amount assessed for each callout will be as specified in the Contract.

7. DEFAULT OF CONTRACT

7.1. **Declaration of Default.** The Engineer may declare the Contractor to be in default of the Contract if the Contractor:

- fails to begin the work within the number of days specified;
- fails to prosecute the work to assure completion within the number of days specified;
- is uncooperative, disruptive, or threatening;
- fails to perform the work in accordance with the Contract requirements;
- neglects or refuses to remove and replace rejected materials or unacceptable work;
- discontinues the prosecution of the work without the Engineer's approval;
- makes an unauthorized assignment;
- fails to resume work that has been discontinued within a reasonable number of days after notice to do so;
- fails to conduct the work in an acceptable manner; or
- commits fraud or other unfixable conduct as determined by the Owner.

If any of these conditions occur, the Engineer will give notice in writing to the Contractor and the Surety of the intent to declare the Contractor in default. If the Contractor does not proceed as directed within 10 days after the notice, the Owner will provide written notice to the Contractor and the Surety to declare the Contractor to be in default of the Contract. If the Contractor provides the Owner written notice of voluntary default of the Contract, the Owner may waive the 10-day notice of intent to declare the Contractor in default and immediately provide written notice of default to the Contractor and the Surety. Calendar day charges will continue until completion of the Contract. The Owner may suspend work in accordance with Article 8L.4., "Temporary Suspension of Work or Working Day Charges," to investigate apparent fraud or other unfixable conduct before defaulting the Contractor. The Contractor may be subject to sanctions under the state and/or federal laws and regulations. A default may result in the application of remedial action by the Owner.

The Owner will determine the method used for the completion of the remaining work as follows.

- For Contracts without performance bonds, the Owner will determine the most expeditious and efficient way to complete the work and recover damages from the Contractor.
- For Contracts with performance bonds, the Owner will require the Contractor's Surety to complete the remaining work in accordance with the terms of the original Contract. A completing Contractor will be

considered a subcontractor of the Surety. The Owner reserves the right to approve or reject proposed subcontractors. Work may resume after the Owner receives and approves Certificates of Insurance as required in Section 3.4.3., "Insurance." Certificates of Insurance may be issued in the name of the completing Contractor. The Surety is responsible for making every effort to expedite the resumption of work and completion of the Contract. The Owner may complete the work using any or all materials at the work locations that it deems suitable and acceptable. Any costs incurred by the Owner for the completion of the work under the Contract will be the responsibility of the Surety.

From the time of notification of the default until work resumes (either by the Surety or the Owner), the Owner will maintain traffic control devices and will do any other work it deems necessary, unless otherwise agreed upon by the Owner and the Surety. All costs associated with this work will be deducted from money due to the Surety.

The Owner will hold all money earned but not disbursed by the date of default. Upon resumption of the work after the default, all payments will be made to the Surety. All costs and charges incurred by the Owner resulting from the default, including the cost of completing the work under the Contract, costs of maintaining traffic control devices, costs for other work deemed necessary, and any applicable liquidated damages or disincentives will be deducted from money due the Contractor for completed work. If these costs exceed the sum that would have been payable under the Contract, the Surety will be liable and pay the Owner the balance of these costs in excess of the Contract price. In case the costs incurred by the Owner are less than the amount that would have been payable under the Contract if the work had been completed by the Contractor, the Owner will be entitled to retain the difference.

Comply with Article 8L.2., "Subcontracting," and abide by the DBE commitments previously approved by the Owner. Section 8L.2.1., "Construction Contracts and Federally Funded Maintenance Contracts," is waived.

No markups as defined in Article 9L.7., "Payment for Extra Work and Force Account Method," will be allowed for the Surety.

- 7.2. **Wrongful Default.** If it is determined after the Contractor is declared in default, that the Contractor was not in default, the rights and obligations of all parties will be the same as if termination had been issued for the convenience of the public as provided in Article 8L.8., "Termination of Contract."

8. TERMINATION OF CONTRACT

The Owner may terminate the Contract in whole or in part whenever:

- the Contractor is prevented from proceeding with the work as a direct result of an executive order of the President of the United States or the Governor of the State;
- the Contractor is prevented from proceeding with the work due to a national emergency, or when the work to be performed under the Contract is stopped, directly or indirectly, because of the freezing or diversion of materials, equipment, or labor as the result of an order or a proclamation of the President of the United States;
- the Contractor is prevented from proceeding with the work due to an order of any federal authority;
- the Contractor is prevented from proceeding with the work by reason of a preliminary, special, or permanent restraining court order where the issuance of the restraining order is primarily caused by acts or omissions of persons or agencies other than the Contractor; or
- the Owner determines that termination of the Contract is in the best interest of the State or the public. This includes, but is not limited to, the discovery of significant hazardous material problems, right of way acquisition problems, or utility conflicts that would cause substantial delays or expense to the Contract.

- 8.1. **Procedures and Submittals.** The Owner will provide written notice to the Contractor of termination specifying the extent of the termination and the effective date. Upon notice, immediately proceed in accordance with the following:

- stop work as specified in the notice,
- place no further subcontracts or orders for materials, services, or facilities, except as necessary to complete a critical portion of the Contract, as approved by the Engineer,
- terminate all subcontracts to the extent they relate to the work terminated,
- complete performance of the work not terminated,
- settle all outstanding liabilities and termination settlement proposals resulting from the termination of the Contract,
- create an inventory report, including all acceptable materials and products obtained for the Contract that have not been incorporated in the work that was terminated (include in the inventory report a description, quantity, location, source, cost, and payment status for each of the acceptable materials and products), and
- take any action necessary, or that the Engineer may direct, for the protection and preservation of the materials and products related to the Contract that are in the possession of the Contractor and in which the Owner has or may acquire an interest.

8.2. **Settlement Provisions.** Within 60 calendar days of the date of the notice of termination, submit a final termination settlement proposal, unless otherwise approved. The Engineer will prepare a change order that reduces the affected quantities of work and adds acceptable costs for termination. No claim for loss of anticipated profits will be considered. The Owner will pay reasonable and verifiable termination costs, including:

- all work completed at the unit bid price and partial payment for incomplete work,
- the percentage of Item 500, "Mobilization," equivalent to the percentage of work complete or actual cost that can be supported by cost records, whichever is greater,
- expenses necessary for the preparation of termination settlement proposals and support data;
- the termination and settlement of subcontracts,
- storage, transportation, restocking, and other costs incurred necessary for the preservation, protection, or disposition of the termination inventory, and
- other expenses acceptable to the Owner.

Item 9L

Measurement and Payment



1. MEASUREMENT OF QUANTITIES

The Engineer will measure all completed work using United States standard measures, unless otherwise specified.

- 1.1. **Linear Measurement.** Unless otherwise specified, all longitudinal measurements for surface areas will be made along the actual surface of the roadway and not horizontally. No deduction will be made for structures in the roadway with an area of 9 sq. ft. or less. For all transverse measurements for areas of base courses, surface courses, and pavements, the dimensions to be used in calculating the pay areas will be the neat dimensions and will not exceed those shown on the plans, unless otherwise directed.
- 1.2. **Volume Measurement.** Transport materials measured for payment by volume in approved hauling vehicles. Display a unique identification mark on each vehicle. Furnish information necessary to calculate the volume capacity of each vehicle. The Engineer may require verification of volume through weight measurement. Use body shapes that allow the capacity to be verified. Load and level the load to the equipment's approved capacity. Loads not hauled in approved vehicles may be rejected.
- 1.3. **Weight Measurement.** Transport materials measured for payment by weight or truck measure in approved hauling vehicles. Furnish certified measurements, tare weights, and legal gross weight calculations for all haul units. Affix a permanent, legible number on the truck and on the trailer to correspond with the certified information. Furnish certified weights of loaded haul units transporting material if requested.
- The material will be measured at the point of delivery. The cost of supplying these volume and weight capacities is subsidiary to the pertinent Item. For measurement by the ton, in the field, provide measurements in accordance with Item 520, "Weighing and Measuring Equipment," except for Items where ton measurements are measured by standard tables.
- The Engineer may reject loads and suspend hauling operations for overloading.
- 1.3.1. **Hauling on Routes Accessible to the Traveling Public.** For payment purposes on haul routes accessible to the traveling public:
- If the gross vehicle weight is less than the maximum allowed by state law, including applicable yearly weight tolerance permit, the net weight of the load will be determined by deducting the tare weight of the vehicle from the gross weight.
 - If the gross vehicle weight is more than the maximum allowed by state law, including applicable yearly weight tolerance permit, the net weight of the load will be determined by deducting the tare weight of the vehicle from the maximum gross weight allowed.
- 1.3.2. **Hauling on Routes Not Accessible to the Traveling Public.** For payment purposes on haul routes that are not accessible to the traveling public where advance permission is obtained in writing from the Engineer:
- If the gross vehicle weight is less than the maximum allowed by the Engineer, including applicable yearly weight tolerance permit, the net weight of the load will be determined by deducting the tare weight of the vehicle from the gross weight.
 - If the gross vehicle weight is more than the maximum allowed by the Engineer, the net weight of the load will be determined by deducting the tare weight of the vehicle from the maximum gross weight allowed.

2. PLANS QUANTITY MEASUREMENT

Plans quantities may or may not represent the exact quantity of work performed or material moved, handled, or placed during the execution of the Contract. The estimated bid quantities are designated as final payment quantities, unless revised by the governing specifications or this Article.

If the quantity measured as outlined under "Measurement" varies by more than 5% (or as stipulated under "Measurement" for specific Items) from the total estimated quantity for an individual Item originally shown in the Contract, an adjustment may be made to the quantity of authorized work done for payment purposes.

When quantities are revised by a change in design approved by the Owner, by change order, or to correct an error on the plans, the plans quantity will be increased or decreased by the amount involved in the change, and the 5% variance will apply to the new plans quantity.

If the total Contract quantity multiplied by the unit bid price for an individual Item is less than \$250 and the Item is not originally a plans quantity Item, then the Item may be paid as a plans quantity Item if the Engineer and Contractor agree in writing to fix the final quantity as a plans quantity.

For Contracts with callout work and work orders, plans quantity measurement requirements are not applicable.

3. ADJUSTMENT OF QUANTITIES

The party to the Contract requesting the adjustment will provide field measurements and calculations showing the revised quantity. When approved, this revised quantity will constitute the final quantity for which payment will be made. Payment for revised quantity will be made at the unit price bid for that Item, except as provided for in Article 4L.4., "Changes in the Work."

4. SCOPE OF PAYMENT

Payment of the Contract unit price is full compensation for all materials, equipment, labor, tools, and supplies necessary to complete the Item of work under the Contract. Until final acceptance in accordance with Article 5L.12., "Final Acceptance," assume liability for completing the work according to the plans and specifications and any loss or damage arising from the performance of the work or from the action of the elements, infringement of patent, trademark, or copyright, except as provided elsewhere in the Contract.

The Owner will only pay for material incorporated into the work in accordance with the Contract. Payment of progress estimates will in no way affect the Contractor's obligation under the Contract to repair or replace any defective parts in the construction or to replace any defective materials used in the construction and to be responsible for all damages due to defects if the defects and damages are discovered on or before final inspection and acceptance of the work.

5. PROGRESS PAYMENTS

The Engineer will prepare a monthly estimate of the amount of work performed, including materials in place. Incomplete items of work may be paid at an agreed upon percentage approved by the Engineer. Payment of the monthly estimate is determined at the Contract item prices less any withholdings or deductions in accordance with the Contract. Progress payments may be withheld for failure to comply with the Contract.

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

6. PAYMENT FOR MATERIAL ON HAND (MOH)

If payment for MOH is desired, request compensation for the invoice cost of acceptable nonperishable materials that have not been used in the work before the request, and that have been delivered to the work location or are in acceptable storage places. Nonperishable materials are those that do not have a shelf life or whose characteristics do not materially change when exposed to the elements. Include only materials that have been sampled, tested, approved, or certified, and are ready for incorporation into the work. Only materials that are completely constructed or fabricated on the Contractor's order for a specific Contract and are so marked and on which an approved test report has been issued are eligible. Payment for MOH may include the following types of items: concrete traffic barrier, precast concrete box culverts, concrete piling, reinforced concrete pipe, and illumination poles. Any repairs required after fabricated materials have been approved for storage will require the Engineer's approval before being made and will be made at the Contractor's expense. Include only those materials and products, when cumulated under an individual item or similar bid items, that have an invoice cost of at least \$1,000 in the request for MOH payment. (E.g., for MOH eligibility, various sizes of conductor are considered similar bid items and may be cumulated to meet the threshold; for small roadside signs, the sign supports, mounting bolts, and the sign face are considered one bid item or similar bid items for more than one pay item for sign supports.) Requests for MOH are to be submitted at least 2 days before but not later than the estimate cut-off date unless otherwise agreed. If there is a need to request MOH after the established cut-off date, the Owner can make accommodation as the need arises. This needed accommodation is to be the exception, though, and not the rule.

For Contracts with callout work and work orders, payment for MOH will only be made for materials authorized for purchase by the work order or by written approval of the Engineer.

If the request is acceptable, the Engineer will include payment for MOH in a progress payment. Payment for MOH does not constitute acceptance of the materials. Payment will not exceed the actual cost of the material as established by invoice, or the total cost for the associated item less reasonable placement costs, whichever is less. Materials for which the Contractor does not have a paid invoice within 60 days will not be eligible for payment and will be removed from the estimate. Payment may be limited to a portion of the invoice cost or unit price if shown elsewhere in the Contract. Payment for precast products fabricated or constructed by the Contractor for which invoices or freight bills are not available may be made based on statements of actual cost.

Submit the request on forms provided by the Owner. These forms may be electronically reproduced, provided they are in the same format and contain all the required information and certifications. Continue to submit monthly MOH forms until the total value of MOH is \$0.

By submitting a request for MOH payment, the Contractor expressly authorizes the Owner to audit MOH records and to perform process reviews of the record-keeping system. If the Owner determines noncompliance with any of the requirements of this provision, the Owner may exclude payment for any or all MOH for the duration of the Contract.

Maintain all records relating to MOH payment until final acceptance. Provide these records to the Engineer upon request.

7. PAYMENT FOR EXTRA WORK AND FORCE ACCOUNT METHOD

Payment for extra work directed, performed, and accepted will be made in accordance with Article 4L.4., "Changes in the Work." Payment for extra work may be established by agreed unit prices or by Force Account Method.

Agreed unit prices are unit prices that include markups and are comparable to recent bid prices for the same character of work. These unit prices may be established without additional breakdown justification.

When using Force Account Method, determine an estimated cost for the proposed work and establish labor and equipment rates and material costs. Maintain daily records of extra work and provide copies of these

records daily, signed by the Contractor's representative, for the Owner's verification. Request payment for the extra work no later than the 10th day of the month following the month in which the work was performed. Include copies of all applicable invoices. If the extra work to be performed has an estimated cost of less than \$10,000, submit for approval and payment an invoice of actual cost for materials, equipment, labor, tools, and incidentals necessary to complete the extra work. When added work requires mobilization that is exclusive to the added work, mobilization may be added to the force account invoice for payment.

- 7.1. **Markups.** Payment for extra work may include markups as compensation for the use of small tools, overhead expense, and profit.
- 7.1.1. **Labor.** Compensation will be made for payroll rates for each hour that the labor and foremen or others approved by the Engineer are actually engaged in the work. In no case will the rate of wages be less than the minimum shown in the Contract for a particular category. An additional 25% of this sum will be paid as compensation for overhead, superintendence, profit, and small tools.
- 7.1.2. **Insurance and Taxes.** An additional 55% of the labor cost, excluding the 25% compensation provided in Section 9L.7.1.1., "Labor," will be paid as compensation for labor insurance and labor taxes including the cost of premiums on non-project-specific liability (excluding vehicular) insurance, workers compensation insurance, Social Security, unemployment insurance taxes, and fringe benefits.
- 7.1.3. **Materials.** Compensation will be made for materials associated with the work based on actual delivered invoice costs, less any discount. An additional 25% of this sum will be paid as compensation for overhead and profit.
- 7.1.4. **Equipment.** Payment will be made for the established equipment hourly rates for each hour that the equipment is involved in the work. An additional 15% of this sum will be paid as compensation for overhead and profit not included in the rates.
- Transportation cost for mobilizing equipment will be included if the equipment is mobilized from an offsite location.
- 7.1.4.1. **Contractor-Owned Equipment.** For Contractor-owned machinery, trucks, power tools, or other equipment, use the FHWA rental rates found in Equipment Watch multiplied by the regional adjustment factor and the rate adjustment factor to establish hourly rates. Use the rates in effect for each section of Equipment Watch at the time of use.
- If a rate has not been established for a particular piece of equipment in Equipment Watch, the Engineer will allow a reasonable hourly rate. This price will include operating costs.
- Payment for equipment will be made for the actual hours used in the work. The Owner reserves the right to withhold payment for low production or lack of progress. Payment will not be made for time lost for equipment breakdowns, time spent to repair equipment, or time after equipment is no longer needed.
- If equipment is used intermittently while dedicated solely to the work, payment will be made for the duration the equipment is assigned to the work but no more than 8 hr. will be paid during a 24-hr. day, nor more than 40 hr. per week, nor more than 176 hr. per month, except when time is computed using a 6-day or 7-day workweek. When using a 6-day workweek, no more than 8 hr. will be paid during a 24-hr. day, nor more than 48 hr. per week, nor more than 211 hr. per month. When using a 7-day workweek, no more than 8 hr. will be paid during a 24-hr. day, nor more than 56 hr. per week, nor more than 246 hr. per month.
- 7.1.4.2. **Equipment Not Owned by the Contractor.** For equipment rented from a third party not owned by the Contractor, payment will be made at the invoice daily rental rate for each day the equipment is needed for the work. The Owner reserves the right to limit the daily rate to comparable FHWA rental rates found in Equipment Watch multiplied by the regional adjustment factor and the rate adjustment factor. When the invoice specifies that the rental rate does not include fuel, lubricants, repairs, and servicing, the Equipment Watch hourly operating cost for each hour the equipment is operated will be added.

When the invoice specifies equipment operators as a component of the equipment rental, payment will be made at the invoice rate for each operator for each day the equipment is needed for the work.

- 7.1.4.3. **Standby Equipment Costs.** Payment for standby equipment will be made in accordance with Section 9L.7.1.4., "Equipment." The 15% markup will be paid when standby is associated with extra work but will not be paid when standby is associated with damages.
- 7.1.4.3.1. **Contractor-Owned Equipment.** For Contractor-owned equipment:
- Standby will be paid at 50% of the monthly Equipment Watch rate after the regional and age adjustment factors have been applied. Operating costs will not be allowed. Calculate the standby rate as follows.

Standby rate = (FHWA hourly rate - operating costs) × 50%
 - If an hourly rate is needed, divide the monthly Equipment Watch rate by 176.
 - No more than 8 hr. of standby will be paid during a 24-hr. day period, nor more than 40 hr. per week.
 - Standby costs will not be allowed during periods when the equipment would have otherwise been idle.
- 7.1.4.3.2. **Equipment Not Owned by the Contractor.** For equipment rented from a third party not owned by the Contractor:
- Standby will be paid at the invoice daily rental rate, excluding operating cost, which includes fuel, lubricants, repairs, and servicing. The Owner reserves the right to limit the daily standby rate to comparable FHWA rental rates found in Equipment Watch multiplied by the regional adjustment factor and the rate adjustment factor.
 - Standby will be paid for equipment operators when included on the invoice and equipment operators are actually on standby.
 - Standby costs will not be allowed during periods when the equipment would have otherwise been idle.
- 7.1.5. **Subcontracting.** An additional 5% of the actual invoice cost will be paid to the Contractor as compensation for administrative cost and profit.
- 7.1.6. **Law Enforcement Personnel.** An additional 5% of the actual invoice cost will be paid as compensation for administrative costs and profit.
- 7.1.7. **Railroad Flagger.** An additional 5% of the actual invoice cost will be paid as compensation for administrative cost and profit.
- 7.1.8. **Bond Cost.** An additional 1% of the total compensation provided in Article 9.7., "Payment for Extra Work and Force Account Method," will be paid for the increase in bond.

8. RETAINAGE

The Owner will not withhold retainage on the Contractor. The Contractor may withhold retainage on subcontractors in accordance with state and federal regulations.

9. PAYMENT PROVISIONS FOR SUBCONTRACTORS

For the purposes of this Article only, the term subcontractor includes suppliers, and the term work includes materials provided by suppliers at a location approved by the Engineer.

These requirements apply to all tiers of subcontractors. Incorporate the provisions of this Article into all subcontract or material purchase agreements.

Pay subcontractors for work performed within 10 days after receiving payment from the Owner.

Pay any retainage on a subcontractor's work within 10 days after satisfactory completion of all the subcontractor's work. Completed subcontractor work includes vegetative establishment, test, maintenance, performance, and other similar periods that are the responsibility of the subcontractor.

For the purpose of this Section, satisfactory completion is accomplished when:

- the subcontractor has fulfilled the Contract requirements of both the Owner and the subcontract for the subcontracted work, including the submittal of all information required by the Contract and the Owner, and
- the work done by the subcontractor has been inspected, approved, and paid by the Owner.

Provide a certification of prompt payment to certify that all subcontractors and suppliers were paid from the previous month's payments and retainage was released for those whose work is complete. Submit the certification in the manner prescribed by the Owner each month and the month following the month when final acceptance occurred.

The inspection and approval of a subcontractor's work does not eliminate the Contractor's responsibilities for the work as defined in Article 7L.17., "Contractor's Responsibility for Work."

10. FINAL PAYMENT

When the Contract has been completed, all work has been approved, final acceptance has been made in accordance with Article 5L.12., "Final Acceptance," and Contractor submittals have been received, the Engineer will prepare a final estimate for payment showing the total quantity of work completed and the money owed the Contractor. The final payment will reflect the entire sum due, less any sums previously paid.

Special Provision to Item 000

Nondiscrimination



1. DESCRIPTION

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

The Owner, as a recipient of federal financial assistance, and under Title VI and related statutes, ensures that no person will on the grounds of race, religion (where the primary objective of the financial assistance is to provide employment in accordance with 42 USC 2000d-3), color, national origin, sex, age, or disability be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under any of Owner's programs or activities.

2. DEFINITION OF TERMS

Where the term "Contractor" appears in the following six nondiscrimination clauses, the term "Contractor" is understood to include all parties to Contracts or agreements with the Owner.

3. NONDISCRIMINATION PROVISIONS

During the performance of this Contract, the Contractor agrees as follows.

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

determine to be appropriate, including, but not limited to actions defined in Article 5.1., “Authority of Engineer.”

- 3.6. **Incorporation of Provisions.** The Contractor must include the provisions of Sections 3.1–3.6 in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations or directives issued pursuant thereto. The Contractor must take such action with respect to any subcontract or procurement as the Owner may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, that, in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the Contractor may request the Owner to enter into such litigation to protect the interests of the Owner, and, in addition, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

Special Provision to Item 000

Certification of Nondiscrimination in Employment



1. GENERAL

By signing this proposal, the Bidder certifies that it has participated in a previous Contract or subcontract subject to the equal opportunity clause, as required by Executive Order (EO) 10925, 11114, or 11246, or if it has not participated in a previous Contract of this type, or if it has had previous Contracts or subcontracts and has not filed, it will file with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity (EEO), all reports due under the applicable filing requirements.

Note—The above certification is required by the EEO Regulations of the Secretary of Labor [41 CFR 60-1.7(b)(1)], and must be submitted by Bidders and proposed subcontractors only in connection with Contracts and subcontracts that are subject to the equal opportunity clause. Contracts and subcontracts that are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only Contracts or subcontracts of \$10,000 or less are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the EOs or their implementing regulations.

Proposed prime Contractors and subcontractors that have participated in a previous Contract or subcontract subject to the EO and have not filed the required reports should note that 41 CFR 60-1.7(b)(1) prevents the award of Contracts and subcontracts unless such Contractor submits a report covering the delinquent period or such other period specified by FHWA or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

Special Provision 000

Cargo Preference Act Requirements in Federal Aid Contracts



1. DESCRIPTION

All recipients of federal financial assistance are required to comply with the U.S. Department of Transportation's Cargo Preference Act requirements, 46 CFR 381, "Use of United States-Flag Vessels."

This requirement applies to material or equipment that is acquired specifically for a federal-aid highway project. It is not applicable to goods or materials that come into inventories independent of an FHWA-funded Contract.

When oceanic shipments are necessary for materials or equipment acquired for a specific federal-aid construction project, the Contractor agrees to:

- use privately owned United States-flag commercial vessels to ship at least 50% of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this Contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels;
- furnish a legible copy of a rated, onboard commercial ocean bill of lading in English for each shipment of cargo described in Paragraph (b)(1) of 46 CFR 381, Section 7, "Federal Grant, Guaranty, Loan and Advance of Funds Agreements," within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, to both the Engineer (through the prime Contractor in the case of subcontractor bills of lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590; and
- insert the substance of the provisions of this clause in all subcontracts issued pursuant to this Contract.

Special Provision to Item 000

Schedule of Liquidated Damages



The dollar amount of daily contract administration Liquidated Damages per Working Day is \$1,500/day for the first 30 days and \$3,000/day after 30 days.

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

Special Provision to Item 2L

Instructions to Bidders



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

Article 7., "Nonresponsive Bid," is voided and replaced by the following.

The Owner will not accept a nonresponsive bid. A bid that has one or more of the deficiencies listed below is considered nonresponsive:

- the bid was not in the hands of the Letting Official at the time and location specified in the advertisement,
- a proposal form was submitted for the same project by a Bidder or Bidders and one or more of its partners or affiliates
- the Bidder was not authorized to receive a proposal form under Article 2.3., "Issuing Proposal Forms,"
- the Bidder failed to acknowledge receipt of all addenda issued,
- the proposal form was signed by a person who was not authorized to bind the Bidder or Bidders,
- the proposal guaranty did not comply with the requirements contained in this Item,
- the bid was in a form other than the official proposal form issued by the Owner,
- the Bidder modified the bid in a manner that altered the conditions or requirements for work as stated in the proposal form,
- the Bidder bid more than the maximum or less than the minimum number of allowable working days shown on the plans when working days was an item,
- a typed proposal form does not contain the information in the format shown on the "Example of Bid Prices Submitted by Computer Printout" on the proposal form,
- the Bidder did not meet the requirements of the technical qualification,
- the apparent low bid is mathematically and materially unbalanced.
- The bidder is not prequalified by TxDOT

Special Provision to Item 3L

Award and Execution of Contract



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

Section 1.2., "Rejection," is voided and replaced by the following.

- 1.2. **Rejection.** The Owner will reject the Contract if:
- collusion may have existed among the Bidders. Collusion participants will not be allowed to bid future proposals for the same Contract,
 - the lowest bid is higher than the Owner's estimate, and re-advertising for bids may result in a lower bid,
 - the low bid contains a bid error that satisfies the requirements and criteria in Article 2.12., "Consideration of Bid Errors," or
 - rejection of the Contract is in the best interest of the Owner.

Special Provision to Item 6L

Control of Materials



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

Section 1.1. "Buy America," and Section 1.2., "Buy America Exceptions," are voided and replaced by the following.

- 1.1. **Buy America.** Comply with the latest provisions of Build America, Buy America Act (BABA Act) and applicable CFR, which restrict funds being made available from Federal financial assistance programs unless all the iron products, steel products, manufactured products, and construction materials used in the project are manufactured in the United States. Use iron or steel products, manufactured products, or construction materials manufactured in the United States for all permanently installed materials and products except when defined in Section 1.1.5., "Buy America Exceptions."

A material is solely classified based on its status at the time it is brought to the work site as either an iron or steel product, construction material, manufactured product, or excluded material. Refer to the Buy America Material Classification Sheet found at <https://www.txdot.gov/business/resources/materials/buy-america/buy-america-material-classification-sheet.html> for additional clarification on material classification.

Texas Department of Transportation's MPLs include Gold Star listings for certain manufacturers, construction materials, or products. Gold Star items are manufacturers, materials, or products that have submitted a Buy America certification (as listed on an MPL) to be in compliance with the Buy America requirements. For items identified as a Gold Star manufacturer, material, or product; the only Material Sourcing documentation as stated in Table 1 BABA Submissions is required.

**Table1
BABA Submission Requirements**

Classification	Form 1818^{2&3} (notarized original Form D-9 USA-1)	Material Sourcing Documentation⁴	Form 2806^{5&6}	De Minimis Tracking Log⁷
Iron or Steel Products	✓	✓		✓
Construction Material		✓	✓	✓
Manufactured Product ¹		✓	✓	✓
<ol style="list-style-type: none"> 1. For ITS enclosures and precast concrete products as stated under Manufactured Products, submission requirements for Iron and Steel Products and Manufactured Products apply. Reinforcing Steel or items covered by TxDOT's Gold Star Program do not require a Form 1818 submission. 2. For miscellaneous steel exceptions may be allowed to submit a notarized certification letter in lieu of submitting Form 1818, as approved by the Owner. There are no exceptions for iron or steel products required to be furnished in accordance with item 441, "Steel Structures", or requested otherwise. Items covered by TxDOT's Gold Star Program do not require a Form 1818. 3. Item 450 aluminum metal railing and Item 610 aluminum roadway illumination poles, will require Form 1818 to be submitted when requested by the Owner. 4. For materials that are BABA compliant and are on TxDOT's Material Producer List (MPL). Material Sourcing Documentation is documentation, along with any necessary attachments, that connects the Material's source to project. Provide additional documentation at the request of the Owner. 5. Form 2806 is required to be submitted for products and materials to certify BABA compliance when an MPL does not exist for the corresponding material. 6. Form 2806 is required for materials that are not listed as BABA compliant on the associated MPL. 7. De Minimis Tracking Log is required for materials that are not BABA compliant and must be submitted in advance when de minimis waiver is being pursued. De Minimis Tracking Log must track non-compliant iron or steel products separately from non-compliant construction materials and manufactured products. Contact the Owner when either thresholds in 6.1.1.5, "Buy America Exceptions" is reached. Non-compliant items above the de minimis threshold will require removal and replacement with BABA compliant item, or not paid for as determined by the Engineer. 				

1.1.1. **Materials Excluded from Buy America.** Excluded Materials mean cement and cementitious material; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives. Excluded Materials do not require domestic sourcing or Buy America certification.

Materials combined as an unsettled mixture delivered to a work site without final form, for incorporation into a project, such as hot mix asphalt, or wet concrete mixtures, are not a manufactured product and are considered excluded from Buy America.

1.1.2. **Iron or Steel Product.** Iron or steel products means articles, materials, or supplies that consist wholly or predominantly of iron or steel or a combination of both.

Predominantly of iron or steel or a combination of both means the cost of the iron and steel content exceeds 50 percent of the total cost of all its components. The cost of iron and steel is the cost of the iron or steel mill products (such as bar, billet, slab, wire, plate, or sheet), castings, or forgings utilized in the manufacture of the product and a good faith estimate of the cost of iron or steel components.

For iron or steel products, manufacturing includes any process that modifies the chemical content, physical shape or size, or final finish of a product. The manufacturing process begins with initial melting and mixing and continues through fabrication (e.g., cutting, drilling, welding, bending,) and coating (e.g., paint, galvanizing, epoxy).

1.1.3. **Construction Materials.** Construction materials are classified as articles, materials, or supplies that consist of only one of the items listed in bullets below. Minor additions of articles, materials, supplies, or binding agents (as determined by the plans or the Engineer) to any of the items listed does not change the classification of a construction material.

- non-ferrous metals,
- plastic and polymer-based products (including polyvinyl chloride, composite building materials, and polymers used in fiber optic cables),
- glass (including optic glass),
- fiber optic cable (including drop cable),
- optical fiber,
- lumber,
- engineered wood, or
- drywall.

Each construction material has specific certification requirements stated below which constitute Buy America Compliance. Provide additional documentation as requested.

For non-ferrous metals, certification requires all manufacturing processes, from initial smelting or melting through final shaping, coating, and assembly, occurred in the United States.

For plastic and polymer-based products (including polyvinyl chloride, composite building materials, and polymers used in fiber optic cables), certification requires all manufacturing processes, from initial combination of constituent plastic or polymer-based inputs, or, where applicable, constituent composite materials, until the item is in its final form, occurred in the United States.

For glass (including optic glass), certification requires all manufacturing processes, from initial batching and melting of raw materials through annealing, cooling, and cutting, occurred in the United States.

For fiber optic cable (including drop cable), certification requires all manufacturing processes, from the initial ribboning (if applicable), through buffering, fiber stranding and jacketing, occurred in the United States. All manufacturing processes also include the standards for glass and optical fiber, but not for non-ferrous metals, plastic and polymer-based products, or any others.

For optical fiber, certification requires all manufacturing processes, from the initial preform fabrication stage through the completion of the draw, occurred in the United States.

For lumber, certification requires all manufacturing processes, from initial debarking through treatment and planing, occurred in the United States.

For engineered wood, certification requires all manufacturing processes from the initial combination of constituent materials until the wood product is in its final form, occurred in the United States.

For drywall, certification requires all manufacturing processes, from initial blending of mined or synthetic gypsum plaster and additives through cutting and drying of sandwiched panels, occurred in the United States.

1.1.4.

Manufactured Product means articles, materials, or supplies that have been processed into a specific form and shape, or combined with other articles, materials, or supplies to create a product with different properties than the individual articles, materials, or supplies. Manufactured products may include components that are iron or steel products, excluded materials, or construction materials. Any product classified as an iron or steel product, excluded material, or construction material is not a manufactured product. In addition, mixtures of excluded materials, such as asphalt or concrete mixtures, delivered to a work site without final form for incorporation into a project are not a manufactured product and are considered excluded.

Manufactured products are required to be Manufactured in the United States. For manufactured products, submit per submission table above.

Manufactured in the United States (for Manufactured Products) means the final assembly occurred in the United States of America.

Precast Concrete products classified as a manufactured product (not predominantly of iron and steel) are to be Manufactured in the United States and require iron or steel components to comply with manufacturing requirements for Iron or Steel Products stated in Section 6.1.1.2.

Intelligent Transportation Systems and other electronic hardware systems classified as a manufactured product are to be Manufactured in the United States and must require iron or steel cabinets or other enclosures of such systems to comply with manufacturing requirements for Iron or Steel Products stated in Section 6.1.1.2

Component means an article, material, or supply, whether manufactured or unmanufactured, incorporated directly into a manufactured product or where applicable, an iron or steel product.

1.1.5.

Buy America Exceptions. Use of iron or steel products, construction materials, and manufactured products manufactured in the United States is required unless the material meets an exception below.

- A waiver exists exempting the material from Buy America compliance.
- The total value of the non-compliant products (other than iron or steel products) is no more than the lesser of \$1,000,000 or 5% of Total Applicable Costs for the project. Total Applicable Cost means the actual cost of all materials requiring Buy America compliance including iron, steel, or other materials that are within the scope of existing waivers. Contractor must provide documentation showing under threshold in advance for Engineer's consideration.
- The total value of foreign iron or steel products, including delivery, does not exceed 0.1% of the total Contract cost or \$2,500, whichever is greater. The Contractor must provide documentation showing under threshold in advance for the Engineer's consideration.
- Foreign iron or steel products may be allowed when the Contract contains an alternate item for a foreign source iron or steel product and the Contract is awarded based on the alternate item.
- The materials are temporarily installed or are supplies, tools, and equipment not incorporated into the project. Temporarily installed means the materials and products must be removed at the end of the project or may be removed at the Contractor's convenience with the Engineer's approval.

Special Provision to Item 506

Temporary Erosion, Sedimentation, and Environmental Controls



For this project, item 506, "Temporary Erosion, Sedimentation, and Environmental Controls," of the standard specifications, is hereby voided and replaced with the following.

1. DESCRIPTION

Install, maintain, and remove erosion, sedimentation, and environmental control measures to prevent or reduce the discharge of pollutants in accordance with the Storm Water Pollution Prevention Plan (SWP3) in the plans and the Texas Pollutant Discharge Elimination System (TPDES) General Permit TXR150000.

2. MATERIALS

Furnish materials in accordance with the following:

- Item 161, "Compost"
- Item 432, "Riprap"
- Item 556, "Pipe Underdrains"

2.1. Rock Filter Dams.

2.1.1. **Aggregate.** Furnish aggregate with hardness, durability, cleanliness, and resistance to crumbling, flaking, and eroding acceptable to the Owner. Provide the following:

- Types 1, 2, and 4 Rock Filter Dams. Use 3 to 6 in. aggregate.
- Type 3 Rock Filter Dams. Use 4 to 8 in. aggregate.

2.1.2. **Wire.** Provide minimum 20 gauge galvanized wire for the steel wire mesh and tie wires for Types 2 and 3 rock filter dams. Type 4 dams require:

- a double-twisted, hexagonal weave with a nominal mesh opening of 2-1/2 in. × 3-1/4 in.;
- minimum 0.0866 in. steel wire for netting;
- minimum 0.1063 in. steel wire for selvages and corners; and
- minimum 0.0866 in. for binding or tie wire.

2.1.3. **Sandbag Material.** Furnish sandbags meeting Section 506.2.8., "Sandbags," except that any gradation of aggregate may be used to fill the sandbags.

2.2. **Temporary Pipe Slope Drains.** Provide corrugated metal pipe, polyvinyl chloride (PVC) pipe, flexible tubing, watertight connection bands, grommet materials, prefabricated fittings, and flared entrance sections that conform to the plans. Recycled and other materials meeting these requirements are allowed if approved.

Furnish concrete in accordance with Item 432, "Riprap."

2.3. **Temporary Paved Flumes.** Furnish asphalt concrete, hydraulic cement concrete, or other comparable non-erodible material that conforms to the plans. Provide rock or rubble with a minimum diameter of 6 in. and a maximum volume of 1/2 cu. ft. for the construction of energy dissipaters.

- 2.4. **Construction Exits.** Provide materials that meet the details shown on the plans and this Section.
- 2.4.1. **Rock Construction Exit.** Provide crushed aggregate for long- and short-term construction exits. Furnish aggregates that are clean, hard, durable, and free from adherent coatings such as salt, alkali, dirt, clay, loam, shale, soft or flaky materials, and organic and injurious matter. Use 4- to 8-in. aggregate for Type 1. Use 2- to 4-in. aggregate for Type 3.
- 2.4.2. **Timber Construction Exit.** Furnish No. 2 quality or better railroad ties and timbers for long-term construction exits, free of large and loose knots and treated to control rot. Fasten timbers with nuts and bolts or lag bolts, of at least 1/2 in. diameter, unless otherwise shown on the plans or allowed. Provide plywood or pressed wafer board at least 1/2 in. thick for short-term exits.
- 2.4.3. **Foundation Course.** Provide a foundation course consisting of flexible base, bituminous concrete, hydraulic cement concrete, or other materials as shown on the plans or directed.
- 2.5. **Embankment for Erosion Control.** Provide rock, loam, clay, topsoil, or other earth materials that will form a stable embankment to meet the intended use.
- 2.6. **Pipe.** Provide pipe outlet material in accordance with Item 556, "Pipe Underdrains," and details shown on the plans.
- 2.7. **Construction Perimeter Fence.**
- 2.7.1. **Posts.** Provide essentially straight wood or steel posts that are at least 60 in. long. Furnish soft wood posts with a minimum diameter of 3 in., or use nominal 2 × 4 in. boards. Furnish hardwood posts with a minimum cross-section of 1-1/2 × 1-1/5 in. Furnish T- or L-shaped steel posts with a minimum weight of 0.5 lb. per foot.
- 2.7.2. **Fence.** Provide orange construction fencing as approved.
- 2.7.3. **Fence Wire.** Provide 11 gauge or larger galvanized smooth or twisted wire. Provide 16 gauge or larger tie wire.
- 2.7.4. **Flagging.** Provide brightly-colored flagging that is fade-resistant and at least 3/4 in. wide to provide maximum visibility both day and night.
- 2.7.5. **Staples.** Provide staples with a crown at least 1/2 in. wide and legs at least 1/2 in. long.
- 2.7.6. **Used Materials.** Previously used materials meeting the applicable requirements may be used if approved.
- 2.8. **Sandbags.** Provide sandbag material of polypropylene, polyethylene, or polyamide woven fabric with a minimum unit weight of 4 oz. per square yard, a Mullen burst-strength exceeding 300 psi, and an ultraviolet stability exceeding 70%.

Use natural coarse sand or manufactured sand meeting the gradation given in Table 1 to fill sandbags. Filled sandbags must be 24 to 30 in. long, 16 to 18 in. wide, and 6 to 8 in. thick.

Table 1
Sand Gradation

Sieve #	Retained (% by Weight)
4	Maximum 3%
100	Minimum 80%
200	Minimum 95%

Aggregate may be used instead of sand for situations where sandbags are not adjacent to traffic. The aggregate size shall not exceed 3/8 in.

- 2.9. **Temporary Sediment Control Fence.** Provide a net-reinforced fence using woven geo-textile fabric. Logos visible to the traveling public will not be allowed.
- 2.9.1. **Fabric.** Provide fabric materials in accordance with DMS-6230, "Temporary Sediment Control Fence Fabric."
- 2.9.2. **Posts.** Provide essentially straight wood or steel posts with a minimum length of 48 in., unless otherwise shown on the plans. Furnish soft wood posts at least 3 in. in diameter, or use nominal 2 × 4 in. boards. Furnish hardwood posts with a minimum cross-section of 1-1/2 × 1-1/2 in. Furnish T- or L-shaped steel posts with a minimum weight of 1.3 lb. per foot.
- 2.9.3. **Net Reinforcement.** Provide net reinforcement of at least 12-1/2 gauge galvanized welded wire mesh, with a maximum opening size of 2 × 4 in., at least 24 in. wide, unless otherwise shown on the plans.
- 2.9.4. **Staples.** Provide staples with a crown at least 3/4 in. wide and legs 1/2 in. long.
- 2.9.5. **Used Materials.** Use recycled material meeting the applicable requirements if approved.
- 2.10. **Biodegradable Erosion Control Logs.**
- 2.10.1. **Core Material.** Furnish core material that is biodegradable or recyclable. Use compost, mulch, aspen excelsior wood fibers, chipped site vegetation, agricultural rice or wheat straw, coconut fiber, 100% recyclable fibers, or any other acceptable material unless specifically called out on the plans. Permit no more than 5% of the material to escape from the containment mesh. Furnish compost meeting the requirements of Item 161, "Compost."
- 2.10.2. **Containment Mesh.** Furnish containment mesh that is 100% biodegradable, photodegradable, or recyclable such as burlap, twine, UV photodegradable plastic, polyester, or any other acceptable material.
- Furnish biodegradable or photodegradable containment mesh when log will remain in place as part of a vegetative system.
- Furnish recyclable containment mesh for temporary installations.
- 2.10.3. **Size.** Furnish biodegradable erosion control logs with diameters shown on the plans or as directed. Stuff containment mesh densely so logs do not deform.

3. CONSTRUCTION

- 3.1. **Contractor Responsibilities.** Implement the Owner's Storm Water Pollution Prevention Plan (SWP3) for the project in accordance with the plans and specifications, TPDES General Permit TXR150000, and as directed by the Owner. Develop and implement an SWP3 for project-specific material supply plants within and outside of the Owner's right of way in accordance with the specific or general storm water permit requirements. Prevent water pollution from storm water associated with construction activity from entering any surface water or private property on or adjacent to the project site.
- 3.2. **General.**
- 3.2.1. **Phasing.** Implement control measures in the area to be disturbed before beginning construction, or as directed. Limit the disturbance to the area shown on the plans or as directed. If, in the opinion of the Owner, the Contractor cannot control soil erosion and sedimentation resulting from construction operations, the Owner will limit the disturbed area to that which the Contractor is able to control. Minimize disturbance to vegetation.
- 3.2.2. **Maintenance.** Immediately correct ineffective control measures. Implement additional controls as directed. Remove excavated material within the time requirements specified in the applicable storm water permit.

- 3.2.3. **Stabilization.** Stabilize disturbed areas where construction activities will be temporarily stopped in accordance with the applicable storm water permit. Establish a uniform vegetative cover. The project will not be accepted until a 70% density of existing adjacent undisturbed areas is obtained, unless otherwise shown on the plans. When shown on the plans, the Owner may accept the project when adequate controls are in place that will control erosion, sedimentation, and water pollution until sufficient vegetative cover can be established.
- 3.2.4. **Finished Work.** Upon acceptance of vegetative cover, remove and dispose of all temporary control measures, temporary embankments, bridges, matting, falsework, piling, debris, or other obstructions placed during construction that are not a part of the finished work, or as directed.
- 3.2.5. **Restricted Activities and Required Precautions.** Do not discharge onto the ground or surface waters any pollutants such as chemicals, raw sewage, fuels, lubricants, coolants, hydraulic fluids, bitumens, or any other petroleum product. Operate and maintain equipment on-site to prevent actual or potential water pollution. Manage, control, and dispose of litter on-site such that no adverse impacts to water quality occur. Prevent dust from creating a potential or actual unsafe condition, public nuisance, or condition endangering the value, utility, or appearance of any property. Wash out concrete trucks only as described in the TPDES General Permit TXR150000. Utilize appropriate controls to minimize the offsite transport of suspended sediments and other pollutants if it is necessary to pump or channel standing water (i.e. dewatering). Prevent discharges that would contribute to a violation of Edwards Aquifer Rules, water quality standards, the impairment of a listed water body, or other state or federal law.
- 3.3. **Installation, Maintenance, and Removal Work.** Perform work in accordance with the SWP3, according to manufacturers' guidelines, and in accordance with the TPDES General Permit TXR150000. Install and maintain the integrity of temporary erosion and sedimentation control devices to accumulate silt and debris until soil disturbing activities are completed and permanent erosion control features are in place or the disturbed area has been adequately stabilized as determined by the Owner. . If a device ceases to function as intended, repair or replace the device or portions thereof as necessary. Remove sediment, debris, and litter. When approved, sediments may be disposed of within embankments, or in the right of way in areas where the material will not contribute to further siltation. Dispose of removed material in accordance with federal, state, and local regulations.
- Remove devices upon approval or as directed. Finish-grade and dress the area upon removal. Stabilize disturbed areas in accordance with the permit, and as shown on the plans or directed. Materials removed are considered consumed by the project. Retain ownership of stockpiled material and remove it from the project when new installations or replacements are no longer required.
- 3.3.1. **Rock Filter Dams for Erosion Control.** Remove trees, brush, stumps, and other objectionable material that may interfere with the construction of rock filter dams. Place sandbags as a foundation when required or at the Contractor's option.
- Place the aggregate to the lines, height, and slopes specified, without undue voids for Types 1, 2, 3, and 5. Place the aggregate on the mesh and then fold the mesh at the upstream side over the aggregate and secure it to itself on the downstream side with wire ties, or hog rings for Types 2 and 3, or as directed. Place rock filter dams perpendicular to the flow of the stream or channel unless otherwise directed. Construct filter dams according to the following criteria unless otherwise shown on the plans:
- 3.3.1.1. **Type 1 (Non-reinforced).**
- 3.3.1.1.1. **Height.** At least 18 in. measured vertically from existing ground to top of filter dam.
- 3.3.1.1.2. **Top Width.** At least 2 ft.
- 3.3.1.1.3. **Slopes.** No steeper than 2:1.
- 3.3.1.2. **Type 2 (Reinforced).**

- 3.3.1.2.1. **Height.** At least 18 in. measured vertically from existing ground to top of filter dam.
- 3.3.1.2.2. **Top Width.** At least 2 ft.
- 3.3.1.2.3. **Slopes.** No steeper than 2:1.
- 3.3.1.3. **Type 3 (Reinforced).**
- 3.3.1.3.1. **Height.** At least 36 in. measured vertically from existing ground to top of filter dam.
- 3.3.1.3.2. **Top Width.** At least 2 ft.
- 3.3.1.3.3. **Slopes.** No steeper than 2:1.
- 3.3.1.4. **Type 4 (Sack Gabions).** Unfold sack gabions and smooth out kinks and bends. Connect the sides by lacing in a single loop—double loop pattern on 4- to 5-in. spacing for vertical filling. Pull the end lacing rod at one end until tight, wrap around the end, and twist 4 times. Fill with stone at the filling end, pull the rod tight, cut the wire with approximately 6 in. remaining, and twist wires 4 times.
- Place the sack flat in a filling trough, fill with stone, connect sides, and secure ends as described above for horizontal filling.
- Lift and place without damaging the gabion. Shape sack gabions to existing contours.
- 3.3.1.5. **Type 5.** Provide rock filter dams as shown on the plans.
- 3.3.2. **Temporary Pipe Slope Drains.** Install pipe with a slope as shown on the plans or as directed. Construct embankment for the drainage system in 8-in. lifts to the required elevations. Hand-tamp the soil around and under the entrance section to the top of the embankment as shown on the plans or as directed. Form the top of the embankment or earth dike over the pipe slope drain at least 1 ft. higher than the top of the inlet pipe at all points. Secure the pipe with hold-downs or hold-down grommets spaced a maximum of 10 ft. on center. Construct the energy dissipaters or sediment traps as shown on the plans or as directed. Construct the sediment trap using concrete or rubble riprap in accordance with Item 432, "Riprap," when designated on the plans.
- 3.3.3. **Temporary Paved Flumes.** Construct paved flumes as shown on the plans or as directed. Provide excavation and embankment (including compaction of the subgrade) of material to the dimensions shown on the plans unless otherwise indicated. Install a rock or rubble riprap energy dissipater, constructed from the materials specified above, to a minimum depth of 9 in. at the flume outlet to the limits shown on the plans or as directed.
- 3.3.4. **Construction Exits.** Prevent traffic from crossing or exiting the construction site or moving directly onto a public roadway, alley, sidewalk, parking area, or other right of way areas other than at the location of construction exits when tracking conditions exist. Construct exits for either long- or short-term use.
- 3.3.4.1. **Long-Term.** Place the exit over a foundation course as required. Grade the foundation course or compacted subgrade to direct runoff from the construction exits to a sediment trap as shown on the plans or as directed. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed.
- 3.3.4.1.1. **Type 1.** Construct to a depth of at least 8 in. using crushed aggregate as shown on the plans or as directed.
- 3.3.4.1.2. **Type 2.** Construct using railroad ties and timbers as shown on the plans or as directed.
- 3.3.4.2. **Short-Term.**

- 3.3.4.2.1. **Type 3.** Construct using crushed aggregate, plywood, or wafer board. This type of exit may be used for daily operations where long-term exits are not practical.
- 3.3.4.2.2. **Type 4.** Construct as shown on the plans or as directed.
- 3.3.5. **Earthwork for Erosion Control.** Perform excavation and embankment operations to minimize erosion and to remove collected sediments from other erosion control devices.
- 3.3.5.1. **Excavation and Embankment for Erosion Control Features.** Place earth dikes, swales, or combinations of both along the low crown of daily lift placement, or as directed, to prevent runoff spillover. Place swales and dikes at other locations as shown on the plans or as directed to prevent runoff spillover or to divert runoff. Construct cuts with the low end blocked with undisturbed earth to prevent erosion of hillsides. Construct sediment traps at drainage structures in conjunction with other erosion control measures as shown on the plans or as directed.
- Create a sediment basin, where required, providing 3,600 cu. ft. of storage per acre drained, or equivalent control measures for drainage locations that serve an area with 10 or more disturbed acres at one time, not including offsite areas.
- 3.3.5.2. **Excavation of Sediment and Debris.** Remove sediment and debris when accumulation affects the performance of the devices, after a rain, and when directed.
- 3.3.6. **Construction Perimeter Fence.** Construct, align, and locate fencing as shown on the plans or as directed.
- 3.3.6.1. **Installation of Posts.** Embed posts 18 in. deep or adequately anchor in rock, with a spacing of 8 to 10 ft.
- 3.3.6.2. **Wire Attachment.** Attach the top wire to the posts at least 3 ft. from the ground. Attach the lower wire midway between the ground and the top wire.
- 3.3.6.3. **Flag Attachment.** Attach flagging to both wire strands midway between each post. Use flagging at least 18 in. long. Tie flagging to the wire using a square knot.
- 3.3.7. **Sandbags for Erosion Control.** Construct a berm or dam of sandbags that will intercept sediment-laden storm water runoff from disturbed areas, create a retention pond, detain sediment, and release water in sheet flow. Fill each bag with sand so that at least the top 6 in. of the bag is unfilled to allow for proper tying of the open end. Place the sandbags with their tied ends in the same direction. Offset subsequent rows of sandbags 1/2 the length of the preceding row. Place a single layer of sandbags downstream as a secondary debris trap. Place additional sandbags as necessary or as directed for supplementary support to berms or dams of sandbags or earth.
- 3.3.8. **Temporary Sediment-Control Fence.** Provide temporary sediment-control fence near the downstream perimeter of a disturbed area to intercept sediment from sheet flow. Incorporate the fence into erosion-control measures used to control sediment in areas of higher flow. Install the fence as shown on the plans, as specified in this Section, or as directed.
- 3.3.8.1. **Installation of Posts.** Embed posts at least 18 in. deep, or adequately anchor, if in rock, with a spacing of 6 to 8 ft. and install on a slight angle toward the runoff source.
- 3.3.8.2. **Fabric Anchoring.** Dig trenches along the uphill side of the fence to anchor 6 to 8 in. of fabric. Provide a minimum trench cross-section of 6 × 6 in. Place the fabric against the side of the trench and align approximately 2 in. of fabric along the bottom in the upstream direction. Backfill the trench, then hand-tamp.
- 3.3.8.3. **Fabric and Net Reinforcement Attachment.** Attach the reinforcement to wooden posts with staples, or to steel posts with T-clips, in at least 4 places equally spaced unless otherwise shown on the plans. Sewn vertical pockets may be used to attach reinforcement to end posts. Fasten the fabric to the top strand of reinforcement by hog rings or cord every 15 in. or less.

- 3.3.8.4. **Fabric and Net Splices.** Locate splices at a fence post with a minimum lap of 6 in. attached in at least 6 places equally spaced unless otherwise shown on the plans. Do not locate splices in concentrated flow areas.

Requirements for installation of used temporary sediment-control fence include the following:

- fabric with minimal or no visible signs of biodegradation (weak fibers),
- fabric without excessive patching (more than 1 patch every 15 to 20 ft.),
- posts without bends, and
- backing without holes.

- 3.3.9. **Biodegradable Erosion Control Logs.** Install biodegradable erosion control logs near the downstream perimeter of a disturbed area to intercept sediment from sheet flow. Incorporate the biodegradable erosion control logs into the erosion measures used to control sediment in areas of higher flow. Install, align, and locate the biodegradable erosion control logs as specified below, as shown in plans or as directed.

Secure biodegradable erosion control logs in a method adequate to prevent displacement as a result of normal rain events, prevent damage to the logs, and to the satisfaction of the Owner such that flow is not allowed under the logs. Temporarily removing and replacing biodegradable erosion logs as to facilitate daily work is allowed at the Contractor's expense.

- 3.3.10. **Vertical Tracking.** Perform vertical tracking on slopes to temporarily stabilize soil. Provide equipment with a track undercarriage capable of producing a linear soil impression measuring a minimum of 12 in. long × 2 to 4 in. wide × 1/2 to 2 in. deep. Do not exceed 12 in. between track impressions. Install continuous linear track impressions where the 12 in. length impressions are perpendicular to the slope. Vertical tracking is required on projects where soil disturbing activities have occurred unless otherwise approved.

4. MEASUREMENT

- 4.1. **Rock Filter Dams.** Installation or removal of rock filter dams will be measured by the foot or by the cubic yard. The measured volume will include sandbags, when used.
- 4.1.1. **Linear Measurement.** When rock filter dams are measured by the foot, measurement will be along the centerline of the top of the dam.
- 4.1.2. **Volume Measurement.** When rock filter dams are measured by the cubic yard, measurement will be based on the volume of rock computed by the method of average end areas.
- 4.1.2.1. **Installation.** Measurement will be made in final position.
- 4.1.2.2. **Removal.** Measurement will be made at the point of removal.
- 4.2. **Temporary Pipe Slope Drains.** Temporary pipe slope drains will be measured by the foot.
- 4.3. **Temporary Paved Flumes.** Temporary paved flumes will be measured by the square yard of surface area. The measured area will include the energy dissipater at the flume outlet.
- 4.4. **Construction Exits.** Construction exits will be measured by the square yard of surface area.
- 4.5. **Earthwork for Erosion and Sediment Control.**
- 4.5.1. **Equipment and Labor Measurement.** Equipment and labor used will be measured by the actual number of hours the equipment is operated and the labor is engaged in the work.
- 4.5.2. **Volume Measurement.**

- 4.5.2.1. **In Place.**
- 4.5.2.1.1. **Excavation.** Excavation will be measured by the cubic yard in its original position and the volume computed by the method of average end areas.
- 4.5.2.1.2. **Embankment.** Embankment will be measured by the cubic yard in its final position by the method of average end areas. The volume of embankment will be determined between:
- the original ground surfaces or the surface upon that the embankment is to be constructed for the feature and
 - the lines, grades and slopes of the accepted embankment for the feature.
- 4.5.2.2. **In Vehicles.** Excavation and embankment quantities will be combined and paid for under “Earthwork (Erosion and Sediment Control, In Vehicle).” Excavation will be measured by the cubic yard in vehicles at the point of removal. Embankment will be measured by the cubic yard in vehicles measured at the point of delivery. Shrinkage or swelling factors will not be considered in determining the calculated quantities.
- 4.6. **Construction Perimeter Fence.** Construction perimeter fence will be measured by the foot.
- 4.7. **Sandbags for Erosion Control.** Sandbags will be measured as each sandbag or by the foot along the top of sandbag berms or dams.
- 4.8. **Temporary Sediment-Control Fence.** Installation or removal of temporary sediment-control fence will be measured by the foot.
- 4.9. **Biodegradable Erosion Control Logs.** Installation or removal of biodegradable erosion control logs will be measured by the foot along the centerline of the top of the control logs.
- 4.10. **Vertical Tracking.** Vertical tracking will not be measured or paid for directly but is considered subsidiary to this Item.

5. PAYMENT

The following will not be paid for directly but are subsidiary to pertinent Items:

- erosion-control measures for Contractor project-specific locations (PSLs) inside and outside the right of way (such as construction and haul roads, field offices, equipment and supply areas, plants, and material sources);
- removal of litter, unless a separate pay item is shown on the plans;
- repair to devices and features damaged by Contractor operations;
- added measures and maintenance needed due to negligence, carelessness, lack of maintenance, and failure to install permanent controls;
- removal and reinstallation of devices and features needed for the convenience of the Contractor;
- finish grading and dressing upon removal of the device; and
- minor adjustments including but not limited to plumbing posts, reattaching fabric, minor grading to maintain slopes on an erosion embankment feature, or moving small numbers of sandbags.

Stabilization of disturbed areas will be paid for under pertinent Items.

Furnishing and installing pipe for outfalls associated with sediment traps and ponds will not be paid for directly but is subsidiary to the excavation and embankment under this Item.

- 5.1. **Rock Filter Dams.** The work performed and materials furnished in accordance with this Item and measured as provided under “Measurement” will be paid for at the unit price bid as follows:

5.1.1. **Installation.** Installation will be paid for as “Rock Filter Dams (Install)” of the type specified. This price is full compensation for furnishing and operating equipment, finish backfill and grading, lacing, proper disposal, labor, materials, tools, and incidentals.

5.1.2. **Removal.** Removal will be paid for as “Rock Filter Dams (Remove).” This price is full compensation for furnishing and operating equipment, proper disposal, labor, materials, tools, and incidentals.

When the Owner directs that the rock filter dam installation or portions thereof be replaced, payment will be made at the unit price bid for “Rock Filter Dams (Remove)” and for “Rock Filter Dams (Install)” of the type specified. This price is full compensation for furnishing and operating equipment, finish backfill and grading, lacing, proper disposal, labor, materials, tools, and incidentals.

5.2. **Temporary Pipe Slope Drains.** The work performed and materials furnished in accordance with this Item and measured as provided under “Measurement” will be paid for at the unit price bid for “Temporary Pipe Slope Drains” of the size specified. This price is full compensation for furnishing materials, removal and disposal, furnishing and operating equipment, labor, tools, and incidentals.

Removal of temporary pipe slope drains will not be paid for directly but is subsidiary to the installation Item. When the Owner directs that the pipe slope drain installation or portions thereof be replaced, payment will be made at the unit price bid for “Temporary Pipe Slope Drains” of the size specified, which is full compensation for the removal and reinstallation of the pipe drain.

Earthwork required for the pipe slope drain installation, including construction of the sediment trap, will be measured and paid for under “Earthwork for Erosion and Sediment Control.”

Riprap concrete or stone, when used as an energy dissipater or as a stabilized sediment trap, will be measured and paid for in accordance with Item 432, “Riprap.”

5.3. **Temporary Paved Flumes.** The work performed and materials furnished in accordance with this Item and measured as provided under “Measurement” will be paid for at the unit price bid for “Temporary Paved Flume (Install)” or “Temporary Paved Flume (Remove).” This price is full compensation for furnishing and placing materials, removal and disposal, equipment, labor, tools, and incidentals.

When the Owner directs that the paved flume installation or portions thereof be replaced, payment will be made at the unit prices bid for “Temporary Paved Flume (Remove)” and “Temporary Paved Flume (Install).” These prices are full compensation for the removal and replacement of the paved flume and for equipment, labor, tools, and incidentals.

Earthwork required for the paved flume installation, including construction of a sediment trap, will be measured and paid for under “Earthwork for Erosion and Sediment Control.”

5.4. **Construction Exits.** Contractor-required construction exits from off right of way locations or on-right of way PSLs will not be paid for directly but are subsidiary to pertinent Items.

The work performed and materials furnished in accordance with this Item and measured as provided under “Measurement” for construction exits needed on right of way access to work areas required by the Owner will be paid for at the unit price bid for “Construction Exits (Install)” of the type specified or “Construction Exits (Remove).” This price is full compensation for furnishing and placing materials, excavating, removal and disposal, cleaning vehicles, labor, tools, and incidentals.

When the Owner directs that a construction exit or portion thereof be removed and replaced, payment will be made at the unit prices bid for “Construction Exit (Remove)” and “Construction Exit (Install)” of the type specified. These prices are full compensation for the removal and replacement of the construction exit and for equipment, labor, tools, and incidentals.

Construction of sediment traps used in conjunction with the construction exit will be measured and paid for under "Earthwork for Erosion and Sediment Control."

5.5. **Earthwork for Erosion and Sediment Control.**

- 5.5.1. **Initial Earthwork for Erosion and Sediment Control.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Excavation (Erosion and Sediment Control, In Place)," "Embankment (Erosion and Sediment Control, In Place)," "Excavation (Erosion and Sediment Control, In Vehicle)," "Embankment (Erosion and Sediment Control, In Vehicle)," or "Earthwork (Erosion and Sediment Control, In Vehicle)."

This price is full compensation for excavation and embankment including hauling, disposal of material not used elsewhere on the project; embankments including furnishing material from approved sources and construction of erosion-control features; and equipment, labor, tools, and incidentals.

Sprinkling and rolling required by this Item will not be paid for directly, but will be subsidiary to this Item.

- 5.5.2. **Maintenance Earthwork for Erosion and Sediment Control for Cleaning and Restoring Control Measures.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid under a Contractor Force Account Item from invoice provided to the Owner.

This price is full compensation for excavation, embankment, and re-grading including removal of accumulated sediment in various erosion control installations as directed, hauling, and disposal of material not used elsewhere on the project; excavation for construction of erosion-control features; embankments including furnishing material from approved sources and construction of erosion-control features; and equipment, labor, tools, and incidentals.

Earthwork needed to remove and obliterate erosion-control features will not be paid for directly but is subsidiary to pertinent Items unless otherwise shown on the plans.

Sprinkling and rolling required by this Item will not be paid for directly, but will be subsidiary to this Item.

- 5.6. **Construction Perimeter Fence.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Construction Perimeter Fence." This price is full compensation for furnishing and placing the fence; digging, fence posts, wire, and flagging; removal and disposal; and materials, equipment, labor, tools, and incidentals.

Removal of construction perimeter fence will not be paid for directly but is subsidiary to the installation Item. When the Owner directs that the perimeter fence installation or portions thereof be removed and replaced, payment will be made at the unit price bid for "Construction Perimeter Fence," which is full compensation for the removal and reinstallation of the construction perimeter fence.

- 5.7. **Sandbags for Erosion Control.** Sandbags will be paid for at the unit price bid for "Sandbags for Erosion Control" (of the height specified when measurement is by the foot). This price is full compensation for materials, placing sandbags, removal and disposal, equipment, labor, tools, and incidentals.

Removal of sandbags will not be paid for directly but is subsidiary to the installation Item. When the Owner directs that the sandbag installation or portions thereof be replaced, payment will be made at the unit price bid for "Sandbags for Erosion Control," which is full compensation for the reinstallation of the sandbags.

- 5.8. **Temporary Sediment-Control Fence.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid as follows:

- 5.8.1. **Installation.** Installation will be paid for as “Temporary Sediment-Control Fence (Install).” This price is full compensation for furnishing and operating equipment finish backfill and grading, lacing, proper disposal, labor, materials, tools, and incidentals.
- 5.8.2. **Removal.** Removal will be paid for as “Temporary Sediment-Control Fence (Remove).” This price is full compensation for furnishing and operating equipment, proper disposal, labor, materials, tools, and incidentals.
- 5.9. **Biodegradable Erosion Control Logs.** The work performed and materials furnished in accordance with this Item and measured as provided under “Measurement” will be paid for at the unit price bid as follows:
- 5.9.1. **Installation.** Installation will be paid for as “Biodegradable Erosion Control Logs (Install)” of the size specified. This price is full compensation for furnishing and operating equipment finish backfill and grading, staking, proper disposal, labor, materials, tools, and incidentals.
- 5.9.2. **Removal.** Removal will be paid for as “Biodegradable Erosion Control Logs (Remove).” This price is full compensation for furnishing and operating equipment, proper disposal, labor, materials, tools, and incidentals.
- 5.10. **Vertical Tracking.** Vertical tracking will not be measured or paid for directly but is considered subsidiary to this Item.

Item 100

Preparing Right of Way



1. DESCRIPTION

Prepare the right of way and designated easements for construction operations by removing and disposing of all obstructions when removal of such obstructions is not specifically shown on the plans to be paid by other Items.

2. MATERIALS

Furnish materials in conformance with the plans and Specifications.

3. CONSTRUCTION

Protect designated features on the right of way and prune trees and shrubs as directed. Do not park equipment, service equipment, store materials, or disturb the root area under the branches of trees designated for preservation. Follow all local and state regulations when burning. Pile and burn brush at approved locations as directed. Spread mulched material at approved locations as directed. Handle hazardous materials in accordance with Article 6.10., "Hazardous Materials."

Clear areas shown on the plans of all obstructions, except those landscape features that are to be preserved. Such obstructions include remains of houses and other structures, foundations, floor slabs, concrete, brick, lumber, plaster, septic tank drain fields, basements, abandoned utility pipes or conduits, equipment, fences, retaining walls, and other items as specified on the plans. Remove vegetation and other landscape features not designated for preservation, curb and gutter, driveways, paved parking areas, miscellaneous stone, sidewalks, drainage structures, manholes, inlets, abandoned railroad tracks, scrap iron, and debris, whether above or below ground. Remove culverts, storm sewers, manholes, and inlets in proper sequence to maintain traffic and drainage. Removal of live utility facilities is not included in this Item.

Perform tree and brush removal and trimming in accordance with Article 752.4, "Work Methods."

Notify the Engineer in writing when items not shown on the plans and not reasonably detectable (buried with no obvious indication of presence) are encountered and required to be removed. These items will be handled in accordance with Article 4.5., "Differing Site Conditions."

Remove obstructions not designated for preservation to 2 ft. below natural ground in areas receiving embankment. Remove obstructions to 2 ft. below the excavation level in areas to be excavated. Remove obstructions to 1 ft. below natural ground in all other areas. Remove trees and stumps to 6 in. below ground level. Plug the remaining ends of abandoned underground structures over 3 in. in diameter using concrete to form a tight closure. Backfill, compact, and restore areas where obstructions have been removed unless otherwise directed. Use approved material for backfilling. Dispose of wells in accordance with Item 103, "Disposal of Wells."

Accept ownership, unless otherwise directed, and dispose of removed materials and debris at locations off the right of way in conformance with local, state, and federal requirements.

- 3.1. **Tree Protection.** Install tree protection for trees designated for preservation. Unless otherwise shown on the plans, install tree protection along the drip line of the trees using 4-ft. tall chain link fencing with line posts no more than 10 ft. apart. Install tree protection before beginning work.

4. MEASUREMENT

This Item will be measured by the acre; by the 100-ft. station, regardless of the width of the right of way; or by each tree removed.

Tree removal diameter will be measured in accordance with Article 752.5, "Measurement."

Tree protection will be measured by the acre of trees protected, by the foot of fencing, or by each tree protected.

5. PAYMENT

For "acre" and "station" measurement, the work performed in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Preparing Right of Way." For "each" measurement, the work performed in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Preparing Right of Way (Tree)" of the diameter specified. This price is full compensation for removal and trimming of designated trees and shrubs; removal and disposal of structures and obstructions; backfilling of holes; furnishing and placing concrete for plugs; and equipment, labor, tools, and incidentals.

Total payment of this Item will not exceed 10% of the original Contract amount until final acceptance. The remainder will be paid on the estimate after final acceptance in accordance with Article 5.12., "Final Acceptance."

5.1. **Tree Protection.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid as follows.

5.1.1. **Subsidiary Work.** The following will not be measured or paid for directly, but will be subsidiary to "Tree Protection":

- protection for Contractor project-specific locations inside and outside the right of way;
- repair to areas to be protected that are damaged by Contractor operations;
- removal and re-installation of devices and features needed for the convenience of the Contractor;
- finish grading and dressing upon removal of the protection; and
- minor adjustments, including, but not limited to, plumbing posts and re-attaching protection.

5.1.2. **Installation.** Installation will be paid for as "Tree Protection (Install)." This price is full compensation for furnishing and operating equipment and for labor, materials, tools, and incidentals.

5.1.3. **Removal.** Removal will be paid for as "Tree Protection (Remove)." This price is full compensation for furnishing and operating equipment and for proper disposal, labor, materials, tools, and incidentals.

Item 170

Irrigation System



1. DESCRIPTION

Furnish and install an irrigation system as shown on the plans or as directed.

2. MATERIALS

Unless otherwise shown on the plans, use materials that meet the following:

- 2.1. **Irrigation Pipe.** Use polyvinyl chloride (PVC) pipe meeting ASTM D2241, SDR 13.5, SDR 17, SDR 21; or ASTM D1785, Schedule 40.
- 2.2. **Fittings.** Furnish fittings as shown on the plans. PVC fittings must be in accordance with ASTM D2466.
- 2.3. **Encasement Pipe.** Use PVC pipe in accordance with ASTM D1785, Schedule 40, with an inside diameter at least 1 in. larger than the outside diameter of the irrigation pipe, unless otherwise shown on the plans.
- 2.4. **Low-Voltage Wire.** Use minimum 14-gauge UL-approved wire for direct burial.
- 2.5. **Bentonite Slurry.** Use a viscous mixture of commercial bentonite and fresh water containing 2–8% bentonite by weight.
- 2.6. **Accessories.** Use valves, sprinkler heads, and controllers that meet the requirements shown on the plans. Use backflow preventers in conformance with the controlling water utility authority.
- 2.7. **Electrical Service.** Use materials meeting the requirements of Section 170.3.2., "Electrical Service," for installations requiring over 100 V.

3. CONSTRUCTION

Perform irrigation system work under the supervision of a person possessing an irrigator's license issued by TCEQ. Provide documentation of this license. Follow the codes of the utility service owner for irrigation system design, water and electrical connection, and service.

Coordinate irrigation system installation with plant installation, when plant installation is specified, to ensure that watering requirements are met. Prevent damage to vegetation, slopes, utilities, structures, and other amenities. Repair any damage within the right of way caused by the Contractor. Perform the following activities as required.

- 3.1. **Design.** Provide an irrigation system designed by an irrigator licensed by TCEQ. Provide a system as shown on the plans and in conformance with utility service owner and TCEQ requirements.
- 3.2. **Electrical Service.** Construct installations requiring more than 100V as shown on the plans and in accordance with the following.
 - Item 618, "Conduit"
 - Item 620, "Electrical Conductors"
 - Special Specification, "Duct Cable"
 - Item 624, "Ground Boxes"
 - Item 628, "Electrical Services."

- 3.3. **Water Service.** Construct and maintain installations shown on the plans and in conformance with the utility service owner requirements.
- 3.4. **Excavation and Trenching.** Excavate and trench deep enough to provide for at least 12 in. of soil cover for all lines, or as shown on the plans. Use common trenches for irrigation lines and wire runs where feasible. Protect trenches and boring pits less than 5 ft. deep using approved methods. Protect trenches and boring pits 5 ft. deep or deeper in accordance with Item 402, "Trench Excavation Protection," and Item 403, "Temporary Special Shoring."
- 3.5. **Boring.** Bore at the locations shown on the plans or as directed. Avoid weakening or damaging roadways or other facilities. Bore the lengths in one direction only. Maintain horizontal and vertical alignment to an accuracy of 1 in. in 10 ft. Use water or other approved fluids for boring operations only to lubricate cuttings.
- Bentonite slurry may be used in unconsolidated soil formations to consolidate cuttings for the bit, seal the walls of the hole, and furnish lubrication for subsequent removal of cuttings and installation of the pipe immediately thereafter.
- 3.6. **Water Jetting.** Use water jetting only when shown on the plans or approved in writing. Water jet the lengths in one direction only. Cease operations and complete all necessary work by boring when jetting operations fail to produce a smooth stable hole.
- 3.7. **Encasement.** Provide at least 12 in. of cover over encasement pipe. Cover is measured to the top of the subgrade for roadways and paved areas and to the bottom of the structure for sidewalks, riprap, or non-load bearing slabs.
- 3.8. **Pipe and Valve Assembly.** Assemble pipe and fittings as recommended by the manufacturers. Clean pipe and fittings of dust, dirt, and moisture before assembly. Make connections between plastic pipe and metal valves with threaded fittings and plastic adapters. Install backflow preventers as required by ordinances of the controlling water utility authority. Install pipe, valves, and valve boxes at least 12 in. from sidewalks, buildings, walls, and other objects.
- 3.9. **Sprinkler Heads and Drip Tubing.** Install sprinkler heads and drip tubing in conformance with the manufacturer's recommendations.
- 3.10. **Controller.** Install controllers in conformance with the manufacturer's recommendations.
- 3.11. **Low-Voltage Wire.** Install wire in trenches below the pipe or in a minimum 1-in. PVC pipe with at least 12 in. of cover over its entire run. Install wire in continuous lengths. Splice wire, if required, in valve boxes using waterproof materials.
- 3.12. **Closing and Flushing of PVC Pipe.** Cap or plug pipe after installation to prevent entry of foreign materials that would obstruct the flow of water. Leave caps or plugs in place until removal is necessary for completion of the installation. Thoroughly flush all water lines.
- 3.13. **Hydrostatic Tests.** Notify the Engineer in writing at least 48 hr. before testing. Center-load all pipe with enough backfill to prevent arching or slipping while under pressure. After all welded joints have cured for at least 24 hr., test the main lines from the meter to the valves, with all valves closed, for at least 2 consecutive hours by applying a continuous and static minimum 80-psi water pressure. Repair leaks if necessary, and retest. Maintain the lines under static pressure for 24 hr. without leaks before final approval.
- 3.14. **Backfill and Compaction.** Backfill trenches and other excavations with soil free of objectionable material after the irrigation system is fully operational, all tests and inspections have been performed, and the results are approved. Backfill and compact in 8-in. layers. Smooth and shape disturbed soil to final grade.
- 3.15. **Performance Period.** Operate and maintain each system for 30 days after plant installation is complete. Repair and maintain in accordance with Section 193.3.6., "Irrigation System Operation and Maintenance." This period will extend until repairs are completed.

- 3.16. **Operation.** Begin operation of each system after plant installation has begun. Operate the system until work is completed on the project. Inspect the system for proper operation, damage, and leaks every 3 mo. Adjust the irrigation schedule during inspection to provide proper soil moisture. Shut down the system and notify the Department if the system requires repairs.

4. MEASUREMENT

This Item will be measured by the lump sum or by each complete system.

5. PAYMENT

For "lump sum" measurement, the work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Irrigation System" and "Irrigation System Design." For "each" measurement, the work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Irrigation System" of the design specified. This price is full compensation for furnishing and installing all components; flushing and testing water lines; furnishing and operating equipment; and maintenance, repairs, design, labor, tools, and incidentals.

Protection methods for excavations 5 ft. deep or deeper will be measured and paid for as required under Item 402 or Item 403.

Water service work required will not be paid for directly but will be subsidiary to pertinent Items. This includes all fees, testing, certifications, reoccurring test or certifications, permits, utility service owner inspections, connection or meter installation charges, and other costs; making arrangements with the utility service owner for all work, testing, certifications, and materials provided by the utility service owner; furnishing, installing, and connecting all components, including lines and service supports; and materials, equipment, labor, tools, and incidentals. Applications for a utility service must designate the Department as the service owner, unless otherwise shown on the plans.

Water service costs for utility-owned service line extensions and consumption charges will be paid for by the Department. The Department will reimburse the Contractor the amount billed by the utility service owner, and an additional 5% of the invoice cost will be paid for labor, equipment, administrative costs, superintendence, and profit.

Electrical work, fees, and power consumption will be measured and paid for in accordance with Item 628.

Payment for "Irrigation System" will be executed in the following manner.

- 5.1. **Initial Payment.** When the installation is completed, 95% of the unit price bid for each system will be paid.
- 5.2. **Final Payment.** When performance period of the system is completed, the remaining portion of the unit price bid for the system will be paid.

Repair or replace system parts damaged by the Contractor's operations at the Contractor's expense. Upon completion of performance period and when Item 193, "Landscape Establishment," is not included, repair or replacement of system parts not damaged by the Contractor's operations will be paid for in accordance with Article 9.7., "Payment for Extra Work and Force Account Method."

Item 192

Landscape Planting



1. DESCRIPTION

Provide and install plants and related materials at designated locations. Transplant plant material, including trees, shrubs, palms, and grasses as shown on the plans. Maintain plants, related materials, and landscaped areas at the specified frequency.

2. MATERIALS

Comply with the following, unless otherwise shown on the plans.

- ANSI Z60.1, "American Standard for Nursery Stock"
- American Joint Committee on Horticultural Nomenclature, *Standardized Plant Names*
- Additional requirements for plants and related materials as shown on the plans.

Use materials in conformance with the following unless otherwise shown on the plans.

2.1. **Plants.** Provide nursery-grown plants unless otherwise shown on the plans. Provide vigorous, healthy, well-rooted plants with well-formed crowns, true to sizes, and of typical shape and characteristics of the species. Provide plants with nametags attached showing the genus, species, and specified variety.

2.1.1. **Rejection of Plants.** Plants with any of the following characteristics are subject to rejection:

- disease or insect infestation, including eggs and larvae;
- dried or damaged root system or crown;
- excessive abrasion of the bark;
- prematurely opened or damaged buds;
- disfiguring knots;
- evidence of heat, freeze, or wind burn, mold, sun scald, or similar conditions;
- damaged, pruned, crooked, or multiple leaders, unless multiple leaders are specified or are normal for the species;
- cut limbs more than 3/4 in. in diameter that have not completely callused;
- dry, soggy, loose, cracked, broken, misshapen, or undersized root balls;
- processed balled roots (bench-balled);
- root balls encased in impervious material;
- overgrown or root-bound plants;
- undersized or unsound containers;
- stock not well established in containers;
- containers with less than 3/4 planting medium depth;
- abnormal balance between height and spread for the species;
- missing or broken serialized locking tags, when specified;
- any condition that is not as shown on the plans or not in conformance with nursery stock standards; or
- conditions that would prevent thriving growth or cause an unacceptable appearance.

2.2. **Backfill and Plant Soil Mix.** Use soil excavated from the plant pits or beds, or provide a loose, friable soil mix as shown on the plans. Provide a soil mix free of reproductive parts of weeds and grasses, harmful substances, and detrimental amounts of foreign matter.

2.3. **Compost.** Use compost in accordance with Section 161.2.3., "General Use Compost (GUC)."

- 2.4. **Mulch.** Provide loose, organic mulch derived from plants unless other types are shown on the plans. Use mulch free of excessive amounts of leaves, sticks, harmful substances, and detrimental amounts of soil or other foreign matter.
- 2.5. **Loose Aggregate for Ground Cover.** Furnish loose aggregate using a blend of 1–3-in. local river rock or as shown on the plans.
- 2.6. **Water.** Use water in accordance with Article 168.2., “Materials.”
- 2.7. **Fertilizer.** Use fertilizer in accordance with Article 166.2., “Materials.”
- 2.8. **Other Materials.** Provide additional incidental materials associated with landscape planting that meet the requirements shown on the plans.

3. CONSTRUCTION

Prevent damage to vegetation, slopes, utilities, structures, and other amenities. Repair any damage within the right of way caused by the Contractor at no additional expense to the Department. Provide and document a licensed pesticide applicator for the treatment of insects, diseases, animals, and vegetation in conformance with the Texas Department of Agriculture (TDA) in the appropriate use category.

- 3.1. **Plant Inspection Before Delivery.** Plants are subject to inspection at the nursery or location of collection. Provide and use serialized locking tags on plants selected by the Engineer as directed.
- 3.2. **Plant Delivery.** Notify the Engineer at least 48 hr. before delivering plants to the worksite. Coordinate with the Engineer for inspection and approval of materials upon delivery. Remove rejected plants from the worksite and replace as directed.
- 3.3. **Mark Plant Locations and Bed Outlines.** Provide and install coded markings, such as wooden stakes, to mark the locations, type of plants, and outline of planting beds. Obtain approval of the plant and bed locations before excavation begins.
- 3.4. **Transplant Plant Material.** Transplant material using approved mechanical tree spade, or hand dig, as directed. Size rootballs for hand dug material to a diameter of 12 in. per every inch of plant trunk caliper or as directed.
- 3.5. **Plant Pit Excavation.** Excavate pits for transplant, container, balled and burlapped (B&B), and fabric bag grown stock to the depth shown on the plans or at least the depth of the root ball. Excavate pits for bare root plants equal to the depth of the root system. Excavate pits on slopes using measurements shown on the plans or at least the depth of the root ball based on the uphill side of the pit. Excavate the receiving pits for mechanically transplanted plants with the same type and size of equipment used to dig the plants.

Provide a minimum horizontal dimension of 12 in. between the root ball and pit walls for the following, unless otherwise shown on the plans:

- 15-gal. or larger pots,
- 14-in. or larger boxes, and
- larger than 14-in. root balls of B&B and fabric bag grown plants.

Provide a minimum horizontal dimension of two times the root ball diameter across the pit for the following, unless otherwise shown on the plans:

- less than 15-gal. pots, and
- 14-in. or smaller root balls of B&B and fabric bag grown plants.

Provide a minimum pit diameter for bare root plants that permits the roots to spread without crowding or curving around the walls of the pit.

- 3.6. **Plant Installation.** Install plants within 24 hr. of excavating plant pits. Install transplant within 1 hr. of transplant excavation. Scarify the walls of pits as plant installation begins. Center all plants in a pit, except those mechanically collected, backfill in lifts, each lift 1/3 of the depth of the root ball, and fill the pit with water after each lift to remove air pockets. Prune protruding roots, from the root ball, for mechanically collected plants, to a point even with the cutting blades. Place the plant in the pit and work sand between the pit walls and the root ball with water until the sand fills all the cavities.
- Apply fertilizer as shown on the plans. Ensure that the top of the root ball remains at the grade shown on the plans after final settlement.
- 3.7. **Plant Basin Construction.** Construct a basin at least 8 in. deep with an inside diameter equal to the pit diameter and with a level top around the plant unless otherwise shown on the plans. Use excavated soil from the plant pits or beds, backfill material, or other approved material for the basin. Spread excess excavated materials over the right of way as directed or remove and dispose of material in conformance with local, state, and federal requirements at locations outside the right of way.
- Perform a percolation test as shown on the plans.
- 3.8. **Watering.** Coordinate the planting work to ensure that an irrigation system, when specified, operates properly to meet the watering requirements. Apply water to plants or planting areas at the rate and frequency specified for an irrigation system or for the application method shown on the plans. Keep the ground and backfill moist at least 12 in. around the entire root ball if a watering rate and frequency are not specified.
- 3.9. **Using Antitranspirants.** Apply antitranspirants, when shown on the plans, in conformance with the manufacturer's instructions.
- 3.10. **Pruning.** Accomplish pruning in accordance with ANSI A300 (Part 1) pruning standards. Retain the natural shape of plants according to the species. Limit pruning to removal of dead and broken branches, and an additional amount as specified or directed to improve the appearance and health of plants.
- Prune B&B and collected plants to reduce the original crown by approximately 20% by removing interior branches, entangled limbs, and small branches, unless otherwise shown on the plans. Prune to develop the central leader or leaders. Remove and dispose of pruning debris.
- Trim, prune, or remove existing tree limbs and brush as shown on the plans and to allow performance of the work in this Item.
- Treat exposed cuts in accordance with Item 752, "Tree and Brush Removal."
- 3.11. **Plant Support.** Install plant supports such as staking, guying, and bracing as shown on the plans. Support and keep plants in a vertical position. Use metal stakes and posts. Use protection guards to avoid damage to the plant.
- 3.12. **Tree Trunk Protection.** Install tree trunk protection guards when shown on the plans and in conformance with the manufacturer's instructions.
- 3.13. **Landscape Edge Installation.** Install landscape edging when shown on the plans and in conformance with the manufacturer's instructions.
- 3.14. **Plant Bed Preparation.** Prepare the bed and install the planting soil mix, soil amendments, vegetation barrier, and other materials as shown on the plans. Amend soil to a depth of 4 in. or as shown on the plans. Blend in 25% GUC measured by volume or as shown on the plans.
- 3.15. **Mulching.** Mulch plant basins and beds to a depth of 3 in. unless otherwise shown on the plans.

- 3.16. **Loose Aggregate for Ground Cover.** Install loose aggregate for ground cover to a depth of 4 in. or as shown on the plans. Install a commercial grade vegetation barrier fabric under the aggregate in conformance with manufacturer's instructions. The fabric must be tear- and ultraviolet-resistant.
- 3.17. **Maintenance.** Begin maintenance of each plant in accordance with this Item when the installation is completed and approved. Perform maintenance until final acceptance of the project, or for at least 90 days should the final acceptance occur less than 90 days after the plant installation is completed and approved, by following the work schedule and frequencies shown on the plans. Perform the minimum requirements in accordance with the following Sections if a work schedule and frequency are not shown on the plans.
- 3.17.1. **Watering.** Water in accordance with Section 192.3.8., "Watering."
- 3.17.2. **Mowing, Trimming, and Edging.** Mow, trim, and edge the designated locations. Remove and dispose of litter within the designated areas before mowing, trimming, and edging. Mow, trim, and edge every 15 days during the growing season or as directed, mowing at a 3-in.–4-in. height. Keep cord trimmers at least 1 ft. from plants to prevent damage to the plants. Plants damaged during the maintenance work are subject to rejection and replacement in accordance with Section 192.3.17.9., "Plant Replacement."
- 3.17.3. **Plant Basin, Bed, and Worksite Maintenance.** Chemically control weeds and unwanted grasses in plant basins, in beds, along and in structures, and around existing plants every 15 days, unless otherwise directed. Reshape plant basins and beds every 30 days as shown on the plans. Maintain mulch in accordance with Section 192.3.15., "Mulching." Ensure that herbicides do not contact desirable plants. Follow the manufacturer's instructions for handling and applying herbicides.
- 3.17.4. **Plant Supports.** Replace, repair, and adjust supports as shown on the plans and in accordance with Section 192.3.11., "Plant Support." Adjust staking and guying to prevent girdling of plant trunks. Remove or dispose of support material.
- 3.17.5. **Pruning.** Prune as shown on the plans and in accordance with Section 192.3.10., "Pruning."
- 3.17.6. **Insect, Disease, and Animal Inspection and Pesticide Treatment.** Inspect plants and planted areas at least every 15 days. Notify the Engineer of concerns and problems and recommend corrective measures in writing for approval. Treat the plants and planted areas in conformance with TDA or Texas Structural Pest Control Board laws and regulations. Follow the manufacturer's instructions for handling and applying pesticides.
- 3.17.7. **Litter Removal.** Remove litter and debris within the worksite at least every 15 days or as shown on the plans. Dispose of litter from the right of way in accordance with Item 734, "Litter Removal."
- 3.17.8. **Tree Trunk Protection.** Remove and dispose of tree trunk wrapping material and protection guards as directed.
- 3.17.9. **Plant Replacement.** Remove and dispose of dead and damaged plants from the worksite as directed. Replace plants as originally specified within 10 days of notification. Plant replacement must be completed and approved before payment is approved when notification is made between the starting date and day 30 of the maintenance work, in accordance with Section 192.5.2., "30-Day Payment." Plant replacement must be completed and approved before payment is approved when notification is made between days 31 and 60 of the maintenance work, in accordance with Section 192.5.3., "60-Day Payment." Plant replacement must be completed and approved before payment is approved when notification is made between days 61 and either the date of project final acceptance or day 90 of the maintenance work, whichever occurs later, in accordance with Section 192.5.4., "Final Payment."

4. MEASUREMENT

This Item will be measured by each plant. When mulch is specified as a separate pay item, it will be measured by the cubic yard or the square yard. When plant soil mix is specified as a separate pay item, it will be measured by the cubic yard. When landscape edge is specified as a separate pay item, it will be

measured by the foot. When soil amendment is specified as a separate pay item, it will be measured by the square yard. When loose aggregate for ground cover is specified as a separate pay item, it will be measured by the cubic yard or square yard. When plant bed preparation is specified as a separate pay item, it will be measured by the square yard. When vegetation barrier is specified as a separate pay item, it will be measured by the square yard.

When mulch, plant bed preparation, loose aggregate, soil amendment, and vegetation barrier are specified as separate pay items and measured by the square yard, they are plans quantity measurement items. The quantity to be paid is the quantity shown in the proposal, unless modified by Article 9.2., "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantities are required.

5. PAYMENT

The work performed and materials furnished in accordance with this item and measured as provided under "Measurement" will be paid for at the unit price bid for "Plant Material" of the size or "Plant Material" of the size and type specified. This price is full compensation for furnishing the plant, compost, fertilizer, mulch, plant soil mix, landscape edge, soil amendment, loose aggregate for ground cover, plant bed preparation, vegetation barrier, and maintenance.

The work performed and materials furnished in accordance with this item and measured as provided under "Measurement" will be paid for at the unit price bid for "Transplant Plant Material" or "Transplant Plant Material" of the type specified. This price is full compensation to transplant the plant, compost, fertilizer, mulch, plant soil mix, landscape edge, soil amendment, loose aggregate for ground cover, plant bed preparation, and vegetation barrier. Transplant plant materials are not subject to Section 192.3.17., "Maintenance," unless shown on the plans.

When mulch, plant soil mix, landscape edge, soil amendment, loose aggregate for ground cover, plant bed preparation, and vegetation barrier are specified as separate on the plans to be pay items, the work performed and materials furnished in accordance with this item and measured as provided under "Measurement" will be paid for at the unit price bid for "Mulch" or "Mulch" of the type specified, "Plant Soil Mix" or "Plant Soil Mix" of the type specified, "Landscape Edge" or "Landscape Edge" of the type specified, "Soil Amendment" or "Soil Amendment" of the type specified, "Loose Aggregate for Ground Cover" of the type specified, "Plant Bed Preparation" or "Plant Bed Preparation" of the type specified, and "Vegetation Barrier" or "Vegetation Barrier" of the type specified. The price is full compensation for materials, equipment, labor, tools, and incidentals.

Payment for "Plant Material" will be addressed in the following manner.

- 5.1. **Initial Payment.** When the planting and installation of related materials are completed and approved, 70% of the unit price bid for each related plant will be paid.
- 5.2. **30-Day Payment.** When the first 30 days of the plant maintenance (in accordance with Section 192.3.17., "Maintenance.") are completed and approved, an additional 10% of the unit price bid for each related plant will be paid, but if the maintenance is not completed and approved, this portion of the payment will be forfeited.
- 5.3. **60-Day Payment.** When the second 30 days of the plant maintenance are completed and approved, an additional 10% of the unit price bid for each related plant will be paid, but if the maintenance is not completed and approved, this portion of the payment will be forfeited.
- 5.4. **Final Payment.** After the final inspection and acceptance of the project or the completion of the 90-day maintenance, whichever occurs later, an additional 10% of the unit price bid for all plants will be paid, but if the maintenance is not completed and approved, this portion of the payment will be forfeited.

Item 193

Landscape Establishment



1. DESCRIPTION

Establish landscape plantings and maintain landscaped areas at designated locations. If used with Item 192, "Landscape Planting," begin this Item after the final payment is approved in accordance with Section 192.5.4., "Final Payment."

2. MATERIALS

Use materials in accordance with the following unless otherwise shown on the plans:

- **Fertilizer.** Use fertilizer in accordance with Article 166.2., "Materials";
- **Mulch.** Use mulch in accordance with Article 192.2., "Materials";
- **Water.** Use water in accordance with Article 168.2., "Materials";
- **Herbicide.** Use herbicide in accordance with Article 731.2., "Materials";
- replacement plants as originally installed;
- pesticides conforming to the requirements of Section 193.3.1., "Plant Maintenance;"
- plant supports of the same type as originally installed;
- irrigation system replacement parts of the same type and manufacturer as originally installed; and
- other materials associated with landscape planting that meet the requirements shown on the plans.

3. WORK METHODS

Inspect the site at least every 2 weeks and perform the required maintenance when "Plant Maintenance" or "Irrigation System Operation and Maintenance" are measured by the month. Perform the following maintenance activities and conform to requirements shown on the plans.

- 3.1. **Plant Maintenance.** Maintain vegetation within the site in a healthy and vigorous growing condition. Apply pesticides, when required, under the supervision of a person possessing a license in the appropriate use category issued by the Texas Department of Agriculture. Provide documentation of this license and obtain approval of the pesticides before applications. Ensure pesticide applications conform to label directions and all pertinent laws and regulations.
 - 3.1.1. **Pruning.** Prune as shown on the plans and in accordance with Section 192.3.10., "Pruning." Remove sucker-growth on trunks of trees.
 - 3.1.2. **Insect, Disease, and Animal Control.** Notify the Engineer in writing of problems with insects, diseases, or animals as such problems arise. Treat the plants or planted areas as directed.
 - 3.1.3. **Fertilization.** Apply fertilizer uniformly to all plants designated to receive fertilizer.
 - 3.1.4. **Mulching, Plant Basin, and Plant Bed Maintenance.** Physically remove or apply herbicide to weeds and grasses within plant basins and plant beds before placing additional mulch. Apply and maintain mulch at a depth of 2 in. Maintain plant basins, loose aggregate areas, and plant beds free of weeds and grasses, except those that have been treated with herbicides may remain in place until removal is directed. Reshape plant basins and plant beds as necessary to conform to plan details.
 - 3.1.5. **Mowing, Trimming, and Edging.** Remove and dispose of litter within the designated areas before mowing. Mow and trim grassed areas at the designated height and frequency. Edge where required. Do not use nylon

cord trimmers inside plant basins or inside beds containing plant material. Trim vegetation and remove debris from curbs, sidewalks, and other hardscape features.

- 3.1.6. **Plant Supports.** Replace, repair, and adjust supports to meet the requirements of the plans and in accordance with Section 192.3.11., "Plant Support." Adjust staking and guying to prevent girdling of plant trunks. Remove or dispose of support material.
- 3.1.7. **Tree Trunk Protection.** Maintain tree trunk protection guards. Replace damaged guards.
- 3.2. **Plant Replacement.** Remove plants selected by the Engineer and replace with plants of the original species, size, and characteristics or with approved substitutes, if required on the plans. Replace plants that have been damaged or killed due to the actions or negligence of the Contractor at no additional cost to the Department. Replace plants within the next scheduled work period following notification to begin replacement unless otherwise directed. Backfill in conformance with the plans or as directed.
- 3.3. **Watering.** Apply water at the designated rate and frequency to plants or planting areas not serviced by an existing irrigation system. Apply water as directed, adjusting rate and frequency to provide adequate moisture to plant material.
- 3.4. **Litter Removal.** Remove litter and debris within the worksite at least every 15 days or as shown on the plans. Dispose of litter from the right of way in accordance with Item 734, "Litter Removal."
- 3.5. **Landscape Treatments.** Perform landscape treatments using methods and materials described in the plans.
- 3.6. **Irrigation System Operation and Maintenance.** Repair and maintain the system under the supervision of a person possessing an irrigator's license issued by TCEQ and provide documentation of this license. Verify and adhere to all local, state, and federal regulations. Coordinate and obtain required backflow preventer testing at no cost to the Department. Operate the system using water provided by the Department unless otherwise shown on the plans. Ensure that all zones are functioning properly and providing adequate moisture to plant material using an approved watering schedule. Winterize the system, when required, to prevent freeze damage in locations where temperatures fall below 32°F. Provide plant irrigation by an approved alternate method at no cost to the Department if the system fails due to the Contractor's actions or neglect.

4. MEASUREMENT

"Landscape Establishment" will be measured by the month or by the cycle. "Plant Replacement" will be measured by each plant. "Vegetative Watering" will be measured by the 1,000 gal. (TGL) of water as applied. "Landscape Treatments" will be measured by each treatment or by the cycle. "Irrigation System Operation and Maintenance" will be measured by the month.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Landscape Establishment," "Plant Replacement" of the size specified, "Plant Replacement" of the size and type specified, "Plant Replacement" of the group specified, "Vegetative Watering," "Landscape Treatment" or "Landscape Treatment" of the type specified, and "Irrigation System Operation and Maintenance." This price is full compensation for furnishing and operating equipment and for litter removal, mowing, trimming, edging, pruning, fertilizer, herbicide, pesticides, tree trunk protection, plant supports, labor, materials, tools, and incidentals. Plant replacement needed due to Contractor negligence will be at no additional cost to the Department.

Costs for utility-owned water line consumption charges will be paid for by the Department. The Department will reimburse the Contractor the amount billed by the utility, and an additional 5% of the invoice cost will be paid for labor, equipment, administrative costs, superintendence, and profit.

Item 194

Roadside Amenity



1. DESCRIPTION

Install the amenity as shown on the plans or as directed.

2. MATERIALS

Furnish materials in conformance with the plans.

3. CONSTRUCTION

Use construction methods in conformance with the plans.

4. MEASUREMENT

This Item will be measured by the each.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Roadside Amenity" or "Roadside Amenity" of the type specified. This price is full compensation for furnishing all materials, equipment, labor, and incidentals.

Item 502

Barricades, Signs, and Traffic Handling



1. DESCRIPTION

Provide, install, move, replace, maintain, clean, and remove all traffic control devices shown on the plans and as directed.

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

Temporary work zone (TWZ) traffic control devices manufactured on or before December 31, 2019, must at a minimum have been successfully tested to the crashworthiness requirements of NCHRP-350 or MASH-2009. These devices may continue to be used throughout their normal service lives.

Such TWZ traffic control devices include:

- portable sign supports,
- barricades,
- portable traffic barriers designated exclusively for use in TWZs,
- crash cushions designated exclusively for use in TWZs,
- longitudinal channelizers, and
- truck-mounted attenuators (TMAs) and trailer attenuators (TAs).

Category I devices (i.e., lightweight devices), such as cones, tubular markers, and drums without lights or signs attached, may be self-certified by the vendor or provider, with documentation provided to the Department, or as shown on Department's Compliant Work Zone Traffic Control Device List.

2. CONSTRUCTION

Comply with the requirements of Article 7.2., "Safety."

Implement the traffic control plan (TCP) shown on the plans.

Install traffic control devices straight and plumb. Make changes to the TCP only as approved. Minor adjustments to meet field conditions are allowed.

Submit Contractor-proposed TCP changes, signed and sealed by a licensed professional engineer, for approval. The Engineer may develop, sign, and seal Contractor-proposed changes. Changes must conform to guidelines established in the TMUTCD using approved products from the Department's Compliant Work Zone Traffic Control Device List.

Maintain traffic control devices by taking corrective action when notified. Corrective actions include, but are not limited to, cleaning, replacing, straightening, covering, and removing devices. Maintain the devices such that they are properly positioned and spaced, are legible, and have retroreflective characteristics that meet requirements day or night and in all weather conditions.

The Engineer may authorize or direct in writing the removal or relocation of project limit advance warning signs. When project limit advance warning signs are removed before final acceptance, provide traffic control in accordance with the TMUTCD for minor operations as approved.

Remove all traffic control devices upon completion of the work as shown on the plans or as directed.

3. MEASUREMENT

“Barricades, Signs, and Traffic Handling” will be measured by the month. Law enforcement personnel with patrol vehicles will be measured by the hour for each person.

4. PAYMENT

- 4.1. **Barricades, Signs, and Traffic Handling.** Except for Contracts with callout work and work orders, the work performed and materials furnished in accordance with this Item and measured as provided under “Measurement” will be paid for at the unit price bid for “Barricades, Signs, and Traffic Handling.” This price is full compensation for installation, maintenance, adjustments, replacements, removal, materials, equipment, labor, tools, and incidentals.

When the plans establish pay items for particular work in the TCP, that work will be measured and paid for under pertinent Items.

TMA and TA will be paid for under Item 505, “Truck-Mounted Attenuator (TMA) and Trailer Attenuator (TA).” Portable changeable message signs will be paid for under Item 503, “Portable Changeable Message Sign.” Portable traffic signals will be paid for under Item 510, “One-Way Traffic Control,” unless otherwise shown on the plans.

In accordance with Section 7.2.3., “Safety Contingency,” funds have been included in the project budget to improve the effectiveness of traffic handling and enhance safety during the course of this project.

- 4.1.1. **Initiation of Payment.** Payment for this Item will begin on the first estimate after barricades, signs, and traffic handling devices have been installed in accordance with the TCP.
- 4.1.2. **Paid Months.** Monthly payment will be made each succeeding month for this Item provided the barricades, signs, and traffic handling devices have been installed and maintained in accordance with the TCP until the Contract amount has been paid.
- If, within the timeframe established by the Engineer, the Contractor fails to provide or properly maintain signs and barricades in compliance with the Contract requirements, as determined by the Engineer, the Contractor will be considered in noncompliance with this Item. No payment will be made for the months in question, and the total final payment quantity will be reduced by the number of months the Contractor was in noncompliance.
- 4.1.3. **Maximum Total Payment Before Acceptance.** The total payment for this Item will not exceed 10% of the total Contract amount before final acceptance in accordance with Article 5.12., “Final Acceptance.” The remaining balance will be paid in accordance with Section 502.4.1.5., “Balance Due.”
- 4.1.4. **Total Payment Quantity.** The quantity paid under this Item will not exceed the total quantity shown on the plans, except as modified by change order and as adjusted in accordance with Section 502.4.1.2., “Paid Months.” An overrun of the plans quantity for this Item will not be allowed for approving designs; testing; material shortages; closed construction seasons; curing periods; establishment, performance, test, and maintenance periods; failure to complete the work in the number of months allotted; or delays caused directly or indirectly by Contract requirements.

- 4.1.5. **Balance Due.** The remaining unpaid months of barricades less non-compliance months will be paid on final acceptance of the project, if all work is complete and accepted in accordance with Article 5.12., "Final Acceptance."
- 4.1.6. **Contracts with Callout Work and Work Orders.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be subsidiary to pertinent Items, except for federally funded Contracts.
- 4.2. **Law Enforcement Personnel.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid by Contractor force account for "Law Enforcement Personnel." This price is full compensation for furnishing all labor, materials, supplies, equipment, patrol vehicles, fees, and incidentals necessary to complete the work as directed.

Item 503

Portable Changeable Message Sign



1. DESCRIPTION

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

2. MATERIALS

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

- sign controller,
- changeable message sign,
- trailer, and
- power source.

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

2.1. **Sign Controller.** Provide the following.

- A controller with permanent storage of at least 75 pre-programmed messages
- An external input device for random programming and storage of at least 75 additional messages
- A controller capable of displaying up to three messages sequentially
- A controller with adjustable display rates

Enclose sign controller equipment in a lockable enclosure.

2.2. **Changeable Message Sign.** Provide the following.

- A sign capable of being elevated to at least 7 ft. above the roadway surface from the bottom of the sign
- A sign capable of being rotated 360° and secured against movement in any position
- A sign with three separate lines of text and eight characters per line minimum
- A minimum 18-in. character height
- A 5 × 7-character pixel matrix
- A message legibility distance of 600 ft. for nighttime conditions and 800 ft. for normal daylight conditions
- Capability for manual and automatic dimming light sources

The following are descriptions for three screen types of PCMS.

- **Character Modular Matrix.** This screen type comprises of character blocks.
- **Continuous Line Matrix.** This screen type uses proportionally spaced fonts for each line of text.
- **Full Matrix.** This screen type uses proportionally spaced fonts, varies the height of characters, and displays simple graphics on the entire sign.

2.3. **Trailer.** Provide a two-wheel trailer with square top fenders, four leveling jacks, and trailer lights. Do not exceed an overall trailer width of 96 in. Shock mount the electronics and sign assembly.

2.4. **Power Source.** Provide a diesel generator, solar powered power source, or both. Provide a backup power source as necessary.

- 2.5. **Cellular Modem.** When shown on the plans, provide a cellular modem connection to communicate with the PCMS unit remotely.

3. CONSTRUCTION

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

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

4. MEASUREMENT

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

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Portable Changeable Message Sign." This price is full compensation for PCMS units; setup; relocating; removing; replacement parts; batteries (when required); fuel, oil, and oil filters (when required); cellular telephone charge (when required); software; and equipment, materials, tools, labor, and incidentals. Reimbursement for the repair of damaged devices will be in accordance with Section 7.17.1., "Reimbursable Repair."

Item 506

Temporary Erosion, Sedimentation, and Environmental Controls



1. DESCRIPTION

Install, maintain, and remove erosion, sedimentation, and environmental control measures to prevent or reduce the discharge of pollutants and protect environmental resources in accordance with the Stormwater Pollution Prevention Plan (SWP3) and environmental layout shown on the plans. Comply with Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit (CGP) TXR150000 requirements. Control measures are defined as Best Management Practices (BMPs) used to prevent or reduce the discharge of pollutants and measures to protect environmental resources. Control measures include, but are not limited to, rock filter dams, temporary pipe slope drains, temporary paved flumes, construction exits, earthwork for erosion control, pipe, construction perimeter fence, sandbags, temporary sediment control fence, biodegradable erosion control logs, vertical tracking, temporary or permanent seeding, and other measures. Erosion and sediment control devices must be selected from the Erosion Control Approved Products List. Perform work in a manner to prevent degradation of receiving waters, protect environmental resources, facilitate project construction, and comply with applicable federal, state, and local regulations. Ensure the installation and maintenance of control measures are performed in conformance with the manufacturer's or designer's specifications.

2. MATERIALS

Furnish materials in accordance with the following.

- Item 161, "Compost"
- Item 432, "Riprap"
- Item 556, "Pipe Underdrains"

2.1. Rock Filter Dams.

2.1.1. **Aggregate.** Furnish aggregate with approved hardness, durability, cleanliness, and resistance to crumbling, flaking, and eroding. Provide the following.

- **Types 1, 2, and 4 Rock Filter Dams.** Use 3–6-in. aggregate.
- **Type 3 Rock Filter Dams.** Use 4–8-in. aggregate.

2.1.2. **Wire.** Provide minimum 20-gauge galvanized wire for the steel wire mesh and tie wires for Types 2 and 3 rock filter dams. Type 4 dams require:

- a double-twisted, hexagonal weave with a nominal mesh opening of 2-1/2 × 3-1/4 in.,
- minimum 0.0866-in. steel wire for netting,
- minimum 0.1063-in. steel wire for selvages and corners, and
- minimum 0.0866 in. for binding or tie wire.

2.1.3. **Sandbag Material.** Furnish sandbags meeting Section 506.2.8., "Sandbags," except that any gradation of aggregate may be used to fill the sandbags.

2.2. **Temporary Pipe Slope Drains.** Provide corrugated metal pipe, polyvinyl chloride (PVC) pipe, flexible tubing, watertight connection bands, grommet materials, prefabricated fittings, and flared entrance sections as shown on the plans. Recycled and other materials meeting these requirements are allowed if approved.

Furnish concrete in accordance with Item 432.

- 2.3. **Temporary Paved Flumes.** Furnish asphalt concrete, hydraulic cement concrete, or other comparable non-erodible material as shown on the plans. Provide rock or rubble with a minimum diameter of 6 in. and a maximum volume of 1/2 cu. ft. for the construction of energy dissipaters.
- 2.4. **Construction Exits.** Provide materials as shown on the plans and in accordance with this Section.
- 2.4.1. **Rock Construction Exit.** Provide crushed aggregate for long- and short-term construction exits. Furnish aggregates that are clean, hard, durable, and free of adherent coatings such as salt, alkali, dirt, clay, loam, shale, soft or flaky materials, and organic and injurious matter. Use 4–8-in. aggregate for Type 1. Use 2–4-in. aggregate for Type 3.
- 2.4.2. **Timber Construction Exit.** Furnish No. 2 quality or better railroad ties and timbers for long-term construction exits, free of large and loose knots and treated to control rot. Fasten timbers using nuts and bolts or lag bolts, of at least 1/2 in. diameter, unless otherwise shown on the plans or allowed. Provide plywood or pressed wafer board at least 1/2 in. thick for short-term exits.
- 2.4.3. **Foundation Course.** Provide a foundation course consisting of flexible base, bituminous concrete, hydraulic cement concrete, or other materials as shown on the plans or directed.
- 2.5. **Embankment for Erosion Control.** Provide rock, loam, clay, topsoil, or other earth materials that will form a stable embankment to meet the intended use.
- 2.6. **Pipe.** Provide pipe outlet material in accordance with Item 556 and as shown on the plans.
- 2.7. **Construction Perimeter Fence.**
- 2.7.1. **Posts.** Provide essentially straight wood or steel posts that are at least 60 in. long. Furnish soft wood posts with a minimum diameter of 3 in. or use nominal 2 × 4-in. boards. Furnish hardwood posts with a minimum cross-section of 1-1/2 × 1-1/5 in. Furnish T- or L-shaped steel posts with a minimum weight of 1.25 lb. per foot.
- 2.7.2. **Fence.** Provide orange construction fencing as approved.
- 2.7.3. **Fence Wire.** Provide 14-gauge or larger galvanized smooth or twisted wire. Provide 16-gauge or larger tie wire.
- 2.7.4. **Flagging.** Provide brightly colored flagging that is fade-resistant and at least 3/4 in. wide to provide maximum visibility both day and night.
- 2.7.5. **Staples.** Provide staples with a crown at least 1/2 in. wide and legs at least 1/2 in. long.
- 2.7.6. **Used Materials.** Previously used materials meeting the applicable requirements may be used if approved.
- 2.8. **Sandbags.** Provide sandbag material of polypropylene, polyethylene, or polyamide woven fabric with a minimum unit weight of 4 oz. per square yard, a Mullen burst-strength exceeding 300 psi, and an ultraviolet (UV) stability exceeding 70%.

Use natural coarse sand or manufactured sand meeting the gradation shown in Table 1 to fill sandbags. Filled sandbags must be 24–30 in. long, 16–18 in. wide, and 6–8 in. thick.

**Table 1
Sand Gradation**

Sieve Size	Retained (% by Weight)
#4	Maximum 3%
#100	Minimum 80%
#200	Minimum 95%

Aggregate may be used instead of sand for situations where sandbags are not adjacent to traffic. The aggregate size must not exceed 3/8 in.

- 2.9. **Temporary Sediment Control Fence.** Provide a net-reinforced fence using woven geotextile fabric. Logos visible to the traveling public will not be allowed.
 - 2.9.1. **Fabric.** Provide fabric materials in accordance with [DMS-6230](#), "Temporary Sediment Control Fence Fabric."
 - 2.9.2. **Posts.** Provide essentially straight wood or steel posts with a minimum length of 48 in., unless otherwise shown on the plans. Furnish soft wood posts at least 3 in. in diameter or use nominal 2 × 4-in. boards. Furnish hardwood posts with a minimum cross-section of 1-1/2 × 1-1/2 in. Furnish T- or L-shaped steel posts with a minimum weight of 1.25 lb. per foot.
 - 2.9.3. **Net Reinforcement.** Provide net reinforcement of at least 12.5-gauge (Standard Wire Gauge) galvanized welded wire mesh, with a maximum opening size of 2 × 4 in., at least 24 in. wide, unless otherwise shown on the plans.
 - 2.9.4. **Staples.** Provide staples with a crown at least 3/4 in. wide and legs 1/2 in. long.
 - 2.9.5. **Used Materials.** Use recycled material meeting the applicable requirements if approved.
- 2.10. **Biodegradable Erosion Control Logs.**
 - 2.10.1. **Core Material.** Furnish core material that is biodegradable or recyclable. Use compost, mulch, aspen excelsior wood fibers, chipped site vegetation, agricultural rice or wheat straw, coconut fiber, 100% recyclable fibers, or any other acceptable material unless specifically shown on the plans. Permit no more than 5% of the material to escape from the containment mesh. Furnish compost in accordance with Item 161.
 - 2.10.2. **Containment Mesh.** Furnish containment mesh that is 100% biodegradable, photodegradable, or recyclable, such as burlap, twine, UV photodegradable plastic, polyester, or any other acceptable material.

Furnish biodegradable or photodegradable containment mesh when log will remain in place as part of a vegetative system.

Furnish recyclable containment mesh for temporary installations.
 - 2.10.3. **Size.** Furnish biodegradable erosion control logs with diameters as shown on the plans or as directed. Stuff containment mesh densely so logs do not deform.

3. QUALIFICATIONS, TRAINING, AND EMPLOYEE REQUIREMENTS

- 3.1. **Contractor Responsible Person Environmental (CRPE) Qualifications and Responsibilities.** Provide and designate in writing at the preconstruction conference a CRPE and alternate CRPE who have overall responsibility for managing environmental compliance. The CRPE will implement stormwater and erosion control practices, oversee and observe stormwater control measure monitoring and management, oversee environmental compliance requirements, and monitor the project site daily and produce daily monitoring reports as long as there are BMPs in place or soil disturbing activities are evident to ensure compliance with the SWP3 and TPDES CGP TXR150000. Take required training in accordance with Section 7.7.4.4, "Training."

Maintain daily monitor reports and make them available within 24 hr. upon request. During time suspensions when work is not occurring or on Contract non-work days, daily inspections are not required unless a rain event has occurred. The CRPE will provide recommendations on how to improve the effectiveness of control measures. Attend the Department's preconstruction conference for the project.

Ensure training is completed in accordance with Section 7.7.4.4., "Training," by all applicable personnel before employees work on the project. Document, maintain, and make available within 24 hr. of a request, a list, signed by the CRPE, of all applicable Contractor and subcontractor employees who have completed the training. Include the employee's name, the training course name, and the date the employee completed the training.

- 3.2. **Contractor Superintendent Qualifications and Responsibilities.** Provide a superintendent who is competent, has experience with and knowledge of stormwater management, and is knowledgeable of the requirements and the conditions of the TPDES CGP TXR150000. The superintendent will manage and oversee the day-to-day operations and activities at the project site, work with the CRPE to provide effective stormwater management at the project site, represent and act on behalf of the Contractor, and attend the Department's preconstruction conference for the project. Take training as required in Section 7.7.4.4., "Training."

4. CONSTRUCTION

- 4.1. **Contractor Responsibilities.** Implement the SWP3 for the project site in accordance with the plans and specifications, TPDES CGP TXR150000, and as directed. Coordinate stormwater management with all other work on the project. Develop and implement an SWP3 for project-specific material supply plants within and outside the Department's right of way in conformance with the specific or general stormwater permit requirements. Prevent water pollution from stormwater associated with construction activity from entering any surface water or private property on or adjacent to the project site.
- 4.2. **Implementation.** The CRPE, or alternate CRPE, must be accessible by telephone and able to respond to project-related stormwater management or other environmental emergencies 24 hr. per day.
- 4.2.1. **Commencement.** Implement the SWP3 as shown on the plans and as directed. Contractor-proposed recommendations for changes will be allowed as approved. Conform to the established guidelines in the TPDES CGP TXR150000 to make changes. Do not implement changes until approval has been received and changes have been incorporated into the plans. Minor adjustments to meet field conditions are allowed and will be recorded in the SWP3.
- 4.2.2. **Phasing.** Implement control measures before the commencement of activities that result in soil disturbance. Phase and minimize the soil disturbance to the areas shown on the plans. Coordinate temporary control measures with permanent control measures and all other work activities on the project to assure economical, effective, safe, and continuous water pollution prevention. Provide control measures that are appropriate to the construction means, methods, and sequencing allowed by the Contract. Exercise precaution throughout the life of the project to prevent pollution of ground waters and surface waters. Schedule and perform clearing and grubbing operations so that stabilization measures will follow immediately thereafter if project conditions permit. Bring all grading sections to final grade as soon as possible and implement temporary and permanent control measures at the earliest time possible. Implement temporary control measures when required by TPDES CGP TXR150000 or otherwise necessitated by project conditions.
- Do not prolong final grading and shaping. Preserve vegetation where possible throughout the project, and minimize clearing, grubbing, and excavation within stream banks, bed, and approach sections.
- 4.3. **General.**
- 4.3.1. **Temporary Alterations or Control Measure Removal.** Altering or removal of control measures is allowed when control measures are restored within the same working day.

- 4.3.2. **Stabilization.** Initiate stabilization for disturbed areas no more than 14 days after the construction activities in that portion of the site have temporarily or permanently ceased. Establish a uniform vegetative cover or use another stabilization practice in accordance with TPDES CGP TXR150000.
- 4.3.3. **Finished Work.** Remove and dispose of all temporary control measures upon acceptance of vegetative cover or other stabilization practice unless otherwise directed. Complete soil disturbing activities and establish a uniform perennial vegetative cover. A project will not be considered for acceptance until a vegetative cover of 70% density of existing adjacent undisturbed areas is obtained or equivalent permanent stabilization is obtained in accordance with TPDES CGP TXR150000. The Engineer may accept the work before vegetative cover of 70% density of existing adjacent undisturbed areas. An exception will be allowed in arid areas as defined in TPDES CGP TXR150000.
- 4.3.4. **Restricted Activities and Required Precautions.** Do not discharge onto the ground or into surface waters any pollutants such as chemicals, raw sewage, fuels, lubricants, coolants, hydraulic fluids, bitumens, or any other petroleum product. Operate and maintain equipment onsite to prevent actual or potential water pollution. Manage, control, and dispose of litter onsite such that no adverse impacts to water quality occur. Prevent dust from creating a potential or actual unsafe condition, public nuisance, or condition endangering the value, utility, or appearance of any property. Wash out concrete trucks only as described in TPDES CGP TXR150000. Use appropriate controls to minimize the offsite transport of suspended sediments and other pollutants if it is necessary to pump or channel standing water (i.e., dewatering). Immediately address chemical and hydrocarbon spills caused by the Contractor. Keep a spill kit onsite. Prevent discharges that would contribute to a violation of Edwards Aquifer Rules, water quality standards, the impairment of a listed water body, or other state or federal law.
- 4.4. **Installation, Maintenance, and Removal Work.** Perform work in accordance with the SWP3, in conformance with manufacturers' guidelines, and in accordance with TPDES CGP TXR150000. Install and maintain the integrity of temporary erosion and sedimentation control devices to accumulate silt and debris until soil disturbing activities are completed and permanent erosion control features are in place, or the disturbed area has been adequately stabilized as approved.

The Department will inspect and document the condition of the control measures at the frequency shown on the plans and will provide the Construction SWP3 Field Inspection and Maintenance Reports to the Contractor. Make corrections as soon as possible before the next anticipated rain event or within 7 calendar days after being able to enter the worksite for each control measure. The only acceptable reason for not accomplishing the corrections within the timeframe specified is when site conditions are considered "too wet to work." Take immediate action if a correction is deemed critical as directed. When corrections are not made within the established timeframe, all work will cease on the project and time charges will continue while the control measures are brought into compliance. Commence work once the Engineer reviews and documents the project is in compliance. Commencing work does not release the Contractor of the liability for noncompliance with the SWP3, the plans, or TPDES CGP TXR150000.

The Engineer may limit the disturbed area if the Contractor cannot control soil erosion and sedimentation resulting from the Contractor's operations. Implement additional controls as directed.

Remove devices upon approval or as directed. Finish-grade and dress the area upon removal. Stabilize disturbed areas in accordance with TPDES CGP TXR150000, and as shown on the plans or directed. Materials removed are considered consumed by the project. Retain ownership of stockpiled material and remove it from the project when new installations or replacements are no longer required.

- 4.4.1. **Rock Filter Dams for Erosion Control.** Remove trees, brush, stumps, and other objectionable material that may interfere with the construction of rock filter dams. Place sandbags as a foundation when required or at the Contractor's option.

Place the aggregate to the lines, height, and slopes specified, without undue voids for Types 1, 2, 3, and 5. Place the aggregate on the mesh and then fold the mesh at the upstream side over the aggregate and secure it to itself on the downstream side using wire ties, or hog rings for Type 2 and Type 3, or as directed.

Place rock filter dams perpendicular to the flow of the stream or channel unless otherwise directed. Construct filter dams in accordance with the following criteria unless otherwise shown on the plans.

4.4.1.1.

Type 1 (Non-Reinforced).

- **Height.** At least 18 in. measured vertically from existing ground to top of filter dam.
- **Top Width.** At least 2 ft.
- **Slopes.** No steeper than 2:1.

4.4.1.2.

Type 2 (Reinforced).

- **Height.** At least 18 in. measured vertically from existing ground to top of filter dam.
- **Top Width.** At least 2 ft.
- **Slopes.** No steeper than 2:1.

4.4.1.3.

Type 3 (Reinforced).

- **Height.** At least 36 in. measured vertically from existing ground to top of filter dam.
- **Top Width.** At least 2 ft.
- **Slopes.** No steeper than 2:1.

4.4.1.4.

Type 4 (Sack Gabions). Unfold sack gabions and smooth out kinks and bends. Connect the sides by lacing in a single-loop-double-loop pattern on 4–5-in. spacing for vertical filling. Pull the end lacing rod at one end until tight, wrap around the end, and twist four times. Fill with stone at the filling end, pull the rod tight, cut the wire with approximately 6 in. remaining, and twist wires four times.

Place the sack flat in a filling trough, fill with stone, connect sides, and secure ends as described above for horizontal filling.

Lift and place without damaging the gabion. Shape sack gabions to existing contours.

4.4.1.5.

Type 5. Provide rock filter dams as shown on the plans.

4.4.2.

Temporary Pipe Slope Drains. Install pipe with a slope as shown on the plans or as directed. Construct embankment for the drainage system in 8-in. lifts to the required elevations. Hand-tamp the soil around and under the entrance section to the top of the embankment as shown on the plans or as directed. Form the top of the embankment or earth dike over the pipe slope drain at least 1 ft. higher than the top of the inlet pipe at all points. Secure the pipe with hold-downs or hold-down grommets spaced at most 10 ft. on center. Construct the energy dissipaters or sediment traps as shown on the plans or as directed. Construct the sediment trap using concrete or rubble riprap in accordance with Item 432, when shown on the plans.

4.4.3.

Temporary Paved Flumes. Construct paved flumes as shown on the plans or as directed. Provide excavation and embankment (including compaction of the subgrade) of material to the dimensions shown on the plans unless otherwise indicated. Install a rock or rubble riprap energy dissipater, constructed from the materials specified above, to a minimum depth of 9 in. at the flume outlet to the limits shown on the plans or as directed.

4.4.4.

Construction Exits. Prevent traffic from crossing or exiting the construction site or moving directly onto a public roadway, alley, sidewalk, parking area, or other right of way areas other than at the location of construction exits when tracking conditions exist. Construct exits for either long- or short-term use.

4.4.4.1.

Long-Term. Place the exit over a foundation course as required. Grade the foundation course or compacted subgrade to direct runoff from the construction exits to a sediment trap as shown on the plans or as directed. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed.

4.4.4.1.1.

Type 1. Construct to a depth of at least 8 in. using crushed aggregate as shown on the plans or as directed.

- 4.4.4.1.2. **Type 2.** Construct using railroad ties and timbers as shown on the plans or as directed.
- 4.4.4.2. **Short-Term.**
- 4.4.4.2.1. **Type 3.** Construct using crushed aggregate, plywood, or wafer board. This type of exit may be used for daily operations where long-term exits are not practical.
- 4.4.4.2.2. **Type 4.** Construct as shown on the plans or as directed.
- 4.4.5. **Earthwork for Erosion Control.** Perform excavation and embankment operations to minimize erosion and to remove collected sediments from other erosion control devices.
- 4.4.5.1. **Excavation and Embankment for Erosion Control Features.** Place earth dikes, swales, or combinations of both along the low crown of daily lift placement, or as directed, to prevent runoff spillover. Place swales and dikes at other locations as shown on the plans or as directed to prevent runoff spillover or to divert runoff. Construct cuts with the low end blocked with undisturbed earth to prevent erosion of hillsides. Construct sediment traps at drainage structures in conjunction with other erosion control measures as shown on the plans or as directed.
- Create a sediment basin, where required, providing 3,600 cu. ft. of storage per acre drained, or equivalent control measures for drainage locations that serve an area with 10 or more disturbed acres at one time, not including offsite areas.
- 4.4.5.2. **Excavation of Sediment and Debris.** Remove sediment and debris when accumulation affects the performance of the devices, after a rain, and when directed.
- 4.4.6. **Construction Perimeter Fence.** Construct, align, and locate fencing as shown on the plans or as directed.
- 4.4.6.1. **Installation of Posts.** Embed posts 18 in. deep or adequately anchor in rock, with a spacing of 8–10 ft.
- 4.4.6.2. **Wire Attachment.** Attach the top wire to the posts at least 3 ft. from the ground. Attach the lower wire midway between the ground and the top wire.
- 4.4.6.3. **Flag Attachment.** Attach flagging to both wire strands midway between each post. Use flagging at least 18 in. long. Tie flagging to the wire using a square knot.
- 4.4.7. **Sandbags for Erosion Control.** Construct a berm or dam of sandbags that will intercept sediment-laden stormwater runoff from disturbed areas, create a retention pond, detain sediment, and release water in sheet flow. Fill each bag with sand so that at least the top 6 in. of the bag is unfilled to allow for proper tying of the open end. Place the sandbags with their tied ends in the same direction. Offset subsequent rows of sandbags 1/2 the length of the preceding row. Place a single layer of sandbags downstream as a secondary debris trap. Place additional sandbags as necessary or as directed for supplementary support to berms or dams of sandbags or earth.
- 4.4.8. **Temporary Sediment Control Fence.** Provide temporary sediment control fence near the downstream perimeter of a disturbed area to intercept sediment from sheet flow. Incorporate the fence into erosion control measures used to control sediment in areas of higher flow. Install the fence as shown on the plans, in accordance with this Section, or as directed.
- 4.4.8.1. **Installation of Posts.** Embed posts at least 18 in. deep or adequately anchor, if in rock, with a spacing of 6–8 ft., and install on a slight angle toward the runoff source.
- 4.4.8.2. **Fabric Anchoring.** Dig trenches along the uphill side of the fence to anchor 6–8 in. of fabric. Provide a minimum trench cross-section of 6 × 6 in. Place the fabric against the side of the trench and align approximately 2 in. of fabric along the bottom in the upstream direction. Backfill the trench, then hand-tamp.

4.4.8.3. **Fabric and Net Reinforcement Attachment.** Attach the reinforcement to wooden posts using staples, or to steel posts using T-clips, in at least four places equally spaced unless otherwise shown on the plans. Sewn vertical pockets may be used to attach reinforcement to end posts. Fasten the fabric to the top strand of reinforcement using hog rings or cord every 15 in. or less.

4.4.8.4. **Fabric and Net Splices.** Locate splices at a fence post with a minimum lap of 6 in. attached in at least six places equally spaced unless otherwise shown on the plans. Do not locate splices in concentrated flow areas.

Requirements for installation of used temporary sediment control fence include the following:

- fabric with minimal or no visible signs of biodegradation (weak fibers),
- fabric without excessive patching (more than one patch every 15–20 ft.),
- posts without bends, and
- backing without holes.

4.4.9. **Biodegradable Erosion Control Logs.** Install biodegradable erosion control logs near the downstream perimeter of a disturbed area to intercept sediment from sheet flow. Incorporate the biodegradable erosion control logs into the erosion measures used to control sediment in areas of higher flow. Install, align, and locate the biodegradable erosion control logs as specified below, as shown on the plans, or as directed.

Secure biodegradable erosion control logs in a method adequate to prevent displacement resulting from normal rain events, to prevent damage to the logs, and as approved, such that flow is not allowed under the logs. Temporarily removing and replacing biodegradable erosion logs to facilitate daily work is allowed at the Contractor's expense.

4.4.10. **Vertical Tracking.** Perform vertical tracking on slopes to temporarily stabilize soil. Provide equipment with a track undercarriage capable of producing a linear soil impression measuring at least 12 in. long × 2–4 in. wide × 1/2–2 in. deep. Do not exceed 12 in. between track impressions. Install continuous linear track impressions where the 12-in. length impressions are perpendicular to the slope. Vertical tracking is required on projects where soil disturbing activities have occurred, unless otherwise approved.

4.5. **Monitoring and Documentation.** Monitor the control measures daily as long as there are BMPs in place or soil disturbing activities are evident to ensure compliance with the SWP3 and TPDES CGP TXR150000. During time suspensions when work is not occurring or contract non-work days, daily inspections are not required unless a rain event has occurred. Monitoring will consist of, but is not limited to, observing, inspecting, and documenting site locations with control measures and discharge points to provide maintenance and inspection of controls in accordance with the SWP3. Keep written records of daily monitoring. Document in the daily monitoring report the control measure condition, the date of inspection, required corrective actions, the responsible person for making the corrections, and the date corrective actions were completed. Maintain records of all monitoring reports at the project site or at an approved place. Provide copies within 7 days. Together, the CRPE and an Engineer's representative will complete the Construction Stage Gate Checklist periodically as directed.

5. MEASUREMENT

5.1. **Rock Filter Dams.** Installation or removal of rock filter dams will be measured by the foot or by the cubic yard. The measured volume will include sandbags, when used.

5.1.1. **Linear Measurement.** When rock filter dams are measured by the foot, measurement will be along the centerline of the top of the dam.

5.1.2. **Volume Measurement.** When rock filter dams are measured by the cubic yard, measurement will be based on the volume of rock computed by the method of average end areas.

5.1.2.1. **Installation.** Measurement will be made in final position.

- 5.1.2.2. **Removal.** Measurement will be made at the point of removal.
- 5.2. **Temporary Pipe Slope Drains.** Temporary pipe slope drains will be measured by the foot.
- 5.3. **Temporary Paved Flumes.** Temporary paved flumes will be measured by the square yard of surface area. The measured area will include the energy dissipater at the flume outlet.
- 5.4. **Construction Exits.** Construction exits will be measured by the square yard of surface area.
- 5.5. **Earthwork for Erosion and Sediment Control.**
- 5.5.1. **Equipment and Labor Measurement.** Equipment and labor used will be measured by the actual number of hours the equipment is operated and the labor is engaged in the work.
- 5.5.2. **Volume Measurement.**
- 5.5.2.1. **In Place.**
- 5.5.2.1.1. **Excavation.** Excavation will be measured by the cubic yard in its original position and the volume computed by the method of average end areas.
- 5.5.2.1.2. **Embankment.** Embankment will be measured by the cubic yard in its final position by the method of average end areas. The volume of embankment will be determined between:
- the original ground surfaces or the surface upon which the embankment is to be constructed for the feature and
 - the lines, grades, and slopes of the accepted embankment for the feature.
- 5.5.2.2. **In Vehicles.** Excavation and embankment quantities will be combined and paid for under “Earthwork (Erosion and Sediment Control, In Vehicle).” Excavation will be measured by the cubic yard in vehicles at the point of removal. Embankment will be measured by the cubic yard in vehicles measured at the point of delivery. Shrinkage or swelling factors will not be considered in determining the calculated quantities.
- 5.6. **Construction Perimeter Fence.** Construction perimeter fence will be measured by the foot.
- 5.7. **Sandbags for Erosion Control.** Sandbags will be measured as each sandbag or by the foot along the top of sandbag berms or dams.
- 5.8. **Temporary Sediment Control Fence.** Installation or removal of temporary sediment control fence will be measured by the foot.
- 5.9. **Biodegradable Erosion Control Logs.** Installation or removal of biodegradable erosion control logs will be measured by the foot along the centerline of the top of the control logs.
- 5.10. **Vertical Tracking.** Vertical tracking will not be measured or paid for directly, but will be subsidiary to this Item.

6. PAYMENT

The following will not be paid for directly, but will be subsidiary to pertinent Items:

- erosion control measures for Contractor project-specific locations (PSLs) inside and outside the right of way (e.g., construction and haul roads, field offices, equipment and supply areas, plants, and material sources);
- removal of litter, unless a separate pay item is shown on the plans;
- repair to devices and features damaged by Contractor operations;

- added measures and maintenance needed due to negligence, carelessness, lack of maintenance, and failure to install permanent controls;
- removal and reinstallation of devices and features needed for the convenience of the Contractor;
- finish grading and dressing upon removal of the device; and
- minor adjustments including but not limited to plumbing posts, reattaching fabric, minor grading to maintain slopes on an erosion embankment feature, or moving small numbers of sandbags.

Stabilization of disturbed areas will be paid for under pertinent Items except vertical tacking, which will be subsidiary.

Furnishing and installing pipe for outfalls associated with sediment traps and ponds will not be paid for directly, but will be subsidiary to the excavation and embankment under this Item.

6.1. **Rock Filter Dams.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid as follows.

6.1.1. **Installation.** Installation will be paid for as "Rock Filter Dams (Install)" of the type and slope as specified. This price is full compensation for furnishing and operating equipment, finish backfill and grading, lacing, proper disposal, labor, materials, tools, and incidentals.

6.1.2. **Removal.** Removal will be paid for as "Rock Filter Dams (Remove)." This price is full compensation for furnishing and operating equipment, proper disposal, labor, materials, tools, and incidentals.

When the Engineer directs that the rock filter dam installation or portions thereof be replaced, payment will be made at the unit price bid for "Rock Filter Dams (Remove)" and for "Rock Filter Dams (Install)" of the type specified. This price is full compensation for furnishing and operating equipment, finish backfill and grading, lacing, proper disposal, labor, materials, tools, and incidentals.

6.2. **Temporary Pipe Slope Drains.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Temporary Pipe Slope Drains" of the size specified. This price is full compensation for furnishing materials, removal and disposal, furnishing and operating equipment, labor, tools, and incidentals.

Removal of temporary pipe slope drains will not be paid for directly, but will be subsidiary to the installation Item. When the Engineer directs that the pipe slope drain installation or portions thereof be replaced, payment will be made at the unit price bid for "Temporary Pipe Slope Drains" of the size specified, which is full compensation for the removal and reinstallation of the pipe drain.

Earthwork required for the pipe slope drain installation, including construction of the sediment trap, will be measured and paid for under "Earthwork for Erosion and Sediment Control."

Riprap concrete or stone, when used as an energy dissipater or as a stabilized sediment trap, will be measured and paid for in accordance with Item 432.

6.3. **Temporary Paved Flumes.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Temporary Paved Flume (Install)" or "Temporary Paved Flume (Remove)." This price is full compensation for furnishing and placing materials, removal and disposal, equipment, labor, tools, and incidentals.

When the Engineer directs that the paved flume installation or portions thereof be replaced, payment will be made at the unit prices bid for "Temporary Paved Flume (Remove)" and "Temporary Paved Flume (Install)." These prices are full compensation for the removal and replacement of the paved flume and for equipment, labor, tools, and incidentals.

Earthwork required for the paved flume installation, including construction of a sediment trap, will be measured and paid for under "Earthwork for Erosion and Sediment Control."

- 6.4. **Construction Exits.** Contractor-required construction exits from off right of way locations or on right of way PSLs will not be paid for directly, but will be subsidiary to pertinent Items.

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" for construction exits needed on right of way access to work areas required by the Department will be paid for at the unit price bid for "Construction Exits (Install)" of the type specified or "Construction Exits (Remove)." This price is full compensation for furnishing and placing materials, excavating, removal and disposal, cleaning vehicles, labor, tools, and incidentals.

When the Engineer directs that a construction exit or portion thereof be removed and replaced, payment will be made at the unit prices bid for "Construction Exit (Remove)" and "Construction Exit (Install)" of the type specified. These prices are full compensation for the removal and replacement of the construction exit and for equipment, labor, tools, and incidentals.

Construction of sediment traps used in conjunction with the construction exit will be measured and paid for under "Earthwork for Erosion and Sediment Control."

- 6.5. **Earthwork for Erosion and Sediment Control.**

- 6.5.1. **Initial Earthwork for Erosion and Sediment Control.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Excavation (Erosion and Sediment Control, In Place)," "Embankment (Erosion and Sediment Control, In Place)," "Excavation (Erosion and Sediment Control, In Vehicle)," "Embankment (Erosion and Sediment Control, (In Vehicle)," or "Earthwork (Erosion and Sediment Control, In Vehicle)."

This price is full compensation for excavation and embankment, including hauling; disposal of material not used elsewhere on the project; embankments including furnishing material from approved sources and construction of erosion control features; and equipment, labor, tools, and incidentals.

Sprinkling and rolling required by this Item will not be paid for directly, but will be subsidiary to this Item.

- 6.5.2. **Maintenance Earthwork for Erosion and Sediment Control for Cleaning and Restoring Control Measures.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid under a Contractor Force Account Item from invoice provided to the Engineer.

This price is full compensation for excavation, embankment, and re-grading, including dewatering for removal of accumulated sediment, and the removal of accumulated sediment in various erosion control installations as directed, hauling, and disposal of material not used elsewhere on the project; excavation for construction of erosion control features; embankments, including furnishing material from approved sources and construction of erosion control features; and equipment, labor, tools, and incidentals.

Earthwork needed to remove and obliterate erosion control features will not be paid for directly, but will be subsidiary to pertinent Items unless otherwise shown on the plans.

Sprinkling and rolling required by this Item will not be paid for directly, but will be subsidiary to this Item.

- 6.6. **Construction Perimeter Fence.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Construction Perimeter Fence." This price is full compensation for furnishing and placing the fence; digging, fence posts, wire, and flagging; removal and disposal; and materials, equipment, labor, tools, and incidentals.

Removal of construction perimeter fence will not be paid for directly, but will be subsidiary to the installation Item. When the Engineer directs that the perimeter fence installation or portions thereof be removed and replaced, payment will be made at the unit price bid for "Construction Perimeter Fence," which is full compensation for the removal and reinstallation of the construction perimeter fence.

- 6.7. **Sandbags for Erosion Control.** Sandbags will be paid for at the unit price bid for "Sandbags for Erosion Control" (of the height specified when measurement is by the foot). This price is full compensation for materials, placing sandbags, removal and disposal, equipment, labor, tools, and incidentals.
- Removal of sandbags will not be paid for directly, but will be subsidiary to the installation Item. When the Engineer directs that the sandbag installation or portions thereof be replaced, payment will be made at the unit price bid for "Sandbags for Erosion Control," which is full compensation for the reinstallation of the sandbags.
- 6.8. **Temporary Sediment Control Fence.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid as follows.
- 6.8.1. **Installation.** Installation will be paid for as "Temporary Sediment-Control Fence (Install)." This price is full compensation for furnishing and operating equipment, finish backfill and grading, lacing, proper disposal, labor, materials, tools, and incidentals.
- 6.8.2. **Removal.** Removal will be paid for as "Temporary Sediment-Control Fence (Remove)." This price is full compensation for furnishing and operating equipment, proper disposal, labor, materials, tools, and incidentals.
- 6.9. **Biodegradable Erosion Control Logs.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid as follows.
- 6.9.1. **Installation.** Installation will be paid for as "Biodegradable Erosion Control Logs (Install)" of the size specified. This price is full compensation for furnishing and operating equipment, finish backfill and grading, staking, proper disposal, labor, materials, tools, and incidentals.
- 6.9.2. **Removal.** Removal will be paid for as "Biodegradable Erosion Control Logs (Remove)." This price is full compensation for furnishing and operating equipment, proper disposal, labor, materials, tools, and incidentals.
- 6.10. **Vertical Tracking.** Vertical tracking will not be measured or paid for directly, but will be subsidiary to this Item.

Item 556

Pipe Underdrains



1. DESCRIPTION

Install pipe underdrains.

2. MATERIALS

2.1. **Pipe.** Furnish the types and sizes of pipe shown on the plans. Use only one type of pipe for any underdrain system on the project. Use perforated pipe in areas to be drained and use non-perforated pipe between the perforated pipe and the outfall.

2.1.1. **Type 1.** Corrugated steel pipe (CSP) conforming to any type specified in AASHTO M 36, fabricated from corrugated galvanized sheet.

2.1.2. **Type 2.** Corrugated aluminum pipe conforming to AASHTO M 196, Type I or Type IA, fabricated from corrugated sheet.

2.1.3. **Type 3.** Bituminous-coated CSP conforming to the requirements of Type 1 and uniformly coated inside and out with a minimum thickness of 0.05 in. of bituminous material meeting the requirements shown in Table 1 when tested in accordance with ASTM A849 Material Class A or Material Class PA.

Table 1
Requirements of Bituminous Material

Test	Requirements
Solubility, % by wt., in trichloroethylene	99.5 Min
Brittleness	Pass
Flow, in.	0.25 Max

2.1.4. **Type 4.** Bituminous-coated corrugated aluminum pipe conforming to the requirements of Type 2 and uniformly coated inside and out with a minimum thickness of 0.05 in. of bituminous material meeting the requirements shown in Table 1 when tested in accordance with ASTM A849 Material Class A or Material Class PA.

2.1.5. **Type 6.** Corrugated polyethylene plastic tubing conforming to AASHTO M 252.

2.1.6. **Type 7.** Corrugated polyvinyl chloride (PVC) pipe conforming to ASTM F949.

2.1.7. **Type 8.** Smooth-wall PVC pipe conforming to AASHTO M 278 Class PS 46.

2.1.8. **Type 9.** As shown on the plans.

2.2. **Filter Material.** Furnish hard, durable, and clean sand, gravel, crushed stone, or crushed shell meeting the gradation by percent weight shown in Table 2 unless otherwise shown on the plans. Filter material must be free of clay balls or other organic or deleterious matter as determined by in accordance with [Tex-413-A](#). Use of crushed limestone is allowed unless otherwise shown on the plans. Use only one type of filter material for any underdrain system on a project.

Table 2
Acceptable Gradations for Filter Material

Sieve Size	Type B	Type C	Type E	Type F	Type G
	% Retained on Sieve (Tex-401-A)				
1-1/2"	–	0–10	Grade 2 Coarse Aggregate ²	Grade 3 Coarse Aggregate ²	Grade 4 (57) Coarse Aggregate ²
3/4"	0–10	20–40			
3/8"	15–35	–			
#4	35–55	40–60			
#20	35–65 ¹	35–65 ¹			
#50	75–100 ¹	75–100 ¹			

1. Of the portion finer than No. 4 sieve.
2. Refer to Table 4 in Item 421, "Hydraulic Cement Concrete."

Loss by decantation as determined by in accordance with [Tex-406-A](#) must not exceed 1% of the material retained on a No. 4 sieve or 4% of the material passing a No. 4 sieve. Use Type G filter material around the underdrains unless otherwise shown on the plans.

- 2.3. **Filter Fabric.** Meet [DMS-6200](#), "Filter Fabric," Type 1.
- 2.4. **Riprap.** Provide concrete riprap in accordance with Item 432, "Riprap," when required.

3. CONSTRUCTION

Begin excavation of the trench at the outfall and proceed toward its upper end, following the lines and grades shown on the plans or as directed. Hold the minimum horizontal limits of excavation for filter material to the dimensions shown in Table 3 or as shown on the plans.

Table 3
Minimum Horizontal Limits of Excavation for Filler Material

Depth of Trench (ft.)	Distance Outside Neat Lines of Pipe Underdrains (ft.)
0–6	1.00
>6–10	1.50
>10–15	2.00
>15	2.50

Place filter fabric in the bottom and sides of the trench in areas to be drained before placing pipe or filter material, as shown in Figure 1. Provide enough width of fabric to overlap on top of the filter material. Center perforated pipe in the excavated ditch with the perforations below the horizontal axis. Join the pipe with appropriate couplers if required. Join plastic pipe in conformance with the manufacturer's recommendations. Do not use tarpaper strips. Obtain approval for pipe placement before placing filter material.

Place filter material at least 12 in. above the bottom of the pipe or as shown on the plans. Do not allow filter material to displace the pipe.

Lap filter fabric over the top of the filter material after placing pipe and filter material in conformance with the manufacturer's recommendation or as shown on the plans.

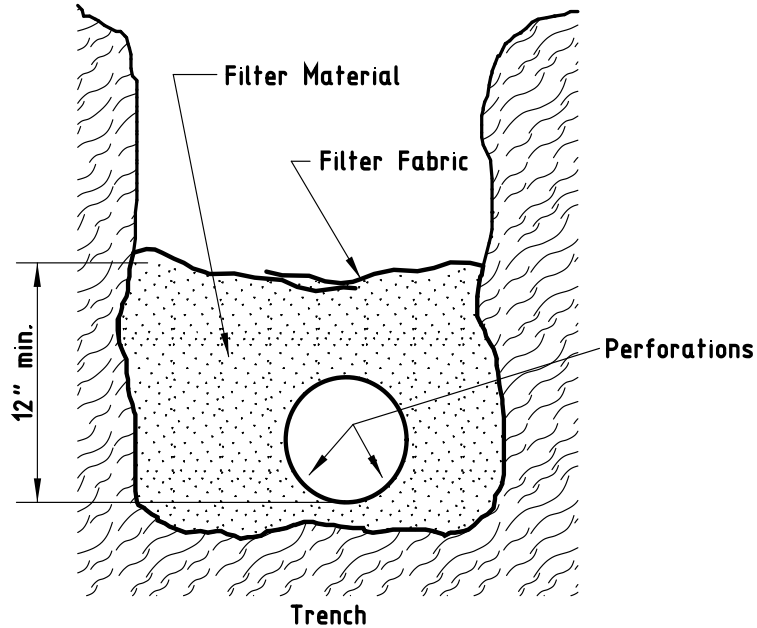


Figure 1
Installation Process

Install non-perforated pipe sections between the perforated pipe and the outfall. The sections of non-perforated pipe do not require filter fabric or filter material.

Place approved plugs in the upper ends of all pipe. Cover exposed outfall ends with 1/2-in. galvanized hardware cloth as directed. Provide Class B concrete riprap, when required, in accordance with Item 432 and as shown on the plans. Place the riprap to the contour and grade of the embankment slope. Cut the pipe to the slope of the riprap.

Backfill the remainder of the trench with suitable material in layers not to exceed 6 in.

4. MEASUREMENT

This Item will be measured by the foot along the top of the pipe and will include the length of elbows, wyes, tees, and other branches.

5. PAYMENT

The work performed and material furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Pipe Underdrains" of the pipe type and size specified. This price is full compensation for pipe, couplers, plugs, screens, filter material, filter fabric, riprap, excavation, backfill, equipment, labor, materials, tools, and incidentals.

Protection methods for excavations deeper than 5 ft. will be measured and paid for in accordance with Item 402, "Trench Excavation Protection."

Item 618

Conduit



1. DESCRIPTION

Furnish and install conduit; prepare existing conduit.

2. MATERIALS

Provide new materials that comply with the details shown on the plans, the requirements of this Item, and the pertinent requirements of the following Items.

- Item 400, "Excavation and Backfill for Structures"
- Item 476, "Jacking, Boring, or Tunneling Pipe or Box"

When specified on the plans, provide:

- rigid metal conduit (RMC),
- polyvinyl chloride (PVC) conduit,
- high density polyethylene (HDPE) conduit,
- liquid-tight flexible metal conduit (LFMC), or
- liquid-tight flexible nonmetallic conduit (LFNC).

Furnish conduit from new materials in accordance with [DMS-11030](#), "Conduit."

Provide prequalified conduit from the Department's MPL. When required by the Engineer, notify the Department in writing of selected materials from the MPL intended for use on each project.

Provide other types of conduit not on the MPL that comply with the details shown on the plans and the NEC. Fabricate fittings such as junction boxes and expansion joints from a material like the connecting conduit, unless otherwise shown on the plans. Use watertight fittings. Do not use set screw fittings. Steel compression fittings are permissible. When using HDPE conduit, provide fittings that are UL-listed as electrical conduit connectors, or connect conduit by thermal fusing with an electrically heated welding method.

Use red 3-in. 4-mil polyethylene underground warning tape that continuously states, "Caution Buried Electrical Line Below."

3. CONSTRUCTION

Perform work as shown on the plans and in accordance with this Item.

Use established industry and utility safety practices when installing conduit located near underground utilities. Consult with the appropriate utility company before beginning work.

- 3.1. **Installation of Conduit.** Install conduit at least 18 in. deep below finished grade to top of conduit unless otherwise shown on the plans. Meet the requirements of the NEC when installing conduit. Secure and support conduit placed for concrete encasement such that the alignment will not be disturbed during placement of the concrete. Cap ends of conduit and close box openings before concrete is placed.

Ream conduit to remove burrs and sharp edges. Use a standard conduit cutting die with a 3/4-in. taper per foot when conduit is threaded in the field. Galvanize or paint threads in accordance with Item 445,

"Galvanizing." Fasten conduit placed on structures with conduit straps or hangers as shown on the plans or as directed. Fasten conduit within 3 ft. of each box or fitting and at other locations shown on the plans or as directed. Use two-hole type clamps for 2-in. diameter or larger conduit.

Fit PVC and HDPE conduit terminations with bushings or bell ends. Fit metal conduit terminations with a grounding type bushing, except conduit used for duct cable casing that does not terminate in a ground box and is not exposed at any point. Conduit terminating in threaded bossed fittings does not need a bushing. Before installation of conductors or final acceptance, pull a properly sized mandrel or piston through the conduit to ensure that it is free of obstruction. Cap or plug empty conduit placed for future use.

Perform trench excavation and backfilling as shown on the plans or as directed, and in accordance with Item 400. Excavation and backfilling will be subsidiary to the installation of the conduit.

Jack and bore as shown on the plans or as directed, and in accordance with Item 476.

Place warning tape approximately 10 in. above trenched conduit. Where existing surfacing is removed for placing conduit, repair by backfilling with material equal in composition and density to the surrounding areas and by replacing any removed surfacing, such as asphalt pavement or concrete riprap, with like material to equivalent condition. Mark conduit locations as directed.

- 3.2. **Preparation of Conduit.** Pull a mandrel through empty conduits. Use a mandrel with a diameter greater than 70% of the inside diameter of the conduit and 2-in. length. Repair or replace conduit runs that will not allow passage of the mandrel. Replace conduit deemed impractical to repair or that remains unsuitable in accordance with Item 618, "Conduit." Clean the conduit by pulling a rubber swab slightly larger in diameter than the conduit.

Blow compressed air through conduits that contain wires. Remove debris from the conduit by pushing a fish tape through the conduit. Do not use water to clear debris. Retest the conduit by blowing compressed air.

Install one pull cord in each conduit for use in installing the conductors, cables, or innerduct.

4. MEASUREMENT

This Item will be measured by the foot of conduit installed, or by the foot of conduit cleared, tested, replaced, and repaired.

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

5. PAYMENT

- 5.1. **Installation of Conduit.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Conduit" of the type and size specified and the installation method specified as applicable, or for "Conduit (Prepare)." This price is full compensation for furnishing and installing conduit; cleaning and testing conduit; hanging, strapping, jacking, boring, tunneling, trenching, and furnishing and placing backfill; encasing in steel or concrete; replacing pavement structure, sod, riprap, curbs, or other surface; marking location of conduit (when required); furnishing and installing fittings, junction boxes, and expansion joints; and materials, equipment, labor, tools, and incidentals.

Flexible conduit will not be paid for directly, but will be subsidiary to pertinent Items. Unless otherwise shown on the plans, no payment will be allowed under this Item for conduit used on electrical services or in foundations.

Repair of existing conduit will be paid for by the Department in accordance with Article 9.7., "Payment for Extra Work and Force Account Method."

Special Specification 1000

Landscape Maintenance



1. DESCRIPTION

Perform landscape maintenance services. Clean and sweep paved parking areas.

2. SUPPLIES

Use proper materials in accordance with the manufacturer's directions. Furnish Material Safety Data Sheets (MSDS) on products supplied by the Contractor.

3. EQUIPMENT

Furnish tools, rubber boots, gloves, bags, and other safety materials. Provide machinery to efficiently produce the desired results. Use mulching type riding or push mowers for all mowing. Immediately repair or replace defective equipment. Do not store equipment on Department property.

Furnish equipment capable of dislodging crusted debris from paved parking areas and removing and collecting materials from paved parking areas. Provide highly visible omni-directional flashing warning lights on work vehicles. Equipment must have a water tank with adequate spray assemblies for dust control and a dirt hopper with sufficient capacity to allow operation to progress with minimum interference to traffic. Provide other types of cleaning and sweeping equipment, including hand tools, when required.

4. WORK METHODS

Correct deficiencies regarding areas of unacceptable appearance. Report any repairs or vandalism noticed during cleanup. The areas to be serviced are as shown on the plans. Provide the following services.

4.1. Landscape Maintenance. Maintain a weekly log of activities performed. Submit completed log to the Department at the end of each month for payment. At minimum, provide:

- A listing and description of landscape maintenance work activities,
- The date work is performed,
- A listing of materials used, and
- Rates of application.

4.1.1. Mowing. Use caution during mowing and trimming operations to eliminate flying debris and damage to plant basins and any plant material. Maximum mowing height is 3 inches. Mow as follows:

- Once a week, March 1st through September 30th,
- Every other week, October 1st to February 28th, or
- As shown on the plans.

4.1.2. Litter Pickup. Pick up litter from mowing and paved areas as shown on the plans before each mowing cycle. Place all debris collected in a dumpster provided by the Department.

Litter is defined as trash, garbage, refuse of the specified character, which is discarded onto the grounds and described as, but not limited, to paper, wood, plastic, and glass products.

4.1.3. Edging. Edge and sweep or use a blower on walks and curbs after each mowing. Perform string edging at each mowing around all beds, trees, and signposts. Do not use line trimmers (weed eaters) near the base of

trees or shrubs. This includes trimming grass and weeds around the building and along the fence-line within the mowing limits.

- 4.1.4. Pavement Sweeping. Sweep or use a blower to remove all debris. Place debris collected in a dumpster provided by the Department.
- 4.1.5. Plant Irrigation. Irrigate grass and plant materials after each mowing. Consider irrigation incidental to "Landscape Maintenance."
- 4.2. Leaf Raking. During the months of October through February, rake, bag, and dispose of leaves, pine needles, paper, etc. after each mowing cycle.
- 4.3. Plant Installation. Place plant material to new or existing beds as directed in the Spring and Fall. The Department will provide plant material. Remove weeds and grass and till or turn the ground before plant installation. Maintain plant material until they become established. Replace dead and stressed plants.
- 4.4. Flower Bed Maintenance. Keep planting areas clean and free of weeds and grass so they do not become established and go to seed. Perform twice per month.
- 4.5. Shrub Planting and Removal. Place shrubs provided by the Department as directed. Back fill plant pits with planting soil mix provided by the Department. Use soil removed from plant pits to form watering basins. Dispose of excess soil as directed. Remove all plants and shrubs as directed. Plants and shrubs that are removed become the property of the Contractor and disposed of off Department property.
- 4.6. Pruning and Trimming Trees and Shrubs. Trimming cycles are once a month and includes trimming trees along the fence line of the complex in accordance to ANSI A300 Standards. Remove dead tree branches as directed. Prune shrubs and Crepe Myrtle's annually. Place debris in a dumpster provided by the Department.
- 4.7. Irrigation System Maintenance. Maintain the system in proper working order. Adjust the controller program for proper distribution of water.
- Repair, replace, and furnish any equipment and parts that are found defective or damaged. Immediately make repairs if the system fails to meet the watering requirements of the plant material.
- 4.8. Mulching. Mulch once per year. Apply mulch at a depth of 3 in. and maintain at a minimum of 2 in. or as directed. Provide mulch.
- 4.9. Fertilization. Provide one of the following fertilizers in accordance to manufacturer's directions. Apply to the lawn area and planting beds in the Spring and Fall. Notify the Department before applying fertilizer.
- 4.10. Pesticide, Fungicide, and Herbicide. Apply 1 application of pesticide in the Spring using the broadcast treatment method for the control of fire ants within the mowing limits. Apply fungicide and herbicide as a one-time application in the Fall. Apply spot treatment as directed.
- Pesticide, fungicide, and herbicide applicators must possess or be under the direct supervision of a person possessing, a license issued by the Texas Department of Agriculture or the Texas Structural Pest Control Board in the appropriate use category. Provide documentation of such certification and obtain approval before applications. All applications must conform to label directions and all pertinent laws and regulations.
- 4.11. Cleaning and Sweeping Paved Parking Areas. Completely remove debris from parking areas designated on the plans. Collect the debris and dispose of off the right of way in accordance with Federal, State and local regulations. Debris is defined as dirt and other matter not a part of the paved parking areas.
- 4.12. Emergency Call Out for Sweeping Paved Parking Areas. Clean and sweep paved parking areas after verbal notification for an emergency call out. Respond to notification within the time shown on the plans.

5. MEASUREMENT

The unit of measurement for Landscape Maintenance, and Irrigation System Maintenance is by the month. The unit of measurement for Shrub Planting and Removal is by the each. The following will be measured by the cycle:

- Plant Installation,
- Flower Bed Maintenance,
- Leaf Raking,
- Pruning and Trimming Trees and Shrubs,
- Mulching,
- Fertilization,
- Pesticide, Fungicide, and Herbicide, and
- Emergency Call Out for Sweeping Paved Parking Areas.

6. PAYMENT

The work performed and supplies furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Landscape Maintenance," "Leaf Raking," "Irrigation System Maintenance," "Shrub Planting and Removal," "Plant Installation," "Flower Bed Maintenance," "Pruning and Trimming Trees and Shrubs," "Mulching," "Fertilizer," "Pesticide, Fungicide, and Herbicide". This price is full compensation for furnishing equipment, supplies, labor; cleaning, sweeping, collecting, hauling, and disposing of debris; and incidentals necessary to complete the work as provided under "Work Methods."

For any day when landscape maintenance services required for that month are not satisfactorily completed, one day's pay will be deducted from the Contractor's monthly payment. One day's pay will be determined by dividing the monthly bid price by 30 days.

Special Specification 1000

Pressure Irrigation Polyvinyl Chloride (PVC) Pipe



1. DESCRIPTION

Furnish and install polyvinyl chloride (PVC) pipe for a pressure irrigation pipe system. The pipe must be the sizes, types, and dimensions shown on the plans and must include all connections and joints to new or existing pipes and other appurtenances as required to complete the work.

2. MATERIALS

Furnish materials in accordance with the following Items and Special Specifications.

- Item 400, "Excavation and Backfill for Structures"
- Item 401, "Flowable Backfill"
- Item 464, "Reinforced Concrete Pipe"
- Special Specification 4024, "Reinforced Concrete Low-Head Pressure Pipe"
- Special Specification 7073, "Welded Steel Casing Pipe (Open Cut)"
- Item 467, "Safety End Treatment"

Unless otherwise shown on the plans, pressure irrigation PVC pipe and joint fittings must conform to the following.

PVC pipe must be manufactured from virgin compounds in accordance with ASTM D2241, and must meet or exceed the requirements of ASTM D1784 for the cell Class 12454B.

The Contractor must furnish the Engineer with manufacturer documentation certifying that the pressure irrigation PVC pipe and joint fittings comply with this Item. All pipe must be marked with the ASTM resin cell classification and the date of manufacture.

3. INSPECTION

The quality of materials, process of manufacture, and finished pipe is subject to inspection and approval at the manufacturing plant. In addition, the finished pipe is subject to further inspection by the Engineer at the project site before and during installation.

4. SECTION PROPERTIES

The Contractor must provide PVC pipe that meets the minimum value of pipe wall thickness of 100 psi in accordance with Table 1.

Table 1
PVC Pipe

Nominal Pipe Diameter (in.)	Min Wall Thickness (in.)	Weight (lb. per foot)
6	0.150	1.9
8	0.199	3.3
10	0.249	5.2
12	0.299	7.5
15	0.373	11.7
18	0.496	17.6
21	0.538	24.6

24	0.605	32.4
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5. JOINTS

Joints must maintain pipe alignment and prevent infiltration of material during the life of the installation. Joints must consist of an external sleeve and gasket system or an integral gasketed system and must conform to ASTM D3139. Gasket material must conform to either ASTM D1056 or ASTM F477.

6. CONSTRUCTION

Only trench installation of pressure irrigation PVC pipe is permitted, except where pressure irrigation PVC pipe is placed in casing pipe meeting Item 464 or Special Specification 4024.

6.1. **Excavation.** All excavation must be in accordance with Item 400.

6.2. **Shaping and Bedding.** The pipe must be bedded in a foundation of compacted cohesionless material, such as sand, crushed stone, or pea gravel, with maximum size not exceeding 3/8 in. This material must extend at least 6 in. below the outermost corrugations or ribs, and must be carefully and accurately shaped to fit the lowest part of the pipe exterior for at least 10% of the overall height. When requested, the Contractor must furnish a template for each size and shape of pipe to be placed for use in checking the shaping of the bedding. The template must consist of a thin plate or board cut to match the lower half of the cross-section of the pipe.

6.3. **Laying Pipe.** Unless otherwise approved, the laying of pipes on the bedding must start at the outlet end with the separate sections firmly joined together. Proper facilities must be provided for hoisting and lowering the section of the pipe into the trench without damaging the pipe or disturbing the bedding and side of the trench. Any pipe that is not in alignment, or that shows any undue settlement after laying, must be removed and re-laid at the Contractor's expense.

Multiple installation of pressure irrigation PVC pipe must be laid with the centerlines of individual barrels parallel. Unless otherwise shown on the plans, the clear distances between outer surfaces of adjacent pipes must be maintained in accordance with Table 2.

**Table 2
Clearance Between Multiple Pipes**

Nominal Pipe Diameter (in.)	Clear Distance Between Pipes
18	1 ft. 2 in.
24	1 ft. 5 in.
30	1 ft. 8 in.
36	1 ft. 11 in.

6.4. **Reuse of Existing Appurtenances.** When existing appurtenances are shown on the plans for reuse, the portion to be reused must be severed and moved to the new position previously prepared, by approved methods.

Connections must conform to the requirements for joining sections of pipes as indicated herein or as shown on the plans. Any existing appurtenances damaged during moving operations must be restored to their original condition at the Contractor's expense. The Contractor may remove and dispose of the existing headwalls and aprons and construct new headwalls at their own expense, in accordance with the pertinent Specifications and design as shown on the plans.

6.5. **Connections and Stub Ends.** Connections of irrigation pipe to existing irrigation or appurtenance must be as shown on the plans or as directed. The bottom of the existing structure must be mortared or concreted, if necessary, to eliminate any drainage pockets created by the new connection. Where the sewer is connected into existing structures that are to remain in service, any damage to the existing structure resulting from making the connection must be restored by the Contractor to the satisfaction of the Engineer. Stub ends, for

connections to future work not shown on the plans, must be sealed by installing watertight plugs into the free end of the pipe.

- 6.6. **Backfilling.** Particular attention is necessary when backfilling PVC pipe. After the pipe structure has been installed as required by the plan details, it must be backfilled according to the following, except where it is placed in steel casing.
- **Type I.** Backfill consists of materials in accordance with Item 401. The flowable backfill must be placed across the entire width of the trench and must maintain a minimum depth of 12 in. above the pipe.
 - **Type II.** Backfill consists of a cohesionless material, such as sand, crushed stone, or pea gravel, with a maximum size not to exceed 3/8 in. The backfill material must be placed along both sides of the completed structures to a depth of 12 in. above the pipe. The backfill must be placed in uniform layers not exceeding 6 in. in depth (loose measurement), wetted if required, and thoroughly compacted between adjacent structures and between the structure and the sides of the trench. Until a minimum cover of 12 in. is obtained, only hand-operated tamping equipment is allowed within vertical planes 2 ft. beyond the horizontal projection of the outside surfaces of the structure.

All pipe, excluding private driveway and side road culvert pipe, must be backfilled with Type I backfill. For private driveway and side road culvert pipe, the Contractor may use either Type I or Type II backfill.

Any backfill above Type I or Type II backfill material must be placed in accordance with Item 400. If Type I backfill is used, at least 24 hr. must elapse before backfilling the remaining portion of the trench with backfill material in accordance with Item 400.

During the backfilling operations, special emphasis must be placed on the need for obtaining uniform backfill material and uniform compacted density throughout the length of the structure so that unequal pressure is avoided. Extreme care must be taken to ensure proper backfill under the structure (haunch zone).

- 6.7. **Protection of Pipe.** Unless otherwise shown on the plans or permitted in writing by the Engineer, no heavy earth-moving equipment is permitted to be hauled over the structure until at least 4 ft. of compacted fill (permanent or temporary) is placed over the top of the structure.

Before adding each new layer of loose backfill material, and until at least 12 in. of cover is obtained, an inspection will be made of the inside periphery of the structure for local or unequal deformation caused by improper construction methods. Evidence of such will require corrective measures as directed by the Engineer.

Pipe damaged by the Contractor must be removed and replaced by the Contractor at no additional cost to the Department.

- 6.8. **Treatment of Exposed Ends of Pipe.** All exposed ends of the pipe must be treated with concrete safety end treatment or metal end treatment as shown on the plans and conforming to Item 467.

7. MEASUREMENT

This Item will be measured by the foot. Such measurements will be made between the ends of the barrel along its flow line, exclusive of safety end treatments. Safety end treatments must be measured in accordance with Item 467. Where spurs, branches, or connections to existing pipelines are involved, measurement of the spur or new connecting pipe will be made from the intersection of its flow line with the outside surface of the pipe into which it connects. Where inlets, headwalls, catch basins, manholes, junction chambers, or other structures are included in lines of pipe, that length of pipe tying into the structure wall will be included for measurement, but no other portion of the structure length or width will be so included.

For multiple pipes, the measured length will be the sum of the lengths of the barrels, measured as prescribed above.

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

8. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Pressure Irrigation PVC Pipe (Type I backfill)" of the size specified, "Pressure Irrigation PVC Pipe (Type I or II backfill)" of the size specified, or "Pressure Irrigation PVC Pipe" of the size specified. This price is full compensation for furnishing, hauling, placing, and joining of pipes; for all connections to new or existing structures; for moving and reusing headwalls where required; for removing and disposing of portions of existing structures as required; for the bedding and Type I or Type II backfill material as required; for cutting of pipe ends on skew; and for all labor, tools, equipment, and incidentals necessary to complete the work.

Excavation and backfill above the Type I or Type II backfill will be paid for in accordance with Item 400.

Safety end treatment will be paid for in accordance with Item 467.

Casing pipe will be paid for in accordance with Item 464, Special Specification 4024, or Special Specification 7073.

Flowable backfill will not be measured or paid for directly, but will be subsidiary to this Item.

Special Specification 1004

Irrigation Wells, Gates, and Valves



1. DESCRIPTION

Furnish and install irrigation wells, gates, and valves as shown on the plans or as directed.

2. MATERIALS

Furnish materials in accordance with the following:

- Item 421, "Hydraulic Cement Concrete"
- Item 440, "Reinforcement for Concrete"
- Item 464, "Reinforced Concrete Pipe"

- 2.1. **Brick.** Use brick for irrigation wells that conforms to the requirements of "Sewer and Manhole Brick (made from clay or shale), Grade SM" in accordance with ASTM Designation: C32.
- 2.2. **Cement.** Use Type I hydraulic cement in accordance with ASTM Designation: C150.
- 2.3. **Lime.** Use hydrated lime of an established brand as approved.
- 2.4. **Sand.** Use sand that is composed of clean, hard, durable, uncoated grains, free from lumps, soft or flaky particles, loam, organic matter or other injurious substances as approved.
- 2.5. **Water.** Use mixing and curing water in accordance with Item 421, "Hydraulic Cement Concrete," (See Section 2.5., "Water").
- 2.6. **Concrete.** Use Class A concrete or as shown on plans that conforms to the requirements of Item 421, "Hydraulic Cement Concrete."
- 2.7. **Reinforcing Steel.** Use reinforcing steel that conforms to the requirements of Item 440, "Reinforcement for Concrete."
- 2.8. **Reinforced Concrete Pipe.** Use reinforced concrete pipe that conforms to the requirements of Item 464, "Reinforced Concrete Pipe."
- 2.9. **Well Gates.** Use gates as shown on the plans.
- 2.10. **Irrigation Valves.** Use valves as shown on the plans.

3. GENERAL

Construct irrigation wells either with brick or reinforced concrete pipe. If brick is used, then construct the inlet square with inside dimensions as specified for the size of the inlet and construct the walls a minimum of 8 in. thick. If reinforced concrete pipe is used, then construct the inside diameter of the pipe as specified for the size of the inlet and Class III pipe required.

4. CONSTRUCTION METHODS

- 4.1. **Brick Masonry.** Use brick masonry that consists of whole, sound, straight, hard bricks, laid in freshly mixed mortar to the forms and section required. Wet and lay bricks true to line in parallel courses, properly bonded with face joints flush. Lay each brick in full, close joints of mortar on its bed, end and side at one operation. Plaster all exposed surfaces of brick irrigation wells with 1/2 in. of mortar.

Mix mortar in the proportions, by volume, of 1 part cement, 1 part lime, and 4 parts of sand. First mix the sand, cement, and lime dry in a tight box until the mixture assumes a uniform color, after which add water as the mixing continues until the mortar attains a consistency such that it can be easily handled and spread with a trowel. Use mechanical mixing instead of hand mixing if desired.

- 4.2. **Irrigation Wells.** Construct irrigation wells as shown on the plans.

- 4.3. **Concrete Foundation.** Construct concrete foundations as shown on the plans.

- 4.4. **Gates and Valves.** Install gates and valves at locations shown on the plans. Install gates and valves in such a manner as to completely seal the ends of the concrete pipe and be securely anchored. Furnish drive extensions for gates that extend to the hand wheel above the top of wells, headwalls, or concrete canal lining to facilitate operation.

5. MEASUREMENT

These Items will be measured by the each of the various sizes specified.

6. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Irrigation Well," "Well Gate," or "Irrigation Valve," of the specified sizes. This price shall be full compensation for furnishing, transporting, and installing all materials, labor, tools, equipment, and incidentals.

Unless otherwise shown on the plans, structural excavation for irrigation wells, well gates, and irrigation valves will not be measured but will be considered subsidiary to the various bid items.

Special Specification 1006

Landscape Soil Amendment



1. DESCRIPTION

Install landscape soil amendment as shown on the plans or as directed.

2. MATERIALS

Furnish materials in accordance with the plans.

3. CONSTRUCTION

Use construction methods in accordance with the plans.

4. MEASUREMENT

This Item will be measured by square yard.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Landscape Soil Amendment" or "Landscape Soil Amendment" of type specified. This price is full compensation for furnishing all materials, equipment, labor, and incidentals.

Special Specification 2004

Filter Fabric



1. DESCRIPTION

Furnish and place filter fabric (geotextiles) consisting of a single layer of approved fabric, in accordance with the details shown on the plans and this Specification. This Specification is intended to be placed on top of a subgrade to separate the fine-graded or clayey subgrade from a much coarser base material.

2. MATERIALS

Provide fabric meeting the requirements of [DMS-6200](#), "Filter Fabric," of the type shown on the plans.

3. CONSTRUCTION

Prepare the existing subgrade and embankment as shown on the plans or as directed. Set string lines for alignment if directed. Install geotextiles in conformance with the lines and grades as shown on the plans. Any defects, rips, holes, flaws, or damage to the material may be cause for rejection. Roll the geotextile onto the prepared existing subgrade and pull taut to remove wrinkles. Place geotextile in one sheet to the greatest extent possible, or as directed. Overlap geotextile panels on all exposed edges 8 ± 2 in. Place a minimum of 200 sq. ft. of geotextile at locations requiring odd shapes. Cut the geotextile to fit around utility castings and when contouring for other penetrations and gradual curvatures. Keep the fabric material free from tension, stress, folds, wrinkles, or creases.

Free edge of the geotextile should extend 4 in. or more beyond the base course and into a location that facilitates drainage. Secure edges by staking or pinning at 6-ft. intervals if the geotextile edges are displaced because of natural or induced wind forces. Use geotextile manufacturer's recommendation for securing edges. Exposure of geotextiles to the elements between laydown and cover must be kept to a minimum. In any case, exposure must not exceed 15 days.

Store the geotextiles in conformance with manufacturer's recommendations. Do not remove it from its protective wrapping until ready for use.

Do not allow traffic to be in direct contact with the geotextiles except for the equipment used to place, spread, and grade the new embankment material. Turn equipment gradually and keep turning movements to a minimum to avoid damage to geotextiles.

Repair any wind damage, traffic damage, or damage caused by any type of precipitation at no additional cost to the Department.

The Engineer may suspend work if attempts at securing the geotextile are unsuccessful. Remove and replace damaged or excessively deformed areas. For punctured, torn, or damaged geotextile, provide a minimum area of 200 sq. ft. of replacement material.

Lap repair areas a minimum of 18 in. in all directions. Repair excessively deformed materials underlying the geotextile as directed.

For construction procedures not addressed, install geotextile using the manufacturer's recommended installation procedures or as directed.

4. MEASUREMENT

This Item will be measured by the square yard based on the calculated quantity shown on the plans with no allowance made for overlapping at joints or for material overlaps resulting from material repair operations.

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

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Filter Fabric" of the type specified. This price is full compensation for furnishing, preparing, hauling, and placing materials including labor, materials, freight, tools, equipment, and incidentals.

Item No.	Description Code	Name of Pay Item with Unit Price in Words	Bid Quantity	Unit	Unit Bid Price	Amount Bid
BASE BID						
0500	7001	MOBILIZATION	1	LS		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
		CONSTRUCTION CONTINGENCY	5%	of construction cost		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0100	7001	PREPARING ROW	50.00	STA		
		Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0100	7003	PREP ROW (TREE REMOVE) (0"-12" DIA)	138	EA		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0192	7007	SOIL AMEND	9,833	SY		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0556	7009	PIPE UNDERDRAINS (TY 9)(6")	3,245	LF		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0194	7010	RDSIDE AMENITY (BOULDER)	39	EA		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0194	7011	RDSIDE AMENITY (STONE SLAB)	5,541	SF		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0192	7052	PLANT MATERIAL (MIN 3" CAL)(B&B)	121	EA		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0192	7009	PLANT BED PREP	2,889	SY		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0192	7016	LANDSCAPE EDGING	764	LF		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0192	7022	LOOSE AGGR GRND COVER	1000	SY		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$

Item No.	Description Code	Name of Pay Item with Unit Price in Words	Bid Quantity	Unit	Unit Bid Price	Amount Bid
0192	7026	PLANT MATERIAL (4" FLAT)	14,602	EA		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0192	7026	PLANT MATERIAL (14/16 BULBS)	23,959	EA		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0192	7026	PLANT MATERIAL (1 GAL)	16,594	EA		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0192	7028	PLANT MATERIAL (3 GAL)	239	EA		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0192	7002	MULCH	2,889	SY		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0192	7003	PLANTING SOIL MIX	1,340	CY		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0170	7001	IRRIGATION SYSTEM	1	LS		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0618	7045	CONDT (PVC) (SCH 40) (6") (BORE)	117	LF		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$

Item No.	Description Code	Name of Pay Item with Unit Price in Words	Bid Quantity	Unit	Unit Bid Price	Amount Bid
TRAFFIC CONTROL						
0502	7001	BARRICADES, SIGNS AND TRAFFIC HANDLING	12.2	MO		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0503	7001	PORTABLE CHANGEABLE MESSAGE SIGN	375	DAY		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
EROSION CONTROL						
0506	7039	TEMP SEDMT CONT FENCE (INSTALL)	1,186	LF		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0506	7040	TEMP SEDMT CONT FENCE (INLET PROTECTION)	527	LF		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0506	7041	TEMP SEDMT CONT FENCE (REMOVE)	1,713	LF		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0506	7044	BIODEG EROSN CONT LOGS (INSTL) (12")	400	LF		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0506	7046	BIODEG EROSN CONT LOGS (REMOVE)	400	LF		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0506	7001	ROCK FILTER DAMS (INSTL) (TY1)	97	LF		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0506	7011	ROCK FILTER DAMS (REMOVE)	97	LF		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$

Item No.	Description Code	Name of Pay Item with Unit Price in Words	Bid Quantity	Unit	Unit Bid Price	Amount Bid
ADD ALT 1						
		CONSTRUCTION CONTINGENCY	5%	of construction cost		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and _____ Cents per unit			\$	\$
0100	7001	PREPARING ROW	19.00	STA		
		Complete in Place, for the Sum of				
		_____ Dollars and _____ Cents per unit			\$	\$
0192	7007	SOIL AMEND	2,123	SY		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and _____ Cents per unit			\$	\$
0556	7009	PIPE UNDERDRAINS (TY 9)(6")	1,133	LF		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and _____ Cents per unit			\$	\$
0194	7011	RDSIDE AMENITY (STONE SLAB)	810	SF		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and _____ Cents per unit			\$	\$
0192	7059	PLANT MATERIAL (MIN 3" CAL)(B&B)	23	EA		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and _____ Cents per unit			\$	\$
0192	7009	PLANT BED PREP	624	SY		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and _____ Cents per unit			\$	\$
0192	7016	LANDSCAPE EDGING	169	LF		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and _____ Cents per unit			\$	\$
0192	7022	LOOSE AGGR GRND COVER	91	SY		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and _____ Cents per unit			\$	\$
0192	7026	PLANT MATERIAL (4" FLAT)	6,990	EA		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and _____ Cents per unit			\$	\$
0192	7026	PLANT MATERIAL (14/16 BULBS)	9,171	EA		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and _____ Cents per unit			\$	\$

Item No.	Description Code	Name of Pay Item with Unit Price in Words	Bid Quantity	Unit	Unit Bid Price	Amount Bid
0192	7026	PLANT MATERIAL (1 GAL)	3,098	EA		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0192	7028	PLANT MATERIAL (3 GAL)	24	EA		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0192	7002	MULCH	624	SY		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0192	7003	PLANTING SOIL MIX	341	CY		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0170	7001	IRRIGATION SYSTEM	1	LS		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0618	7035	CONDT (PVC) (SCH 40) (2 1/2") (BORE)	165	LF		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0618	7045	CONDT (PVC) (SCH 40) (6") (BORE)	145	LF		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$

Item No.	Specification Item	Name of Pay Item with Unit Price in Words	Bid Quantity	Unit	Unit Bid Price	Amount Bid
ADD ALT 2						
		CONSTRUCTION CONTINGENCY	5%	of construction cost		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$
0192	7026	PLANT MATERIAL (1 GAL)	-5,056	EA		
		As shown, detailed, and specified, Complete in Place, for the Sum of				
		_____ Dollars and				
		_____ Cents per unit			\$	\$

BID ITEMS:

A.	BASE BID	
	Total of Base Bid Amount	\$ _____
B.	BID ALTERNATES	
	Total of ADD ALT 1 Amount	\$ _____
C.	BID ALTERNATES	
	Total of ADD ALT 2 Amount	\$ _____
	PROJECT GRAND TOTAL	\$ _____

PROJECT MANUAL FOR FM 740 STREETScape IMPROVEMENTS

COVER SHEET

PROJECT DIRECTORY

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PROFESSIONAL SEALS PAGE

The following Specification Sections have been prepared by or under the direct supervision of the Landscape Architect:

LANDSCAPE ARCHITECT

MESA

2001 North Lamar Street, Suite 100
Dallas, Texas 75202

SEAL

SPECIFICATIONS

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END OF LANDSCAPE ARCHITECT SECTIONS

**SECTION 00 43 36
LIST OF SUBCONTRACTORS**

The Undersigned states the following is a full and complete list of the proposed Subcontractors on this Project and the class of work to be performed by each, and that such list will not be added to nor altered without written consent of the Owner through the Architect/Engineer. Bidder is required to attach additional sheets to indicate additional Subcontractors as necessary.

	Subcontractor and Address	Class of Work to be Performed	Percentage of Work to be Performed
(1)	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
(2)	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
(3)	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
(4)	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
(5)	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
(6)	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

Dated: _____

Bidder _____

By: _____

END OF SECTION

**DOCUMENT 00 72 00
GENERAL CONDITIONS**

1.1 DOCUMENT:

- A. American Institute of Architects Document A201 – General Conditions of the Contract for Construction, 2017 Edition, forms a part of this Contract and by reference is incorporated herein as fully as if repeated at length.

1.2 RELATED REQUIREMENTS:

- A. Document 007300 – Supplementary Conditions.
- B. Division 1 – General Requirements

END OF DOCUMENT

**SECTION 00 73 00
SUPPLEMENTARY CONDITIONS**

ARTICLE 1 - CONTRACT DOCUMENTS

1.1 EXECUTION CORRELATION AND INTENT:

- A. Where reference is made to specifications of manufacturers, trade associations or the like, such is understood to be made a part of this specification to have the same effect as if fully reproduced herein. Approved or equal, acceptable and works of similar definition are understood to mean in the judgment of Architect.

ARTICLE 2 - ADMINISTRATION OF THE CONTRACT

2.1 ARCHITECT:

- A. The use of the term "Architect" shall mean the same as if "Landscape Architect" were used throughout.

ARTICLE 3 - OWNER

3.1 INFORMATION AND SERVICE REQUIRED OF THE OWNER:

- A. The Contractor will be furnished free of charge, **(3)** copies of Drawings and Specifications. Additional sets will be furnished at the cost of reproduction, postage and handling.

ARTICLE 4 - CONTRACTOR

4.1 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR:

- A. Working dimensions taken from Contract Documents shall be taken from figured dimensions and in no case by scaling of the drawings. Large scale details shall take precedence over small scale details. Verify all measurement lines and levels of existing conditions of the project, when figured dimensions are not in agreement with field measurements, notify the Architect immediately in writing, requesting clarification before proceeding.

4.2 SUPERVISION AND CONSTRUCTION PROCEDURES:

- A. Protect the work of other trades against damage, that may be caused by the construction processes, during the progress of the work and until final acceptance by the Owner and Architect.

4.3 LABOR AND MATERIALS:

- A. Products are generally specified by ASTM or other reference standards, or by manufacturer's name and model number or trade name. When specified only by reference standard, the Contractor may select any product by any manufacturer meeting this standard. When several products or manufacturers are specified as being equally acceptable, the Contractor has the option of using any product and manufacturer combination listed, subject to compliance with specified requirements. When only one product and manufacturer is specified, this is the basis of the contract, without substitution or exception.

- B. The term "as approved" shall mean "as approved by the Architect in writing" and when used shall require proof of conformance to the specified material, equipment, system or process that Contractor may wish to submit as a substitute for that specified. Burden of proof shall rest with the Contractor. Architect's decision as to conformance and acceptability will be final and consistent

with the intent of the Contract Documents. Contractor shall pay all costs for inclusion of any accepted substitution.

- C. After the contract has been executed, Owner and Architect will consider formal requests for the substitution of products in place of those specified in the Specifications.
- D. By making requests for substitutions based on Clause C the Contractor:
 - 1. Represents that he has personally investigated the proposed substitute product and determined that it is equal or superior quality in all respects to that specified.
 - 2. Represents that he will provide the same warranty for the substitution that he would for that specified.
 - 3. Certifies that the cost data presented is complete and includes all related costs under that Contract but excludes costs under separate contracts, and excludes Architect's redesign costs, and waives all claims for additional costs related to the substitution which subsequently become apparent.
 - 4. Will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

4.4 DOCUMENTS AND SAMPLES AT THE SITE:

- A. Keep an accurate record of "as-built" conditions to record any variations from Contract Drawings, particularly with reference to work which will be subsequently concealed. As-built conditions shall be transferred to a set of mylar sepia transparencies, purchased from Architect for cost of reproduction. Upon completion of the work and prior to final acceptance, Contractor shall return the transparencies to Architect. Each drawing shall be stamped "Record Drawing" with a notation certifying its completeness. Shop drawings will not be acceptable as record drawings.

4.5 SHOP DRAWINGS PRODUCT DATA AND SAMPLES:

- A. Shop drawings and samples for interrelated items shall be scheduled for submission at the same time. Not less than two weeks (plus applicable mailing times) shall be allocated to each submittal for processing by the Architect.

4.6 CLEANING UP:

- A. Remove labels and flags from plant material (as requested), etc. Remove spots, marks, stains, prints and dirt from concrete.
- B. No rubbish shall be allowed to accumulate or be allowed to remain on the premises or job site beyond a reasonable length of time. Particular attention shall be given to this requirement.
- C. Immediately after unpacking materials, all packing case lumber or other packing materials, excelsior, wrappings, and other like flammable wastes shall be collected and removed from the premises.
- D. Care shall be taken by all workmen not to mark, soil, or otherwise deface any finish. In the event that any finish becomes defaced in any way by mechanics or workmen, the Contractor or any of his Subcontractors shall clean and restore such surfaces to their original condition.
- E. Each Subcontractor shall bear his full responsibility to clean up immediately upon completion of his work in accordance with all provisions under this heading, and he shall cooperate with the Contractor to that effect. This shall in no way be construed to relieve the Contractor of his responsibility for leaving all work in a clean and proper condition, satisfactory to the Owner and the Architect.
- F. The Contractor shall place on site, when required, receptacles to receive bulk debris, such as crates, boxes, material wrappings, and barrels. It shall be the responsibility of all Subcontractors to deposit such materials in these receptacles. The receptacles will be emptied and disposed of by the Contractor.

ARTICLE 5 - TIME

5.1 DELAYS AND EXTENSIONS OF TIME:

- A. Within five working days after the commencement of a condition which is causing or may cause delay in completion, the Contractor shall notify the Owner and Architect, in writing, of the effect of

such condition upon the process schedule and shall state why and in what respects the condition is causing or may cause such delay. Failure to comply strictly with this requirement may, at the discretion of the Owner, be deemed sufficient cause to deny an extension of time on account of delay in completion arising out of or resulting from a change, extra work, suspension of the work, or other condition.

- B. An extension of time for the completion of the work may be granted by the Owner subject to the provisions of this paragraph, but only upon written application.
- C. An application for an extension of time shall set forth in detail the source and the nature of each alleged cause of delay in the completion of the work, the date upon which each such cause of delay began and ended, and the number of days of delay attributable to each of such causes. Such application shall be submitted prior to completion of the work.
- D. The Contractor shall be entitled to an extension of time for such causes only for the number of calendar days of delay which the Owner may determine to be due solely to such causes, and then only if the Contractor shall have strictly complied with the requirements of this paragraph 5.1, regarding conditions causing delay. The Owner will make such determinations within ten calendar days after receipt of the Contractor's application for an extension of time provided, however, said application complies with the requirements of this paragraph.
- E. The Contractor shall not be entitled to receive a separate extension of time for each one of several causes of delay operating concurrently but, if at all, only for the actual period of delay in completion of the work as determined by the Owner, irrespective of the number of causes contributing to produce such delay. If one of several causes of delay operating concurrently results from any act, fault or omission of the Contractor or of his subcontractor or material men, and would of itself (irrespective of the concurrent causes) have delayed the work, no extension of the time will be allowed for the period of delay resulting from such act, fault or omission.
- F. The granting of an application for an extension of time for causes of delay other than those referred to will be entirely within the discretion of the Owner.

ARTICLE 6 - PAYMENTS AND COMPLETION

6.1 SCHEDULE OF VALUES:

- A. The Schedules of Values shall be broken down as outlined on AIA Document G703, Continuation Sheet for Application and Certificate for Payment. Unless otherwise specified.

6.2 APPLICATION FOR PAYMENT:

- A. After the first payment application, all succeeding applications shall be accompanied by the Contractor's partial waiver of lien and by the partial waivers of lien for Subcontractors and suppliers who were included in the immediately preceding payment application to the extent of that payment. Application for final payment shall be accompanied by final waivers of lien from the Contractor, Subcontractors, and suppliers who have not previously furnished such final waivers.

6.3 PROGRESS PAYMENTS:

- A. Requests for reduction of retainage or for final payment shall be accompanied by a properly executed copy of AIA Document G707 or G707A.

6.4 GENERAL:

- A. All documentation to be performed on standard AIA format.

END OF SECTION

SECTION 01 07 00
ABBREVIATIONS AND REFERENCE STANDARDS

PART 1 - GENERAL

1.1 ORGANIZATION AND SOCIETY ABBREVIATIONS:

- A. Publications of organizations and societies are referred in Contract Documents by the following abbreviated designations:

American Concrete Institute	ACI
American Institute of Steel Construction	AISC
American Iron and Steel Institute	AISI
American National Standards Institute	ANSI
American Plywood Association	APA
American Society for Testing and Materials:	ASTM
1. Field decisions	
2. Proposal request	
3. Submittals	
4. Change Orders	
5. Application of Payment	
Adequacy of distribution of Contract Documents	
Procedures for maintaining Record Documents	
Use of Premises	
1. Office, work and storage areas	
2. Owner's requirements	
Construction facilities, controls, and construction aids.	
Temporary utilities	
Safety and first-aid procedures	
Security procedures	
Housekeeping procedures	

1.2 PROGRESS MEETINGS:

- A. Schedule regular periodic meetings, as required.
- B. Hold called meetings as required by progress of the Work.
- C. Location of the meetings: To be determined.
- D. Attendance:
1. Architect, and his professional consultants as needed.
 2. Subcontractors as appropriate to the agenda
 3. Suppliers as appropriate to the agenda
 4. Others.
- E. Suggested Agenda
1. Review and approval of minutes of previous meeting
 2. Review of Work progress since previous meeting
 3. Field observations, problems, conflicts
 4. Problems which impede Construction Progress Schedule
 5. Review of off-site fabrication, and delivery schedules
 6. Corrective measures and procedures to regain projected schedule
 7. Revisions to construction Progress Schedule.
-
8. Progress schedule during succeeding work period.
 9. Coordination of schedules
 10. Review submittal schedules; expedite as required

11. Maintenance of quality standards
12. Pending changes and substitutions
13. Review proposed changes for:
 - a. Effect on Construction Progress Schedule and on completion date.
 - b. Effect on other contracts of the Project.
14. Other business.

PART 2 – PRODUCTS

2.1 Not Used

PART 3 – EXECUTION

3.1 Not Used

END OF SECTION

**SECTION 01 10 00
SUMMARY OF WORK**

PART 1 – GENERAL

1.1 SECTION INCLUDES:

- A. Project Identification:
 - 1. Rockwall, Texas
 - 2. City of Rockwall
- B. Architect Identification: MESA Design Group
- D. The Work consists of: Hardscape, Landscape, Irrigation work in FM 740 Ridge Road Medians from I-30 to SH 205.

1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.3 CONTRACT:

- A. Project will be constructed under a general construction contract with the City of Rockwall

1.4 WORK SEQUENCE:

- A. The Work shall be conducted in one phase.

1.5 USE OF PREMISES:

- A. General: Contractor shall have full use of premises for construction operations, including use of Project site, during construction period. Contractor's use of premises is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

1.6 WORK UNDER OTHER CONTRACTS:

- A. Separate Contract:
- B. Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract.

1.7 FUTURE WORK:

- A. Future Contract:

1.8 SPECIFICATION FORMATS AND CONVENTIONS:

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 32-division format and CSI/CSC's "MasterFormat" numbering system.
 - 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
 - 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for

clarity to describe responsibilities that must be fulfilled indirectly by Contract or by others when so noted.

- a. The words, "shall", "shall be", or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 2 – PRODUCTS

2.1 Not Used.

PART 3 – EXECUTION

3.1 Not Used.

END OF SECTION

**SECTION 01 21 00
ALLOWANCES**

PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. Administrative and procedural requirements governing allowances.
 - 1. Certain materials and equipment are specified in the Contract Documents by allowances. In some cases, these allowances include installation. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
 - 1. Lump sum allowances.
 - 2. Unit cost allowances.
 - 3. Contingency allowances.
 - 4. Quantity allowances.
- C. Related Sections include the following:
 - 1. Division 1 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
 - 2. Division 1 Section "Unit Prices" for procedures for using unit prices.

1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.3 SELECTION AND PURCHASE:

- A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Architect from the designated supplier.

1.4 SUBMITTALS:

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.
- B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

1.5 CONTINGENCY ALLOWANCES:

- A. Use the contingency allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.
- B. Contractor's overhead, profit and related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, taxes, insurance, equipment rental and similar costs.

- C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit margins.
- D. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

1.6 UNUSED MATERIALS:

- A. Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.
 - 1. If requested by Architect, prepare unused material for storage by Owner when it is not economically practical to return the material for credit. If directed by Architect, deliver unused material to Owner's storage space. Otherwise, disposal of unused material is Contractor's responsibility.

PART 2 – PRODUCTS:

2.1 Not Used.

PART 3 – EXECUTION:

3.1 EXAMINATION:

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION:

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES:

- A. Allowance No. 1:

END OF SECTION

**SECTION 01 22 00
UNIT PRICES**

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 DEFINITIONS:

- A. Unit price is stated on the Bid Form, a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.3 PROCEDURES:

- A. Unit prices include all necessary materials, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurements and Payment: Refer to the Bid Form for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are shown in the Bid Form.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

PART 2 – PRODUCTS

2.1 Not Used.

PART 3 – EXECUTION

3.1 LIST OF UNIT PRICES:

- A. Unit prices as identified in the Bid Form.

END OF SECTION

**SECTION 01 23 00
ALTERNATES**

PART 1 – GENERAL

1.1 SECTION INCLUDES:

- A. This Section includes administrative and procedural requirements for alternates.

1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.3 DEFINITIONS:

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. The cost or credit for each alternate is the net addition to or deducted from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES:

- A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into the Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 – PRODUCTS

2.1 Not Used.

PART 3 – EXECUTION

3.1 SCHEDULE OF ALTERNATES:

- A. See Bid Form for schedule of Alternates.

END OF SECTION

**SECTION 01 26 00
CONTRACT MODIFICATION PROCEDURES**

PART 1- GENERAL

1.1 SECTION INCLUDES:

- A. The Section specifies administrative and procedural requirements for handling and processing contracts and modifications.

1.2 RELATED SECTIONS:

- A. The following Sections contain requirements that relate to this Section:
 - 1. Allowances – Section 01 21 00: Procedural requirements governing the handling and processing of allowances.
 - 2. Submittal Procedures – Section 01 33 00: Requirements for the Contractor's Construction Schedule.
- B. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.3 MINOR CHANGES IN THE WORK:

- A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.4 CHANGE ORDER PROPOSAL REQUESTS:

- A. Owner-Initiated Proposal Requests: The Architect will issue a detailed description of proposed changes in the Work that will require adjustment to the Contract Sum or Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Proposal requests issued by the Architect are for information only. Do not consider them as an instruction either to stop work in progress or to execute the proposed change
 - 2. Within 10 days or receipt of a proposal request, submit and estimate of cost necessary to execute the change to the Architect for the Owner's review.
 - a. Include a list of quantities of products required and unit costs, with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.
- B. Contractor-Initiated Proposals: When latent or unforeseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a request for a change to Architect.
 - 1. Include a statement outlining the reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and Contract Time.
 - 2. Include a list of quantities of products required and unit costs, with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
 - 3. Indicate applicable delivery charges, equipment rental and amounts of trade discounts.

4. Comply with requirements in Section "Product Substitutions" if the proposed change requires substitution of one product or system for a product or system specified.
- C. Proposal Request Form: Use AIA Document G709 for Change Order Proposal Requests.

1.5 ALLOWANCES:

- A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections and similar margins.
1. Include Installation costs in purchase amount only where indicated as part of the allowance.
 2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
 3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
 4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure or count.
- B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or the Contractor's handling, labor, installation, overhead, and profit. Submit claims within 21 days of receipt of the Change Order or Construction Change Directive authorizing work to proceed. The Owner will reject claims submitted later than 21 days after such authorization..

1.6 CONSTRUCTION CHANGE DIRECTIVE:

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive Instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order..
1. The Construction Change Directive contains a complete description of the change in the Work. It also designates the method to be followed to determine change in the Contract Sum or Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
1. After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.7 CHANGE ORDER PROCEDURES:

- A. Upon the Owner's approval of a Proposal Request, the Architect will issue a Change Order for signatures of the Owner and the Contractor on AIA form G701.

PART 2 - PRODUCTS

- A. Not Used.**

PART 3 – EXECUTION

- A. Not Used.**

END OF SECTION

**SECTION 01 27 50
SCHEDULE OF VALUES**

PART 1 – GENERAL

1.1 SECTION INCLUDES:

- A. Submit Schedule of Values at least ten days prior to submitting first Application for Payment.
- B. Use Schedule of Values as basis for applications for payment.

PART 2 – PRODUCTS

2.1 SUBMITTAL FORM:

- A. Submit typewritten Schedule of Values on AIA Documents G703, "Continuation Sheet".
- B. Use Table of Contents of this specification as basis for format for listing costs of work for sections under Divisions 2-32.
- C. Identify each line item with number and title as listed in Table of Contents of this specification.

PART 3 – EXECUTION

3.1 PREPARING SCHEDULE OF VALUES:

- A. Provide separate line item cost for the following general cost items:
 - 1. Performance and Payment Bonds.
 - 2. Field Supervision and Layout.
 - 3. Temporary Facilities and Controls.
 - 4. Taxes and Insurances.
- B. Itemize separate line item cost for work required by each section of this specification.
- C. Break down installed costs into total installed cost, with overhead and profit. Make sum of total costs of items listed in schedule equal to total Contract Sum.

END OF SECTION

**SECTION 01 29 00
PAYMENT PROCEDURES**

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 DEFINITIONS:

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.3 SCHEDULE OF VALUES:

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with Continuation Sheets.
 - b. Submittals Schedule.
 - 2. Submit the Schedule of Values to Architects at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
 - 3. Sub-schedules: Where the Work is separated into phases requiring separately phased payments, provide sub-schedule of values correlated with each phase of payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
 - 1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Architect's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 - 2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar Value.
 - h. Percent of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
 - 3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of the Application for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
 - 4. Round amounts to the nearest whole dollar; total shall equal the Contract Sum.

5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing if required.
6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent state of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.4 APPLICATIONS FOR PAYMENT:

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Times: The date for each progress payment is the **15th** day of each month. The period covered by each Application for Payment starts on the day following the end of the preceding period and ends on the **15** days before the date for each progress payment.
- D. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.
- E. Payment Application Forms: Use forms provided by Owner for Applications for Payment. Sample copies are included at end of this Section.
- F. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
- G. Transmittal: Submit (3) three signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- H. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
- I. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
 1. Submit partial waivers on each item for amount requested, before deduction for retainage, on each item.
 2. When an application shows completion of an item, submit final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.

4. Waiver Delays: Submit each Application for Payment with Contractor's waiver of mechanic's lien for construction period covered by the application.
 - a. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- J. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application of Payment include the following:
1. List of subcontractors.
 2. Schedule of Values.
 3. Contractor's Construction Schedule (preliminary if not final).
 4. Products list.
 5. Schedule of unit prices.
 6. Submittals Schedule (Preliminary if not final).
 7. List of Contractor's staff assignments.
 8. List of Contractor's principal consultants.
 9. Copies of building permits.
 10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 11. Initial progress report.
 12. Report of pre-construction conference.
 13. Certificates of insurance and insurance policies.
 14. Performance and payment bonds.
 15. Data needed to acquire Owner's insurance.
 16. Initial settlement survey and damage report if required.
- K. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- L. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
 6. AIA Document G707, "Consent of Surety to Final Payment."
 7. Evidence that claims have been settled.
 8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
 9. Final, liquidated damages settlement statement.

PART 2 – PRODUCTS

2.1 Not Used.

PART 3 – EXECUTION

3.1 Not Used.

END OF SECTION

**SECTION 01 29 50
REQUIREMENTS FOR FINAL APPLICATION OF PAYMENT**

PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. Provide the following with application for final payment:
 - 1. Project Record Drawings
 - 2. Contractor's Affidavit of Payment of Debts and Claims (AIA-G706)
 - 3. Contractor's Affidavit of Release of Liens (AIA-G706A)
 - 4. Written Guarantees as required by individual Specification Sections.

PART 2 – PRODUCTS

2.1 Not Used.

PART 3 – EXECUTION

3.1 Not Used.

END OF SECTION

**SECTION 01 32 00
CONSTRUCTION PROGRESS DOCUMENTATION**

PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. Progress Schedule.

1.2 RELATED DOCUMENTS:

- A. Payment Procedures - Section 01 29 00.

1.3 PROGRESS SCHEDULE:

- A. Format:
 - 1. Prepare Schedules as a horizontal bar chart with separate bar for each major portion of Work or operation, identifying first work day of each week.
 - 2. Sequence of listings: The chronological order of the start of each item of Work.
 - 3. Scale and spacing: To provide space for notations and revisions.
 - 4. Sheet size: Multiples of 8-1/2 x 11 inches {216 x 279 mm}.
- B. Content:
 - 1. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
 - 2. Identify each item by specification Section number.
 - 3. Provide subschedules to define critical portions of the entire Schedule.
 - 4. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.
 - 5. Provide separate schedule of submittal dates for Shop Drawings, Product Data, and Samples, including:
 - a. Dates reviewed submittals will be required from Architect.
 - b. Decision data for selection of finishes.
 - 6. Coordinate content with Schedule of Values specified in Section 01290.
 - 7. Revisions:
 - a. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
 - b. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.
 - 8. Provide narrative report to define problem areas, anticipated delays, and impact on Schedule. Report corrective action taken, or proposed, and its effect.
- C. Submittal:
 - 1. Submit initial Schedules within 15 days after date of Notice to Proceed. After review, resubmit required revised data within 10 days.
 - 2. Submit revised Progress Schedules with [each] Application for Payment.
 - 3. Submit the number of opaque reproductions that Contractor requires, plus two copies that will be retained by Architect.
- D. Distribution:
 - 1. Distribute copies of approved Schedules to project site file, Subcontractors, suppliers, and other concerned parties.
 - 2. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in Schedules.

PART 2 - PRODUCTS

2.1 Not used.

PART 3 - EXECUTION

3.1 Not used.

END OF SECTION

**SECTION 01 32 23
SURVEY AND LAYOUT DATA**

PART 1 – GENERAL

1.1 SECTION INCLUDES:

- A. Provide required field engineering services including:
 - 1. Surveying required for execution of the Work.
 - 2. Civil, Structural or other professional engineering services specified or required to execute the Contractor's construction methods.

1.2 QUALITY ASSURANCE:

- A. Qualifications of Surveyor or Engineer: Professional Engineer and /or Surveyor currently licensed in the State of Texas.

PART 2 – PRODUCTS

2.1 Not Used

PART 3 - EXECUTION

3.1 SURVEY AND LAYOUT DATA:

- A. Engage a licensed Surveyor, approved by Owner and Architect, to locate surveyor marks, including bench marks in order that the exact lines of the property, construction limits and grades may be determined.
- B. Layout entire project prior to start of construction.
- C. On arising in locating the work in respect to property and building lines shall be reported completion of major site improvements, furnish a certified plan verifying limits of project area and buffer limits in accordance with the plan.
- D. Report any discrepancies immediately in writing to the Architect.
- E. Locate and protect control points prior to starting site work, and preserve all permanent reference points during construction. Replace project control points which may be lost or destroyed.
- F. Establish a minimum of two permanent bench marks on the site, referenced to data established by survey control points. Record locations, with horizontal and vertical data, on Project Record Documents.
- G. Establish all construction lines and levels, by instrumentation and similar appropriate means.
- H. Refer to Construction Document package for bench marks and other reference points already established on site.

END OF SECTION

**SECTION 01 33 00
SUBMITTAL PROCEDURES**

PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. Submit shop drawings, product data and samples for products and construction, to be installed under this contract, for Architect's approval.

1.2 RELATED DOCUMENTS:

- A. Specification Sections requiring submittals.

PART 2 - PRODUCTS

2.1 SHOP DRAWINGS:

- A. Reproductions of Contract Documents are not acceptable as shop drawings.
- B. Identify submittal details by reference to sheet and detail numbers shown on Contract Documents.
- C. Sheet Size: Minimum 8-1/2 X 11 inches, maximum 36 X 48 inches.

2.2 PRODUCT DATA:

- A. Manufacturer's Standard Schematic Drawings and Diagrams:
 - 1. Clearly identify information applicable to the work.
 - 2. Supplement standard information to provide additional information specifically applicable to the work.
- B. Manufacturer's Standard Brochures, Diagrams, Performance Charts, Illustrations, and other Descriptive Data Clearly Identify:
 - 1. Applicable products and models.
 - 2. Dimensions and clearances required.
 - 3. Performance characteristics and capacities.
 - 4. Wiring or piping diagrams and controls.

2.3 SAMPLES:

- A. Samples of sufficient size and quantity to clearly illustrate:
 - 1. Functional characteristics of product or material, with integrally related parts and attachment devices.
 - 2. Full range of colors, patterns and texture.
- B. Field Mock-Ups: Erect at project sites as directed by Architect.
 - 1. Obtain Architect's approval of mock-ups prior to start of fabrication.
- C. Quality Control Set: Keep one set of Architect-approved samples at project site, in suitable condition and available for quality control comparison by Architect.

PART 3 – EXECUTION

3.1 SUBMISSION REQUIREMENTS:

- A. Submit shop drawings and product data as soon as possible after award of Contract but not later than 30 days prior to date approved submittals will be needed to prevent delays in the work.
- B. Submit samples as soon as possible but not later than 60 days after award of contract. Final color selections and release of show drawings contingent upon color selection will not be made until all samples have been submitted, coordinated, and approved.

- C. Submittals shall include:
 - 1. Date and revision dates
 - 2. Project title and number
 - 3. Names of Architect, Contractor, Subcontractor, Supplier, and Manufacturer.
 - 4. Identification of product or material and specification section number.
 - 5. Relation to adjacent structure, materials or other critical features.
 - 6. Field dimensions, clearly identified as such.
 - 7. Applicable reference standards.
 - 8. Identification of deviations from contract documents
 - 9. Other pertinent data required by specifications.
 - 10. Contractor's signed stamp certifying review of submittal, compliance with contract documents, verification of field measurements, and coordination.
 - 11. A blank space 3 X 4 inches for Architect's stamp.
- D. Number of submittals:
 - 1. Shop Drawings: One reproducible transparency and three opaque prints only. Architect will retain one print and return transparency and other prints to Contractor.
 - 2. Product Data: Number of copies Contractor requires for distribution, plus 1 copy to be retained by Architect.
- E. Include transmittal letter containing:
 - 1. Date.
 - 2. Project title and number.
 - 3. Contractor's name and address.
 - 4. Number of each submittal.
 - 5. Notification of deviations from contract documents.
- F. Include items for one Specification Section only per submittal. Individual submittals received that include items for more than one Section will be returned without review.

3.2 RESUBMISSION REQUIREMENTS:

- A. For submittals not approved by Architect, make corrections and changes required and resubmit until approved.
- B. Identify all changes made.

3.3 DISTRIBUTION OF SUBMITTALS AFTER REVIEW:

- A. Distribute approved copies of shop drawings and product data to Contractor's project site file, record documents file, and applicable Subcontractors.

END OF SECTION

**SECTION 01 40 00
QUALITY REQUIREMENTS**

PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. References
- B. Quality assurance and control of installation
- C. Mockups
- D. Manufacturer's field and control of installation
- E. Design data and calculations
- F. Test reports and certifications
- G. Manufacturer's installation instructions.

1.2 REFERENCE STANDARDS:

- A. For products or workmanship specified by reference to association, trade, or industry standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.
- C. Conform to edition of reference standard in effect as of date of Project Manual.
- D. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.3 QUALITY ASSURANCE AND CONTROL OF INSTALLATION:

- A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship to produce Work of specified quality.
- B. Comply fully with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
- D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform work by persons qualified to produce workmanship of specific quality.
- F. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.4 MOCKUPS:

- A. Definition:
 - 1. Mockups are field samples constructed, applied, or assembled at the project site for review by the Owner and Architect that illustrate materials, equipment, or workmanship.
 - 2. Approved mockups establish the standard of quality by which the Work will be judged.
- B. Construct, apply, or assemble specified items, with related attachment and anchorage devices, flashings, seals, and finishes.
- C. Perform work in accordance with applicable specifications sections.
- D. Erect at project site location acceptable to Owner and Architect. Protect from damage.

- E. Removal:
 - 1. Mockups may remain as part of the Work only when so designated in individual specifications sections.
 - 2. Do not remove mockups until removal is approved by Architect or upon Final Completion.
 - 3. Where mockup is not permitted to remain as part of the Work, clear area after removal of the mockup has been approved by Architect.

1.5 MANUFACTURERS FIELD SERVICES AND REPORTS:

- A. When specified in individual specification Section, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, or startup or equipment, as applicable and to initiate instructions when necessary.
- B. Individuals to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
- C. Submit report to Architect for review in duplicate within 10 days of observation.

1.6 DESIGN DATA AND CALCULATIONS:

- A. When specified in individual specification Sections, require material or Product suppliers or manufacturers to provide design data and calculations.
- B. Accuracy of design data and calculations is the responsibility of the Contractor.
- C. When so specified, prepare design data and calculations under the direction of a professional engineer licensed in the state in which the Project is located. Affix engineer's seal to submittals.

1.7 TEST REPORTS AND CERTIFICATIONS:

- A. When specified in individual specification Sections, require material or Product suppliers or manufacturers to provide test reports and manufacturers' certifications.
- B. Indicate that material or Product conforms to or exceeds specification requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Submittals may be recent or previous test results on material or Product, but must be acceptable to Architect.
- D. Submit two copies of each report.

1.8 MANUFACTURER'S INSTALLATION INSTRUCTIONS:

- A. When Contract Documents require that Products be installed in accordance with manufacturers' instructions:
 - 1. Submit manufacturer's most recent printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, as applicable.
 - a. Submit in quantities specified for Product Data.
 - b. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
 - c. Identify conflicts between manufacturers' instructions and requirements of Contract Documents.
 - 2. Perform installation of Products to comply with requirements of manufacturer's instructions.
 - 3. If installation cannot be performed in accordance with manufacturer's instructions, notify Architect and await instructions.

PART 2 - PRODUCTS

2.1 Not used.

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION:

- A. General: On completion of testing, inspecting, sample taking and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Sections of these Specifications. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching.
 - 2. Comply with the Contract Document requirements for Division 1 Section "Cutting and Patching".
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

**SECTION 01 45 23
TESTING AND INSPECTION SERVICES
(OWNER FURNISHED)**

PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. The Owner will employ and pay for services of an Independent Testing Laboratory to perform specified testing, unless noted otherwise.

1.2 RELATED DOCUMENTS:

- A. Respective Specification Sections: Specified field and laboratory testing and certification of products..
- B. Conditions of the Contract: Inspections and testing required by laws, ordinances, rules, regulations, orders or approvals of public authorities.

1.3 REFERENCE STANDARDS:

- A. American Council of Independent Laboratories (ACIL) – Recommended Requirements for Independent Laboratory Qualifications.
- B. American Society for Testing and Materials (ASTM) E 329 – Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.

1.4 QUALITY ASSURANCE:

- A. Owner will employ and pay for services of an independent testing laboratory to perform specified testing and inspection.
- B. Contractor shall cooperate with the Testing Laboratory to facilitate performance of its work.
- C. Refer to the Conditions of the Contract for provisions related to special inspections and testing.
- D. Quality:
 - 1. Meet ACIL requirements referenced.
 - 2. Meet basic requirements of ASTM E 329.
 - 3. Authorized to operate in State in which project is located.

1.5 LABORATORY DUTIES:

- A. Cooperate with Owner, Architect, and Contractor; provide qualified personnel after due notice.
- B. Perform specified inspections, sampling, and testing of materials and methods of construction:
 - 1. Comply with specified standards.
 - 2. Ascertain compliance or noncompliance of materials with requirements of Contract Documents.
- C. Promptly notify Owner, Architect, and Contractor of observed irregularities or deficiencies of Work or products.
- D. Promptly submit written report of each test and inspection; one copy each to Owner and Architect, and two copies to Contractor. Each report shall include:
 - 1. Date issued.

2. Project title and number.
 3. Testing Laboratory name, address, and telephone number.
 4. Name of Inspector and signature of individual in charge.
 5. Date and time of sampling or inspection.
 6. Record of temperature and weather conditions.
 7. Date of test.
 8. Identification of product and specification section.
 9. Location of sample or test in project.
 10. Type of inspection or test.
 11. Results of tests and compliance or noncompliance with Contract Documents.
 12. Interpretation of test results when requested by Owner or Architect.
- E. Perform additional tests when required by Owner or Architect.
- F. Laboratory is not authorized to:
1. Release, revoke, alter, or enlarge on requirements of Contract Documents.
 2. Approve or accept any portion of work.
 3. Perform any duties of Contractor.

1.6 CONTRACTOR'S RESPONSIBILITIES:

- A. Cooperate with Laboratory personnel; provide access to Work, and to manufacturer's operation.
- B. When materials require testing prior to being incorporated into Work, secure and deliver to Laboratory adequate quantities of representative samples of materials proposed to be used.
- C. Furnish copies of product test reports as required.
- D. Furnish incidental labor and facilities:
 1. To provide access to work to be tested.
 2. To obtain and handle samples at site or at source of product to be tested.
 3. To facilitate inspections and tests.
 4. For safe storage and curing of test samples.
- E. Notify Laboratory sufficiently in advance of operations to allow for Laboratory assignment of personnel and scheduling of tests.
- F. When tests or inspections cannot be performed after such notice, reimburse Owner for Laboratory personnel and travel expenses incurred due to Contractor's negligence.
- G. Make arrangements with Laboratory and pay for additional samples and tests required for Contractor's convenience.

PART 2 - PRODUCTS

2.1 Not Used.

PART 3 - EXECUTION

3.1 Not Used.

END OF SECTION

**SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS**

PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. Temporary utilities.
- B. Field offices and sheds.
- C. Temporary controls.
- D. Protection of installed Work.
- E. Progress cleaning.
- F. Water, erosion, sediment, and dust control.
- G. Removal.

1.2 TEMPORARY ELECTRICITY:

- A. Provide temporary electrical service of capacity and characteristics required for construction.
- B. Provide power outlets for construction operations, with branch wiring and distribution boxes located as required. Provide flexible power cords as required.
- C. Maintain distribution system and provide routine repairs.

1.3 TEMPORARY LIGHTING:

- A. Provide temporary lighting for construction purposes.
- B. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.
- C. Maintain lamps and provide routine repairs.

1.4 TEMPORARY HEAT:

- A. Provide temporary heating devices required to maintain specified ambient temperatures for construction.
- B. Maintain minimum ambient temperatures indicated in individual specification sections.

1.5 TEMPORARY TELEPHONE AND FACSIMILE SERVICES:

- A. Provide temporary telephone service required during construction.
- B. Provide one alphabetical and one classified telephone service company directory for each instrument.
- C. Provide plain paper facsimile machine in Contractor's field office on separate telephone line from Contractor's field telephone.

1.6 TEMPORARY WATER:

- A. Provide temporary water required for construction.
- B. Extend branch piping and provide temporary hoses so that water is available at locations needed for work.
- C. Protect from freezing.
- D. Maintain distribution system and provide routine repairs.

1.7 TEMPORARY SANITARY FACILITIES:

- A. Provide chemical toilets for use during construction.
- B. Maintain facilities in clean and sanitary condition.

1.8 FIELD OFFICES AND SHEDS:

- A. Provide temporary field offices and storage sheds required for construction.
- B. Do not unreasonably encumber site or premises with excess materials or equipment.
- C. Temporary Structures:
 - 1. Portable or mobile buildings, structurally sound, weathertight, with floors raised above ground.
 - 2. Temperature transmission resistance: Compatible with occupancy and storage requirements.
 - 3. Provide connections for utility services when required.
 - 4. Provide steps and landings at entrances.
- D. Field Office:
 - 1. Size required for Contractor's use and to provide space for project meetings.
 - 2. Adequate electrical power, lighting, heating, and cooling to maintain human comfort.
 - 3. Provide facilities for storage of Project Record Documents.

1.9 BARRIERS:

- A. Provide barriers to prevent unauthorized entry to construction areas and to protect adjacent properties from construction operations.
- B. Provide barricades required by governing authorities for public right-of-ways.
- C. Tree and Plant Protection:
 - 1. Protect existing trees and plants at site that are designated to remain.
 - 2. Remove roots and branches that interfere with construction. Employ qualified tree surgeon to remove and to treat cuts.
 - 3. Provide temporary barriers to height of 6 feet around individual or groups of trees and plants.
 - 4. Do not permit vehicular traffic, parking, storage of materials, dumping of harmful chemicals or liquids, or standing or continuously running water within root zones.
 - 5. Supervise earthwork operations to prevent damage to root zones.
 - 6. Replace trees and plants that are damaged or destroyed due to construction operations.

1.10 PROTECTION OF INSTALLED WORK:

- A. Protect installed work from construction operations; provide special protection when required in individual specification sections.

1.11 PROGRESS CLEANING:

- A. Maintain areas free from waste materials, debris, and rubbish. Maintain site in clean and orderly condition.
- B. Provide containers for collection of waste materials, debris, and rubbish; remove and dispose of off site as required by construction activities.

1.12 TEMPORARY CONTROLS:

- A. Water Control:
 - 1. Grade site to drain. Prevent puddling water.
 - 2. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
 - 3. Provide water barriers to protect site from soil erosion.
- B. Erosion and Sediment Control:
 - 1. Plan and execute methods to control surface drainage from cuts, fills, borrow areas, and waste disposal areas. Prevent erosion and sedimentation.
 - 2. Minimize amount of bare soil exposed at any one time.
 - 3. Provide temporary measures such as silt fences, dikes, berms, settlement basins, and drainage systems to prevent water flow and sedimentation.
 - 4. Periodically inspect earthwork to detect erosion and sedimentation; promptly employ corrective measures.
- C. Dust Control:
 - 1. Provide dust control materials and methods to minimize dust from construction operations.
 - 2. Prevent dust from dispersing into atmosphere.

1.13 REMOVAL:

- A. Remove temporary utilities, equipment, facilities, and services when construction needs can be met by use of permanent construction or upon completion of Project.
- B. Remove foundations and underground installations; grade site as indicated.
- C. Clean and repair damage caused by installation or use of temporary work.
- D. Restore permanent facilities used during construction to original or to specified condition.

PART 2 - PRODUCTS

2.1 Not used.

PART 3 - EXECUTION

3.1 Not used.

END OF SECTION

**SECTION 01 58 13
TEMPORARY PROJECT SIGNAGE**

PART 1 – GENERAL

1.1 SECTION INCLUDES:

- A. Project identification sign.
- B. Informational signs.
- C. Maintenance and removal.

1.2 QUALITY ASSURANCE:

- A. Project Sign:
 - a. Design sign and structure to withstand 50 MPH wind velocity.
 - b. Sign Painter” Experienced as a professional sign painter for minimum 3 years.
 - c. Finishes, Painting: Adequate to withstand weathering, fading and chipping for duration of construction.
- B. Do not erect other signs at site without Owner’s approval, except those required by governing authorities.

1.3 SUBMITTALS:

- A. Shop Drawings: Show content, layout, lettering, colors, structure, sizes and grades of members.

PART 2 – PRODUCTS

2.1 MATERIALS:

- A. Structure and Framing: New Lumber, structurally adequate.
- B. Sign Surfaces: Exterior grade plywood with medium density overlay, minimum .75 inch thick , standard large sizes to minimize joints.
- C. Rough Hardware: Galvanized steel or aluminum.
- D. Paint and Primers: Exterior quality, two coats; sign background of color as selected.
- E .Lettering: Exterior quality paint, contrasting colors as selected.

2.2 FABRICATION:

- A. Provide one painted sign of following design:
 - 1. Area” 32 square feet.
 - 2. Bottom edge of sign” 6 feet above ground.
 - 3. Content:
 - a. Project title.
 - b. Owner’s name.
 - c. Names and titles of Architect.
 - d. Name of Contractor.
 - 4. Graphic design, colors, style of lettering: As designated by Architect.

PART 3 – EXECUTION

3.1 INSTALLATION:

- A. Install project identification sign within 30 days after date of Notice to Proceed.
- B. Erect at designated location.

- C. Erect supports and framing on secure foundation, rigidly braced and framed to resist wind loading.
- D. Install sign surface plumb and level, with butt joints. Anchor securely.
- E. Paint exposed surfaces of sign, supports and framing.

3.2 MAINTENANCE:

- A. Maintain signs and supports clean. Repair deterioration and damage.

3.3 REMOVAL:

- A. Remove signs, framing, supports and foundations at completion of Project and restore the area.

END OF SECTION

**SECTION 01 60 00
PRODUCT REQUIREMENTS**

PART 1 – GENERAL

1.1 SECTION INCLUDES:

- A. Products.
- B. Transportation and handling.
- C. Storage and protection.
- D. Product options.
- E. Substitutions.

1.2 PRODUCTS:

- A. Provide interchangeable components by the same manufacturer for identical items.

1.3 TRANSPORTATION AND HANDLING:

- A. Coordinate delivery of Products to prevent conflict with Work and adverse conditions at site.
- B. Transport and handle Products in accordance with manufacturer's instructions.
- C. Promptly inspect shipments to ensure that Products comply with requirements of Contract Documents, are undamaged, and quantities are correct.
- D. Provide equipment and personnel to handle products by methods to prevent damage.

1.4 STORAGE AND PROTECTION:

- A. Store and protect Products in accordance with manufacturer's instructions with manufacturer's seals and labels intact and legible.
- B. Store Products on site unless prior written approval to store off site has been obtained from Owner.
- C. Store Products subject to damage by elements in weather tight enclosures. Maintain temperature and humidity within ranges required by manufacturer's instructions.
- D. Exterior Storage:
 - 1. Store fabricated Products above ground; prevent soiling and staining.
 - 2. Cover products subject to deterioration with impervious sheet coverings; provide ventilation to prevent condensation.
 - 3. Store loose granular materials in well drained area on solid surfaces; prevent mixing with foreign matter.
- E. Arrange storage areas to permit access for inspection. Periodically inspect stored products to verify that products are undamaged and in acceptable condition.

1.5 PRODUCT OPTIONS:

- A. Products specified by reference standard only:
 - 1. Select any Product meeting the specified standard.
 - 2. Submit Product Data to substantiate compliance of proposed Product with specified requirements.
- B. Products specified by naming two or more acceptable Products: Select any named Product.
- C. Products specified by stating that the Contract Documents are based on a Product by a single manufacturer followed by the statement "Equivalent products by the following manufacturers are acceptable":
 - 1. Select the specified Product or a Product by a named manufacturer having equivalent or superior characteristics to the specified Product and meeting the requirements or the Contract Documents.

2. If the specified Product is not selected, submit Product Data to substantiate compliance of the proposed Product with specified requirements.
3. The specified Product establishes the required standard of quality.
- D. Products specified by naming one or more Products followed by “or approved substitute” or similar statement:
 1. Submit a Substitution Request Form for Products not listed.
 2. The specified Product establishes the required standard of quality.
- E. Products specified by naming one or more Products or manufacturers followed by the statement “Substitutions” Under provisions of Division 1”:
 1. Submit a Substitution Request Form for Products not listed.
 2. The specified Product establishes the required standard of quality.
- F. Products specified by required performance or attributes, without naming a manufacturer or Product:
 1. Select any Product meeting specified requirements.
 2. submit Product Data to substantiate compliance of proposed Product with specified requirements.

1.6 SUBSTITUTIONS:

- A. Do not substitute Products unless a Substitution Request Form has been approved by the Architect.
- B. Substitutions during Bidding: Refer to Instructions to Bidders.
- C. Architect will consider Substitution Requests within 30 days after award of Contract.. After initial 30 day period, Substitutions Requests will be considered only due to non-availability of a specified Product.
- D. In case of non-availability of a specified Product notify Architect in writing as soon as non-availability becomes apparent.
- E. Submit Substitution Requests using Substitution Request Form provided by Architect. Document a request with complete data substantiating compliance of proposed Substitution with Contract Documents, including:
 1. Product identification, including name and address of manufacturer.
 2. Product description, performance and test data, and reference standards.
 3. Sample, if requested.
 4. Description of any anticipated effect that acceptance of proposed Substitution will have on Progress Schedule, construction methods, or other items of Work.
 5. Description of any differences between specified product and proposed Substitution.
- F. Submit two copies, Architect will return one copy to Contractor for printing and distribution.
- G. A request constitutes a representation that the Contractor:
 1. Has investigated the proposed Product and determined that it meets or exceeds the quality level of the specified Product.
 2. Will provide the same warranty for the Substitution as for the specified Product.
 3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
 4. Waives claims for additional costs or time extension that may subsequently become apparent.
 5. Will reimburse Owner for design services associated with re-approval by authorities or revisions to Contract Documents to accommodate the Substitution.
- H. Substitutions will not be considered if:
 1. They are indicated or implied on Shop Drawings or other submittals without submittal of a Substitution Request Form.
 2. Approval will require substantial revision of Contract Documents without additional compensation to Architect.
- I. Approved substitutions will be incorporated into Contract Documents by Change Order.

PART 2 – PRODUCTS

2.1 Not Used.

PART 3 – EXECUTION

3.1 Not Used.

END OF SECTION

**SECTION 01 73 29
CUTTING AND PATCHING**

PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. Procedural requirements for cutting and patching.

1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.3 DEFINITIONS:

- A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.4 QUALITY ASSURANCE:

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load carrying capacity or load deflection ratio.
- B. Visual requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction in a manner that would, in Architect's opinion, reduce the aesthetic quality of that element. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
 - 1. If possible, retain original Installer or fabricator to cut and patch exposed work listed below. If it is impossible to engage original Installer or fabricator, engage another recognized, experienced, and specialized firm.
 - a. Concrete finishes.
 - b. Stonework and stone masonry.
 - c. Ornamental metal.

1.5 WARRANTY:

- A. Existing Warranties: Remove, replace, patch and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS:

- A. General: Comply with requirements specified in other Sections of these Specifications.
- B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.

PART 3 - EXECUTION

3.1 EXAMINATION:

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
 - 1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION:

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

3.3 PERFORMANCE:

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.
 - 1. Cut existing construction to provide for installation of other components or performance of other construction and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond core drill.
 - 4. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up and similar operations following performance of other Work. Patch with durable seams that are invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.
 - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
 - 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

END OF SECTION

**SECTION 01 77 00
CLOSEOUT PROCEDURES**

PART 1 – GENERAL

1.1 SECTION INCLUDES:

- A. Administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Operation and maintenance manuals..
 - 2. Final cleaning.
 - 3. Adjusting.
 - 4. Project record documents.
 - 5. Warranties.
 - 6. Spare parts and maintenance materials.

1.2 RELATED DOCUMENTS:

:

- A. Divisions 2 through 32 Sections for specific closeout and special cleaning requirements for products of those Sections.

1.3 SUBSTANTIAL COMPLETION:

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
 - 1. Prepare a list of 1tems to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Submit specific warranties, workmanship bonds, maintenance service agreements final certifications and similar documents.
 - 3. Deliver tools, spare parts, extra materials and similar items to a location designated by Owner. Label with manufacturer's name and model number where applicable.
 - 4. Complete startup testing of systems.
 - 5. Terminate and remove temporary facilities from Project site, along with mockups, construction tools and similar elements.
 - 7. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
 - 8. Complete final cleaning requirements, including touchup painting.

1.4 FINAL COMPLETION:

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
 - 1. Submit a final application for Payment according to Division 1 Section "Payment Procedures."
 - 2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 - 3. Instruct Owner's personnel in operation, adjustment and maintenance of products, equipment and systems.

- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
 - 1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST):

- A. Preparation: Submit (3) copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1.6 PROJECT RECORD DOCUMENTS:

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings
 - 2. Specifications
 - 3. Addenda
 - 4. Change Orders and other Modifications to the Contract
 - 5. Reviewed Shop Drawings, Product Data, and Samples
- B. Store Record Documents separate from documents used for construction.
- C. Record information concurrent with construction progress.
- D. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and Modifications.
- E. Record Documents and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured depths of foundations in relation to finish floor datum.
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 4. Field changes of dimension and detail.
 - 5. Details not on original Contract Drawings.
- F. Submit documents to Architect with final Application for Payment.

1.7 WARRANTIES:

- A. Provide one copy of each warranty.
- B. Submit prior to final Application for Payment.
- C. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of warranty period.

1.8 SPARE PARTS AND MAINTENANCE MATERIALS:

- A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification Sections.
- B. Deliver to Project site in location as directed; obtain receipt prior to final payment.

PART 2 – PRODUCTS

2.1 CLEANING AGENTS:

- A. Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 – EXECUTION

3.1 DEMONSTRATION AND TRAINING:

- A. Instruction: Instruct Owner's personnel to adjust, operate and maintain systems, subsystems and equipment not part of a system.
 - 1. Provide instructors experienced in operation and maintenance procedures.
 - 2. Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.
 - 3. Schedule training with Owner, through Architect, with at least (7) days advance notice.
 - 4. Coordinate instructors, including providing notification of dates, times, length of instruction and course content.
- B. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections. For each training module, develop a learning objective and teaching outline. Include instruction for the following:
 - 1. System design and operational philosophy.
 - 2. Review of documentation.
 - 3. Operations.
 - 4. Adjustments.
 - 5. Troubleshooting.
 - 6. Maintenance.
 - 7. Repair.

3.2 FINAL CLEANING:

- A. Execute final cleaning prior to final inspection.
- B. Clean surfaces exposed to view:
 - 1. Remove temporary labels, stains and foreign substances.
 - 2. Polish transparent and glossy surfaces.
 - 3. Damp mop floors.
- C. Clean equipment and fixtures to a sanitary condition.
- D. Clean or replace filters of operating equipment.
- E. Clean debris from roofs and drainage systems.
- F. Clean site; sweep paved areas, rake clean landscaped surfaces.
- G. Remove waste and surplus materials, rubbish, and construction facilities from the site.

END OF SECTION

**SECTION 04 43 00
STONE MASONRY**

PART 1 – GENERAL

1.1 SECTION INCLUDES:

- A. Furnish all labor, material, equipment, related services and supervision necessary for or incidental to the installation of the stone masonry work as shown or indicated on the Drawings and/or as specified.

1.2 RELATED DOCUMENTS:

- A. Drawings and General provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. All other Divisions of the Contract Documents. Refer to each Division's specifications and drawings for all requirements, including but not limited to the following:
 - 1. Masonry Mortaring - Section 04 05 13.
 - 2. Masonry Anchorage and Reinforcing - Section 04 05 19.
 - 3. Masonry Accessories – Section 04 05 23.
 - 4. Concrete Unit Masonry – Section 04 22 00.

1.3 REFERENCE STANDARDS:

- A. International Masonry Industry All-Weather Council Publication:
1984 Recommended Practices & Guides Specifications for Cold Weather Masonry Construction.

1.4 QUALITY ASSURANCE:

- A. Stone Masons: Minimum 5 years experience installing limestone veneer masonry.

1.5 SUBMITTALS:

- A. Shop Drawings:
 - 1. Indicate profile and jointing pattern, dimensions, locations, elevations, built-in items, finishes, expansion joints, and installation details.
 - 2. Indicate coordination details for adjoining and related work of other trades.
- B. Product Data:
 - 1. Submit, for information only, specifications and other data for each type of stonework required. Include instructions for handling, storage, installations and protection of each type.

1.6 FIELD SAMPLES:

- A. Provide a sample of stonework at least 50 square feet in area indicating proposed range of color, texture and workmanship to be expected in completed work. Build mock-up at site using stone and jointing as shown and specified.
- B. Obtain Architect's acceptance of visual qualities of sample before start of stonework. Replace unsatisfactory mock-up work, as directed, until acceptable to Architect. Retain sample panels during construction as a standard for judging completed stonework. Do not alter, move or destroy mock-up until work is completed. The accepted mock-up may become part of the completed work and remain in place, if in undisturbed condition, at Date of Substantial Completion..

1.7 PRODUCT DELIVERY, STORAGE, AND HANDLING:

- A. Deliver units properly bound on factory pallets.
- B. Carefully handle stone with equipment designed to avoid damage to face appearance. Do not install stone with spalls, chips, cracks, or other damage.
- C. Store off the ground and protected from weather, moisture, soiling, staining, and physical damage in a manner allowing air circulation around the stone.

1.8 ENVIRONMENTAL REQUIREMENTS:

- A. Maintain air and mortar temperatures during cold weather within limits outlined in International masonry Industry All-Weather Council's Recommended Practices & Guide Specifications for Cold Weather Masonry Construction

PART 2 – PRODUCTS

2.1 SOURCE QUALITY CONTROL:

- A. Single Source Responsibility for Stone:
 - 1. Obtain each color, grade, finish, type and variety of stone from a single quarry with resources to provide materials of consistent quality in appearance and physical properties.
- B. Single Source Responsibility for Mortar and Grout Materials:
 - 1. Obtain mortar ingredients of uniform quality and from one manufacturer for each cementitious component and from one source or producer for each aggregate.
- C. Single Source Responsibility for Other Materials:
 - 1. Obtain each type of stone accessory, sealant and other materials from one manufacturer for each product.

2.2 MATERIALS:

- A. Veneer Stone: **(SAMPLE DATA)**
 - 1. Thickness to be approximately 5 inches.
 - 2. Irregular in length, average size to be approximately 10 inches x 5 inches but not smaller than 8 inches x 5 inches in size or larger than 18 inches x 5 inches.
- B. Cap Stone: **(SAMPLE DATA)** to match the veneer material.
 - 1. Cap stone shall be 2 inches thick by 36 inches wide by 24 inches to 40 inches long.

PART 3 – EXECUTION

3.1 PREPARATION:

- A. Wet stones having an absorption rate exceeding 0.025 oz. Per square inch per minute, 3 to 24 hours prior to laying. Keep wet but not saturated until installation.
- B. Keep low absorption-rate stone as dry as possible.

3.2 INSTALLATION:

- A. General:
 - 1. Provide openings and other spaces as required for contiguous work. Close up openings in stonework after other work is in place. Use materials and set to match surrounding stonework.
 - 2. Where stonework will contact ferrous metal surfaces which will be concealed in back-up construction (anchors, supports, structural framing and similar surfaces), apply a heavy coat of bituminous paint on metal surfaces, prior to setting of stone. Do not extend coating onto portions of ferrous metal which will be exposed in finished work. Do not apply coating to stainless or non-ferrous metals.

3. Provide expansion joints where shown and as required. Do not fill with mortar. Install continuous strips of preformed joint filler to allow for installation of backer rod and sealant.
 4. Set stone before initial set of cement bed occurs. Do not set stone on dry bed. Tamp stone for a complete contact between stone and setting bed.
 5. Set stone with uniform joints at maximum width of **.75 inches. (Sample Data)**
 6. Grout joints as soon as possible after initial set of setting bed. Force grout into joints, finish according to detail. Wet joint surfaces, if dry, prior to grouting.
- B. Stone Veneer:
1. All stone shall be laid in random pattern as indicated. Continuous joints shall extend no more than 3 stones in length.
 2. Break joints so vertical joints are not directly over each other in any two courses and so horizontal joints are straight and continuous.
 3. Set stones on their widest bed. Form tops of walls true to line with cubic shaped stones. No small stones or mortar will be allowed to bring wall tops to proper line.
 4. Do not use stones with large cracks, large holes or stains.
 5. Select stone at job site and install to provide as even a distribution of colors as possible throughout the work. Maintain stone as clean as possible as work progresses.
 7. Provide necessary field cutting as stone is installed. Select stone at job site and install to provide as even a distribution of colors as possible throughout the work.
- C. Cap Stone:
1. All walls shall have a stone cap. Joints on the top of the wall shall be flush with the stone to prevent ponding of water on the wall. Wall cap shall consist of full width solid stones.
 2. Do not use stones with large cracks, large holes or stains.

3.3 PROTECTION:

- A. Protect completed work from staining and damage by subsequent construction operations.

3.4 CLEANING:

- A. Remove and replace stone units which are broken, chipped, stained or otherwise damaged. Remove and replace units which do not match adjoining stonework. Provide new matching units, install as specified and point-up joints to eliminate evidence of replacement. Refill defective and unsatisfactory joints as required to provide a neat, uniform appearance.
- B. Clean stonework immediately as it is laid, using clean water and stiff-bristle brushes to avoid etching or staining of the work. Do not use wire brushes, acid type cleaning agents or other cleaning compounds with caustic or harsh fillers.

END OF SECTION

**SECTION 04 43 13
CUT STONE**

PART 1 – GENERAL

1.1 SECTION INCLUDES:

- A. Furnish all labor, material, equipment, related services and supervision necessary for or incidental to the Installation of the cut stone as shown or indicated on the Drawings and/or as specified.

1.2 RELATED DOCUMENTS:

- A. Drawings and General provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. All other Divisions of the Contract Documents. Refer to each Division's specifications and drawings for all requirements, including but not limited to the following.
 - 1. Masonry Mortaring – Section 04 05 13.
 - 2. Masonry Anchorage and Reinforcing – Section 04 05 19.
 - 3. Masonry Accessories – Section 04 05 23.
 - 4. Concrete Unit Masonry – Section 04 22 00.

1.3 SUBMITTALS

- A. Samples: 12 x 12 inch samples showing color, finish, and maximum color range.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Minimum 2 years documented experience in work of this Section.
- B. Stone: Obtain each stone from single quarry.
- C. Mockup:
 - 1. Size: Minimum 4 x 4 feet.
 - 2. Show: Stone sizes, color and texture range, and joint profile.
 - 3. Approved mockup may remain as part of the Work.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Stack stone on timbers or platforms minimum 4 inches above ground. If left stacked for extended period of time, provide polyethylene or other suitable film between stone and wood and as protective covering.

1.6 PROJECT CONDITIONS

- A. Do not install stone when ambient temperature is below 40 degrees F.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cut Stone:
 - 1. Type, color, and surface finish: **(INSERT DATA)**
 - 2. Free from cracks, seams and starts that could impair its structural integrity or function. Inherent variations characteristic to quarry from which it is obtained are acceptable.
 - 3. Color, texture, and finish within range of samples approved by Architect.

2.2 ACCESSORIES

- A. Mortar: Specified in Section 04060 or 04100.
- B. Cleaning Solution: Type that will not harm stone, joint materials, or adjacent surfaces.

2.3 FABRICATION

- A. Fabricate stone for uniform coloration between adjacent units and over full area of installation.
- B. Form external stone corners to square butt joint profile.
- C. Fabricate for 3/8 inch beds and joints.
- D. Cut or saw bed and joint surfaces square for full thickness of unit.
- E. Backs: Sawn.
- F. Fabrication Tolerances:
 - 1. Variation in width or height: Plus or minus 1/16 inch.
 - 2. Variation in thickness: Plus or minus 1/8 inch.
 - 3. Variation from true plane: Plus or minus 1/16 inch in 3 feet.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Establish lines, levels, and coursing. Protect from disturbance.
- B. Clean stone prior to installation. Do not use wire brushes or implements that can mark or damage exposed surfaces.
- C. Wet absorptive stone in preparation for placement to minimize moisture suction from mortar.

3.2 INSTALLATION

- A. Arrange stone pattern to provide color uniformity and constant 3/8 inch joint sizes throughout.
- B. Set stone plumb and level. Align adjacent pieces in same plane.
- C. Obtain approval prior to cutting or fitting any item not so indicated on Drawings. Do not impair appearance or strength of stone work by cutting.
- D. Bed each piece in full mortar bed.
- E. Equalize bed and joint openings to eliminate need for redressing exposed faces.
- F. Set stone in full mortar setting bed to fully support stone over bearing surface. Use spacers to maintain correct joint width.
- G. Completely fill beds and joints, then rake out for pointing.
- H. Tool joints to flush, smooth profile.

3.3 INSTALLATION TOLERANCES

- A. Maximum variation from level and plumb: 1/4 inch in 10 feet, non-cumulative.
- B. Maximum variation in plane between adjacent pieces at joint: Plus or minus 1/8 inch.

3.4 CLEANING

- A. Clean stone with stiff brushes and water.
- B. If initial cleaning does not produce acceptable results, apply cleaner in accordance with manufacturer's instructions.
 - 1. Prior to applying, clean sample panel in area as directed by Architect. If approved, use same materials and techniques for cleaning remainder of stone.
 - 2. Protect adjacent surfaces.
 - 3. Thoroughly rinse surfaces with clean water after completion of cleaning; remove all traces of cleaning solution.

END OF SECTION

**SECTION 04 72 00
CAST STONE MASONRY**

PART 1 – GENERAL

1.1 SECTION INCLUDES:

- A. Furnish all labor, material, equipment, related services and supervision necessary for or incidental to the installation of the Cast Stone work as shown or indicated on the Drawings and/or as specified.

1.2 RELATED DOCUMENTS:

- A. Drawings and General provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. All other Divisions of the Contract Documents. Refer to each Division's specifications and drawings for all requirements, including but not limited to the following:
 - 1. Masonry Mortaring – Section 04 05 13.

1.3 QUALITY ASSURANCE:

- A. Cast stone manufacturer shall submit qualifications evidencing that such manufacturer has had a minimum of 3 years experience in providing cast stone products.

1.4 SUBMITTALS:

- A. Shop drawings and details based on the Contract Documents shall be submitted for review prior to fabrication of material.
- B. Samples of the cast stone material shall be submitted to the Owner for approval prior to start of shop drawings. Samples shall indicate full range of colors available.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING:

- A. Materials shall be delivered to the job site properly packaged and protected. Materials stored on wood grounds properly placed to avoid damaging materials.

PART 2 – PRODUCTS

2.1 PRODUCTS:

- A. Cast Stone: Shall have a 1" minimum thickness facing of 1 part white cement and 2 ½ parts crushed stone, marble and sand aggregate over a core of 1 to 3 mix of Portland cement and aggregate. Materials shall have a minimum compressive strength of 5000 psi at 28 days, absorption not over 7%, manufactured in accordance with specifications of American Cast Stone Institute. Finish of materials exposed to view: Smooth, even, uniform without any objectionable color, pits, cracks, or other objectionable defects. Color-limestone.
- B. Accessories: Any required accessories such as anchoring pins, fasteners, etc., shall be of non-corrosive materials such as stainless steel.

2.2 FABRICATION:

- A. Materials fabricated in molds to meet profiles indicated on the drawings and in accordance with reviewed shop drawings. Materials fabricated with following tolerances: Thickness, height and depth - +/- 1/8 inch; maximum variation in plumb in lines of units +/- 1/8 inch; maximum variation from level – 1/8 inch in 10 feet.

PART 3 – EXECUTION

3.1 INSPECTION:

- A. Surfaces receiving cast stone materials shall be checked for any defects or conditions that would affect installation. Installation constitutes acceptance of substrate conditions.

3.2 ERECTION:

- A. Materials installed plumb, level and true to line with proper bearing and support being provided. Contractor shall be responsible to design and fabricate all cast stone material to meet drawing profiles. Contractor also responsible for proper anchorage of materials with adequate provisions provided during the course of construction. Properly clean materials after installation, removing all objectionable dirt, muss or stains. Upon installation, materials shall be free from defects, marks or other objectionable finishes.

END OF SECTION

**SECTION 31 10 00
SITE CLEARING**

PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. Furnish all labor, material, equipment, related services and supervision necessary for or incidental to the removal from site of all existing trees, shrubs, miscellaneous vegetation, roots, stumps, rocks, rubbish and other objects as shown or indicated on the Drawings and/or as specified. Provide protection of existing trees, structures, utilities and other items as described in the construction documents.

1.2 RELATED DOCUMENTS:

- A. Drawings and General provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. All other Divisions of the Contract Documents. Refer to each Division's specifications and drawings for all requirements, including but not limited to the following:
 - 1. Earth Moving – Section 31 20 00.

1.3 SUBMITTALS:

- A. Protective Fencing: Submit complete manufacturer's descriptive literature.

1.4 SCHEDULING:

- A. Notify Architect 48 hours prior to beginning work.

PART 2 - PRODUCTS

2.1 MATERIALS:

- A. Protective Fencing: Warning Barrier Fence (Orange) MISF 901 by Mutual Industries, Inc. or equal. Lofland Company (214)-631-6699.

PART 3 - EXECUTION

3.1 PROTECTION:

- A. Provide protection of trees, shrubs and other landscape features specifically designated on the drawings for preservation. Carefully protect from abuse, marring or damage during construction operations.
- B. Continual parking and/or servicing of equipment under the branches of trees, designated for preservation, will not be permitted.
- C. Trees and shrubs designated for preservation that must be pruned will be trimmed as directed and exposed cuts over two (2) inches in diameter will be treated with an approved tree wound paint.
- D. Provide protection from damage to bench marks, existing structures, roads, sidewalks, paving, utilities and curbs against damage from clearing operations, vehicular and foot traffic. Re-establish if disturbed.
- E. Provide designated temporary roadways, walkways, and detours for vehicular and pedestrian traffic as necessary.

3.2 CLEARING:

- A. Provide clearing of areas as required for access to site excavation and performance of Work. Cut down underbrush within designated areas. Grub out stumps, roots, and embedded rocks.
- B. Undergrowth shall only be removed under direction of Architect. Grubbing operations in and around existing trees designated to remain shall be handled by stump grinding or hand labor. Mechanical digging shall not be allowed due to detrimental effects on existing root systems.
- C. Do not disturb trees, roots of trees or shrubs which are to remain.

3.3 CLEAN UP:

- A. Provide prompt removal of debris from site. Burning of debris on site is not permitted, unless written permission is obtained from applicable regulatory authority and Owner.

END OF SECTION

**SECTION 31 20 00
EARTH MOVING**

PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. Furnish all labor, materials, equipment, related services and supervision necessary or incidental to strip and stockpile topsoil, excavation, filling, backfilling, soil testing and grading complete, as shown or indicated on the Drawings and/or as specified.

1.2 RELATED DOCUMENTS:

- A. Drawings and General provisions of the Contract, including General and Supplemental Conditions and Division 1 Specification Sections, apply to this Section.
- B. All other Divisions of the Contract Documents. Refer to each Division's specifications and drawings for all requirements, including but not limited to the following:
 - 1. Site Clearing – Section 31 10 00.
 - 2. Tree Protection and Trimming – Section 31 11 13.
 - 3. Fine Grading – Section 31 22 16.
 - 4. Topsoil – Section 32 9119.16.

1.3 REFERENCES:

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM D-2487 – Unified Soil Classification System
 - 2. ASTM D-4318 – Liquid Limit, Plastic Limit and Plasticity Index of Soils Test
 - 3. ASTM D-1140 – Materials Greater Than #200 Sieve
 - 4. ASTM D-698 – Moisture Density Relations of Soils and Soil Aggregate Mixtures

1.4 SUBMITTALS:

- A. Agronomic Soil Test Reports: Submit 2 certified copies of soil test reports to Architect for approval prior to starting work.
- B. Density and Moisture Soil Test Reports: Submit 2 certified copies of soil test reports to Architect for approval.

1.5 PROJECT CONDITIONS AND REQUIREMENTS:

- A. Inspect existing conditions and site for work and accept same before starting work.
- B. Protect adjacent roads, sidewalks, curbs, gutters, natural features, utilities and similar improvements. Repair and/or replace underground utility lines, paved areas, curbs, gutters, sidewalks, etc. that are damaged during work of this section.
- C. Dispose off site all excess excavated material not required for fill or topsoil operations.
- D. Keep all excavations free of water.
- E. Provide adequate dust and erosion control measures as described in the construction documents.
- F. Provide all measures as required to maintain streets in a clean condition from excavation site to disposal locations. Clean trucks and tires of loose dirt, mud, rock, etc., before leaving site in order to prevent soiling City streets and County, State and Federal Highways.
- G. Provide adequate protective measures for the public, workmen, adjacent streets, buildings, utilities, etc.
- H. Use of explosives is not permitted.

1.6 QUALITY ASSURANCE:

- A. Permissible tolerances for finish excavations and grade shall be within 0.05 foot above or 0.10 foot below required grades. Do not leave depressions in graded areas unless otherwise directed.
- B. Density and Moisture Soil Tests
 - 1. Field soil tests for density and moisture content on fills and backfills will be performed by a recognized independent testing agency selected and paid by the Contractor.
- C. Agronomic Soil Tests
 - 1. Performed by a certified facility normally engaged in agronomic soil testing and paid by the Contractor.
 - 2. Required topsoil tests
 - a. Fertility: pH, nitrate nitrogen, ammonia nitrogen, phosphate phosphorous, potassium, calcium, magnesium, zinc, iron and manganese.
 - b. Suitability: total salinity, boron, sodium, potassium, calcium, magnesium, chloride and sulfate.
 - c. Physical Properties: Organic content and particle size distribution.

PART 2 - PRODUCTS

2.1 MATERIALS:

- A. Native and Imported Topsoil: Refer to Section 02911
- B. Common Fill: Shall be on site material free of lumps, debris, weeds, roots, seeds and rock larger than 2 inch diameter.

PART 3 - EXECUTION

3.1 INSPECTION:

- A. Examine areas and conditions under which earthwork is to be performed and notify Owner/Architect of conditions detrimental to the proper and timely completion of the work.

3.2 PREPARATION:

- A. Provide adequate protective measures of shoring, bracing, piling, planking and cribbing to protect existing adjacent construction.
 - 1. Protect all reference points, benchmarks and monuments from dislocation or damage. Replace or repair immediately any points damaged, destroyed, or dislocated.
 - 2. Sprinkle and dampen all dusty material from the beginning of work to its completion.
 - 3. Protect and maintain all conduits, drains, inlet sewers, pipes and wires that are to remain.
 - 4. Provide, erect and maintain all lights, barricades, warning signs and guards as necessary.
- B. All work shall be laid out by the Contractor who shall be responsible for all elevations, dimensions and verification of actual conditions. Refer discrepancies to Architect for interpretation or necessary modifications.
- C. Remove grass, weeds, trees, shrubbery, roots and other vegetation from the areas to be excavated, filled or graded. Tree roots of protected trees shall not be disturbed. Contractor shall remove vegetation and organic matter by hand labor in tree root zone areas. Compaction of sub-grade is not required in tree root zones. Coordinate work with Architect in tree root zone areas.

3.3 PUMPING AND DRAINAGE:

- A. Keep excavations free from water, ice and snow at all times. Prevent water from interfering with progress or quality of the work.

3.4 GENERAL REQUIREMENTS IN CONJUNCTION WITH EXCAVATION, FILLING AND BACKFILLING:

- A. Backfill against structures shall be imported topsoil.
- B. Native topsoil shall be salvaged and stockpiled from areas as shown on the plans. Native topsoil shall consist of the top 3 inches to 10 inches of existing material free of refuse, weeds, stumps, roots or rocks larger than 2 inches in size.

3.5 EXCAVATION:

- A. Excavate to lines, elevations and limits as required, plus sufficient distance and space to permit erection of forms, shoring, and inspections. Excavate as required, regardless of types, conditions or moisture content of the material encountered.

3.6 FILLING:

- A. Preparation for filling
 1. Complete stripping operations in advance of fill construction. Any material found in fill areas after stripping operation which, in the opinion of the Owner's lab representative, is unsuitable, shall be removed from site.
 2. Areas on which any compacted earth fill is to be placed shall be rough graded, spot filled and leveled, and uniformly prepared to receive fills by means of power equipment. Areas above retaining walls shall be hand graded.
- B. Placing fills
 1. Construct fills at locations and to lines and grades required by drawings. Equipment for placing fills shall be capable of obtaining required density.
 2. Combined excavation and fill placing operations shall be such that materials when compacted will be blended sufficiently to secure best practicable degree of compaction. Dump successive loads of material and spread and mix to give a horizontal layer of not more than 8 inches in depth, loose measurement. After each layer of fill has been spread to proper depth, thorough manipulation with a disc plow or other suitable and approved equipment until material is uniformly mixed pulverized and brought to a uniform moisture content.
 3. No fill material shall be compacted until the layer of material has a uniform moisture content which will permit proper compaction, and material in each layer of fill, while being compacted, shall be maintained as nearly as practical at that degree of moisture content which is optimum for obtaining required compaction.
 4. After material has been brought to uniform and satisfactory moisture content. Each horizontal layer of all fill material shall be compacted to the required density at optimum moisture content (plus or minus 3 percent) as determined by Standard Proctor Test.

3.7 BACKFILLING:

- A. Backfilling includes filling and compaction beneath slabs and structural concrete, against and around concrete after forms have been removed and foundation inspection completed and areas above retaining walls. Compact backfills at required density at plus or minus 3 percent of optimum moisture content as determined by Standard Proctor Test (ASTM D-698).

- B. Procedures
 - 1. Do not begin backfilling until construction below finish grade has been approved, underground utilities inspected, tested and approved, forms removed and excavation cleaned of trash and debris. Bring backfills to required grades.
 - 2. Backfill shall not be placed in wet or frozen areas. Heavy equipment for spreading and compacting backfill shall not be operated closer to foundations, curbs, or walls than a distance equal to the height of backfill above the top of structural members; the area remaining shall be compacted by power driven hand tampers suitable for the material being compacted.
 - 3. Backfills shall not be placed against walls until all structural framing members, which brace walls, have been in place for seven days.
 - 4. Construct backfills generally in horizontal layers and uniformly compacted. Prior to and in conjunction with compaction operation, bring each layer to required moisture content.

3.8 RECONDITIONING SUBGRADE:

- A. Where approved compacted sub-grades are disturbed by Contractor's subsequent operations or adverse weather, the sub-grades shall be scarified and compacted as specified herein before to the required density prior to further construction thereon.

3.9 GRADING:

- A. Establish grades by means of grade stakes placed as required. Hold down sub grade to allow depths required for topsoil placement.
- B. Rough grade to the elevations required by the drawings. Remove soft and unstable material, which will not readily compact when rolled or tamped. Fill the resulting depressions, unless otherwise directed, with stable material and roll until required compaction is obtained.
- C. Imported topsoil will be furnished and installed in landscape planting and lawn turf areas indicated on the landscape plans. Native topsoil will be placed in the areas from which they were salvaged from as per the drawings.
- D. Finish grade to the elevations required by the drawings and for proper drainage. At intermediate points, for which finish grades are not indicated, the finish grade shall be of uniform level of slope between points for which elevations are given. Round any abrupt changes in elevation.
- E. Laser grade athletic fields to be precision graded using laser leveling equipment to achieve a tolerance of 1/10 of an inch.

3.10 FIELD QUALITY CONTROL:

- A. Field tests for density and moisture content may be performed by a recognized independent testing agency selected and paid by the Contractor.

3.11 ADJUSTMENTS AND CLEANING:

- A. Settlement or washing that occurs in filled and backfilled areas prior to acceptance of work shall be repaired and grades re-established to the required elevations and slopes.
- B. Cleanup all debris caused by the work of this section, keep the site clean and neat at all times.

END OF SECTION

**SECTION 31 22 16
FINE GRADING**

PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. Furnish all labor, material, equipment, related services and supervision necessary for or incidental to fine grading all disturbed areas within the limits of work as shown or indicated on the Drawings and/or as specified.

1.2 RELATED DOCUMENTS:

- A. Drawings and General provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. All other Divisions of the Contract Documents. Refer to each Division's specifications and drawings for all requirements, including but not limited to the following:
 - 1. Planting – Section 32 93 00.

PART 2 - PRODUCTS

2.1 LIMITS OF WORK:

- A. The areas to be fine graded are all those disturbed areas within the limits of work as defined on the construction documents.

2.2 SEQUENCE OF WORK:

- A. Fine grading will not be attempted until all construction involving heavy equipment and vehicles is complete.
- B. After fine grading is accomplished, it shall be the Contractor's responsibility to protect all fine graded areas from vehicular traffic or other disruptive activities. Damages to the fine graded surfaces will be restored to a satisfactory condition as prescribed herein until the job is completed and accepted by the Landscape Architect.

2.3 FINE GRADING OPERATIONS:

- A. The following measures will be executed in the accomplishment of fine grading areas to be planted in turfgrass. The Contractor may elect to use additional or supplemental measures to accomplish fine grading.
 - 1. Fine grading will be executed with any or all of the following or other appropriate machinery: lightweight road grader, tractor box blade, discing machinery, weighted spike harrow, and weighted drags. Bulldozer blades or front end loader buckets are not acceptable devices for fine grading operations.
 - 2. It is anticipated that some areas of earth embankment and high traffic areas may become overcompacted and resistant to proper grading. Such areas will be loosened and pulverized with discing machinery and will then be recompact to normal density before fine grading. The use of a watering truck to moisten dried and hardened areas may be necessary.

2.4 ACCEPTABILITY:

- A. The Landscape Architect will determine if fine graded areas are acceptable. Areas deemed unacceptable will be corrected and re-graded until they are acceptable.

PART 3 - EXECUTION

3.1 INSPECTION:

- A. Examine areas and conditions under which fine grading is to be performed and notify Owner/Architect of conditions detrimental to the proper and timely completion of the work.

3.2 PREPARATION:

- A. Provide adequate protective measures of shoring, bracing, piling, planking and cribbing to protect existing adjacent construction.
 - 1. Protect all reference points, benchmarks and monuments from dislocation or damage. Replace or repair immediately any points damaged, destroyed, or dislocated.
 - 2. Sprinkle and dampen all dusty material from the beginning of work to its completion.
 - 3. Protect and maintain all conduits, drains, inlets, sewers, pipes and wires that are to remain.
 - 4. Provide, erect and maintain all lights, barricades, warning signs and guards as necessary.
- B. The Contractor shall layout all work required and is responsible for all elevations, dimensions and verification of actual conditions. Refer discrepancies to the Landscape Architect for interpretation or required modifications.
- C. Remove grass, weeds, trees, shrubbery, roots and other vegetation from the areas to be fine graded. Tree roots of protected trees shall not be disturbed. Contractor shall remove vegetation and organic matter by hand labor in tree root zone areas. Coordinate work with LandscapeArchitect in tree root zone areas.

3.3 PUMPING AND DRAINAGE:

- A. Keep fine graded areas free from water, ice and snow at all times. Prevent water from interfering with progress or quality of .the work.

3.4 RECONDITIONING FINISHED GRADE:

- A. Where approved grades are compacted or disturbed by Contractor's subsequent operations or adverse weather, the finished grades shall be scarified and re-graded as specified herein prior to further construction thereon.

3.5 GRADING:

- A. Establish grades by means of grade stakes placed as required. Hold down subgrade to allow depths required for topsoil placement.
- B. Fine grade to the elevations required by the drawings.
- C. Imported topsoil, if required, will be furnished by the Contractor and installed in landscape planting and lawn turf areas as indicated on the landscape plan. Native topsoil will be placed in the areas from which they were salvaged from as per the drawings.
- D. Finish grade to the elevations required by the drawings and for proper drainage. At intermediate points, for which finish grades are not indicated, the finish grade shall be of uniform level of slope between points for which elevations are given. Round any abrupt changes in elevation.
- E. Laser grade athletic fields to be precision graded using laser leveling equipment to achieve a tolerance of 1/10 of an inch.

3.6 ADJUSTMENTS AND CLEANING:

- A. Settlement or washing that occurs in fine graded areas prior to acceptance of work shall be repaired and grades re-established to the required elevations and slopes.
- B. Cleanup all debris caused by the work of this section, keep the site clean and neat at all times.

END OF SECTION

**SECTION 31 25 00
EROSION AND SEDIMENTATION CONTROLS**

PART 1 – GENERAL

1.1 SECTION INCLUDES:

- A. Furnish all labor, material, equipment, supervision and other services required necessary for or incidental to the installation of all erosion control devices as shown or indicated on the Drawings and/or as specified.

1.2 RELATED DOCUMENTS:

- A. Drawings and General provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. All other Divisions of the Contract Documents. Refer to each Division's specifications and drawings for all requirements, including but not limited to the following:
 - 1. Site Clearing - Section 31 10 00.
 - 2. Earth Moving - Section 31 20 00.

1.3 SUBMITTALS:

- A. Temporary Sediment Control Fabric: Submit complete manufacturer's descriptive literature and performance characteristics.

PART 2 – PRODUCTS

2.1 MATERIALS:

- A. Temporary Sediment Control Fabric: A woven polypropylene fabric containing stabilizers and inhibitors that make it resistant to deterioration caused by ultraviolet light, heat and soil conditions. Accepted manufacturer and product is Mutual MISF 901.
- B. Baled Hay: Minimum 30 inches in length and weigh a minimum of 50 pounds. Bales shall be bound by wire, nylon or polypropylene string and composed entirely of vegetative material.
- C. Galvanized Welded Wire Mesh: 12.5 gauge wire with a maximum opening size of 2 inches x 4 inches.
- D. Steel Posts: Studded steel "T" post, at 1.33 pounds per linear foot of post with a minimum length of 4 feet.
- E. Soft Wood Posts: Shall have a minimum diameter of 3 inches or a nominal dimension of 2 inches x 4 inches with a minimum length of 4 feet.
- F. Hard Wood Posts: Shall have a minimum dimension of 1.5 inches x 1.5 inches with a minimum length of 4 feet.

PART 3 - EXECUTION

3.1 GUIDELINES:

- A. Temporary Sediment Control Fence
 - 1. A sediment control fence will be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered.
 - 2. Sediment control fence shall be sized to filter a maximum flow through rate of 100/FT². Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

- B. Baled Hay Usage
1. A Baled Hay installation shall be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered. The installation should be sized to filter a maximum flow through rate of 5 CPU/FT² of cross sectional area. Baled hay shall be used at the following locations:
 - a. Where the runoff approaching the baled hay flows over disturbed soil for less than 100 feet. If the slope of the disturbed soil exceeds 10% the length of slope upstream the baled hay should be less than 50 feet.
 - b. Where the installation will be required for less than 3 months.
 - c. Where the contributing drainage area is less than 2 acre.
 2. For Baled Hay installation in small ditches, the additional following consideration applies:
 - a. The ditch side slopes shall be graded as flat as possible to maximize the drainage flow rate through the hay.
 - b. The ditch shall be graded large enough to contain the over tapping drainage when sediment has filled to the top of the baled hay.
 3. Bales should be replaced usually every 2 months or more often during wet weather when loss of structural integrity is accelerated.

3.2 INSTALLATION:

- A. Temporary Sediment Control Fence
1. Space posts at 6 feet to 8 feet on center. Fasten fabric to top strand of welded wire mesh (W.W.M.) by hog rings or cord at a maximum spacing of 15 inches.
 2. Attach the W.W.M. and fabric on end posts using 4 evenly spaced staples for wooden posts and 4 T-clips or sewn vertical pockets for steel posts.
 3. Place 4 inches to 6 inches of fabric against the trench side and approximately 2 inches across trench bottom in upstream direction. Minimum trench size shall be 5 inches square. Backfill and hand tamp.
 4. Connect the ends of successive reinforcement sheets or rails a minimum of 6 times with hog rings.
- B. Baled Hay Usage
1. Hay bales shall be embedded in the soil a minimum of 4 inches.
 2. Hay bales shall be placed in a row with ends tightly abutting the adjacent bales. The bales shall be placed with bindings parallel to the ground.
 3. Hay bales shall be securely anchored in place with .75 inch diameter x 36 inch long reinforcing bar or 2 inch x 2 inch x 36 inch long wood stakes, driven through the bales. The first stake shall be angled towards the previously laid bale to force the bales together.
 4. The guidelines shown here are suggestions only and may be modified by the Engineer.

END OF SECTION

**SECTION 32 32 49
STONE BLOCK**

PART 1 – GENERAL

1.1 SECTION INCLUDES:

- A. Furnish all labor, material, equipment, related services and supervision necessary for or incidental to the installation of stone as shown or indicated on the Drawings and/or as specified.

1.2 RELATED DOCUMENTS:

- A. Drawings and General provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. All other Divisions of the Contract Documents. Refer to each Division's specifications and drawings for all requirements.

1.3 QUALITY ASSURANCE:

- A. Stone Supplier (Quarry Blocks and Median Nosing Slabs):
 - 1. QUARRY STONE SUPPLY
CONTACT: MARK ALLEN
PHONE: 214-802-6608
EMAIL: MARKQSS@AOL.COM

OR OTHER APPROVED SUPPLIER

1.4 SUBMITTALS:

- A. Submit shop drawings and product data.
- B. Dimensioned shop drawings.
- C. Stone Quarry Blocks and Nosing:
 - 1. Submit 36" wide X 14" deep X 36" length product samples of Quarry Blocks and Stone Nosing Slabs color range. Provide 1 sample for each color as required to demonstrate full color range of material.
- D. Submit clean, washed 10 lb. bags of Decorative Stone Aggregates.

1.5 MOCKUPS:

- A. Stone Quarry Blocks:
 - 1. Provide a mockup of Wall C-1 and Wall C-2 complete in place, demonstrating the range of color, texture, and workmanship to be expected in the completed work. Build mock-up at site using stone and jointing as shown and specified. Approved mockup may be incorporated into the completed work.
- B. Obtain Landscape Architect's acceptance of visual qualities of sample before start of stonework. Replace unsatisfactory mockup work, as directed, until acceptable to Architect. Retain mockups during construction as a standard for judging completed stonework. Do not alter, move or destroy mockup until work is completed.

1.6 DELIVERY, STORAGE, AND HANDLING :

- A. Protect stone from damage and visible discoloration.

PART 2 – PRODUCTS

2.1 STONE:

- A. Stone Quarry Blocks: Leuders limestone blocks, cream color, sizes as indicated.

PART 3 – EXECUTION

3.1 INSPECTION:

- A. Verify that support work and site conditions are ready to receive work of this Section.
- B. Establish lines, levels, and coursing. Protect from disturbance.
- C. Commencing installation means acceptance of existing conditions.

3.2 PREPARTATION:

- A. Coordinate among all trades. Verify that conditions are satisfactory before commencing work.
- B. Clean stone prior to placement. Do not use wire brushes or implements which will mark or damage exposed surfaces.

3.3 INSTALLATION:

- A. Set stone and stone aggregates in patterns, locations and elevations as indicated.

3.5 CUTTING AND FITTING:

- A. Obtain approval prior to cutting or fitting any stone at variance from as indicated.
- B. Do not impair appearance or strength of stone work by cutting.

3.6 CLEANING:

- A. Clean soiled surfaces with water.
- B. Use non-metallic tools in cleaning operations.

END OF SECTION

**SECTION 32 91 19.16
TOPSOIL**

PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. This section specifies all soil material designated as "Topsoil" on the drawings or in the specifications.

1.2 RELATED DOCUMENTS:

- A. Drawings and General provisions of the Contract, including General and Supplementary Conditions and Divisions 1 Specification Sections, apply to this Section.
- B. All other Divisions of the Contract Documents. Refer to each Division's Specifications and drawings for all requirements, including but not limited to the following:
 - 1. Earth Moving – Section 31 20 00.
 - 2. Fine Grading – Section 31 22 16.
 - 3. Turf and Grasses – Section 32 92 00.
 - 4. Plants – 32 93 00.

1.3 SUBMITTALS:

- A. Samples
 - 1. Provide 1-quart samples for each soil unit making up the topsoil source.
 - 2. Each sample to be a composite of five to seven (5-7) sub-samples taken the full depth of proposed source. On stockpiles, discard upper 6 inches of soil before sampling.
 - 3. Place samples in plastic bags, seal, and place in second paper bag, and label.
- B. Test Reports
 - 1. Prior to starting work, submit 2 certified copies of soil test reports to the Architect for approval.
 - 2. Costs of all tests to be borne by the Contractor.

1.4 QUALITY ASSURANCE:

- A. All soil samples and testing shall comply with procedures specified in:
 - 1. U.S.D.A. Ag. Handbook 60: Diagnosis and Improvement of Saline and Alkali Soils.
- B. Testing Laboratories
 - 1. Certified facilities normally engaged in agronomic soil testing shall be utilized.
 - 2. Approval by the Owner's representative.
- C. Required Topsoil Tests
 - 1. Chemical analysis indicating:
 - a. Fertility: pH, nitrate nitrogen, ammonia nitrogen, phosphate phosphorous, potassium, calcium, magnesium, zinc, iron, and manganese.
 - b. Suitability: total salinity, boron, sodium, potassium, calcium, magnesium, chloride, and sulfate.
 - 2. Physical properties include:
 - a. Organic content
 - b. Particle size distribution

PART 2 - PRODUCTS

2.1 TOPSOIL:

- A. Topsoil for the work shall conform to the requirements included in this Section

1. A natural, friable, loamy soil, typical of local topsoil which produces heavy vegetative growth, free from subsoil, weeds, sods, stiff clay, stones larger than ½ inch, toxic substances, debris, or other substances which may be harmful to plant growth.
2. The pH range shall be 6.5 to 7.5.
- B. Grading Analysis: Two inch sieve, 100 percent passing. Number 4 sieve, 90 percent minimum passing. Number 10 sieve, 80 percent minimum passing.
- C. Sand, silt and clay content:
 1. Sand: 20 to 75 percent.
 2. Silt: 10 to 60 percent.
 3. Clay: 5 to 30 percent.
- D. All topsoil shall be free from all herbicides and insecticides which may adversely affect growth of lawn or planting, or which may contain toxic materials.
- E. Do not deliver in muddy condition.
- F. The Contractor shall not use materials which do not conform to these criteria. At the discretion of the Landscape Architect, such material can either be amended to meet these requirements, or will be removed from the site and replaced with suitable material as specified.

PART 3 – EXECUTION

3.1 Not Used

END OF SECTION

**SECTION 32 92 00
TURF AND GRASSES**

PART 1 – GENERAL

1.1 SECTION INCLUDES:

- A. Furnish all labor, material, equipment related services and supervision necessary for or incidental to the installation of the lawns and grasses as shown or indicated on the Drawings and/or as specified.
- B. Work Included:
 - 1. Soil Preparation and Fine Grading.
 - 2. Fertilization.
 - 3. Grass Seeding.
 - 4. Grass Hydro Mulch.
 - 5. Grass Sprigging.
 - 6. Grass Sodding.

1.2 RELATED DOCUMENTS:

- A. Drawings and General provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. All other Divisions of the Contract documents. Refer to each Division 's specifications and drawings for all requirements, including but not limited to the following:
 - 1. Fine Grading - Section 31 22 16.
 - 2. Planting Irrigation - Section 32 84 00.
 - 3. Planting - Section 32 93 00
 - 4. Planting Maintenance - Section 32 95 00

1.3 SUBMITTALS:

- A. Delivery Receipts and Invoices: Submit original delivery receipts and invoices for materials used.
- B. Product Data: Submit sample label or specification of fertilizer.
- C. Certificate: Submit State Certificate stating analysis of purity and germination of seed.
- D. Certificate: Submit State Certificate stating variety and purity of grass sprigs.
- E. Certificate: Submit State Certificate stating variety and purity of grass sod.
- F. Application Log: Submit daily log sheets of hydro mulch operations with the following information:
 - 1. Seed type and amount.
 - 2. Fertilizer analysis and amount.
 - 3. Mulch type and amount.
 - 4. Seeding additive type and amount.
 - 5. Number of loads-amount of water.
 - 6. Area covered.
 - 7. Equipment used-capacity and license number.
 - 8. Signature of nozzle man.
- G. Soil Fertility Test Reports:
 - 1. Testing is to be performed by a laboratory making organic recommendations. Texas Plant and Soil Lab, E. K. Chandler, 5115 W. Monte Cristo Road., Edinburg, TX 78539, (956) 383-0739 (must ask for organic recommendations).
 - 2. Submit analysis, test results and corrective recommendations to Architect.
 - 3. Two tests required of existing soil taken at different locations on the project site as directed by the Architect.

1.4 PROTECTION:

- A. Protect paving surfaces, curbs, utilities, plant materials, and other existing improvements from damage by heavy equipment.
- B. Locate and stake irrigation heads, valve risers and equipment prior to beginning soil preparation work.
- C. Exercise care to prevent the hydromulch slurry from being sprayed inside reservoir basins or drainage ditches and channels which may impede the free flow of rain water runoff or irrigation water.
- D. Clean paving and other surfaces of over-spray and spillage of hydro mulch slurry.
- E. During work and maintenance period, maintain topsoil in place at established grades. Replace topsoil and grass losses due to erosion.
- F. Protect in place work from damage by heavy equipment. Prepare, grade, level and replant damaged areas.

1.5 SUBSTANTIAL COMPLETION & PROJECT CLOSEOUT

- A. A Certificate of Substantial Completion will be issued when the Work performed under the Contract has been reviewed and found, to the Architect's best knowledge, information and belief, to be substantially complete. Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use. The date of Substantial Completion of the Project or portion thereof is also the date of commencement of applicable guarantees as specified.
- B. A list of items to be completed or corrected will be attached to the Certificate or Substantial Completion. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract documents.
- C. The Contractor will complete or correct the Work on the list of items within a specific number of days as shown on the Certificate of Substantial Completion.
- D. Upon completion and re-inspection of all corrected items listed, the Architect will recommend to the Owner that the work of this Section is ready for final acceptance.

1.6 QUALITY ASSURANCE:

- A. General: Comply with applicable Federal, State, County and local regulations governing landscape materials and work.
- B. Personnel: Employ only experienced personnel who are familiar with the required work. Provide supervision by a qualified foreman.

1.7 GUARANTEE:

- A. Guarantee lawns and grasses for one year after date of Final Acceptance which is described in paragraph 1.5.D. At the end of this guarantee period, all lawn and grass areas will have achieved coverage of the specified grass at a density of 100% coverage, free of weeds, undesirable grass species, disease and insects. Replace dead materials and materials not in vigorous, thriving condition as soon as weather permits and on notification by the Architect.
- B. Replace lawns and grasses with same kind as originally planted, at no cost to the Owner. Protect irrigation system and other piping, conduit or other work during replacement. Repair damage immediately.

1.8 JOB CONDITIONS

- A. Do not install seed or sod on saturated or frozen soil.
- B. Sod installation shall be subject to suitability of the weather and other conditions affecting sod growth.

1.9 PROGRESS MEETINGS

- A. Contractor shall attend all progress meetings as requested by the Architect/Owner during installation.

1.10 QUANTITY VERIFICATION:

- A. The bidding contractor is responsible for the inclusion of all materials, labor and equipment as outlined in the plans and specification. The plant list is provided to the bidding contractor as a convenience and the quantities are approximate. VERIFICATION OF ALL QUANTITIES IS THE SOLE RESPONSIBILITY OF THE BIDDING CONTRACTOR. Any discrepancies must be reported to the Architect prior to submittal of bid.

PART 2 – PRODUCTS

2.1 GRASS:

- A. Bermuda Grass Seed: *Cynodon dactylon* (Common Bermuda Grass). Seed shall be harvested within one year prior to planting, free of Johnson grass, field bind weed, dodder seed and free of other weed seed to the limits allowable under the Federal Seed Act and applicable seed laws. The seed shall not be a mixture. The seed shall be hulled, extra fancy grade, treated with fungicide, and have a germination and purity that will produce, after allowance for Federal Seed Act tolerances, a pure live seed content of not less than 85%, using the formula: $\text{purity \% times (germination \% times plus hard or sound seed \%)}$. Seed shall be labeled in accordance with U.S. Department of Agriculture rules and regulations.
- B. Buffalo Grass Seed: *Buchloe dactyloides* (Buffalo Grass). Seed shall be harvested within one year prior to planting, free of Johnson grass, field bind weed, dodder seed and free of other weed seed to the limits allowable under the Federal Seed Act and applicable seed laws. The seed shall not be a mixture. The seed shall be hulled, extra fancy grade, treated with fungicide and have a germination and purity that will produce, after allowance for Federal Seed Act tolerances, a pure live seed content of not less than 70%, using the formula: $\text{purity \% times (germination \% times plus hard or sound seed \%)}$. Seed shall be labeled in accordance with U.S. Department of Agriculture rules and regulations.
- C. Annual Rye Grass Seed: *Lolium multiflorum* (Annual Rye Grass). Seed shall be harvested within one year prior to planting, free of Johnson grass, field bind weed, dodder seed and free of other weed seed to the limits allowable under the Federal Seed Act and applicable seed laws. The seed shall not be a mixture. The seed shall be unhulled, extra fancy grade, treated with fungicide and have a germination and purity that will produce, after allowance for Federal Seed Act tolerances, a pure live seed content of not less than 90%, using the formula: $\text{purity \% times (germination \% times plus hard or sound seed \%)}$. Seed shall be labeled in accordance with U.S. Department of Agriculture rules and regulations.
- D. Weeping Love Grass Seed: *Eragrostis curvula* (Weeping Love Grass). Seed shall be harvested within one year prior to planting, free of Johnson grass, field bind weed, dodder seed and free of other weed seed to the limits allowable under the Federal Seed Act and applicable seed laws. The seed shall not be a mixture. The seed shall be hulled and have a germination and purity that will produce, after allowance for Federal Seed Act tolerances, a pure live seed content of not less than 85%, using the formula: $\text{purity \% times (germination \% times plus hard or sound seed \%)}$. Seed shall be labeled in accordance with U.S. Department of Agriculture rules and regulations.
- E. Native Grass Seed: See drawings for selected varieties. Seed shall be harvested within one year prior to planting, free of Johnson grass, field bind weed, dodder seed and free of other weed seed to the limits allowable under the Federal Seed Act and applicable seed laws. The seed shall be hulled, extra fancy grade, treated with fungicide and have a germination and purity that will produce, after allowance for Federal Seed Act tolerances, a pure live seed content of not less than 70%, using the formula: $\text{purity \% times (germination \% times plus hard or sound seed \%)}$. Seed shall be labeled in accordance with U.S. Department of Agriculture rules and regulations.

- F. Wildflower Seed: See drawings for selected varieties. Seed shall be harvested within one year prior to planting, free of Johnson grass, field bind weed, dodder seed and free of other weed seed to the limits allowable under applicable seed laws. The seed shall have a germination and purity that will produce a pure live seed content of not less than 70%, using the formula: purity % times (germination % times plus hard or sound seed %). Seed shall be labeled in accordance with U.S. Department of Agriculture rules and regulations.
- G. Seed used shall be labeled and furnished in sealed standard containers with signed copies of a statement from the vendor certifying that each container of seed delivered is fully labeled and is in conformance with the requirements of these specifications.
- H. Seed that has become wet, moldy or otherwise damaged in transit or storage will not be accepted.
- I. Tifton 419 Bermuda Sprigs: *Cynodon dactylon* var. Tifton 419 (Tifton 419 Bermuda Grass). Sprigs shall be delivered to the site live with green color and free of weeds, rocks and other items that may be deemed objectionable to the project. Sprigs shall be harvested no sooner than 24 hours prior to planting. They will be kept damp and under shade during this period.
- J. Bermuda and Saint Augustine Sod:
 - 1. Sod shall be nursery grown on cultivated agricultural soils. Sod shall have been mowed regularly and carefully and otherwise maintained from planting to harvest.
 - 2. Sod shall be of species indicated.
 - 3. Thickness of Cut: Sod shall be cut to the supplier's standard width and length. Maximum allowable deviation from standard widths and lengths shall be plus or minus .25 inches on width and plus or minus 5% on length. Broken strips and torn or uneven ends will not be accepted.
 - 4. Strength of Sod Strips: Sod strips shall be strong enough to support their own weight and retain their size and shape if suspended vertically when grasped in the upper 10% of the section.
 - 5. Moisture Content: Sod shall not be harvested or transplanted when moisture content (excessively wet or dry) may adversely affect its survival. Sod shall be stored in a compact group to prevent drying out or freezing.
 - 6. Time Limitations: Sod shall be harvested, delivered and transplanted within a 30 hour period unless a suitable preservation method is approved by the Architect prior to delivery. Sod not transplanted within this period shall be inspected for approval by the Landscape Architect prior to its installation.
 - 7. Thatch: Sod shall be free of thatch.
 - 8. Diseases. Nematodes and Insects: Sod shall be free of diseases, nematodes and soil-borne insects.
 - 9. Weeds: Sod shall be free of objectionable grassy and broadleaf weeds.

2.2 ORGANIC PRODUCTS:

- A. Fertilizer:
 - 1. Fertilizer shall be a product as approved by the Texas Organic Research Center (TORC), uniform in composition, free flowing, and suitable for application with approved equipment.
 - 2. Deliver fertilizer to site in fully labeled original containers. Fertilizer which has been exposed to high humidity and moisture, has become caked or otherwise damaged, making it unsuitable for use, will not be acceptable.
 - 3. Application Rates:
 - a. Seeding and Hydro Mulch Initial Application:
 - 1. Bioform 4-2-4S, Garrett Juice, Turf Pro or approved equal.
 - b. Seeding and Hydro Mulch Second Application:
 - 1. Garden-Ville 7-2-2, GreenSense 6-2-4, Marshall Grain 7-2-2 or approved equal.

- c. Sprigging and Sod Initial Application:
 1. Garden-Ville 7-2-2, GreenSense 6-2-4, Marshall Grain 7-2-2 or approved equal.
- d. Sprigging and Sod Second Application:
 1. Garden-Ville 7-2-2, GreenSense 6-2-4, Marshall Grain 7-2-2 or approved equal.
- B. Vinegar – 20% Solution: GreenSense, Marshall Grain, Garden-Ville or equal.

2.3 HYDRO MULCH MATERIALS:

- A. The hydro mulch shall be composed of virgin wood cellulose fiber and contain no germination or growth-inhibiting factors. It shall have a consistent texture which disperses evenly and remains suspended in agitated water. It shall have a temporary green dye and the following property analysis:
 1. Moisture content: $9.0\% \pm 3\%$ O.D. basis.
 2. Organic matter: $99.2\% \pm 0.8\%$
 3. Ash content: $0.8\% \pm 0.2\%$
 4. PH: $4.8\% \pm 0.5\%$.
 5. Water Holding Capacity (grams of H₂O per 100 grams of fiber): 1150 minimum.
 6. Source: Weyerhaeuser, Conweb or equal.
- B. Hydro Mulching Additive (Binder): Ecology “Control-M-Binder” organic seeding additive or equal.

2.4 EROSION BLANKET:

- A. Curlex Blanket manufactured by American Excelsior Company (817 640-2161) or equal.

PART 3 – EXECUTION

3.1 GENERAL:

- A. Execute grass planting operations across slope and parallel to finished grade contours.

3.2 PRE-PLANT WEED CONTROL:

- A. Irrigated and non-irrigated Grass Areas:
 1. If grassy or broadleaf weeds exist on site at the beginning of work, spray with a vinegar based organic herbicide or physically remove.
 2. Clear and remove these existing weeds by mowing or grubbing off all plant parts at least .25 inches below the surface of the soil over the entire area to be planted.
- B. Irrigated Grass Areas Only:
 1. After irrigation system is operational, apply water for 5 to 10 days as needed to achieve weed germination. Spray with a vinegar-based organic herbicide or physically remove. Repeat as needed.
 2. Maintain lawn and grass areas weed free until final acceptance by Owner utilizing mechanical and chemical treatment.

3.3 SOIL PREPARATION:

- A. Tillage:
 1. Tillage shall be accomplished to loosen all areas of compacted soil. When placement of topsoil is specified, till compacted areas prior to placement.
 2. Till with heavy duty disc, rototiller, or chisel-type breaking plow, chisels set not more than 10 inches apart. Till to a depth of 1 to 3 inches.
 3. Initial tillage shall be done in crossing pattern for double coverage then followed by a disc harrow.
- B. Cleaning:
 1. Remove debris, building materials, rubbish, weeds, and stones larger than 1 inch in diameter.
 2. Use Rock Pick or other machinery to gather surface stones larger than 1 inch in diameter.

- C. Fine Grading:
 1. After tillage and cleaning, level, fine grade, and drag with a weighted spike harrow or float drag.
 2. Eliminate ruts, depressions, humps and objectionable soil clods.

3.4 FERTILIZING:

- A. The fertilizer types and rates specified herein are applicable unless countermanded by the soil fertility test corrective recommendations, in which case they will be applicable.
- B. Bermuda Grass Seeding, Annual Rye Grass Seeding, Weeping Love Grass Seeding and Hydro Mulching:
 1. Initial Application: Apply at installation at a rate per label instructions.
 2. Second Application: Apply 45 days after germination at a rate of 20 pounds per 1,000 square feet.
- C. Buffalo Grass Seeding:
 1. Initial Application: Apply 45 days after germination at a rate of 15 pounds per 1,000 square feet.
 2. Second Application: Apply 90 days after germination at a rate of 15 pounds per 1,000 square feet.
- D. Bermuda Grass Sprigging and Sodding:
 1. Initial Application: Apply no more than 5 days prior to commencement of sprigging or sodding operations at a rate of 20 pounds per 1,000 square feet. Incorporate into soil with a chain harrow.
 2. Second and Third Applications: Apply every 25 days after sprigging or sodding at a rate of 10 pounds per 1,000 square feet.
 3. Irrigate the area with a minimum of .25 inches of water to properly incorporate the fertilizer into the turf.
- E. Buffalo Grass and Saint Augustine Sodding:
 1. Initial Application: After the first mowing apply at 10 pounds per 1,000 square feet.
 2. Irrigate the area with a minimum of .25 inches of water to properly incorporate the fertilizer into the turf.

3.5 PLANTING HYDRO MULCHED GRASS AREAS:

- A. Provide pre-plant weed control as specified above.
- B. Apply hydro mulch in the form of a slurry consisting of cellulose fiber, seed, chemical additives, commercial fertilizer and water. When hydraulically sprayed on the soil surface, the hydro mulching shall form a blotter-like groundcover impregnated uniformly with seed and fertilizer and shall allow the absorption of moisture and rainfall to percolate to the underlying soil.
- C. Prepare slurry at the site of work beginning by adding water to the tank when the engine is at half throttle. When the water level has reached the height of the agitator shaft, full recirculation shall be established; and at this time the seed shall be added. Fertilizer shall then be added, followed by mulch. The mulch shall only be added to the mixture after the seed and after the tank is at least one-third filled with water. All the mulch shall be added by the time the tank is two-thirds to three-fourths full. Commence spraying immediately when tank is full.
 1. Mix: Mix Bermuda Grass seed, mulch, and water together and apply as follows. Use hydro mulch equipment by Bowie Machine Works or equal.

<u>ITEM</u>	<u>RATE PER THOUSAND SQUARE FEET</u>
Bermuda Grass Seed	2.0 pure live seed pounds
Water	As Needed
Wood Fiber Mulch	50 Pounds
Fertilizer	As Specified

2. Mix: Mix Weeping Love Grass seed, mulch and water together and apply as follows. Use hydro mulch equipment by Bowie Machine Works or equal.

<u>ITEM</u>	<u>RATE PER THOUSAND SQUARE FEET</u>
Weeping Love Grass	2.0 pure live seed pounds
Water	As Needed
Wood Fiber Mulch	50 Pounds
Fertilizer	As Specified

3. Mix: Mix Annual Rye Grass seed, mulch and water together and apply as follows. Use hydro mulch equipment by Bowie Machine Works or equal.

<u>ITEM</u>	<u>RATE PER THOUSAND SQUARE FEET</u>
Annual Rye Grass Seed	7.0 pure live seed pounds
Water	As Needed
Wood Fiber Mulch	50 Pounds
Fertilizer	As Specified

- D. Application: Spray with a uniform visible coat by using the green color of the mulch as a guide. Apply in a sweeping motion, in an arched stream so as to fall like rain allowing the wood fibers to build on each other until a good coat is achieved and the material is spread at the required rate per acre.
- E. Time Limit: Slurry mixture which has not been applied within two hours after mixing will be rejected and shall be removed from the project at Contractor's expense.
- F. Immediately following application of hydro mulch, wash excess material from previously planted materials and architectural features. Avoid washing or eroding mulch materials from area.
- G. Timing:
 1. Hydro mulch Bermuda Grass and Weeping Love Grass from May 1 to August 30.
 2. Hydro mulch Annual Rye Grass from September 1 to April 30.
- H. When hydro mulch installation of the permanent grass variety does not fall within the dates specified, Annual Rye Grass will be hydro mulched at 10 pounds per 1,000 square feet using the approved equipment. Conversion to the permanent grass variety is part of this scope of work and will take place as and when specified.

3.6 PLANTING SEEDED GRASS AREAS:

- A. Apply Bermuda Grass seed evenly at the rate of 2.0 pure live seed pounds per 1,000 square feet using an approved no till drill seeder specifically designed for grass seed installation.
- B. Apply Buffalo Grass seed evenly at the rate of 1.5 pure live seed pounds per 1,000 square feet using an approved no till drill seeder specifically designed for grass seed installation.
- C. Apply native grass seed at the rate specified using a no-till grass seed drill or a broadcast spreader. Evenly spread seed over the entire area. If using a broadcast spreader, use a rollerpacker or rake to press the seed into the soil. Most seeds should never be buried more than twice their diameter. Do not bury small seeds.
 1. **INSERT DATA**
- D. Apply wildflower seed at the rate specified. Spread half the seed evenly over the whole area. Then cross back in the opposite direction and spread the remaining seed evenly over the entire area. Follow with a rollerpacker or rake to press the seed into the soil.
 1. **INSERT DATA**
- E. Place Erosion Blanket over seeded areas sloped 1 inch to 3 inch and steeper.
- F. Anchor Erosion Blanket with wire staples at edges, through center using trenched in edges per manufacturer recommendation.
- G. Water seeded areas to depth of 4 inches.

- H. Timing:
 1. Drill seed Bermuda Grass from May 1 to August 30.
 2. Drill seed Buffalo Grass from May 1 to August 30.
 3. Broadcast or drill seed native grass seed from early spring to late summer when soil temperatures are above 65 degrees.
 4. Broadcast wildflower seed from August to late November.
- I. When seeding installation of the permanent grass does not fall within the dates specified, Annual Rye Grass will be seeded at 10 pounds per 1,000 square feet using an approved no till drill seeder specifically designed for grass seed installation. Conversion to the permanent grass variety is part of this scope of work and will take place as and when specified.

3.7 PLANTING SPRIGGED GRASS AREAS:

- A. Install specified Bermuda grass sprigs evenly at the rate of 500 bushels per acre when planted with sprigging equipment designed to plant sprigs uniformly and at the proper depth. Use a Bermuda King Planter or approved equal.
- B. Install specified Bermuda grass sprigs evenly at the rate of 20 bushels per acre, roll and crimp when planted by hand. A hydro mulch cap of 50 lbs. virgin wood cellulose fiber per 1,000 square feet may be used in place of crimping.
- C. Keep sprigs damp 24 hours per day for 2 weeks or until stolens have rooted.
- D. Let areas dry prior to fertilizer application.
- E. Water between fertilizations as needed to provide a healthy plant.
- F. Timing:
 1. Sprig from May 1 to August 15.

3.8 PLANTING SOD

- A. Weather Conditions:
 1. Schedule work for periods of favorable weather.
 2. Sod placement on days which, in the judgment of the Landscape Architect, are too hot, cold, sunny, dry or windy for optimal installation may be prohibited.
- B. Placement Pattern:
 1. The first row shall be laid in a straight line with subsequent rows parallel to the first row and tightly abutting each other.
 2. Lateral joints shall be staggered. Care shall be exercised to insure that the sod is neither stretched nor overlapped. Joints must be butted tightly to prevent voids that could permit air to dry out root.
 3. Immediately after placing, sod shall be pressed firmly into contact with bed by tamping or rolling to eliminate air pockets. Following tamping, screened topsoil shall be used to fill all cracks and excess soil shall be worked into the sod with rakes or other suitable equipment. Sod shall not be smothered with excess fill soil.
 4. On slopes steeper than 3 to 1, sod shall be secured by galvanized pins, wood pegs or other methods approved by the Landscape Architect.
 5. Immediately after sodding operations have been completed, the entire surface shall be compacted with a roller or other approved equipment. The completed area after sodding shall be uniformly even, firm and true to finished grade lines.
- C. Watering:
 1. Initial Installation: Water must be applied within 2 hours of exposure of the sod to sun or wind. Water newly laid sod until saturation of the entire area is apparent. As a result of initial irrigation, standing water may be present and moderate to heavy run off may occur. Continue to irrigate on a daily basis in shorter durations so the entire area stays thoroughly wet but without standing water. The length of irrigation time and frequency of applications will vary at different locations due to weather conditions and individual site characteristics.
 2. After 7 to 10 days: Check for new root growth by lifting corners of sod blocks. If consistent root growth over the entire site is observed, water applications can be reduced to once every other day.

3. After 12 to 14 days: Recheck for additional rooting. If sod blocks are difficult to pull up or additional new roots are present allow the area to dry to the extent that mowing can be performed.
 - a. Buffalo Grass:
 1. After the initial mowing, continue to irrigate 1 day per week for an additional month.
 2. After the first 8 weeks, watering frequency will vary due to factors such as slope, soil texture and climatic conditions. Allow the turf an opportunity to perform in a dry environment. Once the Buffalo Grass is established it can be maintained without irrigation during cool seasons but may require supplemental irrigation during extended periods of drought.

3.9 GRASS CONVERSION:

- A. Conversion of temporary grass to permanent grass:
 1. Spray temporary grass with an approved vinegar base organic herbicide or physically remove - 95% kill rate minimum.
 2. Scalp dead grass with mowing equipment.
 3. Lightly scarify soil surface using a verticut machine or like equipment.
 4. Apply permanent grass seed as specified.

3.10 GRADING:

- A. Maintain existing established grades, protect true and even during operations.

3.11 EROSION CONTROL:

- A. During work and maintenance period, maintain topsoil in place at established grades. Replace topsoil and turfgrass losses due to erosion.

3.12 CLEAN-UP:

- A. Remove excess material and debris from site.

3.13 MAINTENANCE:

- A. Until Final Acceptance, maintain lawn and grass areas by watering, mowing, weeding, spraying, cleaning and replacing as necessary to keep the turf and grass in a vigorous, healthy condition.
 1. Watering: As necessary. Provide temporary above ground sprinklers over un-irrigated areas including temporary water meter if required. Water cost will be paid separately by the Owner or General Contractor unless noted differently on the drawings or bid form.
 2. Mowing:
 - a. Bermuda Grass Sod, Hydro mulch & Sprigging: Mow newly planted grass areas weekly after initial growth reaches 1.5 to 2 inches.
 - b. Annual Rye Grass: Mow newly planted grass areas after initial growth reaches 2 to 3 inches. Additional mowings may be required as directed by the Owner and Architect.
 - b. Buffalo Grass Sod: Mow newly planted grass areas after initial growth reaches 1.5 to 2 inches. Additional mowings may be required as directed by the Owner and Architect.
 - c. Buffalo Grass Seeding: Mow newly planted grass areas after initial growth reaches 2 to 3 inches. Additional mowings may be required as directed by the Owner and Architect.
 - d. Weeping Love Grass and Native Grasses: Do not mow newly planted areas.
 - e. Saint Augustine Sod: Mow newly planted grass areas weekly at a height of 2 to 3 inches after initial growth reaches 3 inches.
 3. Weeding: Remove weeds and foreign grass over lawn and grass areas at least once a week. Herbicides may be used only when approved by the Architect.

4. Follow landscape maintenance procedures outlined in Specification Section 02971 – Landscape Maintenance - Organic.

END OF SECTION

PART 1 – GENERAL

1.1 SECTION INCLUDES:

- A. Furnish all labor, material, equipment, related services and supervision necessary for or incidental to the installation of the trees, plants and groundcovers as shown or indicated on the Drawings and/or as specified.
- B. Work Included:
 - 1. Trees.
 - 2. Shrubs.
 - 3. Groundcovers.
 - 4. Steel Edging.
 - 5. Mulching.
 - 6. Bed Preparation.

1.2 RELATED DOCUMENTS:

- A. Drawings and General provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. All other Divisions of the Contract Documents. Refer to each Division's specifications and drawings for all requirements, including but not limited to the following:
 - 1. Fine Grading - Section 31 22 16.
 - 2. Turf and Grasses – Organic - Section 32 92 00.
 - 3. Planting Irrigation - Section 32 94 00.
 - 4. Planting Maintenance – Organic - Section 32 95 00.

1.3 REFERENCE STANDARDS:

- A. American Standard for Nursery Stock, Edition approved May 2, 1986 by American National Standards Institute, Inc. – plant material.

1.4 SUBMITTALS:

- A. Delivery Receipts and Invoices: Submit original delivery receipts and invoices for materials used.
- B. Product Data: Submit manufacturer's product data sheets for proprietary products in accordance with Section 01 33 00.
- C. Samples:
 - 1. Submit three samples each of canopy trees and shrubs for the Landscape Architect's approval. When approved, tag and maintain as representative samples for finally installed plant materials. Samples may be used to complete installation provided they remain tagged until final acceptance of entire installation.
 - 2. Submit photos of trees and source nursery information to the Landscape Architect for review prior to tree tagging. Landscape Architect will tag trees at source nursery prior to project delivery.
 - 3. Submit for approval sufficient representative quantities of soil mix, steel edging, mulch, and gravel. Samples shall be approved by the Landscape Architect before use on project.

D. Soil Fertility Test Reports:

1. Testing is to be performed by a laboratory making organic recommendations. Texas Plant and Soil Lab, E. K. Chandler, 5115 W. Monte Cristo Rd., Edinburg, TX 78539, (956) 383-0739 or approved equal (must ask for organic recommendations).
2. Two tests required of existing soil taken at different locations on the project site as directed by the Landscape Architect.
3. One test required of the specified composted organic material mixed in equal parts with the existing topsoil.
4. Submit analysis, test results and corrective recommendations to Landscape Architect.

1.5 DELIVERY, STORAGE AND HANDLING:

- A. Deliver packaged materials in containers showing weight, analysis and name of manufacturer.
- B. Protect materials from deterioration during delivery and while stored at the site.

1.6 PROJECT CONDITIONS:

A. Site Inspection:

1. It is the bidding contractors responsibility to review all site conditions, as they relate to the proposed project, prior to submission of a bid. Any issues or concerns will be submitted to the Landscape Architect prior to bidding. Submission of a bid will indicate that the bidding contractor has made a site inspection.

B. Utilities:

1. Determine locations of underground utilities and perform work in a manner which will avoid possible damage. Do not permit heavy equipment such as trucks to damage utilities. Hand excavate, as required to minimize possibility of damage to underground utilities. Maintain grade stakes until removal is directed.
2. Coordinate with irrigation work to prevent damage to temporary risers of underground sprinkling system and obstruction of work located in landscape areas.

C. Protections:

1. Do not move equipment over existing or newly placed structures without the Landscape Architect's approval.
2. Provide board roading as required to protect paving and soft soil.
3. Protect other improvements from damage, with protection boards, ramps and protective sheeting as required.
4. Locate and stake irrigation heads, valve risers and equipment prior to beginning soil preparation work.
5. During work and maintenance period, maintain topsoil and prepared soil in place at established grades. Replace topsoil, prepared soil and mulch due to erosion.

D. Delivery and Storage:

1. Store materials in area covered with protective sheeting.
2. If balled plants cannot be planted within 24 hours after delivery to site, protect root balls by heeling in with sawdust or other approved material.

1.7 SUBSTANTIAL COMPLETION & PROJECT CLOSEOUT:

- A. A Certificate of Substantial Completion will be issued when the Work performed under the Contract has been reviewed and found, to the Landscape Architect's best knowledge, information and belief, to be substantially complete. Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use. The date of Substantial Completion of the Project or portion thereof is also the date of commencement of applicable guarantees as specified.
- B. A list of items to be completed or corrected will be attached to the Certificate of Substantial Completion. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.
- C. The Contractor will complete or correct the Work on the list of items within a specific number of days as shown on the Certificate of Substantial Completion.
- D. Upon completion and re-inspection of all corrected items listed, the Landscape Architect will recommend to the Owner that the work of this Section is ready for final acceptance.

1.8 QUALITY ASSURANCE:

- A. General: Comply with applicable Federal, state, county and local regulations governing landscape materials and work.
- B. Installer Qualifications: The bidding company will specialize in landscape installation with 5 years documented experience. The contractor will staff the project with a competent superintendent and the necessary assistants as approved by the Landscape Architect. The superintendent will not be changed except with the consent of the Landscape Architect and Owner. The superintendent must have a minimum 5 years experience with similar projects.
- C. Personnel: Employ only experience personnel who are familiar with the required work. Provide adequate supervision by a qualified foreman.

1.9 GUARANTEE:

- A. Guarantee plants and trees for one year after date of Final Acceptance which is described in paragraph 1.7.D. Replace dead materials and materials not in vigorous, thriving condition as soon as weather permits and on notification by the Landscape Architect. Replace plants, including trees, which have partially died thereby damaging shape, size or symmetry.
- B. Replace plants and trees with same kind and sizes as originally planted, at no cost to the Owner. At direction of the Landscape Architect, trees may be replaced at start of next year's planting or digging season. In such cases, remove dead trees immediately, (within one week of death of tree). Protect irrigation system and other piping, conduit or other work during replacement. Repair damage immediately.

1.10 PROGRESS MEETINGS:

- A. Contractor shall attend all progress meetings as requested by the Landscape Architect/Owner during installation.

1.11 QUANTITY VERIFICATION:

- A. The bidding contractor is responsible for the inclusion of all materials, labor, and equipment as outlined in the plans and specification. The plant list is provided to the bidding contractor as a convenience and the quantities are approximate.

VERIFICATION OF ALL QUANTITIES IS THE SOLE RESPONSIBILITY OF THE BIDDING CONTRACTOR. Any discrepancies must be reported to the Landscape Architect prior to submittal of bid.

- B. The Contractor is required to install the specified type and quantity of composted organic material purchased from the specified supplier. Living Earth will e-mail the Landscape Architect as orders are being placed, for verification that the specified material, quantity and supplier are being used.

PART 2 – PRODUCTS

2.1 PLANTS:

- A. General: Plants shall be well-formed No. 1 grade or better nursery stock in accordance with requirements of reference standards, subject to the Landscape Architect's approval. Listed plant heights are from tops of plant balls to the nominal tops of plants.
- B. Shrubs and Groundcovers: Nursery grown, healthy, vigorous, bushy, well branched, of normal habit of growth for species, free from disease, insects, eggs and larvae. Specified sizes shall be before pruning, and plants shall be measured with their branches in normal position. The Landscape Architect prior to installation will approve all plants.
- C. Ornamental and Shade Trees: Healthy, vigorous, full branches, well shaped, trunk diameter and height requirements as specified. Balls shall be firm, neat, slightly tapered and well burlaped (If specified). Trees with loose or broken balls at time of planting shall be rejected. Each tree will be approved by the Landscape Architect prior to installation. Balls shall be a minimum of 10 inches in diameter for each 1 inch of caliper. All balled and burlaped trees and shrubs will be dug and stored for a minimum of 60 days prior to planting on this project.
- D. Caliper: For trees less than 4 inches is measured 6 inches above top of root ball. Trees 4 inches and above are measured 12 inches above top of root ball.
- E. Trees connected to stakes at the nursery are not acceptable and will be rejected.

2.2 SOIL PREPARATION MATERIALS:

- A. Top Soil: Top Soil shall be supplied by Soil Building Systems or approved equal and based on recommendation from soil analysis report and in coordination with Bartlett Tree Experts.
- B. Organic Fertilizer: Complete fertilizer shall be supplied by approved source, and based on recommendation from soil analysis report and in coordination with Bartlett Tree Experts.
- C. Composted Organic Material: Compost shall be supplied by Soil Building System or approved equal, and based on recommendation from soil analysis report and in coordination with Bartlett Tree Experts.
- D. Dry Molasses: Deliver to site in original unopened containers. GreenSense, Marshall Grain or approved equal.
- E. Texas Greensand: Garden-Ville, Soil Building System, GreenSense or approved equal.
- F. Horticultural Cornmeal: Alliance Milling @ (800) 580-5487, GreenSense or approved equal.
- G. Lava Sand: Soil Building Systems, GreenSense or approved equal.

2.3 MISCELLANEOUS MATERIALS:

- A. Crushed Rock: Washed .75 inch to 1.5 inches in diameter.
- B. Tree Staking: Refer to Construction Documents for Details.

- C. Mulch: Shredded native shreaded hardwood trimmings. Soil Building System or approved equal.
- D. Filter Fabric: Mirafi 140N by Celanese Fibers Marketing Co. or equal.
- E. Steel Edging: 3/16 inch x 4 inch, with 16” tapered steel stakes, 30” O.C. and the painted finish will be black powder coat paint electro statically applied and oven baked. The J.D. Russell Company @ 1-800-888-6872 or equal.
- F. 4 inch PVC pipe and cap CUA 55 200.
- G. Water: Provided by Owner.
- H. Technical Concentrate and Plant Enhancer: BioPlex @ 1-800-441-3573

PART 3 – EXECUTION

3.1 EXAMINATION AND PREPARATION:

- A. Examine sub-grade and other related construction for defects that adversely affect Work.
- B. Do not proceed until unsatisfactory conditions have been corrected.
- C. Plant trees and shrubs during normal seasons for such work in the project location and only when weather conditions are suitable.
- D. Plant trees and shrubs after final grades are established and prior to planting of lawns.
- E. Additional soil amendments may be required per soil test results.

3.2 BED PREPARATION:

- A. Scrape away any existing grassy or broadleaf weeds prior to soil tilling.
- B. Layout and stake beds for Landscape Architect’s approval prior to installation of steel edging and planting.
- C. Excavate existing soil from beds as needed to allow for installation of the specified organic compost and mulch. Excavated materials will be removed from the site as required by the Landscape Architect and Owner.
- D. Refer to plans for shrub and groundcover locations. Planting beds at grade shall receive a minimum of 4(+) inches of Landscaping Soil Mix supplied by Soil Building Systems or approved equal, tilled into clean native soil free from weeds and rocks. After shrubs are
- E. Planted, top dress with pre-emergent herbicide at the manufacturers recommended rate. After all plant material is planted, mulch beds with (2) inch depth of shredded hardwood mulch supplied by Living Earth (or approved equal).
- F. If existing “clay” soil is in place that needs to be amended/enriched prior to planting. Incorporate 3” inches of Clay Killer (Compost and Expanded Shale Mix) as supplied by Soil Building Systems (or approved equal) into onsite soil to produce a 50/50 soil in place that needs to be amended/enriched prior to planting
- K. Grade beds to allow for free flow of surface water to the bed edge and away from buildings. Hardwood mulched shrub planted beds will be mounded 6 inches higher than surrounding pavement and have a gradual rolling taper at the edges to meet existing pavement grade. Grade will be approved by Landscape Architect before planting.

3.3 SHRUB AND GROUNDCOVER SPACING:

- A. Place plants in position on bed areas before containers have been removed. Obtain approval from Landscape Architect. Do not remove burlap from shrubs until plants have been set in hole.
- B. Plant where located, setting plants with tops of balls even with tops of beds, and settle soil carefully around each plant ball. Do not compact tamp.
- C. Remove binding materials (such as twine, nylon cord, and wire) from plant ball.
- D. Water each plant thoroughly with hoses to eliminate air pockets.
- E. Carefully prune plants to remove dead or broken branches and hand-rake bed areas to smooth, uneven surfaces.
- F. Architect reserves the right to interchange or shift locations of plants prior to planting.

3.4 PLANTING:

- A. Ornamental Trees and Large Shrubs:
 - 1. All trees to be planted under the direct supervision of a licensed Arborist (Bartlett Tree Experts or approved equal).
 - 2. Plant trees and shrubs in pits 3 times greater in diameter than root ball. Backfill with approved planting mix. Carefully settle by watering to prevent air pockets.
 - 3. Carefully prune trees to remove dead and broken branches.
 - 4. Place root ball in the center of the hole. Do not handle tree by the trunk when placing in hole. Scarify and roughen sides of holes glazed by mechanical excavation.
 - 5. Make sure the root flare is 2 inches higher than the adjacent soil elevation. Remove excess soil from the top of root balls making sure to expose the root flare prior to establishing the proper depth of tree pits. The top of the terminal roots at the outer edge of the root ball should be even with or slightly higher than the adjacent soil elevation. Set root ball on compacted structural soil or existing soil, per planting detail.
- B. Shade Trees:
 - 2. Plant trees in pits 3 times greater in diameter than root ball. Backfill with approved tree planting mix. Carefully settle by watering to prevent air pockets.
 - 3. Carefully prune trees to remove dead and broken branches.
 - 4. Place root ball in the center of the hole. Do not handle tree by the trunk when placing in hole. Scarify and roughen sides of holes glazed by mechanical excavation.
 - 5. Make sure the root flare is 2 inches higher than the adjacent soil elevation. Scarify sides of tree ball to expose roots. The top of the terminal roots at the outer edge of the root ball should be even with or slightly higher than the adjacent soil elevation. Set root ball on undisturbed compacted soil or compacted structural soil per planting detail.
- C. Shrubs Outside Of Beds:
 - 1. Plant shrubs in pits as sized below. Backfill with soil removed from each hole. Excess excavated material will be removed from the site as required by the Landscape Architect and Owner. Set root ball on undisturbed soil.

Container Size

- 1 Gallon
- 2 Gallon
- 3 Gallon
- 5 Gallon
- 7 Gallon

Pit Size

- 10" Diameter x 8" Depth
- 14" Diameter x 10" Depth
- 16" Diameter x 12" Depth
- 20" Diameter x 14" Depth
- 24" Diameter x 16" Depth

2. Carefully prune plants to remove dead and broken branches.

3.5 SUMMER DIGGING & TRANSPLANTING:

- A. To minimize transplant shock, plant decline, defoliation or loss to all balled and burlaped plants.
 1. Apply Technical Concentrate and Plant Enhancer to plants 24 to 96 hours prior to digging or transplanting.
 2. Apply with both a foliar and root drench at identical dilutions of 1.0 fl. oz. (low stress conditions) to 3.0 fl. oz. (high stress conditions) per inch of trunk diameter or each 24 inches of plant height. Mix into 5 to 10 gallons of water for each 1 inch of trunk diameter and 24 inches of plant height.
 3. Re-apply in 15 to 30 days or sooner if extreme environmental stress requires. Re-apply at either a rate of 1 to 3 fl. oz. per inch of trunk diameter or 5 to 7 fl. oz. per 5 to 10 gallons of water.

3.6 GUYING TREES:

- A. Trees are not to be guyed unless specifically noted in plans or if determined by a certified arborist.
- B. Not Used.
- C. Not Used.
- D. All balled and burlaped trees are not required to be guyed but maybe guyed with the Landscape Architects approval.
- E. It will be the Landscape Contractor's responsibility to maintain trees in a plumb position through the warranty period whether they are guyed or not.
- F. The landscape contractor will remove and dispose of tree guying materials at the end of the one year guarantee period.

3.7 MULCHING:

- A. After planting has been completed and approved by Landscape Architect, cover all bare soil around plants. The depth shall vary depending on the plants being mulched. Large plants will receive a 2 inch depth and plants in 4 inch pots and smaller will receive a 1 inch depth. At no time will mulch come in contact with the stems of plants. Delay this operation until near final acceptance.

3.8 STEEL EDGING:

- A. Install steel edging. Anchor with steel stakes, 16 inches in length minimum, spaced not more than 30 inches on center and driven at least 1 inch below top of edging. The top of edging will be 1 inch above the adjacent turf elevation.

3.9 CLEANUP:

- A. During work, keep premises neat and orderly including organization of storage areas. Trash, including debris resulting from removing weeds or rocks from planting areas, preparing beds, or planting plants, shall be removed from site daily as work progresses.
- B. Keep sidewalks, streets and courtyard areas clean by sweeping or hosing.

3.10 MAINTENANCE:

- A. Water will be provided by the Owner. Contractor will provide necessary hoses and other watering equipment required to complete work.
- B. Until Final Acceptance, maintain plantings and trees by watering, cultivating, weeding, spraying, cleaning and replacing as necessary to keep the landscape in a vigorous, healthy condition and rake bed areas as required.
- C. Follow landscape maintenance procedures outlined in Specification Section 32 95 00 – Planting Maintenance - Organic.

3.11 PLANT SCHEDULE:

- A. Refer to schedule on drawings.

END OF SECTION

**SECTION 32 94 00
PLANTING IRRIGATION**

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Landscape spray irrigation system as shown on drawings as described herein.

B. Related Sections:

1. Section 32-93 00 - Planting

1.2 QUALITY ASSURANCE

A. Installer:

1. An irrigator licensed under Title 30, Texas Administrative Code, Chapter 30 with a minimum five (5) years continuous experience installing systems of this size and complexity must supervise system installation.
2. If requested, submit a list of references including Owner, Landscape Architect (if applicable), date of installation and approximate installation cost.
3. A licensed irrigator or a licensed irrigation technician must remain on site at all times while the irrigation system is being installed in accordance with state law. A copy of the appropriate license must be on in the possession of the licensed irrigator or licensed irrigation technician while on site for immediate inspection by the owner's representative, the general contractor, any city employee, etc. If the licensed irrigator or licensed irrigation technician are not on site at any time during construction, work on the project will cease immediately.

B. Testing: Perform required testing under observations of Landscape Architect. Give 48 hours notice that such tests are to be conducted.

C. Assembly Procedures: Do not alter design hydraulics by installing additional tees or elbows unless approved by Landscape Architect.

1.3 REFERENCES

A. American Standard for Testing and Materials (ASTM) - Latest edition.

1. D2241 Poly (Vinyl Chloride) (PVC) Plastic Pipe (SDR-PR)
2. D2464 Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Thread, Schedule 80
3. D2466 Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40
4. D2467 Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Socket Type, Schedule 80
5. D2564 Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings
6. D2287 Flexible Poly Vinyl Chloride (PVC) Plastic Pipe
7. F656 Poly Vinyl Chloride (PVC) Solvent Weld Primer
8. D2855 Making Solvent - Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings

1.4 SUBMITTALS

- A. Procedure: Comply with Division 1 Specification requirements.
- B. Product Data: Prior to beginning work, submit copies of equipment manufacturer's specifications and literature for all specified materials.
- C. Project Record and Close-out Documents
 - 1. Locate by written dimension, routing of mainline piping, remote control valves, air relief and flush valves, and quick coupling valves. Locate mainlines by single dimensions from permanent site features provided they run parallel to these elements. Locate valves, intermediate electrical connections, and quick couplers by two dimensions from a permanent site feature at approximately 70 degrees to each other.
 - 2. When dimensioning is complete, neatly transpose work to an electronic AutoCAD file provided by Landscape Architect.
 - 3. Submit completed electronic file in AutoCAD format and a bond paper plot prior to final acceptance. Clearly label electronic files and plot "Record Drawings". Date and sign drawings. Include the following paragraph on the record drawings: "This irrigation system has been installed in accordance with all applicable state and local laws, ordinances, rules, regulations or orders. I have tested the system and determined that it has been installed according to the Irrigation Plan and is properly adjusted for the most efficient application of water at this time." Provide three complete operation manuals and equipment brochures neatly bound in a hard-back three-ring binder. Include product data on all installed materials, required maintenance and the recommended frequency for the service. In addition, submit warranties and guarantees provided by the manufacturer of all equipment.
- D. Water Pressure: Prior to starting construction, determine if static water pressure is as stated on Drawings. Confirm findings to Landscape Architect in writing. If static pressure varies from pressure stated on drawings, do not start work until notified to do so by Landscape Architect.
- E. Quick Coupler Keys: Provide three (3) coupler keys with boiler drain hydrant valve attached, using a brass reducer.
- F. Controller Keys: Provide two (2) sets of keys to controller enclosure(s).
- G. Controller Label: Add a permanent sticker which contains the irrigator's name, license number, company name, telephone number and the dates of the warranty period to each automatic controller installed by the irrigator or irrigation technician. The information contained on the sticker must be printed with waterproof ink.
- H. On site licensed Irrigator: Contractor to include copy license for the irrigator of record and a copy of the license for the irrigator or the irrigation technician who will be on site during construction of this project as a part of the submittal process. A legible copy of a state issued ID with a photo must also be furnished as part of the submittal process. Any reference to driver's license numbers, registration numbers, etc must be redacted for security purposes. Should the irrigator of record, the irrigator on site, or the licensed technician on site be changed at any time during the construction process, then above information must be re-submitted.
- I. As part of the punch list process, the irrigator or licensed technician who was on site at all times during construction of the project must be present at the walk thru inspection. All appropriate licenses and photo ID's must be available for inspection upon request. No

inspection of the irrigation system will be done without the presence above of the irrigator or licensed irrigation technician who have been approved under the submittal process.

- J. Comply with the requirements of Texas Occupation Code 1903.053 and 1903.251, Texas Water Code 49.238, and local government Code 401.006 by House Bill (HB) 4, HB 1656, and Senate Bill (5B) 3, 80th Legislature, 2007 and all rules promulgated by the Texas Commission on Environmental Quality (TCEQ) governing landscape irrigation. Comply with Chapter 344.63 – Landscape Irrigation regarding:
 - 1. On site supervision by licensed irrigator or licensed technician
 - 2. Final walk through with irrigation system's owner with licensed irrigator or
 - 3. licensed technician to explain operation
 - 4. Providing maintenance check list
 - 5. Attaching sticker to controller with irrigator information and warranty date
 - 6. Provide copy of design with all record drawing information (as built)

1.5 COORDINATION

- A. Complete sleeve installation (not otherwise provided) in coordination with paving and other concrete pours.
- B. Coordinate to ensure that electrical power source is in place.
- C. Coordinate system installation with work specified in other Sections and coordinate with landscape installer to ensure plant material is uniformly watered in accordance with intent shown on drawings.

1.6 WARRANTY AND MAINTENANCE

- A. Extend to the Owner warranties and guarantees provided by the manufacturer of all equipment used.
- B. Fully warrant all materials and workmanship for a minimum of one year after the date established for Substantial Completion.
- C. Include repair of backfill settlement, compacting the earth firmly around the heads and valve boxes.

1.7 CONNECTION TO DOMESTIC WATER SUPPLY

- A. Complete connection to water supply in accordance with governing state and local codes and regulations as noted on the drawings.
- B. Provide and pay for any required permits, tap fees, and impact or capital recovery fees.

PART 2 - PRODUCTS

2.1 DEFINITIONS

- A. Mainline: Piping from water source to operating valves. Hydrant lines and lines supplying quick coupling valves (QCV) are considered mainlines.
- B. Lateral Piping: Piping from operating valves to sprinkler heads.

2.2 POLYVINYL CHLORIDE PIPE

- A. Polyvinyl Chloride Pipe (PVC): Manufactured in accordance with standards noted.

1. General:
 - a. Pipe shall be permanently marked with ASTM standard number, and the NSF (National Sanitation Foundation) seal. Provide pipe free of blisters, internal striations, cracks, or other defects.
 - b. Mainline Piping-PS-22-70, SDR-21, Class 200.
 1. Four inch (4 in.) - gasket type joints.
 2. Less than four inch (4 in.) - solvent weld joints
 - c. Lateral Piping-PS-22-70, SDR-21, Class 200 - solvent weld joints. For 1/2" pipe use Class 315, SDR-13.5 PVC pipe.
 - d. Marking and Identification: Permanently marked with the following information: manufacturer's name, pipe size, type of pipe and material SDR number, Commercial Standard Number and NSF (National Sanitation Foundation) Seal.

2.3 PIPE FITTINGS ((Less than 4 in.)

- A. PVC Schedule 40, as manufactured by the Lasco Company or approved equal.
- B. All PVC fittings shall be of the same material as the PVC pipe specified and be compatible with the PVC pipe furnished.
- C. Use only solvent recommended by the manufacturer of the PVC pipe and the manufacturer of the PVC fittings.

2.4 MAINLINE FITTINGS (4 in. and larger)

- A. Ductile iron, Grade 65-45-12 in accordance with ASTM A536.
- B. Fittings shall have deep bell push-on joints with gaskets meeting ASTM F-477.
- C. Fittings must have modular configuration with restraint rings with side outlets of standard IPS dimensions. Transition gaskets are not allowed.
- D. Fittings: Harco Deep Bell, as manufactured by Harrington Corporation.

2.5 PIPE CONNECTION MATERIALS

- A. Solvent Weld Fittings: Use purple primer and medium body adhesive solvent specifically manufactured for PVC pipe. Cans of primers and solvents to have labels intact and stamped with date of manufacture. Cans dated over two years old will not be permitted. Do not thin primer or solvent.
 1. Solvent: Weld-On #705 by IPS Corporation.
 2. Primer: Weld-On #P-68 (Purple).
- B. Threaded Fittings: PVC to PVC, or PVC to copper, use Teflon tape.
- C. Flexible PVC: DO NOT USE STANDARD PVC PIPE SOLVENT
 1. Solvents: Weld-On #795 PVC solvent as manufactured for flexible PVC pipe by IPS Corporation.
 2. Do not use spiral barbed fittings with flexible PVC. Refer to drawing details.
- D. Flexible PVC couplings, PVC "Push on Fittings", no solvent PVC fittings, etc. are not allowed for use on this project.

2.6 COPPER PIPE MATERIALS

- A. Pipe: Type "M", hard, straight lengths of standard size dimension.
- B. Fittings: Cast brass of wrought copper, sweat-solder type.
- C. Pipe Connection Materials: Threaded fitting, copper to copper, copper to brass and copper to PVC. Teflon tape.

2.7 MISCELLANEOUS MATERIALS

- A. Wire: Type UF with a minimum 4/64 inches insulation, Underwriters Laboratory (UL) approved for direct underground burial in National Electrical Code Class II Circuit (30 volts AC or less). Size according to controller manufacturer's recommendations and consideration of length of run, but no smaller than #14.
- B. Nipples:
 - 1. Shrub heads: Threaded polyethylene, nominal ½ inch by ± 5 inches.
 - 2. Lawn and pop-up shrub heads: Flexible PVC manufactured from virgin PVC material and tested at 200 psi; static pressure for two hours with a quick burst rating of 400 psi min. manufactured by Spears, Inc.
- C. Pea Gravel: Washed native aggregate graded 3/4 to 1-1/2 inches.
- D. Wire Connectors: Waterproof splice kit connectors. Type DBY by 3M or King One step sealant filled connector.
- E. Quick Coupler Valves and Keys:
 - 1. Valves: One inch (3/4") bronze bodied valves with a rubber seat and purple vinyl cover.
 - 2. Keys: Bronze construction with three-quarter inch (3/4") MIP x 3/4" FIP threads.
- D. Thrust Blocks
 - 1. Type 1 (ASTM-150) cement, minimum 3500 PSI) 28 day strength, mixed in accordance with ASTM C-94. Concrete thrust block to be sized per pipe manufacturer's recommendations.

2.8 DRIP IRRIGATION

- A. Control Zone Valves: Low flow valves complete with pressure regulator and 200 mesh SS filter installed in a "Y" body.
- B. Emitter Tubing: Complete with factory installed, pressure compensating, inline emitters installed 12 inches on center. Flow rate to be .90 gallons per hour per emitter.
- C. Compression Fittings:
 - 1. UV resistant ABS material with Buna seals, sized to drip emitter tubing (16 mm to 18 mm O.D.).
 - 2. Operating range 0 to 60 psi.
 - 3. Insert fittings are not allowed.
- D. Headers: Class 200 PVC pipe.

- E. Air/Vacuum Relief Valve: Rainbird ARV valve kit.
 - 1. Factory assembled 3/4 in. air relief valve kit including compression tee.
- F. Flush Valve: Rainbird Easy Fit Flush Caps.
- G. Emitters and tubing as specified on the plans.

2.9 AIR RELIEF VALVES

- A. Two inch (2") combination air relief valve which will either exhaust air accumulated in the line or admit air into the line when the mainline system is being drained.
- B. Valve shall be capable of exhausting air at a minimum pressure of 10.0 psi without blowing shut.
- C. Install a two-inch (2") PVC ball valve with a lever handle beneath the air relief valve. Spears Compact Ball Valve.

2.10 IRRIGATION EQUIPMENT: Refer to drawing notes and legend.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine areas to be sprinkled and conditions under which irrigation sprinkler system is to be installed.
- B. Verify that interfacing work specified elsewhere is complete.
- C. Notify Landscape Architect in writing of conditions detrimental to proper irrigation coverage and timely completion of Work.
- D. Do not proceed until conditions are satisfactory.

3.2 INSTALLATION

- A. General
 - 1. Compliance: Complete installation in strict accordance with manufacturer's recommendation, which shall be considered a part of these specifications. Do not exceed manufacturer's maximum spacing limits for the stated head pressure and nozzle size.
 - 2. Staking: Stake location of each sprinkler before proceeding. Review spacing with proposed landscape plantings and verify that head placement will achieve uniform water distribution.
 - 3. Piping Layout: Piping layout is diagrammatic. Route piping around trees and shrubs to avoid damage to plantings. Do not dig within balls of newly-planted trees and shrubs. Also, if applicable, do not trench within the dripline of existing trees. These trenches must be dug by hand.
 - 4. Discrepancies
 - a. Point out any discrepancy between the drawings and the field conditions that may affect uniform coverage. Do not proceed until any design change made necessary by such discrepancy is approved.
 - b. Should such changes create extra cost, approval for extra compensation shall be obtained in writing before commencing work.

- c. Should such changes create a savings in cost, a written reduction in the contract price shall be approved in writing before commencing work.
 - d. If Contractor fails to comply with Item a. above, and proceeds with the installation, then the Contractor assumes responsibility for cost of subsequent system modifications to assure that uniform water coverage is achieved.
- B. Excavations: Excavations are unclassified and include earth, rock, or combinations, in wet or dry state. Backfill trenches with material removed except if rock is encountered, haul this material off site or, when approved, bury this material below grade and backfill with clean soil a minimum of 3 inches of rock-free soil surrounding pipe.
- C. Water Meter and Backflow Prevention: Refer to drawings.

3.3 PIPE INSTALLATION

- A. General:
 - 1. Maintain a minimum horizontal distance of 3'-0" between control valves that are installed side by side.
 - 2. Maintain a minimum 1'-6" distance between fittings installed in main line or lateral lines (except for reducer bushings).
 - 3. Cross fittings are not allowed.
- B. Mainline Piping: Width of trench to be at least twice as large as the diameter of the fittings. Mainline to have a minimum of 18" of cover for pipe 3" and smaller, 24" of cover for 4" and 6" pipe, and 30" of cover for pipe 8" and larger.
- C. Lateral Piping: Install in 4 inch-wide trenches with minimum 16 inches of cover over pipe, but no more than 18 inches of cover.
- D. Trenching: Provide firm, uniform bearing for entire length of pipe to prevent uneven settlement. Wedging or blocking of pipe is not permitted. Remove foreign matter from inside of pipe before welding. Keep inside of piping clean during and after layout.
- E. Backfill: (3" and smaller pipe). Water jet and compact trenches to 90% proctor to prevent after settling. Hand rake trenches and adjoining areas to leave grade in condition equal to before installation.
- F. Backfill 6" and Larger Pipe: Mechanical tamp trenches to 90% proctor density compaction. Compact trenches in six inch lifts. Hand rake trenches and adjoining area.
- G. Trace Tape for Main Line and Wire: Install in mainline and wire trench six inches below finish grade.

3.4 PVC PIPE AND FITTINGS ASSEMBLY

- A. Solvent: Use primer and solvent following procedures recommended by manufacturer. Thoroughly clean pipe and fittings before welding.
- B. PVC to Metal Connections: Use Teflon tape.
- C. Threaded PVC Connections: Use threaded PVC adapters into which pipe may be welded. Use Teflon tape on threads.

3.5 GASKET PVC PIPE AND FITTING ASSEMBLY

- A. Clean and dry the surfaces of all joint components. Inspect components and repair or replace damaged or defective items.
- B. Insert gaskets into the bell gasket groove by forming the gasket into a heart-shape for small diameters and a figure eight for larger diameters. Seat the gasket firmly in the groove with the gasket oriented in the correct direction. Use only the gasket designed for and supplied with the pipe joint.
- C. Field cut spigots for shorter than standard pipe lengths. Cut with a PVC pipe cutter or use a hand saw with a mitre box or pre-mark for circular saw. Cut so that cut is at a right angle to the pipe axis. Bevel ends with a PVC pipe beveler or smooth by hand with rasp or file. Mark insertion stop mark with wax crayon or felt tip marker. Use the same size factory spigot as a guide for the bevel angle, depth and the length to stop mark.
- D. Apply lubricant immediately before joining. Coat only the entire circumference of spigot bevel and about one inch behind the taper. DO NOT lubricate the gasket or bell. Keep the lubricant and joining surfaces free from foreign material. Use only lubricant recommended by the manufacturer.
- E. Insert lubricated spigot into the bell until contacting the gasket uniformly. Rotating the pipe while inserting it is helpful. Take care to concentrically align the two piping components to avoid gasket displacement and to ease insertion. Insert pipe into fitting to insertion strip mark until mark is flush with fitting. Do not use heavy equipment that causes loss of feel for proper joining. Use a pipe puller or bucking bar, if necessary, on larger sizes. Do not use swing stab method. Proper joining and gasket seating may be verified under joint assembly by rotation of the spigot by hand or using a strap wrench for 1/4 or 1/2 turn.
- F. If unusual joining resistance is encountered, or if the insertion mark does not reach the flush position, disassemble the joint and verify proper gasket position. If the gasket is twisted or pushed out of its raceway, reclean the joint components and inspect for damage to the gasket, spigot bevel, and gasket race-way. Replace damaged components. Out-of-round bells or spigots may result from exposure to high temperatures and loads during handling or prolonged adverse storage of PVC pipe. They are normally useable but require more care. Repeat the joint assembly steps using more care to concentrically align the pipe components.

3.6 THRUST BLOCKS

- A. Place thrust blocks around all mainline gasketed connections with the exception of gasketed couplings if deflection is less than five degrees per joint.
- B. Place concrete against undisturbed earth and to a height at the top of the pipe and to the bottom of the ditch with no thrust block smaller than three cubic feet in size.
- C. Thrust blocks shall be of the size specified by the manufacturer of the gasketed pipe or as large as is necessary to provide bearing against undisturbed earth.
- D. Add thrust blocks below mainline shut-off valves 4" and larger as detailed.
- E. Do not apply water pressure to the mainline piping system until the concrete thrust blocks have "set" at least 48 hours.

3.7 COPPER PIPE AND FITTINGS ASSEMBLY

- A. Clean pipe and fittings thoroughly and buff connections with sand paper to remove residue from pipe.
- B. Flux pipe and fitting and solder connection using "No-Lead" solder.

3.8 REMOTE CONTROL AND GATE VALVES

- A. Provide valves in accordance with materials list and size according to drawings.
- B. Install valves in a level position in accordance with manufacturer's specifications and with clearances as noted in 3.3 A., above.
- C. Center valve box over valve, flush with finish grade. Provide valve box extensions as required.
- D. Install 0.5 cubic feet washed pea gravel in bottom of valve box.

3.9 SPRINKLERS

- A. General: Provide in accordance with materials list, with nozzling in accordance with Drawings. Change nozzle degree and trajectory or add additional heads if wind conditions affect coverage or add or adjust head locations if required to adequately water plantings. Receive approval from the Landscape Architect prior to any change. Install heads adjacent to walks and curbs four (4) inches clear of paving.
- B. Shrub Heads: Provide spray nozzles on copper tube risers attached to lateral piping with polyethylene and flexible PVC nipples sufficiently high to water over plantings and as directed by Landscape Architect. Firmly tamp soil around copper riser and leave plumb. Refer to drawing details.
- C. Lawn Heads: Attach sprinklers to lateral piping with flexible PVC nipples. Firmly tamp soil around base plate and leave head plumb. Set top of sprinkler 1/4" above finish grade. Refer to drawing details.
- D. High-Pops: Attach to lateral piping with flexible PVC. Use solvent made especially for flexible PVC. Use bottom connection only unless otherwise directed by Landscape Architect. Provide strainer in each head.
- E. Contractor to thoroughly flush all lines to remove dirt and debris before any nozzles or rotary heads are installed. Contractor to start nozzle/head installation at location closest to electric valve and work to end of zone continuously flushing lines to force dirt and debris to end connection.

3.10 QUICK COUPLING VALVES (QCV)

- A. Provide in accordance with materials list and as detailed on Drawings. Stake with galvanized pipe securely attached to QCV with two stainless steel worm gear clamps.

3.11 WIRING

- A. Conduit is not required for U.F. wire, unless otherwise noted on Drawings. Tuck wire under piping.
- B. Make wire connections with waterproof non-hardening sealant filled connectors according to manufacturer's recommendations.
- C. Provide a separate wire from controller to each electric valve. Provide a common neutral wire from controller to valves served by a particular controller.
- D. Provide 24-inch long wire coils at valves.
- E. Bundle wires together with waterproof electrical tape at ten-foot intervals.

3.12 WEATHER MONITOR

- A. Unless noted otherwise, attach weather station to top of galvanized pipe set in 2' concrete footing 10' above grade.
- B. Paint pipe one coat galvanized primer and two finish coats of exterior enamel semi-gloss black.
- C. Locate as directed by Landscape Architect in sun or shady areas with optimum air flow and where ambient temperature can be read. Do not locate within the irrigation pattern or in areas subject to reflected heat.

3.13 DRIP IRRIGATION

- A. Install drip control zone valves in accordance with manufacturer's recommendations. Set pressure regulator at 15 psi.
- B. Install headers and sub headers and thoroughly flush before tubing is installed.
- C. Install tubing after planting is complete and before mulch is installed. Space tubing a maximum of 12" (unless otherwise noted) and stake with factory provided "U" pins approximately 4'-0" on center.
- D. Install flush valves and air relief valves as recommended by the manufacturer and as shown on the drawings.

3.14 TESTING

- A. Notify Landscape Architect to review work 48 hours prior to testing pipe and fittings for leaks.
- B. Test mains for a period of six (6) hours under static pressure of 90.0 psi. If leaks (or pressure drops) occur, correct defect and repeat test. Contractor to supply all equipment and material for pressure test and any re-test.

3.13 FINAL ADJUSTMENT AND REVIEW

- A. Spray/System:
 - 1. Make final adjustments of sprinkler system prior to Landscape Architect's final inspection.
 - 2. Flush system by removing nozzles from heads.

3. Adjust sprinklers for proper operation and proper alignment for direction of throw.
4. Adjust each section for operating pressure and balance to other sections by use of flow adjustment on top of each valve. Correct operating pressure at last head of each section 20 to 25 psi for spray heads.
5. Prevailing wind conditions, slopes or other site conditions may indicate that arc of angle or trajectory of spray should be other than as shown on drawings. If required, change nozzles to provide uniform coverage as part of the work.

B. Drip System:

1. Verify that section valves are adjusted to 15 psi and mesh filters are in place.
2. Leave emitter tubing exposed to visual inspection.
3. Demonstrate operation of air relief valve and flush valve.

3.14 CLEANUP

- A. Keep premises clean and neat.

END OF SECTION

**SECTION 32 95 00
PLANTING MAINTENANCE**

PART 1 – GENERAL

1.1 SECTION INCLUDES:

- A. Landscape Maintenance Contractor shall furnish all labor, equipment and products necessary to maintain newly planted landscaping leaving plants in a vigorous, healthy state through the end of the stated maintenance period. This organic maintenance program shall consist of watering, weeding, fertilizing, disease and insect pest control, pruning, aerating, protective spraying and any other procedures consistent with good organic horticultural practices necessary to insure normal, vigorous and healthy growth of all landscape materials under this contract. Trash and debris will be removed from the project during each regular site visit. Maintenance shall begin following final acceptance of the landscape installation.
- B. The Landscape Maintenance Contractor shall be responsible for the use of all his/her materials, labor and equipment. Injury to plant material caused by such maintenance, labor and equipment shall be corrected and repaired by the Landscape Maintenance Contractor at his/her expense. This includes both reseeding areas damaged by tractor treads when mowing is conducted at an inappropriate time, as determined by the Owner or his/her agent, and replacement of any plants, hardscape, or other amenities on the site when damaged by the Contractor's equipment, materials or agent(s).

1.2 RELATED DOCUMENTS:

- A. Planting Irrigation - Section 32 94 00.
- B. Planting – Organic – Section 32 93 00.

1.3 INSURANCE:

- A. Contractor shall provide to the Owner, at his own expense, evidence of adequate Workman's Compensation, General Liability and Property Damage Liability, subject to approval of the Owner.

1.4 CLEAN UP:

- A. All debris, tools, surplus materials, equipment, etc. shall be removed after each regular visit from the maintenance crew. The site shall be left in a neat, acceptable condition such as to meet the approval of the Owner.

1.5 LICENSE REQUIREMENTS:

- A. Irrigation: The Contractor shall possess an irrigator's license issued by the State of Texas and the Texas Board of Irrigators or employ such a licensed irrigator to perform the irrigation system maintenance. The irrigation system shall be maintained under the supervision of the licensed irrigator who shall be on the site at all times during this work. The Owner may require documentation of such license for his records. The Contractor shall verify and adhere to the requirements and codes of any controlling utility authorities.
- B. Applicator: Commercial applicator certified in Lawn and Ornamental Pest Control by Texas Department of Agriculture.

PART 2 – PRODUCTS

2.1 ORGANIC PRODUCTS

- A. Organic Fertilizer: Complete fertilizer shall be a product as approved by the Texas Organic Research Center, Inc. (TORC), uniform in composition, dry and free flowing. Deliver to site in original unopened containers, each bearing manufacturer's guaranteed statement of analysis. Garden-Ville 6-2-2, GreenSense Lawn and Garden Fertilizer 6-2-4, Marshall Grain 7-2-2, Bioform Dry 5-3-4 or approved equal. Lawns, shrubs and trees receive the same fertilizer.
- B. Corn Gluten Meal: Deliver to site in original unopened containers. Marshall Grain, Alliance Milling (800) 580-5487 or approved equal.
- C. Horticultural Molasses: Deliver to site in original unopened containers. Marshall Grain (800) 361-1286, Garden-Ville (210) 651-6115 or approved equal.
- D. Texas Greensand: Garden-Ville, Living Earth Technology, GreenSense or approved equal.
- E. Lava Sand: Living Earth Technology, Santa Fe Mining Co. (800) 727-5750 or approved equal.
- F. Garrett Juice: Garden-Ville Garrett Juice, GreenSense Foliar Juice or approved equal.
 - 1. Formula for Garrett Juice Concentrate - Mix 1 ½ cups per one (1) gallon of water:
 - a. One (1) gallon of compost tea or liquid humate.
 - b. One (1) pint liquid seaweed.
 - c. One (1) pint blackstrap molasses.
 - d. One (1) pint apple cider vinegar.
- G. Garlic Pepper-Tea Insect Repellent: Marshall Grain or approved equal.
 - 1. Formula for Garlic Pepper-Tea:
 - a. In a blender with water, liquefy two (2) bulbs of garlic and two (2) cayenne or habanero peppers. Strain away the solids.
 - b. Pour the garlic-pepper juice into a one-gallon container. Fill the remaining volume with water to make one gallon of concentrate.
 - c. Shake well before using and add ¼ cup of the concentrate to each gallon of water in the sprayer.
- H. Citrus Oil: GreenSense Citrus Oil, Marshall Grain Orange Oil, Garden-Ville Orange Oil or approved equal.
- I. Vinegar – 10% Solution: GreenSense, Marshall Grain, Garden-Ville or approved equal.
- J. Tree Trunk Goop: GreenSense, Garden-Ville or approved equal.
 - 1. Formula for Tree Trunk Good - Mix the following with water.
 - a. 1/3 Soft rock phosphate or fireplace ashes.
 - b. 1/3 Natural diatomaceous earth.
 - c. 1/3 Manure compost.
- K. Horticultural Oil: Marshall Grain or approved equal.
- L. Natural Diatomaceous Earth: GreenSense, Marshall Grain or approved equal.

- M. Nolo Bait: Marshall Grain or approved equal.
- N. Surround WP: Engelhard Corp. (877) 240-0421.
- O. Potassium Bicarbonate: GreenSense, GardenVille or approved equal.
- P. Consan Triple Action 20: Consan Corp. (800) 926-6726.
- Q. Bon-Neem: Marshall Grain or approved equal.
- R. Beneficial Insects: Marshall Grain or approved equal.

2.2 SOIL ASSESSMENT:

- A. The Contractor will be required to furnish the Owner with two (2) soil fertility reports including corrective recommendations.
- B. The exact location of each soil sample taken will be provided by the Architect or Owner.
- C. Standard soil test: to include ph, organic matter, base saturation, total exchange capacity, mehlich iii extractable sulfur, phosphorous, calcium, magnesium, potassium, sodium, boron, iron, manganese, copper, zinc, aluminum (*ammonium acetate method available.) - test to be performed by: a&l plains agricultural laboratories, inc. testing to be sent to landscape architect for review and approval.
- D. Soil biology test: test to be performed by Soil Foodweb Inc. (contact Jennifer Micheli (530-589-9947) and at jennifer@environmentcelebration.com for soil testing). Soil test results are to be reviewed by Dr. Elaine Ingham with Environment Celebration Institute.
- E. Soil fertility testing will be conducted by a laboratory making organic recommendations. **Environmental Celebration Institute Inc. 13193 Oroville Quincy Highway, Berry Creek, CA 95916 (530-589-9947) or approved equal (must ask for organic recommendations).**

2.3 MULCH AND COMPOST:

- A. Shredded native hard wood mulch and compost. Living Earth Technology, Mayer Materials, Soil Building Systems or approved equal.

2.4 WATER:

- A. Water will be supplied by the Owner.

2.5 PLANT REPLACEMENT:

- A. It will be the responsibility of the Contractor to replace any and all plant material that is dead or damaged due to non-performance of the contracted scope of work, unsupervised personnel or un-supervised subcontractors.

2.6 PEST AND DISEASE CONTROL:

- A. Pesticides and herbicides shall be organic and non-toxic as approved by the Texas Organic Research Center (TORC).

- B. Insects on ornamental plants:
1. Aphids: Spray orange oil-based product plus the release of ladybeetles. Bon-Neem can also be used.
 2. Armyworms, cankerworms, leaf rollers, tent caterpillars, sod webworms, webworms and other larvae of moths and butterflies: Treat when insects are active between April and September with *Bacillus thuringiensis*. For quick control of heavy infestations spray citrus oil.
 3. Bagworms: Release trichogramma wasps at spring leaf emergence. Once bags have formed, hand removal is the only solution.
 4. Borers: Active borers in trunks can be treated with Tree Trunk Goop or beneficial nematodes. To prevent their return apply the Sick Tree Treatment (Item 3.01.A.8).
 5. Cucumber and Other Destructive Beetles: Treat with Bon-Neem or citrus oil. Apply beneficial nematodes to the soil.
 6. Fire Ants: Treat mounds with citrus oil. Apply beneficial nematodes and horticultural cornmeal.
 7. Galls: Normally not a problem. For heavy infestations, spray Bon-Neem and apply the Sick Tree Treatment (Item 3.01.A.8).
 8. Grasshoppers: Treat in the spring with Nolo Bait. Treat insects that are feeding with Surround WP or other kaolin clay or particle film product.
 9. Lacebugs: Treat at first sign of infestation with horticulture oil, Bon-Neem or citrus oil.
 10. Leaf Minors: Treat with Bon-Neem or garlic-pepper tea when first symptoms appear or on leaves usually in summer months.
 11. Pine Tip Beetle: Release trichogramma wasps in the early spring.
 12. Pine Bark Beetle: Treat with Bon-Neem or citrus oil.
 13. Scale: Treat infestations with horticultural oil or orange oil. Follow the temperature restrictions for use of horticultural oil or orange oil.
 14. Twig Girdlers: Treatment is unnecessary. These interesting insects are only a temporary cosmetic problem.
- C. Insects on turf grass:
1. Chinch Bugs: Treat with natural diatomaceous earth during dry weather, spray with citrus oil under other weather conditions.
 2. Fire Ants: Treat mound with citrus oil. Apply beneficial nematodes and horticultural cornmeal.
 3. Grub worms: The microbe stimulating nature of the organic soil amendments and fertilizers and the organic program in general usually control the harmful grubs. For unusual outbreaks apply beneficial nematodes.
 4. Mites: Spray Garrett Juice plus garlic-pepper tea. Horticultural oil can be used as a last resort.
- D. Diseases:
1. Powdery Mildew: Treat when present with Garrett Juice plus potassium bicarbonate. Treat soil with horticultural cornmeal at 20 pounds per 1,000 square feet.
 2. Rust: Treat with Garrett Juice plus Remedy or other potassium bicarbonate product.
 3. Leaf Spot: Treat when present with Garrett Juice plus potassium bicarbonate. Use at one ounce per gallon or per label instructions.
 4. Fungal Leaf Spot: Treat when present with Garrett Juice plus potassium bicarbonate. Apply horticultural cornmeal to the soil at 20 pounds per 1,000 square feet.
 5. Oak Leaf Blister: Treat with Garrett Juice plus a potassium bicarbonate product.
 6. Oak Wilt: Spray Garrett Juice plus garlic tea and apply Sick Tree Treatment.
 7. All Other Fungal Diseases: Spray Garrett Juice plus potassium bicarbonate product. Apply horticultural cornmeal at 20 pounds per 1,000 square feet.
 8. All Other Bacterial Diseases: Spray Garrett Juice plus Consan 20 or hydrogen peroxide.

PART 3 – EXECUTION

3.1 TREE, SHRUB AND GROUNDCOVER MAINTENANCE:

- A. The Scope of Work for plant maintenance includes all possible means required to preserve the plants and vegetative material existing within the site in a healthy and vigorous growing condition to insure their successful establishment. Plant maintenance shall include, as a minimum, the following items.
1. Pruning: All trees and shrubs, within the limits of landscape maintenance, shall be pruned by the Contractor to the satisfaction of the Owner. Pruning shall be done in accordance with accepted pruning practices as set forth by the National Arborist Association in Pruning Standards for Shade Trees (current edition). Dead or damaged limbs on trees and shrubs, including sucker-growth on trunks of trees, are to be removed. Crape Myrtles will be pruned in late winter only to remove dead wood, crossing limbs and ground suckers. Suckers will be removed as needed throughout the year. All pruned materials shall become the property of the Contractor and shall be disposed of in a manner acceptable to the Owner. Unless directed differently in the contract documents, pruning shall be accomplished once during the term of this contract.
 2. Insect, Disease, and Animal Control: The Contractor shall inspect the plants and planted areas once each two (2) weeks or as approved by the Owner. The Contractor shall be required to notify the Owner in writing of problems with insects, diseases, or animals as such problems arise. The Contractor also shall recommend corrective measures in writing.
 3. The Contractor shall treat the plants and/or the planted areas in accordance with accepted methods of organic horticultural practices.
 4. Bed Maintenance: The Contractor shall maintain the beds free of weeds and grass or other material detrimental to the growth of the plants or appearance at the site. Use manual weeding and post emergent organic herbicide (corn gluten meal) applications as required. Cedar mulch shall be maintained to a minimum depth of two (2) inches in all bed areas making sure not to pile the mulch onto the stems of plants.
 5. Fertilization: Shrub and groundcover beds shall be fertilized in February, June and September for a total of Three (3) applications. The first and third applications shall be corn gluten meal at 20 pounds per 1,000 square feet. The June application shall be organic fertilizer at 20 pounds per 1,000 square feet.
 6. Re-guying or Re-staking of Trees (Where Approved by Architect): Any damaged or destroyed stakes or guys shall be replaced by the Contractor. This shall include any adjustment to the staking or guying to prevent girdling of plants. Adjustment will be made to tighten Arboguy ties as required.
 7. Seasonal Color: All seasonal color beds will be changed three (3) times per year, Spring, Summer and Fall. Each seasonal color change will include the following:
 - a. Four inch pots spaced triangularly at 9 inches on center - plant species to be selected by the Owner or Owner's Representative.
 - b. Organic fertilizer applied at 20 pounds per 1,000 square feet.
 - c. Horticultural cornmeal applied at 20 pounds per 1,000 square feet.
 - d. Two inches of compost tilled into the existing soil.
 8. Tree Mulching and Tree Care:
 - a. Maintain a 2" layer of native cedar mulch over all tree root balls in turf areas. Add new mulch as required. Taper the mulch to a very thin layer at the tree trunk. Do not allow mulch to be piled up on trunks.
 - b. For any trees that are in less than perfect health, drench the planting hole area with Garrett Juice combined with Turf Pro. If problems persist, apply the entire Sick Tree Treatment to at least 10 feet beyond the original tree hole.
 9. Sick Tree Treatment:
 - a. Remove excess soil from above root ball.

- b. Aerate the root zone heavily. Start between the drip line and the trunk and go far out beyond the drip line. A 7 to 12 inch depth of the aeration holes is ideal but any depth is beneficial. An alternative is to spray the root zone with a living organism product or an approved bio-stimulant.
- c. Apply Texas Greensand at 40 to 80 pounds per 1,000 square feet, lava sand at 40 to 80 pounds per 1,000 square feet, horticultural cornmeal at 10 to 20 pounds per 1,000 square feet and dry sugar or dry molasses at 5 pounds per 1,000 square feet.
- d. Apply a 1" layer of compost followed by a 3 to 5 inch layer of shredded native cedar tree trimmings.
- e. Spray foliage and soil monthly or more often if possible with Garrett Juice.

3.2 TURF AND GRASS MAINTENANCE:

A. Bermuda Grass:

- 1. Mowing and Trimming: All lawns shall be mowed approximately every seven days April thru September, three (3) times per month in March and October and once monthly November thru February. All sidewalks and curbs shall be edged, and trimming around all trees and other objects within turf areas shall occur in concurrence with the maximum mowing cycles. The Contractor shall use power equipment as approved by the Owner. Nylon cord trimmers shall not be used near tree trunks or in beds around plant material.
- 2. Fertilization: Bermuda Grass shall be fertilized in February, June and September for a total of three (3) applications. The first and third applications shall be corn gluten meal at 20 pounds per 1,000 square feet. The June application shall be organic fertilizer at 20 pounds per 1,000 square feet.
- 3. Weed Control: The maintenance contractor will train his personnel to do regular hand weeding in order to stay ahead of a serious weed problem. Spot spraying of noxious weeds can be done as necessary using a vinegar based herbicide.
- 4. Insect, Disease and Animal Control: The Contractor shall be required to notify the Owner in writing of problems with insects, diseases, or animals as such problems arise. The Contractor also shall recommend organic corrective measures in writing.

B. Saint Augustine Grass:

- 1. Mowing and Trimming: All lawns shall be mowed approximately every seven days April thru September, three (3) times per month in March and October and once monthly November thru February. All sidewalks and curbs shall be edged, and trimming around all trees and other objects within turf areas shall occur in concurrence with the maximum mowing cycles. The Contractor shall use power equipment as approved by the Owner. Nylon cord trimmers shall not be used inside plant basins or beds around plant material. Mowing height will be between 2 inches and 3 inches.
- 2. Fertilization: Fertilize in March, May July and September for a total of four (4) applications. Approximately 1 to 1.5 lbs. nitrogen will be applied per 1,000 square feet per application. Various analysis and blends of fertilizers can be used based on soil tests results.
- 3. Weed Control: Treat with two (2) pre-emergent herbicide and two (2) post-emergent herbicide applications for a total of four (4) applications. Herbicide applications will only be required on established stands of grass.
- 4. Insect, Disease and Animal Control: The Contractor shall inspect all lawn areas once each two (2) weeks or as approved by the Owner. The Contractor shall be required to notify the Owner in writing of problems with insects, diseases, or animals as such problems arise. The Contractor also shall recommend corrective measures in writing.

C. Buffalo Grass:

- 1. Mowing and Trimming: Mow one (1) time in March to remove dead foliage. Leave in its natural condition the rest of the year.

2. Fertilization: Buffalo Grass shall be fertilized in March for a total of one (1) application. Apply 10 pounds of organic fertilizer per 1,000 square feet.
 3. Insects, Disease and Animal Control: The Contractor shall be required to notify the Owner in writing of problems with insects, diseases, or animals as such problems arise. The Contractor also shall recommend organic corrective measures in writing.
- D. Weeping Love Grass:
1. Mowing and Trimming: Mow one (1) time, prior to the appearance of new growth, to remove the dead foliage. Leave in it's natural condition the rest of the year.
 2. Fertilization: Love Grass shall be fertilized in March for a total of one (1) application. Apply 10 pounds of organic fertilizer per 1,000 square feet.

3.3 IRRIGATION SYSTEM OPERATION AND MAINTENANCE:

- A. The scope of work for the operation and maintenance of the permanent irrigation system shall consist of the monitoring, adjustment, repair and proper operation of the existing irrigation system as required to ensure adequate moisture to the plant material existing on the project. The existing condition of the system and any known deficiencies will be corrected by the Contractor upon approval by the Owner. The Contractor shall insure that all irrigation zones, rain sensors and freeze sensors are operating correctly. Include seasonal draining and winterizing of irrigation system when required.
- B. System repairs will include monitoring of the system on a year-round bi-weekly basis and reporting of all damaged or trouble areas to the Owner. The Contractor's personnel shall repair any damage that may have occurred during the mowing cycle and set automatic systems to correct time requirements. Any damage not the fault of the Landscape Maintenance Contractor shall be assessed and brought to the attention of the Owner with an estimate of the subsequent costs to make the repairs. In the event the irrigation system fails due to the Contractor's actions or neglect, the Contractor shall furnish plant irrigation by a method and quantity approved by the Owner.
3. Apply 10 pounds of organic fertilizer per 1,000 square feet.

3.4 MAINTENANCE SCHEDULE:

- C. Refer to attached Exhibit

FM 740 Ridge Median Maintenance Schedule

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	Proposal Budget Cost
	SITE VISITS	SITE VISITS	SITE VISITS	SITE VISITS	SITE VISITS	SITE VISITS	SITE VISITS	SITE VISITS	SITE VISITS	SITE VISITS	SITE VISITS	SITE VISITS		
Maintenance Functions														
Planting Beds														
Pruning (All plants to be maintained below AASHTO visibility requirements, contractor to verify in field)		1	1	1	2	2	2	1	1	1			12	
Groundcover Trim		1	1	1	1	1	1	1	1	1			9	
Fertilization			1			1	1		1				4	
Pre-Emergent (may vary with weather)		1								1			2	
Weed Control	As Needed	As Needed	As Needed	As Needed	As Needed	As Needed	As Needed	As Needed	As Needed	As Needed	As Needed	As Needed		
Insect Control	As Needed	As Needed	As Needed	As Needed	As Needed	As Needed	As Needed	As Needed	As Needed	As Needed	As Needed	As Needed		
Disease Control	As Needed	As Needed	As Needed	As Needed	As Needed	As Needed	As Needed	As Needed	As Needed	As Needed	As Needed	As Needed		
Mulch Beds			1							1			2	
Trees														
Fertilization (see Below)														
Prune (see Below)														
Leaf Removal	1	1	1	1	1	1	1	1	1	2	4	4	19	
Mulch - Tree Rings			1										1	
Irrigation Checks	1	1	1	1	1	1	1	1	1	1	1	1	12	
Double Check Inspection/Service				1									1	
Site Clean-up	1	1	1	4	5	4	5	4	4	3	1	1	34	
Stone Maintenance				1									1	

Tree Program	6 MONTHS AFTER PLANTING	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Bartlett Tree Experts or approved equal						
Soil tests will be performed to determine fertilization requirements. Trees to be maintained per specifications, to prevent lower limbs heights from interfering with visual sight lines of roadway	Fertilization	Immediately after planting	Structural Pruning	Structural pruning	Fertilization	Structural pruning
	Root Rot and Root Stimulator	Fertilization	Remove rubbing branches	Fertilization		
	Borer Application	Root rot and root stimulator treatment	Fertilize 2X at 6 month intervals			
		Borer application	Maintain canopy balance			
	Monthly health inspections during growing season to include preventative insect and disease prevention			Three tree health inspections to monitor any trees under stress	Three tree health inspections to monitor any trees under stress	

**SECTION 32 98 13
ROOT BARRIER**

PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. Furnish all labor, material, equipment, related services and supervision necessary for or incidental to the installation of the tree root barriers as shown or indicated on the Drawings and/or as specified.
- B. Work Included:
 - 1. Tree root barriers, various depths and combinations may be required.

1.2 RELATED DOCUMENTS:

- A. Related sections:
 - 1. Planting Irrigation - Section 32 84 00.
 - 2. Planting – Section 32 90 00.
 - 3. Turf and Grasses - Section 32 92 00.
 - 4. Subdrainage – Section 33 46 00.

1.3 REFERENCE STANDARDS:

- A. Standards of the following as referenced:
 - 1. American National Standards Institute (ANSI).
 - 2. American Society for Testing Materials (ASTM)

1.4 DEFINITIONS:

- A. Terms:
 - 1. Tree root barrier: Mechanical barrier and root deflector to prevent tree roots from damaging hardscapes and landscapes.

1.5 SUBMITTALS:

- A. Product data: Manufacturer's standard literature defining materials for use on this Project.
- B. Shop drawings:
 - 1. Indicate locations and extent for tree root barrier material.
- C. Samples:
 - 1. Tree root barrier: One full length panel .
- D. Quality control submittals; manufacturer's instructions: Complete installation instructions for each item specified; may be combined with product data.

1.6 QUALITY ASSURANCE:

- A. Qualifications; manufacturer: Minimum 10 years experience in tree and plant protection and accessories.

1.7 DELIVERY, STORAGE, AND HANDLING:

- A. Packing and shipping: Provide materials in original unopened containers with manufacturer's labels intact and legible.
- B. Acceptance at site:
 - 1. Damaged materials determined by visual inspection will not be accepted.
 - 2. Remove rejected materials from Project site immediately.
- C. Storage and protection: Store materials in dry area in manufacturer's protective

packaging; in original containers with labels and instruction instructions intact.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

- A. Acceptable manufacturers:
 - 1. Products specified as standard of quality are manufactured by DeepRoot Partners, L.P. (Deep Root); 81 Langton Street, Suite 4, San Francisco CA 94103; 415.437.9700; 800.458.7668; fax 800.277.7668; www.deeproot.com.
 - 2. Products of manufacturers meeting indicated standards and specified manufacturer's product data characteristics, are acceptable for use, subject to approval of product list and samples.

2.2 MANUFACTURED UNITS:

- A. Tree root barriers:
 - 1. 12" depth:
 - a. Product standard of quality: DeepRoot; Tree Root Barriers; LB 12-2.
 - b. Material: 0.080" wall thickness, nominal, injection molded 50% post-consumer recycled polypropylene panels with UV inhibitors.
 - c. Panel specifics:
 - 1) 7/16" wide integral molded 0.080" thickness double top edge with stiffening ribs; bottom edge attached to vertical root deflecting ribs.
 - 2) Integral molded 0.080" thickness by 2" deep vertical root directing ribs spaced at 6" O.C.
 - 3) Integral molded 0.080" thickness by 2" long by 3/8" wide horizontal anti-lift ground lock tabs; minimum three per panel.
 - d. Size: 24" wide by 12" deep.
 - e. Preassembled joiner system for panel connection to adjacent panel.
 - f. Color: Black.
 - 2. 18" depth:
 - a. Product standard of quality: DeepRoot; Tree Root Barriers; UB 18-2.
 - b. Material: 0.080" wall thickness, nominal, nominal, injection molded 50% post-consumer recycled polypropylene panels with UV inhibitors.
 - c. Panel specifics:
 - 1) 7/16" wide integral molded 0.080" thickness double top edge with stiffening ribs; bottom edge attached to vertical root deflecting ribs.
 - 2) Integral molded 0.080" thickness by 2" deep vertical root directing ribs spaced at 6" O.C.
 - 3) Integral molded 0.080" thickness by 2" long by 3/8" wide horizontal anti-lift ground lock tabs; minimum nine per panel.
 - d. Size: 24" wide by 18" deep.
 - e. Integrated zipper joining system for panel connection to adjacent panel.
 - f. Color: Black.
 - 3. 24" depth:
 - a. Product standard of quality: DeepRoot; Tree Root Barriers; UB 24-2 .
 - b. Material: 0.085" wall thickness, nominal, nominal, injection molded 50% post-consumer recycled polypropylene panels with UV inhibitors.
 - c. Panel specifics:
 - 1) 7/16" wide integral molded 0.085" thickness double top edge with stiffening ribs; bottom edge attached to vertical root deflecting ribs.
 - 2) Integral molded 0.085" thickness by 2" deep vertical root directing ribs spaced at 6" O.C.
 - 3) Integral molded 0.085" thickness by 2" long by 3/8" wide horizontal anti-lift ground lock tabs; minimum nine per panel.
 - d. Size: 24" wide by 24" deep.
 - e. Integrated zipper joining system for panel connection to adjacent panel.
 - f. Color: Black.

4. 36" depth:
 - a. Product standard of quality: DeepRoot; Tree Root Barriers; UB 36-2 and UB 48-2.
 - b. Material: 0.080" thickness extruded Homopolymer Polyethylene with UV inhibitors, root deflecting ribs at 6" O.C. vertically, and built-in joining system.
 - c. Panel size: 24" wide by 36" deep.
5. 48" depth:
 - a. Product standard of quality: DeepRoot; Tree Root Barriers; UB 36-2 and UB 48-2.
 - b. Material: 0.080" thickness extruded Homopolymer Polyethylene with UV inhibitors, root deflecting ribs at 6" O.C. vertically, and built-in joining system.
 - c. Panel size: 24" wide by 48" deep.

2.3 ACCESSORIES:

- A. Provide related materials for complete installation of specified materials.

PART 3 – EXECUTION:

3.1 EXAMINATION

- A. Verification of conditions:
 1. Verify other work in other sections, in, at, and around landscaping work is complete to extent that no damage will occur to newly planted materials or, any possible construction related damage will be minimal and replacement plant material is readily available for planting at no additional cost.
 2. Obtain verification, in writing, from work required in other Sections directly involving work in this Section regarding correct grades have been provided, coordination of topsoil spreading, and lawns and grasses planting.
 3. Beginning work without fulfilling conditions below requiring removal or replanting work in this section becomes responsibility of this section.
 - a. Not providing written notification to Architect of unacceptable conditions indicates acceptance of site.
 - b. Not receiving verification indicated above.
 - c. Work required not indicated as unacceptable requiring removal or replanting work.

3.2 PREPARATION:

- A. Surface protection: Use methods necessary to prevent damage to completed site work performed in other Sections. Protect access to and areas around planted materials. Restore damaged areas to original compaction, grades, and lines; repair damaged grassed areas.

3.3 INSTALLATION:

- A. Tree root barriers: Install in accord with manufacturer's reviewed installation instructions where indicated on reviewed shop drawings with vertical root directing ribs facing inwards towards trees or plants; connect panels together as required.

END OF SECTION

**SECTION 33 46 00
SUB-DRAINAGE**

PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. Furnish all labor, materials, equipment, related services and supervision necessary for or incidental to the installation of the drain laterals, sub-grade site drainage and all appurtenances as shown or indicated on the Drawings and/or as specified.

1.2 RELATED DOCUMENTS:

- A. Drawings and General provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. All other Divisions of the Contract Documents. Refer to each Division's specifications and drawings for all requirements.

1.3 SUBMITTALS:

- A. Filter Fabric: Submit complete manufacturer's descriptive literature and performance characteristics..
- B. Aggregate: Submit material sample in accordance with Section 01330.
- C. Pipe: Submit complete manufacturer's descriptive literature and performance characteristics.

PART 2 - PRODUCTS

2.1 UNDERDRAIN PIPE:

- A. Perforated pipe shall be polyvinyl chloride, schedule 40 with plain or belled ends. Pipe diameter will be as specified on the drawings. This pipe will be used for the drainage field.
- B. Non-perforated pipe shall be polyvinyl chloride, schedule 40 with plain or belled ends. This pipe will be used for collector lines and will convey the water from the perforated pipe field to the outfall point.
- C. All couplings, reducers, tees, ells, plugs, caps, and other fittings shall be non-perforated and shall be of the same manufacturer as the drainage tubing. A fitting shall be used at each pipe junction, if required, and at all pipe terminations.

2.2 FILTER FABRIC:

- A. Filter fabric shall be non-woven filter fabric - Phillips Suprac 4NP or Mirafi 140 N.

2.3 FILTER AGGREGATE:

- A. Aggregate shall consist of angular coarse aggregate (gravel or crushed rock) with a gradation similar to coarse concrete aggregate and approved by the Architect prior to material delivery to site.

PART 3 - EXECUTION

3.1 PREPARATION:

- A. Hand trim excavations to required elevations. Correct over excavation with fill material of fine aggregate. Remove large stones or other hard matter, which could impede consistent backfilling or compaction.

3.2 INSTALLATION:

- A. Trenches for under drains shall be dug after the sub grade is prepared. The excavation of each trench shall begin at its outlet and proceed toward its upper end. The trench must not be excavated below the proposed grade line. Trenches will be cleaned of all loose material and their bottoms will be dressed and fine graded. All fittings shall be securely coupled and all open ends will be capped. The excavated trench shall be lined with filter fabric prior to placement of the PVC pipe and filter aggregate. The pipe shall be carefully covered with the specified filter material. Care shall be taken not to damage the pipe or its fabric filter screen. Under drainpipe shall be connected to the outfall and joints shall be sealed. Care shall be taken not to loosen or cave-in the trench walls. Any such damage will be excavated and will be backfilled in mechanically tamped lifts not to exceed eight (8") inches and will be reconstructed. Inspection by the Architect should be required prior to and immediately after placing filter aggregate cover over pipe.

3.3 JOINTS:

- A. Install and join pipe and pipe fittings in accordance with manufacturer's instructions.

3.4 SETTLEMENT AND COMPACTION OF FILTER MATERIAL:

- A. Filter material shall be roughly level, after placement, then tamped in place to the Architects satisfaction and allowed to settle for at least twenty-four (24) hours. Pipe and filter aggregate cover shall be protected from damage or displacement until commencement of trench backfill and compaction.

END OF SECTION

Request for Taxpayer Identification Number and Certification

Go to www.irs.gov/FormW9 for instructions and the latest information.

**Give form to the
requester. Do not
send to the IRS.**

Before you begin. For guidance related to the purpose of Form W-9, see *Purpose of Form*, below.

Print or type. See Specific Instructions on page 3.	1	Name of entity/individual. An entry is required. (For a sole proprietor or disregarded entity, enter the owner's name on line 1, and enter the business/disregarded entity's name on line 2.)			
	2	Business name/disregarded entity name, if different from above.			
	3a	Check the appropriate box for federal tax classification of the entity/individual whose name is entered on line 1. Check only one of the following seven boxes.		4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3): Exempt payee code (if any) _____ Exemption from Foreign Account Tax Compliance Act (FATCA) reporting code (if any) _____ <i>(Applies to accounts maintained outside the United States.)</i>	
	<input type="checkbox"/> Individual/sole proprietor <input type="checkbox"/> C corporation <input type="checkbox"/> S corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Trust/estate <input type="checkbox"/> LLC. Enter the tax classification (C = C corporation, S = S corporation, P = Partnership) _____ Note: Check the "LLC" box above and, in the entry space, enter the appropriate code (C, S, or P) for the tax classification of the LLC, unless it is a disregarded entity. A disregarded entity should instead check the appropriate box for the tax classification of its owner. <input type="checkbox"/> Other (see instructions) _____				
	3b		If on line 3a you checked "Partnership" or "Trust/estate," or checked "LLC" and entered "P" as its tax classification, and you are providing this form to a partnership, trust, or estate in which you have an ownership interest, check this box if you have any foreign partners, owners, or beneficiaries. See instructions <input type="checkbox"/>		
	5	Address (number, street, and apt. or suite no.). See instructions.		Requester's name and address (optional)	
	6	City, state, and ZIP code			
7	List account number(s) here (options)				

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. See also *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number											
				-			-				
or											
Employer identification number											
				-							

Part II Certification

- Under penalties of perjury, I certify that:
- The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
 - I am not subject to backup withholding because (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
 - I am a U.S. citizen or other U.S. person (defined below); and
 - The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and, generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here	Signature of U.S. person	Date
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General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to www.irs.gov/FormW9.

What's New

Line 3a has been modified to clarify how a disregarded entity completes this line. An LLC that is a disregarded entity should check the appropriate box for the tax classification of its owner. Otherwise, it should check the "LLC" box and enter its appropriate tax classification.

New line 3b has been added to this form. A flow-through entity is required to complete this line to indicate that it has direct or indirect foreign partners, owners, or beneficiaries when it provides the Form W-9 to another flow-through entity in which it has an ownership interest. This change is intended to provide a flow-through entity with information regarding the status of its indirect foreign partners, owners, or beneficiaries, so that it can satisfy any applicable reporting requirements. For example, a partnership that has any indirect foreign partners may be required to complete Schedules K-2 and K-3. See the Partnership Instructions for Schedules K-2 and K-3 (Form 1065).

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS is giving you this form because they

Certificate of Interested Parties Form 1295

Pursuant to Section 2252 of the Texas Government Code, any business entity entering into a contract with a local government that requires approval of the governing body must submit a Disclosure of Interested Parties to the local government prior to the execution of the contract. The Texas Ethics Commission (TEC) has adopted a form for the Disclosure of Interested Parties (Form 1295) and has created a website application for business entities to submit the required information.

The City of Rockwall may not enter into a contract that requires the approval of the City Council until the business entity that is a party to the contract files a Form 1295 with the Texas Ethics Commission and the City of Rockwall Purchasing Department.

1. Upon being notified of a bid/recommended award, the award recipient, the business entity, must go the following website: <https://www.ethics.state.tx.us/filinginfo/1295/> and follow the login directions on the website application to complete a Form 1295. If this is a business entity's first login on to the website application, the business entity must create a login Username and Password then follow the application's instructions to complete a Form 1295.
2. The City does not have a Contract ID Number System. Please insert the City of Rockwall's bid or project number in this box **RFP NO: 20XX-XXX**.
3. Once confirmation is received, that the information has been submitted with the Texas Ethics Commission, the business entity MUST print, sign and date Form 1295.
4. Form 1295 must be filed with the Texas Ethics Commission within seven (7) business days of the date of notification of recommended award. The contract will not be presented to City Council until the form has been filed with the Texas Ethics Commission and the City of Rockwall has received Form 1295.
5. In no way does a request for filing of Form 1295 with the Texas Ethics Commission commit the City to any type of award whatsoever.
6. Once the City of Rockwall Purchasing Department receives Form 1295, the Purchasing Department will submit confirmation of receipt through the Texas Ethics Commission website within thirty (30) days.
7. This process must be followed for each contract requiring City of Rockwall Council approval.
8. A Form 1295 cannot be hand written. It must be completed electronically through the Texas Ethics Commission website application.

If you have any questions contact the City of Rockwall Purchasing Agent at (972) 771-7700, 385 S. Goliad St., Rockwall, Texas 75087.

CERTIFICATE OF INTERESTED PARTIES

FORM 1295

Complete Nos. 1 - 4 and 6 if there are interested parties.
 Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.

OFFICE USE ONLY

1 Name of business entity filing form, and the city, state and country of the business entity's place of business.

2 Name of governmental entity or state agency that is a party to the contract for which the form is being filed.

3 Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the services, goods, or other property to be provided under the contract.

4 Name of Interested Party	City, State, Country (place of business)	Nature of Interest (check applicable)	
		Controlling	Intermediary

5 Check only if there is no interested party.

6 UNSWORN DECLARATION

My name is _____, and my date of birth is _____.

My address _____, _____, _____, _____, _____
 (street) (city) (state) (zip code) (country)

I declare under penalty of perjury that the foregoing is true and correct.

Executed in _____ County, State of _____, on the _____ day of _____, 20_____
 (month) (year)

 Signature of authorized agent of contracting business entity
 (Declarant)

ADD ADDITIONAL PAGES AS NECESSARY

The undersigned certifies that the bid prices contained in this proposal have been carefully checked and are submitted as correct and final.

NOTE: Unit and lump sum prices must be shown in words and figures for each item listed in the proposal and in the event of discrepancy the words shall control.

Receipt is hereby acknowledged for the following addenda to the contract documents:

Addendum No. 1 dated	_____	Received	_____
Addendum No. 2 dated	_____	Received	_____
Addendum No. 3 dated	_____	Received	_____
Addendum No. 4 dated	_____	Received	_____
Addendum No. 5 dated	_____	Received	_____

The undersigned, in submitting this bid proposal and their endorsement of same, represents that they are authorized to obligate their firm, that they have read this entire bid proposal package, aware of the covenants contained herein and will abide by and adhere to the expressed requirements. Submittals will be considered as being responsive only if entire Bid Package plus any/all attachments is returned with all blanks completed.

Contractor

By: _____
(please print name)

Signature: _____

Title: _____

Address

City, County, State and Zip

Telephone

E-Mail Address: _____