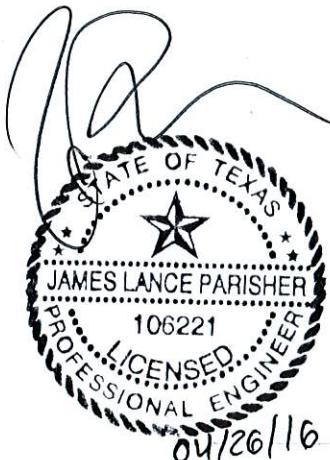


**WILLIAMSON COUNTY**  
**PROJECT CONSTRUCTION MANUAL**  
**FOR**  
**FOREST NORTH**  
**RESIDENTIAL DRAINAGE IMPROVEMENTS**

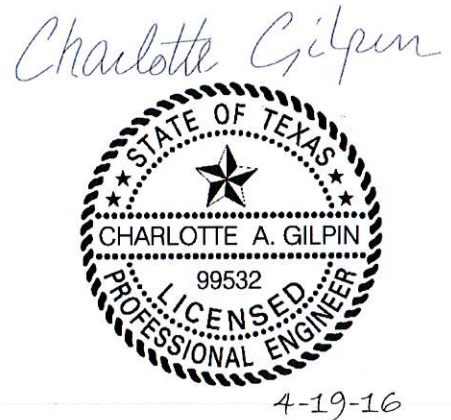
**SOLICITATION 1604-068**

**WILLIAMSON COUNTY, TEXAS**  
**PURCHASING DEPARTMENT**  
**901 SOUTH AUSTIN AVENUE**  
**GEORGETOWN, TEXAS 78626**

**APRIL 2016**



Lance Parish's seal  
attached is for water and  
wastewater relocations only.



The enclosed Specifications, Special Specifications, Special Provisions, General Notes, and Specification Data in this document have been selected by me, or under my responsible supervision as being applicable to this project. Alteration of a sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act.

## **TABLE OF CONTENTS**

<b><u>CONTENTS</u></b>	<b><u>SECTION</u></b>
Addenda	1
Invitation for Bids	2
Bid Instructions/Requirements	3
Bid Form, Bid Affidavit, Bidder References, Disclosure of Lobbying Activities, & Conflict of Interest Questionnaire	4
Standard Form of Agreement	5
Wage Rates	6
Performance Bond	7
Payment Bond	8
Maintenance Bond	9
Certificate of Insurance	10
General Conditions of Agreement	11
Special Conditions of Agreement	12
Technical Specifications	13
Plan Drawings	(Bound Separately)
Geotechnical Report	(If Applicable)

### **Appendices**

- Appendix A – Quality Control/Quality Assurance Program
- Appendix B – Guide Schedule of Sampling and Testing
- Appendix C – AASHTO Accredited Laboratories

**SECTION 1**  
**ADDENDA**



**ADDENDUM NO. \_\_\_\_**

Date:

Owner: **Williamson County, Texas**

Project Name:

Project No:

This Addendum forms a part of the Contract and clarifies, corrects or modifies the original Construction Documents, dated \_\_\_\_\_. Acknowledge receipt of this addendum in space provided on Bid Form. Failure to do so may subject bidder to disqualification.

**DESCRIPTION OF ADDITION OR CHANGE:**

This addendum consists of \_\_\_\_ page(s).

---

Approved by ENGINEER

**END**

**SECTION 2**  
**INVITATION FOR BIDS**

## **PUBLIC NOTICE WILLIAMSON COUNTY INVITATION FOR BIDS**

**Williamson County Commissioner's Court invites the submission of sealed bids for:**

### **FOREST NORTH DRAINAGE IMPROVEMENTS**

**Williamson County is seeking qualified contractors for the construction of drainage improvements within an existing residential subdivision consisting of installation of storm sewer, regarding of roadside channels and replacement of culverts. Estimated time of completion is 600 calendar days to substantial completion, and 30 additional calendar days to final completion, with an estimated cost of \$3,850,000.**

**Sealed bids will be publicly opened and read aloud in the Williamson County Purchasing Department, 901 South Austin Avenue, Georgetown, Texas on Thursday, June 9, 2016 at 3:30 P.M.**

**Bids must be received on or before Thursday, June 9, 2016 at 3:30 P.M.**

**Bid documents and plans may be viewed and responded to by registering with BIDSYNC at [www.bidsync.com](http://www.bidsync.com).**

**No fee is required to register with Bidsync as a Williamson County Supplier, or to participate in the County's solicitation process. The receipt of electronic bids will be registered in Bidsync.**

**The Time-Date Stamp Clock located at the Williamson County Purchasing Department will serve as the official clock for the purpose of verifying the date and time of receipt of Paper Bids.**

**There will be a Non-Mandatory Pre-Bid Conference on Thursday, May 26, 2016 at 3:30 P.M. at Williamson County Purchasing Department, 901 South Austin Avenue, Georgetown, Texas.**

#### **BID BOND REQUIRED**

**A Cashier's Check, Certified Check, or acceptable Bidder's Bond in the amount of five percent (5%) of the Bid must accompany each Bid. Performance, Payment and Warranty Bonds will be required as designated in the bidding documents.**

**The Williamson County Commissioners' Court reserves the right to accept the lowest and best Bid as deemed by the Court, or reject any and/or all bids.**

**Bidder shall use per unit pricing. Payments will be made by check.**

**The designated Purchasing Agent for this Bid is Connie Singleton, Senior Purchasing Specialist, under the direction of Max Bricka, Purchasing Agent for Williamson County, 512-943-3553.**

**This notice is issued by order of the Williamson County Commissioners' Court on Tuesday, May 10, 2016; Dan A. Gattis, County Judge.**

**SECTION 3**  
**BID INSTRUCTIONS/REQUIREMENTS**

**BID INSTRUCTIONS/REQUIREMENTS**

All Bids must be received in the Williamson County Purchasing Department either hardcopy or electronically through BidSync.

**Williamson County prefers and requests electronic submittal of this bid.**

**All electronic bids must be submitted via:**  
[www.bidsync.com](http://www.bidsync.com)

All interested Respondents are invited to submit a Bid in accordance with the Instructions and General Requirements, Bid Format, Bid Specifications, and Definitions, Terms and Conditions stated in this BID.

**Electronic bids are requested**, however paper bids will currently still be received, until further notice and may be mailed or delivered to the address listed below.

**Please note that a complete package must be submitted choosing one of the above two methods.**

**Split packages submitted will be considered "unresponsive" and will not be accepted or evaluated.**

**If mailed or delivered in person**, Bids are to be delivered in sealed envelope on or before the submittal deadline to:

Williamson County Purchasing Department  
 Attn: **BID NAME AND NUMBER**  
 901 South Austin Avenue  
 Georgetown, Texas 78626

Respondents should list the Bid Number, Bid Name, Name and Address of Respondent, and the Date of the Bid opening on the outside of the box or envelope.

Respondent should submit one (1) original; **AND** (2) two copies and (1) CD **OR** (1) USB copy of the Bid.

**Williamson County will not accept any Bids received after the submittal deadline.**

Williamson County will not accept any responsibility for Bids being delivered by third party carriers. Facsimile transmittals will NOT be accepted.

All questions should be submitted on the Bidsync site. Questions with their answers will be posted and updated on [www.bidsync.com](http://www.bidsync.com).

Any addenda and/or other information relevant to the Bid will be posted on: [www.bidsync.com](http://www.bidsync.com).

**ALL BIDS MUST BE SUBMITTED ON THE FORMS PROVIDED IN THIS BID DOCUMENT. (May be replaced with a computer generated printout, if submitted in an identical format to the proposal).**

**FACSIMILE AND ELECTRONIC MAIL TRANSMITTALS SHALL NOT BE ACCEPTED.**

1. All of the items listed are to be on a "per unit" basis, stating a firm price per unit or unit quantity of each item. **This price must be good from the date of Bid opening through the completion of the project. Bids which do not state a fixed price will not be considered.** The Court may award a contract for the period implied or expressly stated in the lowest and best Bid.
2. All of the items listed are to be Free On Board to final destination (**FOB DESTINATION**) with all transportation charges if applicable to be included in the price, unless otherwise specified in the Invitation for Bids. The title and risk of loss of the goods shall not pass to the County until receipt and acceptance takes place at the FOB point.
3. It is understood that the Commissioners Court of Williamson County, Texas, reserves the right to accept or reject any and/or all Bids for any or all materials and/or services covered in this Bid request, and to waive informalities or defects in the Bid or to accept such Bid it shall deem to be in the best interest of Williamson County.
4. Funding: Funds for payment have been provided through the Williamson County budget approved by Commissioners Court for the 2006 Road Bond Program.



5. Late Bid: Bids received after submission deadline will be considered VOID AND UNACCEPTABLE and will be returned to the bidder unopened. Williamson County is not responsible for lateness or non-delivery of mail, carrier, etc. The date and time stamp of the Williamson County Purchasing Department shall be the official date and time of receipt.
6. Altering Bid: Bidders **cannot alter or amend bid** after submission deadline.
7. Sales Tax: Williamson County is by statute, exempt from the State Sales Tax and Federal Excise Tax.
8. Contract: This Bid, when properly accepted by Williamson County, shall constitute a contract equally binding between the successful bidder and Williamson County. No different or additional terms will become part of this contract.
9. Changes: No oral statement of any person shall modify or otherwise change, or affect the terms, conditions, plans and/or specifications stated in the Bid Package and or Bid Instructions/Requirements.
10. Delivery Times and Locations: The commodity and/or service covered by this Bid shall be as stated in the Bid Package.
11. Payments: The Construction Inspector will manage the Contractor payments. Invoices for the work specified in the Contract Documents will be submitted to the Construction Inspector. Upon satisfactory completion and acceptance of these invoices, the Construction Inspector will forward the invoices to the County via the GEC. County's payment for goods and services shall be governed by Chapter 2251 of the Texas Government Code. An invoice shall be deemed overdue the 31st day after the later of (1) the date County receives the goods under the Contract; (2) the date the performance of the service under the Contract is completed; or (3) the date the Williamson County Auditor receives an invoice for the goods or services. Interest charges for any overdue payments shall be paid by County in accordance with Texas Government Code Section 2251.025. More specifically, the rate of interest that shall

accrue on a late payment is the rate in effect on September 1 of County's fiscal year in which the payment becomes due. The said rate in effect on September 1 shall be equal to the sum of one percent (1%); and (2) the prime rate published in the Wall Street Journal on the first day of July of the preceding fiscal year that does not fall on a Saturday or Sunday.

In the event that an error appears in an invoice submitted by Successful Bidder, County shall notify Successful Bidder of the error not later than the twenty first (21st) day after the date County receives the invoice. If the error is resolved in favor of Successful Bidder, Successful Bidder shall be entitled to receive interest on the unpaid balance of the invoice submitted by Successful Bidder beginning on the date that the payment for the invoice became overdue. If the error is resolved in favor of the County, Successful Bidder shall submit a corrected invoice that must be paid in accordance within the time set forth above. The unpaid balance accrues interest as provided by Chapter 2251 of the Texas Government Code if the corrected invoice is not paid by the appropriate date. As a minimum, invoices shall include:

- (1) Name, address, and telephone number of Contractor and similar information in the event the payment is to be made to a different address
- (2) County contract, Purchase Order, and/or delivery order number
- (3) Identification of items or service as outlined in the contract
- (4) Quantity or quantities, applicable unit prices, total prices, and total amount
- (5) Any additional payment information which may be called for by the Contract

Payment inquiries should be directed to the Williamson County Auditor's Office, Accounts Payable Department:  
512-943-1573  
[accountspayable@wilco.org](mailto:accountspayable@wilco.org)

12. Conflict of Interest: No public official shall have interest in a contract, in accordance

with Vernon's Texas Codes Annotated, Local Government Code Title 5, Subtitle C, Chapter 171. As of January 1, 2006 Vendors are responsible for complying with Local Government Code Title 5, Subtitle C, Chapter 176. Additional information may be obtained from the County website at the following link:

<http://www.wilco.org/CountyDepartments/Purchasing/ConflictOfInterestDisclosure/tabid/689/language/en-US/Default.aspx>.

The Williamson County Conflict of Interest Questionnaire is attached as a fillable form. This form must be completed, signed, and submitted with your bid (attached to the first Line Item of this bid) or completed electronically and signed electronically when entering your password in Bidsync.

13. Ethics: The bidder shall not accept or offer gifts or anything of value nor enter into any business arrangement with any employee, official or agent of Williamson County.
14. Minimum Standards for Responsible Bidders: A prospective bidder must affirmatively demonstrate bidder's responsibility. A prospective bidder must meet the following requirements:
  - a. have adequate financial resources, or the ability to obtain such resources as required;
  - b. be able to comply with the required or proposed delivery schedule;
  - c. have a satisfactory record of performance;
  - d. be otherwise qualified and eligible to receive an award.

Williamson County may request representation and other information sufficient to determine bidder's ability to meet these minimum standards listed above.

15. References: Williamson County **REQUIRES** bidder to supply with this Bid, a list of at least **three (3) references** where like services have been supplied by their firm. The Bidder References Form is attached as a fillable form in this bid document. This form must be completed and attached to the

first line item on your bid or included with an all paper bid.

16. Bidder shall provide with this Bid response, all documentation required by this Bid. Failure to provide this information may result in rejection of the Bid.
17. Termination for Default: Williamson County reserves the right to enforce the performance of this contract in any manner prescribed by law or deemed to be in the best interest of the County in the event of breach or default of this contract. Non-Performance of the bidder in terms of specifications shall be a basis for the termination of the contract by the County. The County shall not pay for commodities/services which are unsatisfactory. Contractors will be given a reasonable opportunity before termination to correct the deficiencies. This, however, shall in no way be construed as negating the basis for termination for non-performance.
18. Contract Administration: Under this contract, Robert Daigh, Williamson County Sr. Director of Infrastructure or designee, shall be the contract administrator with designated responsibility to ensure compliance with contract requirements, such as but not limited to, acceptance, inspection and delivery. The contract administrator will serve as liaison between Williamson County Commissioners Court and the successful bidder or the Construction Inspector.
19. Purchase Order: Williamson County may generate a purchase order(s) to the successful bidder as products and/or services are required. The purchase order number must appear on all itemized invoices and/or request for payment.
20. Silence of Specifications: The apparent silence of these specifications as to any detail or to the apparent omission from it of a detailed description concerning any point, shall be regarded as meaning that only the best practices are to prevail. All interpretations of these specifications shall be made on the basis of this statement.

21. Contract Times and Liquidated Damages - Bidders must agree to commence work on or before a date to be specified in a written "Notice to Proceed" of the County, and to fully complete the project within the specified time stated in the proposal. Bidders must agree to pay liquidated damages in accordance with Special Provision 000-0001 per day to County for every day past the specified completion date stated in the proposal.
22. BIDS MUST BE: legible and of a quality that can be reproduced.
23. Bid forms that are included in the Bid package shall be used. **CHANGES to Bid forms made by bidders shall DISQUALIFY THE BID.** Exceptions to the Bid forms and or specifications shall be made on an **attachment** to the Bid package.
24. Workers Compensation Coverage Requirements: The Texas Labor Code, §406.096, requires workers' compensation insurance coverage for all persons providing services on a building or construction project for a governmental entity. The rule requires a governmental entity to timely obtain certificates of coverage and retain them for the duration of the project. The rule also sets out the language to be included in bid specifications and in contracts awarded by a governmental entity and the information required to be in the posted notice to employees. The rule is adopted under the Texas Labor Code, §402.061. The information provided below is a result of this rule. By submitting your bid to the county, you are acknowledging that this rule is a part of these bid specifications, and that you will observe and abide by all of the requirements outlined in the rule. You are further agreeing that should your bid or proposal be accepted by the Williamson County Commissioners' Court, the necessary certificates of coverage showing workers' compensation coverage, will be provided to the following name and address, prior to beginning work:

Williamson County Purchasing Department  
901 South Austin Avenue  
Georgetown, Texas 78626

If you have any questions related to this ruling and/or requirement, you are encouraged to contact either the Williamson County Purchasing Department at (512) 943-1553, or you may call the Texas Workers' Compensation Commission at (512) 804-4000.

A. Definitions: The following words and terms, when used in this provision, shall have the following meanings. Terms not defined in this rule shall have the meaning defined in the Texas Labor Code, if so defined.

(1) Certificate of coverage ("certificate")-A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement (TWCC-81, TWCC-82, TWCC-83, or TWCC-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees (including those subject to a coverage agreement) providing services on a project, for the duration of the project.

(2) Building or construction – Has the meaning defined in the Texas Labor Code, §406.096(e)(1).

(3) Contractor--A person bidding for or awarded a building or construction project by Williamson County.

(4) Coverage--Workers' compensation insurance meeting the statutory requirements of the Texas Labor Code, §401.011(44).

(5) Coverage agreement--A written agreement on form TWCC-81, form TWCC-82, form TWCC-83, or form TWCC-84, filed with the Texas Workers' Compensation Commission which establishes a relationship between the parties for purposes of the Texas Workers' Compensation Act, pursuant to the Texas Labor Code, Chapter 406, Subchapters F and G, as one of employer/employee and establishes who will be responsible for providing workers' compensation coverage for persons providing services on the project.

(5) Duration of the project - includes the time from the beginning of the work on the project until the contractor's/person's work on the project has been completed and accepted by the governmental entity.

(6) Persons providing services on the project ("subcontractor" in §406.096) - includes all persons or entities performing all or part of the services the contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

(8) Project--Includes the provision of all services related to a building or construction contract for Williamson County.

B. The contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the contractor providing services on the project, for the duration of the project.

C. The Contractor must provide a certificate of coverage to the governmental entity prior to being awarded the contract.

D. If the coverage period shown on the contractor's current certificate of coverage ends during the duration of the project, the contractor must, prior to the end of the coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.

E. The contractor shall obtain from each person providing services on a project, and provide to the governmental entity:

(1) a certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project;

(2) no later than seven (7) days after receipt by the contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.

F. The contractor shall retain all required certificates of coverage for the duration of the project and for one year thereafter.

G. The contractor shall notify Williamson County in writing by certified mail or personal delivery, within ten (10) days after the contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.

H. The contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Workers' Compensation Commission, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

I. The contractor shall contractually require each person with whom it contracts to provide services on a project, to:

(1) provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all of its employees providing services

on the project, for the duration of the project;

(2) provide to the contractor, prior to that person beginning work on the project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project;

(3) provide the contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;

(4) obtain from each other person with whom it contracts, and provide to the contractor:

(a) a certificate of coverage, prior to the other person beginning work on the project; &

(b) a new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the project;

(5) retain all required certificates of coverage on file for the duration of the project and for one year thereafter;

(6) notify the governmental entity in writing by certified mail or personal delivery, within ten(10) days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and

(7) contractually require each person with whom it contracts, to perform as required by paragraphs (1) - (7), with the certificates of coverage to be provided to the person for whom they are providing services.

J. By signing this contract or providing or causing to be provided a certificate of

coverage, the contractor is representing to the governmental entity that all employees of the contractor who will provide services on the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

K. The contractor's failure to comply with any of these provisions is a breach of contract by the contractor which entitles the governmental entity to declare the contract void if the contractor does not remedy the breach within ten (10) days after receipt of notice of breach from Williamson County.

## 25. PERFORMANCE AND PAYMENT

**BONDS:** Chapter 262.032 and Chapter 2253.021 of the Texas Government Code governs the requirements for performance bonds and payment bonds for government entities making public work contracts. A performance bond is required if the contract is in excess of \$50,000 and is to be made for the full amount of the contract. A payment bond is required if the contract is in excess of \$25,000 and is to be made for the full amount of the contract. The bonds are to be executed within ten (10) days after receipt of written notification of award of contract prior to beginning work on the project and must be executed by a corporate surety or sureties in accordance with the Texas Insurance Code. In the event the bond exceeds \$100,000.00, the surety must also (1) hold a certificate of authority from the United States secretary of the treasury to qualify as a surety on obligations permitted or required under federal law; or (2) have obtained reinsurance for any liability in excess of \$100,000.00 from a reinsurer that is

authorized and admitted as are insurer in this state and is the holder of a certificate of authority from the United States secretary of the treasury to qualify as a surety or reinsurer on obligations permitted or required under federal law.

In determining whether the surety or reinsurer holds a valid certificate of authority the County may rely on the list of companies holding certificates of authority as published in the Federal Register covering the date on which the bond is to be executed. If the public works contract is less than \$50,000 the performance bond will not be required as long as the contract provides that payment is not due until the work is completed and accepted by the county. The purpose of a performance bond is for the protection of the government entity and is conditioned on the faithful performance of the work being done in accordance with the plans, specifications and contract documents. The payment bond is for the protection of persons supplying labor and materials to the contractor to ensure payment.

26. **BIDDERS BOND:** All bids shall be accompanied by a certified cashier's check upon a National or State bank in an amount not less than five percent (5%) of the total maximum bid price, payable without recourse to Williamson County, or a bid bond in the same amount from a reliable surety company, as a guarantee that the bidder will enter into a contract and execute performance and payment bonds, as stipulated by item 25 above, within ten (10) days after notice of award of contract to him. Bid guarantees must be submitted in the same sealed envelope with the bid. Bids submitted without check or bid bonds will not be considered.

**Bidders are not required to use Surety 2000** for your Bid Bond supplier, however; when bidding electronically in Bidsync and using Surety 2000, you may import your bid bond directly from the Surety 2000 web site. To use a different bond provider you MUST:

1. Scan the completed bond
2. Download the completed bond to the line item of this bid with your other required documents.

Bid bonds must be attached to the line item of the electronic bid OR submitted in the same sealed envelope with a paper Bid.

27. All bid securities will be returned to the respective bidders within twenty-five (25) days after bids are opened, except those which the County elects to hold until the successful bidder has executed the contract. Thereafter, all remaining securities, including security of the successful bidder, will be returned within sixty (60) days.
28. Prior to submitting any bid, bidders are required to read the plans, specifications, bid, contract and bond forms carefully; to inform themselves by their independent research, test and investigation of the difficulties to be encountered and judge for themselves of the accessibility of the work and all attending circumstances affecting the cost of doing the work and the time required for its completion and obtain all information required to make an intelligent bid.
29. Should the bidder find discrepancies in, or omissions from the plans, specifications, or other documents, or should he/she be in doubt as to their meaning, he/she should notify at once the Project Engineer and may obtain clarification or addendum prior to submitting any bid.
30. In case of ambiguity or lack of clarity in the statement of prices in the bids, the county reserves the right to consider the most favorable analysis thereof, or to reject the bid. Unreasonable (or unbalanced) prices submitted in a bid may result in rejection of such bid or other bids.
31. Award of the contract, if awarded, will be made within sixty (60) days after opening of the bids and no bidder may withdraw his bid within said sixty (60) day period of time unless a prior award is made.
32. Within ten (10) days of written notification of award of the contract, the bidder shall execute and furnish to the County the performance bond, or letter of credit if applicable, and payment bond as required by item 25 above; and the Certificate of Insurance showing coverages in

accordance with contract documents. Failure to execute contract, Bonds and Certificate of Insurance shall be just cause for the annulment of the award. In case of the annulment of the award, the bid guarantee shall become the property of Williamson County, not as a penalty, but as a liquidated damage.

33. Any quantities given in any portion of the contract documents, including the plans, are estimates only, and the actual amount of work required may differ somewhat from the estimates. The basis for the payment shall be the actual amount of work done and/or material furnished.

34. **THE TEXAS HAZARD COMMUNICATION ACT**, Chapter 502 of the Health and Safety Code, Sec. 502.006, states that a chemical manufacturer or distributor shall provide appropriate Material Safety Data Sheets (MSDS) to employers who acquire hazardous chemicals in this state with each initial shipment and with the first shipment after a MSDS is updated. The MSDS must conform to the most current requirements of the OSHA standard in 29 CFR 1910.1200. By submitting your bid to the County you are acknowledging that this regulation is a part of this bid and that you will provide appropriate MSDS with each initial shipment and with the first shipment after a MSDS is updated.

35. **THE WILLIAMSON COUNTY HAZARD COMMUNICATION PROGRAM POLICY** Under Revised Texas Hazard Communication Act (THCA) of 1993 states that it is the responsibility of all contractor/sub-contractors who bring hazardous chemicals onto county property to provide appropriate MSDS to the county at the work site. When exposure to a hazardous chemical is expected each contractor/sub-contractor shall be responsible for the appropriate training of their employees. For a copy of the Williamson County Hazard Communication Program Policy contact the Williamson County Unified Road & Bridge System Safety/Training Coordinator at 512/930-3330. By submitting your bid to the County you are acknowledging that this policy is a part of this bid and that you will provide appropriate MSDS to the county work site

and provide for appropriate training as applicable.

36. **CERTIFICATE OF INTERESTED PARTIES TEXAS ETHICS COMMISSION (FORM 1295)** As of January 1, 2016, Bidders are responsible for complying with the Texas Government Code Section 2252.908. The law states that the County may not enter into certain contracts with a Bidder unless the Bidder submits a disclosure of interested parties to the County at the time the Bidder submits the signed contract to Williamson County. On January 1, 2016, the Texas Ethics Commission made available on its website a new filing application that must be used to file Form 1295. Information regarding how to use the filing application is available on the Texas Ethics Commission website at the following link:  
[https://www.ethics.state.tx.us/whatsnew/elf\\_info\\_form1295.htm](https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm)

The Low Bidder must:

1. Use the online application to process the required information on Form 1295
  2. Print a copy of the form which will contain a unique certification number
  3. An authorized agent of the Bidder must sign the printed copy of the form
  4. and have the form notarized
  5. the completed Form 1295 and certification of filing must be filed (scanning and emailing form is sufficient) with Williamson County prior to award of the contract by Commissioners Court.
37. Ambiguity, Conflict, or other Errors in the IFB If Bidder discovers any ambiguity, conflict, discrepancy, omission or other error in this IFB, Bidder shall immediately notify Williamson County Purchasing Department of such error in writing and request modification or clarification of the document. Modifications will be made by issuing Addenda. If the Bidder fails to notify Williamson County prior to the date and time fixed for submission of Bids of an error or ambiguity in the IFB known to Bidder, or an error or ambiguity that reasonably should have been known to

Bidder, then Bidder shall be deemed to have waived the error or ambiguity or its later resolution. Williamson County may also modify the IFB, no later than 48 hours prior to the date and time fixed for submission of Bids, by issuance of an Addendum. All addenda will be numbered consecutively, beginning with 1.



**SECTION 4**  
**BID FORM, BID AFFIDAVIT, BIDDER REFERENCES**  
**& CONFLICT OF INTEREST QUESTIONNAIRE**

**ALL REQUIRED DOCUMENTS MUST BE  
FILLED OUT AND SUBMITTED WITH BID**

**[www.bidsync.com](http://www.bidsync.com)**

**FOLLOWING CONTRACT AWARD  
REQUIRED DOCUMENTS WILL BE  
INSERTED IN THIS SECTION**

**SECTION 5**  
**STANDARD FORM OF AGREEMENT**

## STANDARD FORM OF AGREEMENT

### STATE OF TEXAS

### WILLIAMSON COUNTY

**THIS STANDARD FORM OF AGREEMENT** (the “Agreement”) is by and between WILLIAMSON COUNTY, TEXAS, a political subdivision of the State of Texas (hereinafter called “County”) and \_\_\_\_\_ (hereinafter called “Contractor”).

The County and Contractor, in consideration of the mutual covenants hereinafter set forth, agree as follows:

#### **Article 1. Work**

Contractor shall complete all Work as specified or indicated in the Contract Documents. The “Project” is generally described as follows:

Project No. **1604-068 – FOREST NORTH DRAINAGE IMPROVEMENTS**

#### **Article 2. Engineer of Record**

The Project has been designed by **K. Friese and Associates**, who is hereinafter called the “Engineer of Record” and who is to act as the County’s design professional.

#### **Article 3. Contract Time**

The Work shall be Substantially Completed in **600** calendar days (the “Contract Time”). Following Substantial Completion, the Contractor shall proceed expeditiously with adequate forces and shall achieve Final Completion within the time specified in the Special Conditions.

#### **Article 4. Contract Price**

County shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to paragraph 4.1 below (the “Contract Price”):

- 4.1 For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of that item as indicated in the Bid Form, and as totaled below:

TOTAL OF ALL UNIT PRICES \_\_\_\_\_ \$ \_\_\_\_\_ (dollars)  
(insert words)

As provided in the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classification are to be made by the Engineer of Record.

#### **Article 5. Contractor's Representations**

In order to induce County to enter into this Agreement, Contractor makes the following representations:

- 5.1 Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents including the "technical data".
- 5.2 Contractor has visited the site and become familiar with and is satisfied as to the general, local and site conditions that may affect cost, progress, performance or furnishing of the Work.
- 5.3 Contractor is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress, performance and furnishing of the Work.
- 5.4 Contractor has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site which have been identified. Contractor acknowledges that such reports and drawings are not Contract Documents and may not be complete for Contractor's purposes. Contractor acknowledges that the County and Engineer of Record do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to Underground Facilities at or contiguous to the site.
- 5.5 Contractor has correlated the information known to Contractor, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies and data with the Contract Documents.
- 5.6 Contractor has given Engineer of Record written notice of all conflicts, errors, ambiguities or discrepancies that Contractor has discovered in the Contract Documents and the written resolution thereof by Engineer of Record is acceptable to Contractor, and the Contract Documents are generally sufficient to indicate and

- convey understanding of all terms and conditions for performance and furnishing of the Work.
- 5.7 Contractor represents and agrees that there are no obligations, commitments, or impediments of any kind that will limit or prevent performance of its obligations under the Contract Documents.
- 5.8 Contractor warrants, represents, and agrees that if (i) it is a corporation or limited liability company, then it is a corporation duly organized, validly existing and in good standing under the laws of the State of Texas, or a foreign corporation or limited liability company duly authorized and in good standing to conduct business in the State of Texas, that it has all necessary corporate power and has received all necessary corporate approvals to execute and deliver this Agreement, and the individual executing the Agreement on behalf of Contractor has been duly authorized to act for and bind Contractor; or (ii) if it is a partnership, limited partnership, or limited liability partnership, then it has all necessary partnership power and has secured all necessary approvals to execute and deliver this Agreement and perform all its obligations under the Contract Documents; and the individual executing this Agreement on behalf of Contractor has been duly authorized to act for and bind Contractor.
- 5.9 Neither the execution and delivery of this Agreement by Contractor nor the performance of its obligations under the Contract Documents will result in the violation of any provision, if a corporation, of its articles of incorporation or by-laws, if a limited liability company, of its articles of organization or regulations, or if a partnership, by any partnership agreement by which Contractor is bound, or any agreement by which Contractor is bound or to the best of the Contractor's knowledge and belief, will conflict with any order or decree of any court or governmental instrumentality relating to Contractor.
- 5.10 Except for the obligation of the County to pay Contractor the Contract Price pursuant to the terms of the Contract Documents, and to perform certain other obligations pursuant to the terms and conditions explicitly set forth in the Contract Documents, County shall have no liability to Contractor or to anyone claiming through or under Contractor by reason of the execution or performance of this Agreement. Notwithstanding any obligation or liability of County to Contractor, no present or future partner or affiliate of County or any agent, officer, director, or employee of County, or of the various departments comprising Williamson County, or anyone claiming under County has or shall have any personal liability to Contractor or to anyone claiming through or under Contractor by reason of the execution or performance of this Agreement.

## **Article 6. Contract Documents**

The "Contract Documents," which comprise the entire agreement between the County and Contractor concerning the Work, consist of the following:

- 6.1 This Standard Form of Agreement
- 6.2 Performance Bond
- 6.3 Payment Bond
- 6.4 Maintenance Bond
- 6.5 Certificate of Insurance
- 6.6 Wage Rates
- 6.7 General Conditions
- 6.8 Special Conditions
- 6.9 Technical Specifications
- 6.10 Plan Drawings
- 6.11 Addenda numbers \_\_\_\_\_ to \_\_\_\_\_, inclusive
- 6.12 Contractor's Bid Affidavit and Bid Form
- 6.13 Documentation submitted by Contractor prior to Notice of Award.
- 6.14 The following which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto: All Written Amendments and other documents amending, modifying or supplementing the Contract Documents pursuant to applicable sections in the General Conditions.

The documents listed in paragraphs 6.2 et seq. above are attached to this Agreement (except as expressly noted otherwise above).

There are no Contract Documents other than those listed above in this Article 6. The Contract Documents may only be amended, modified or supplemented as provided in the General Conditions.

## **Article 7. Miscellaneous**

- 7.1 Terms used in this Agreement, which are defined in the General Conditions, will have the meanings indicated in the General Conditions.

- 7.2 No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.
- 7.3 The County and Contractor each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.
- 7.4 Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon the County and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken position.
- 7.5 Each party to this Agreement hereby agrees and acknowledges that venue and jurisdiction of any suit, right, or cause of action arising out of or in connection with this Agreement shall lie exclusively in Williamson County, Texas. Furthermore, this Agreement shall be governed by and construed in accordance with the laws of the State of Texas, excluding, however, its choice of law rules.
- 7.6 The parties to this Agreement agree that during the performance of the services under this Agreement they will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The parties to this Agreement will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; termination; rates of pay or other forms of compensation, and selection for training, including apprenticeship.
- 7.7 This Agreement is for the sole and exclusive benefit of the parties hereto, and nothing in this Agreement, express or implied, is intended to confer or shall be construed as conferring upon any other person any rights, remedies or any other type or types of benefits.
- 7.8 Each party to this Agreement acknowledges that it and its counsel have reviewed this Agreement and that the normal rules of construction are not applicable and there will be no presumption that any ambiguities will be resolved against the drafting party in the interpretation of this Agreement.



- 7.9 Each party to this Agreement, in the performance of this Agreement, shall act in an individual capacity and not as agents, employees, partners, joint ventures or associates of one another. The employees or agents of one party shall not be deemed or construed to be the employees or agents of the other party for any purposes whatsoever.
- 7.10 Nothing in this Agreement shall be deemed to waive, modify or amend any legal defense available at law or in equity to County, its past or present officers, employees, or agents or employees, nor to create any legal rights or claim on behalf of any third party. County does not waive, modify, or alter to any extent whatsoever the availability of the defense of governmental immunity under the laws of the State of Texas and of the United States.
- 7.11 To the extent, if any, that any provision in this Agreement is in conflict with Tex. Gov't Code 552.001 et seq., as amended (the "Public Information Act"), the same shall be of no force or effect. Furthermore, it is expressly understood and agreed that County, its officers and employees may request advice, decisions and opinions of the Attorney General of the State of Texas in regard to the application of the Public Information Act to any items or data furnished to County as to whether or not the same are available to the public. It is further understood that County's officers and employees shall have the right to rely on the advice, decisions and opinions of the Attorney General, and that County, its officers and employees shall have no liability or obligation to any party hereto for the disclosure to the public, or to any person or persons, of any items or data furnished to County by a party hereto, in reliance of any advice, decision or opinion of the Attorney General of the State of Texas.
- 7.12 County and Contractor have signed this Agreement in triplicate. One counterpart each has been delivered to the County, Contractor and Engineer of Record. All portions of the Contract Documents have been signed, initialed or identified by County and Contractor or identified by Engineer of Record on their behalf.
- 7.13 This Agreement and the Contract Documents represent the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations, or agreements, either oral or written. This Agreement may be amended only by written instrument signed by each party to this Agreement. NO OFFICIAL, EMPLOYEE, AGENT, OR REPRESENTATIVE OF THE COUNTY HAS ANY AUTHORITY, EITHER EXPRESS OR IMPLIED, TO AMEND THIS CONTRACT, EXCEPT PURSUANT TO SUCH EXPRESS AUTHORITY AS MAY BE GRANTED BY THE WILLIAMSON COUNTY COMMISSIONERS COURT.

This Agreement will be effective on \_\_\_\_\_, 20\_\_\_\_ (which is the “Effective Date” of the Agreement).

COUNTY\_\_\_\_\_

CONTRACTOR\_\_\_\_\_

By:\_\_\_\_\_

Dan A. Gattis,  
Williamson County Judge

By: \_\_\_\_\_

Title: \_\_\_\_\_

[CORPORATE SEAL]

Attest\_\_\_\_\_

Attest\_\_\_\_\_

**SECTION 6**  
**WAGE RATES**

## WAGE RATES

Contractor must pay all workers not less than the prevailing wage rate for Williamson County, Texas.

General Decision Number: TX150016 01/02/2015 TX16

Superseded General Decision Number: TX20140016

State: Texas

Construction Types: Heavy and Highway

Counties: Atascosa, Bandera, Bastrop, Bell, Bexar, Brazos, Burleson, Caldwell, Comal, Coryell, Guadalupe, Hays, Kendall, Lampasas, McLennan, Medina, Robertson, Travis, Williamson and Wilson Counties in Texas.

HEAVY (excluding tunnels and dams, not to be used for work on Sewage or Water Treatment Plants or Lift / Pump Stations in Bell, Coryell, McClennon and Williamson Counties) and HIGHWAY Construction Projects

Note: Executive Order (EO) 13658 establishes an hourly minimum wage of \$10.10 for 2015 that applies to all contracts subject to the Davis-Bacon Act for which the solicitation is issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.10 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Modification Number	Publication Date
0	01/02/2015

\* SUTX2011-006 08/03/2011

	Rates	Fringes
CEMENT MASON/CONCRETE		
FINISHER (Paving and Structures).....	\$ 12.56	
ELECTRICIAN.....	\$ 26.35	
FORM BUILDER/FORM SETTER		
Paving & Curb.....	\$ 12.94	
Structures.....	\$ 12.87	
LABORER		
Asphalt Raker.....	\$ 12.12	
Flagger.....	\$ 9.45	

Laborer, Common.....	\$ 10.50
Laborer, Utility.....	\$ 12.27
Pipelayer.....	\$ 12.79
Work Zone Barricade	
Servicer.....	\$ 11.85
PAINTER (Structures).....	\$ 18.34

POWER EQUIPMENT OPERATOR:

Agricultural Tractor.....	\$ 12.69
Asphalt Distributor.....	\$ 15.55
Asphalt Paving Machine.....	\$ 14.36
Boom Truck.....	\$ 18.36
Broom or Sweeper.....	\$ 11.04
Concrete Pavement	
Finishing Machine.....	\$ 15.48
Crane, Hydraulic 80 tons	
or less.....	\$ 18.36
Crane, Lattice Boom 80	
tons or less.....	\$ 15.87
Crane, Lattice Boom over	
80 tons.....	\$ 19.38
Crawler Tractor.....	\$ 15.67
Directional Drilling	
Locator.....	\$ 11.67
Directional Drilling	
Operator.....	\$ 17.24
Excavator 50,000 lbs or	
Less.....	\$ 12.88
Excavator over 50,000 lbs...	\$ 17.71
Foundation Drill, Truck	
Mounted.....	\$ 16.93
Front End Loader, 3 CY or	
Less.....	\$ 13.04
Front End Loader, Over 3 CY.	\$ 13.21
Loader/Backhoe.....	\$ 14.12
Mechanic.....	\$ 17.10
Milling Machine.....	\$ 14.18
Motor Grader, Fine Grade....	\$ 18.51
Motor Grader, Rough.....	\$ 14.63
Pavement Marking Machine....	\$ 19.17
Reclaimer/Pulverizer.....	\$ 12.88
Roller, Asphalt.....	\$ 12.78
Roller, Other.....	\$ 10.50
Scraper.....	\$ 12.27
Spreader Box.....	\$ 14.04
Trenching Machine, Heavy....	\$ 18.48
Servicer.....	\$ 14.51
Steel Worker	
Reinforcing.....	\$ 14.00
Structural.....	\$ 19.29

TRAFFIC SIGNAL INSTALLER

Traffic Signal/Light Pole  
Worker.....\$ 16.00

TRUCK DRIVER

Lowboy-Float.....\$ 15.66  
Off Road Hauler.....\$ 11.88  
Single Axle.....\$ 11.79  
Single or Tandem Axle Dump  
Truck.....\$ 11.68  
Tandem Axle Tractor w/Semi  
Trailer.....\$ 12.81

WELDER.....\$ 15.97

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WELDERS - Receive rate prescribed for craft performing operation to which  
welding is incidental.

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Unlisted classifications needed for work not included within the scope of  
the classifications listed may be added after award only as provided in  
the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

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The body of each wage determination lists the classification and wage  
rates that have been found to be prevailing for the cited type(s) of  
construction in the area covered by the wage determination. The  
classifications are listed in alphabetical order of "identifiers" that  
indicate whether the particular rate is a union rate (current union  
negotiated rate for local), a survey rate (weighted average rate) or a  
union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted  
lines beginning with characters other than "SU" or "UAVG" denotes that the  
union classification and rate were prevailing for that classification in  
the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation  
identifier of the union which prevailed in the survey for this  
classification, which in this example would be Plumbers. 0198 indicates  
the local union number or district council number where applicable, i.e.,  
Plumbers Local 0198. The next number, 005 in the example, is an internal  
number used in processing the wage determination. 07/01/2014 is the  
effective date of the most current negotiated rate, which in this example  
is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the  
collective bargaining agreement (CBA) governing this classification and  
rate.

## Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

## Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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## WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response

from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

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**SECTION 7**  
**PERFORMANCE BOND**

## PERFORMANCE BOND

STATE OF TEXAS

COUNTY OF \_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS: That \_\_\_\_\_

\_\_\_\_\_ of the City of \_\_\_\_\_

County of \_\_\_\_\_, and State of \_\_\_\_\_, as principal,  
and\_\_\_\_\_  
authorized under the laws of the State of Texas to act as surety on bonds for principals, are held and  
firmly bound unto Williamson County (County), in the penal sum of\_\_\_\_\_  
Dollars(\$\_\_\_\_\_) for the payment whereof, the said Principal and Surety bind themselves, their  
heirs, administrators, executors, successors, jointly and severally, by these presents:

WHEREAS, the Principal has entered into a certain written Agreement with the County, dated the  
\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ (the "Agreement"), to which  
the said Agreement, along with the Contract Documents referenced therein are hereby referred to and  
made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said  
Principal shall faithfully perform said Agreement and shall in all respects duly and faithfully observe and  
perform all and singular the covenants, conditions and agreements in and by the Agreement agreed and  
covenanted by the Principal to be observed and performed, and according to the true intent and meaning  
of said Agreement and the Contract Documents hereto annexed, then this obligation shall be void;  
otherwise to remain in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Chapter 2253  
of the Texas Government Code, as amended and all liabilities on this bond shall be determined in  
accordance with the provisions of said Chapter to the same extent as if it were copied at length herein.

SURETY, for value received, stipulates and agrees that no change, extension of time, alteration or  
addition to the terms of the Agreement or to the work performed thereunder, or to the Contract  
Documents referenced therein, shall in anyway affect the obligations on this bond, and it does hereby  
waive notice of such change, extension of time, alteration or addition to the terms on the Agreement, or to  
the work to be performed thereunder.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
PRINCIPAL

\_\_\_\_\_  
SURETY

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
NAME & TITLE

\_\_\_\_\_  
NAME & TITLE

\_\_\_\_\_  
ADDRESS

\_\_\_\_\_  
ADDRESS

(\_\_\_\_\_) \_\_\_\_\_  
PHONE NUMBER

(\_\_\_\_\_) \_\_\_\_\_  
PHONE NUMBER

The name and address of the Resident Agency of Surety is:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(\_\_\_\_\_) \_\_\_\_\_  
PHONE NUMBER

\_\_\_\_\_  
SIGNATURE OF LICENSED LOCAL  
RECORDING AGENT appointed to countersign  
on behalf of Surety (Required by Art. 21.09 of  
the Insurance Code)

\*\*\*\*\*

I, \_\_\_\_\_, having executed Bonds  
SIGNATURE

for \_\_\_\_\_ do hereby affirm I have  
NAME OF SURETY

verified that said Surety is now certified with Authority from either: (a) the Secretary of the Treasury of the United States if the project funding includes Federal monies; or (b) the State of Texas if none of the project funding is from Federal sources; and further, said Surety is in no way limited or restricted from furnishing Bond in the State of Texas for the amount and under conditions stated herein.

**SECTION 8**  
**PAYMENT BOND**

**PAYMENT BOND**

STATE OF TEXAS

COUNTY OF \_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS: That \_\_\_\_\_

\_\_\_\_\_ of the City of \_\_\_\_\_

County of \_\_\_\_\_, and State of \_\_\_\_\_, as Principal  
(hereinafter referred to as the "Principal"), and\_\_\_\_\_  
authorized under the laws of the State of Texas to act as Surety on bonds for principals (hereinafter  
referred to as the "Surety"), are held and firmly bound unto Williamson County, (hereinafter referred to  
as the "County"), in the penal sum of

\_\_\_\_\_ Dollars

(\$\_\_\_\_\_) for the payment whereof, the said Principal and Surety bind themselves, their  
heirs, administrators, executors, successors and assigns, jointly and severally, by these presents:WHEREAS, the Principal has entered into a certain written agreement with the County, dated  
the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_, to \_\_\_\_\_\_\_\_\_\_ (hereinafter referred to as the  
"Agreement"), which said Agreement and the Contract Documents incorporated therein are hereby  
referred to and made a part hereof as fully and to the same extent as if copied at length herein.NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said  
Principal shall pay all claimants supplying labor and material to him or a subcontractor in the prosecution  
of the Work provided for in said Agreement, then, this obligation shall be void; otherwise to remain in  
full force and effect.PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Chapter 2253  
of the Texas Government Code, as amended and all liabilities on this bond shall be determined in  
accordance with the provisions of said Chapter to the same extent as if it were copied at length herein.SURETY, for value received, stipulates and agrees that no change, extension of time, alteration or  
addition to the terms of the Agreement or to the Work performed thereunder, or to the other Contract  
Documents accompanying the same, shall in anyway affect its obligation on this bond, and it does hereby  
waive notice of such change, extension of time, alteration or addition to the terms of the Agreement, or to  
the work to be performed thereunder or to the other Contract Documents accompanying the same.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument  
this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

---

PRINCIPAL

---

SURETY

---

SIGNATURE

---

SIGNATURE

---

NAME & TITLE

---

NAME & TITLE

---

ADDRESS  

---

---

ADDRESS  

---

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( )  
PHONE NUMBER

---

( )  
PHONE NUMBER

The name and address of the Resident Agency of Surety is:

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( )  
PHONE NUMBER

---

SIGNATURE OF LICENSED LOCAL  
RECORDING AGENT appointed to countersign  
on behalf of Surety (Required by Art. 21.09 of  
the Insurance Code)

**SECTION 9**  
**MAINTENANCE BOND**

## MAINTENANCE BOND

KNOW ALL MEN BY THESE PRESENTS: That \_\_\_\_\_  
(NAME OF CONTRACTOR)

as principal, hereinafter called "CONTRACTOR" and \_\_\_\_\_  
(NAME OF SURETY)

a corporation organized under the laws of \_\_\_\_\_  
as Surety, hereinafter called "SURETY", do hereby expressly acknowledge themselves to be held and bound to pay unto WILLIAMSON COUNTY as Obligee, a political subdivision of the State of Texas, hereinafter called "COUNTY", the sum of (20% of total construction contract amount)

\_\_\_\_\_  
(INSERT WORDS)  
\_\_\_\_\_ Dollars (\$ \_\_\_\_\_ ) for the payment of which sum well and truly to be made unto said COUNTY and its successors, said principal and sureties do hereby bind themselves, their assigns, and successors jointly and severally.

This obligation is conditioned, however, that whereas said CONTRACTOR has by written Agreement dated \_\_\_\_\_, 20 \_\_\_\_\_, entered into an agreement with said COUNTY to build and construct \_\_\_\_\_

\_\_\_\_\_ which said Agreement and the Contract Documents therein mentioned and adopted by the COUNTY are hereby expressly made a part thereof as though the same were written and embodied herein.

WHEREAS, under the terms and conditions of the Agreement, specifications and other Contract Documents, it is provided that the CONTRACTOR shall maintain and keep in good repair the Work constructed and/or equipment furnished by it as contemplated by the plan drawings, specifications, and other Contract Documents, and perform for a period of 2 years from the date of acceptance as shown on the "Certificate of Completion" issued by the ENGINEER, or the date of Final Payment by the COUNTY if a separate Certificate of Completion is not issued, all necessary repairs, reconstruction and renewal of any part of said construction, and to furnish the labor and materials to make good and to repair any defective condition growing out of or on account of the breakage or failure of any substance or the improper function of any part of the construction work. The CONTRACTOR shall reimburse the COUNTY for the costs of all engineering and special services required to be furnished by the COUNTY which are directly attributable to the restoration of the constructed work. Said maintenance contemplates the complete restoration of the constructed work to a functional use during the said period as set forth above. It is the intended purpose of this section to require the correction of all defective conditions resulting from materials furnished or work and labor performed by the CONTRACTOR under the conditions prescribed by the Agreement, plans and specifications and other Contract Documents; and in case the CONTRACTOR shall fail or refuse to commence and actively pursue such corrections within ten (10) days after proper written notifications have been furnished to it by the COUNTY, it is agreed that the COUNTY may do said work and supply such materials and the said CONTRACTOR and SURETY herein shall be liable for the payment of all costs thereby incurred.

NOW THEREFORE, if the said CONTRACTOR shall keep and perform its said agreement to maintain said work and keep the same in good repair for the said maintenance period as provided above, then these presents shall be null and void and have no further effect, but if default shall be made by the



CONTRACTOR in the performance of its Agreement to maintain and repair said work, then these presents shall have full force and effect and the COUNTY shall have and recover from the said CONTRACTOR and its sureties damages in the premises, as provided, and it is further understood and agreed that this obligation shall be a continuing one against the principal and sureties hereon, and that successive recoveries may be had hereon for successive breaches until the full amount shall have been exhausted; and it is further understood that the obligation herein to maintain said work shall continue throughout said maintenance period, and the same shall not be changed, diminished, or in any manner affected from any cause during said time.

IN WITNESS WHEREOF, this instrument is executed this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_

_____ PRINCIPAL	_____ PHONE NO.
_____ SIGNATURE	_____ (SEAL)
_____ NAME & TITLE	_____ WITNESS OR ATTEST TO SEAL
_____ SURETY	_____ PHONE NO.
_____ SIGNATURE	_____ (SEAL)
_____ NAME & TITLE	_____ WITNESS OR ATTEST TO SEAL

\_\_\_\_\_  
SIGNATURE OF LICENSED LOCAL RECORDING AGENT  
appointed to countersign on behalf of Surety

**SECTION 10**  
**CERTIFICATE OF INSURANCE**

**CERTIFICATE OF INSURANCE**

TO: \_\_\_\_\_ DATE: \_\_\_\_\_  
 \_\_\_\_\_ Project No.: \_\_\_\_\_  
 \_\_\_\_\_ (COUNTY) \_\_\_\_\_  
 \_\_\_\_\_ Type of \_\_\_\_\_  
 \_\_\_\_\_ Project: \_\_\_\_\_  
 \_\_\_\_\_ (ADDRESS) \_\_\_\_\_

THIS IS TO CERTIFY THAT \_\_\_\_\_

(Name and address of insured)

is, at the date of this certificate, insured by this Company with respect to the business operations hereinafter described for the types of Insurance and in accordance with the provisions of the standard policies used by this Company, and further hereinafter described. Exceptions to the standard policy noted on reverse side hereof.

POLICY NO.	TYPE OF INSURANCE		LIMITS OF LIABILITY
	EFFECTIVE	EXPIRES	
Workmen's Compensation		1 Person	\$ _____
Public Liability		1 Accident	\$ _____
Contingent Liability		1 Person	\$ _____
Property Damage		1 Accident	\$ _____
Builder's Risk			
Automobile			
Other			

The foregoing Policies (do) (do not) cover all sub-contractors.

Locations Covered: \_\_\_\_\_

Descriptions of Operations Covered: \_\_\_\_\_

The above policies either in the body thereof or by appropriate endorsement provide that they may not be changed or canceled by the insurer in less than five days after the insured has received written notice of such change or cancellation.

Where applicable local laws or regulations require more than five days actual notice of change or cancellation to the assured, the above policies contain such special requirements, either in the body thereof or by appropriate endorsement thereto attached.

\_\_\_\_\_  
 (Name of Insurer)

By: \_\_\_\_\_

Phone No. ( ) \_\_\_\_\_

Title: \_\_\_\_\_

**SECTION 11**  
**GENERAL CONDITIONS OF AGREEMENT**

## Table of Contents

### **1. Definition of Terms**

- 1.01 The Agreement
- 1.02 County
- 1.03 Department
- 1.04 Contractor
- 1.05 Engineer
- 1.06 General Engineering Consultant (GEC)
- 1.07 Construction Observer
- 1.08 Construction Representative
- 1.09 Engineer of Record
- 1.10 Contract Documents
- 1.11 Subcontractor
- 1.12 Sub-Subcontractor
- 1.13 Written Notice
- 1.14 Work
- 1.15 Extra Work
- 1.16 Working Day
- 1.17 Calendar Day
- 1.18 Substantially Completed
- 1.19 Notice of Substantial Completion
- 1.20 Certificate of Completion
- 1.21 Certificate of Acceptance
- 1.22 Project
- 1.23 Contract Time
- 1.24 Contract Price

### **2. Responsibilities of the Engineer and the Contractor**

- 2.01 County-Observer Relationship
- 2.02 Professional Observation by the Construction Observer
- 2.03 Payments for Work
- 2.04 Initial Determinations
- 2.05 Objections
- 2.06 Lines and Grades
- 2.07 Contractor's Duty and Superintendence
- 2.08 Contractor's Understanding
- 2.09 Character of Workers
- 2.10 Shop Drawings
- 2.11 Preliminary Approval
- 2.12 Defects and Their Remedies
- 2.13 Changes and Alterations

**3. General Obligations and Responsibilities**

- 3.01 Keeping of Plans and Specifications Accessible and Keeping a Superintendent on the Project Site
- 3.02 Ownership of Documents
- 3.03 Adequacy of Design
- 3.04 Contractor's Responsibility for Work
- 3.05 Protection Against Accident to Employees and the Public
- 3.06 Performance and Payment Bonds
- 3.07 Protection of Adjoining Property
- 3.08 Protection Against Claims of Subcontractors, Laborers, Materialmen and Furnishers of Machinery, Equipment and Supplies
- 3.09 Protection Against Royalties or Patented Invention
- 3.10 Laws and Ordinances
- 3.11 Assignment and Subletting
- 3.12 Indemnification
- 3.13 Insurance
- 3.14 Final Clean-up

**4. Prosecution and Progress**

- 4.01 Time and Order of Completion
- 4.02 Extension of Time
- 4.03 Hindrances and Delays

**5. Measurement and Payment**

- 5.01 Quantities and Measurements
- 5.02 Estimated Quantities
- 5.03 Price of Work
- 5.04 Partial Payments
- 5.05 Punch List
- 5.06 Final Completion and Acceptance
- 5.07 Final Payment
- 5.08 Payments Withheld
- 5.09 Delayed Payments

**6. Extra Work and Claims**

- 6.01 Change Orders
- 6.02 Minor Changes
- 6.03 Extra Work
- 6.04 Time of Filing Claims
- 6.05 Continuing Performance

**7. Abandonment of Contract**

- 7.01 Abandonment by Contractor
- 7.02 Abandonment by the County

**8. Subcontractors**

- 8.01 Award of Subcontracts for Portions of the Work
- 8.02 Subcontractual Relations
- 8.03 Payments to Subcontractors

**9. Protection of Persons and Property**

- 9.01 Safety Precautions and Programs
- 9.02 Safety of Persons and Property
- 9.03 Location and Protection of Utilities

**10. Termination**

- 10.01 Termination by the County for Cause
- 10.02 Termination for Convenience
- 10.03 Obligations of Contractor Following Termination

**11. Inspection and Audit**

# **General Conditions of Agreement**

## **1. Definition of Terms**

For purposes of the Contract Documents, the following terms shall have the meanings set forth herein:

### **1.01 The Agreement**

The term the “Agreement” shall mean Standard Form of Agreement by and between County and Contractor relating to the Work and the construction of the Project.

### **1.02 County**

Williamson County, Texas, being a political subdivision of the State of Texas, is the entity identified in the Agreement and hereinafter referred to as the “County.” Nothing contained in the Contract Documents shall create any contractual or agency relationship between any parties other than the County and the Contractor.

### **1.03 Department**

The “Department” shall mean the Texas Department of Transportation (TxDOT).

### **1.04 Contractor**

The term the “Contractor” shall mean the successful bidder that enters into the Agreement with the County for the construction of the Work and the Project defined by the Contract Documents.

### **1.05 Engineer**

The term the “Engineer” shall mean the County Engineer or the authorized representative of the County Engineer.

### **1.06 General Engineering Consultant (GEC)**

The term the “General Engineering Consultant” or “GEC” shall mean the consulting engineering firm representing and assisting the County in the design, review, and coordination of the design and construction phases of the Project. The GEC shall be responsible for the construction oversight of the Project.

### **1.07 Construction Observer**

The “Construction Observer” or the “Observer” shall mean the County’s employee or a contracted consultant who performs construction engineering and inspection services for the Project.

### **1.08 Construction Representative**

The “Construction Representative” shall mean the GEC’s designated field representative



during construction of the Project which shall provide for coordination and assistance of the construction observation effort.

#### **1.09 Engineer of Record**

The term “Engineer of Record” shall mean the County's design professional, who shall provide professional engineering design services for the Project.

#### **1.10 Contract Documents**

The “Contract Documents” shall consist of the Special Conditions, Notice for Bidders, Proposal, the fully executed Agreement, Performance and Payment Bonds, Maintenance Bond, Special Bonds (when required), General Conditions, Technical Specifications or Specifications, Plans and all modifications thereof incorporated in any such documents before the execution of the Agreement and all modifications that are made, in accordance with the Contract Documents, following the execution of the Agreement.

The Contract Documents are complementary, and what is called for by any one shall be as binding as if called for by all. In case of conflict between any of the Contract Documents, priority of interpretation shall be in the following order: Fully Executed Agreement, Performance and Payment Bonds, Maintenance Bond, Special Bonds (if any), Proposal, General Conditions, Special Conditions, Technical Specifications or Specifications, and Plans.

#### **1.11 Subcontractor**

The term “Subcontractor”, as employed herein, includes only those having a direct contract with the Contractor. It includes one who furnishes material worked to special design according to the plans or specifications of this work, but does not include one who merely furnishes material not so worked.

#### **1.12 Sub-Subcontractor**

The term “Sub-Subcontractor” means one who has a direct or indirect contract with a Subcontractor to perform any of the Work at the site. It includes one who furnishes material worked to a special design according to the plans or specifications of this work, but does not include one who merely furnishes material not so worked.

#### **1.13 Written Notice**

Written notice shall be deemed to have been duly served if delivered in person to the individual or to an officer of the entity for whom it is intended, or if delivered to or sent by registered mail to the last business address known to it who gives the notice.

#### **1.14 Work**

The Contractor shall provide and pay for all materials, machinery, equipment, tools, superintendence, labor, services, insurance, and all water, light, power, fuel, transportation and other facilities necessary for the execution and completion of the work covered by the Contract Documents (collectively known as the “Work”). Unless otherwise specified, all materials shall be new and both workmanship and materials shall be of a good quality. The

Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials. Materials or work described in words which, when so applied, have a well-known technical or trade meaning shall be held to refer to such recognized standards.

#### **1.15 Extra Work**

The term “Extra Work” as used in the Contract Documents shall be understood to mean and include all work that may be required by the County to be done by the Contractor to accomplish any change, alteration or addition to the Work shown upon the plans, or reasonably implied by the specifications, and not covered by the Contractor's Proposal, except as provided under Section 2.13 “Changes and Alterations” herein.

#### **1.16 Working Day**

The term “Working Day” is defined as any day not including Saturdays, Sundays or any legal holidays, in which weather or other conditions, not under the control of the Contractor, will permit construction of the principal units of the Work for a period of not less than seven (7) hours between 7:00 a.m. and 6:00 p.m.

#### **1.17 Calendar Day**

The term “Calendar Day” is defined as any day of the week or month, no days being excepted.

#### **1.18 Substantially Completed**

The term “Substantially Completed” or “Substantial Completion” shall be understood to mean that all Project Work (or the work for a specified phase of the Project) 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 (or the specified phase of work). Additionally, all pavement construction, resurfacing, traffic control devices, and pavement markings shall be in their final position (or as called for on the plans for the specified phase of work) at such time; provided, however, the Engineer may make an exception as to the permanent pavement markings being in their final position provided that, in the Engineer’s sole discretion, 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.

#### **1.19 Notice of Substantial Completion**

Notice issued to the Contractor by the Observer or County’s Representative acknowledging Substantial Completion of the Project, signifying the end of time charges.

#### **1.20 Certificate of Completion**

Certificate issued to the Contractor by the Observer acknowledging “Final Completion” of the Project, as determined by completion of the Punch List, from which time the warranty period for the Project shall begin. The issuance of the Certificate of Completion shall serve as evidence of “Final Completion” and such certificate shall relieve the Contractor of ownership responsibilities for the Project, except for repair of damage caused by the Contractor or by the Contractor’s operations to existing facilities or completed and substantially accepted work.

**1.21 Certificate of Acceptance**

Certificate issued to the Contractor by the County acknowledging final acceptance and purchase of the Project.

**1.22 Project**

The "Project" shall mean and include the Project defined, described and set forth in the Agreement.

**1.23 Contract Time**

The "Contract Time" shall mean the amount of time in which the Work shall be Substantially Completed. The number of days allotted for the Contract Time shall be specifically set forth in the Agreement.

**1.24 Contract Price**

The "Contract Price" shall mean the amount that the County shall pay the Contractor for completion of the Work in accordance with the Contract Documents. The specific amount of the Contract Price shall be determined pursuant to the terms of the Contract Documents.

**2. Responsibilities of the Engineer and the Contractor****2.01 County-Observer Relationship**

The Observer will be the County's contracted consultant during construction. The duties, responsibilities and limitations of authority of the Observer as the County's representative during construction are as set forth in the Contract Documents and/or the Agreement for Construction Engineering and Inspection Services and shall not be extended or limited without written consent of the County or the Observer. The Observer will advise and consult with the County and the GEC, and all of the County's instructions to the Contractor shall be issued through the Observer.

**2.02 Professional Observation by the Construction Observer**

The Observer shall be on the jobsite when work is being performed to provide construction engineering inspections of the Work performed by the Contractor. In addition to performing material testing on behalf of the County, the Observer shall review the progress of the executed Work and to determine if such Work meets the essential performance and design features and the technical and functional engineering requirements of the Contract Documents; provided and except, however, that the Observer shall not be responsible, directly or indirectly, for the Contractor's construction means, methods, techniques, sequences, quality, procedures, programs, safety precautions or lack of same incident thereto or in connection therewith. Notwithstanding any other provision of the Contract Documents, the Engineer and the Observer shall not be responsible or liable for any acts, errors, omissions or negligence of the Contractor, any Subcontractor or any of the Contractor's or Subcontractor's agents, servants or employees or any other person, firm or corporation performing or attempting to perform any of the Work.

**2.03 Payments for Work**

The Observer shall review the Contractor's applications for payment and supporting data, determine the amount owed to the Contractor and recommend, in writing to the GEC for review, payment to the Contractor in such amounts; such recommendation of payment to the Contractor constitutes a representation to the County of the Observer's professional judgment that the Work has progressed to the point indicated to the best of its knowledge, information and belief, but such recommendation of an application for payment to the Contractor shall not be deemed as a representation by the Observer that the Observer has made any examination to determine how or for what purpose the Contractor has used the monies paid on account of the Contract Price.

**2.04 Initial Determinations**

The Observer initially shall determine all claims, disputes and other matters in question between the Contractor and the County relating to execution or progress of the Work or interpretation of the Contract Documents. The Observer's decision shall be rendered in writing to the GEC for review within a reasonable time, which shall not be construed to be less than ten (10) days.

**2.05 Objections**

In the event the Observer renders any decision which, in the opinion of either party hereto, is not in accordance with the meaning and intent of the Contract Documents, either party may file with the Observer its written objection to the decision within thirty (30) days of such decision by the Observer, and by such action may reserve the right to submit the question so raised to litigation as hereinafter provided.

**2.06 Lines and Grades**

Unless otherwise specified, all lines and grades shall be furnished by the Contractor at its own expense. Whenever necessary, construction work shall be suspended to permit performance of this work, but such suspension will be as brief as practicable and the Contractor shall be allowed no extra compensation therefore.

**2.07 Contractor's Duty and Superintendence**

The Contractor shall give adequate attention to the faithful prosecution and completion of the Work subject of the Contract Documents and shall keep on the Project site, at all times during its progress, a competent Superintendent and any necessary assistants to supervise and direct the Work. The Superintendent shall represent the Contractor in its absence and all directions given to the Superintendent shall be as binding as if given to the Contractor.

The Contractor is and at all times shall remain an independent contractor, solely responsible for the manner and method of completing its work under the Contract Documents, with full power and authority to select the means, method and manner of performing such work, so long as such methods do not adversely affect the completed improvements, the County and the Observer being interested only in the result obtained and conformity of such completed improvements with the Contract Documents.

Likewise, the Contractor shall be solely responsible for the safety of itself, its employees and other persons, as well as for the protection and safety of the improvements being erected and its property or any other person's property, as a result of its operations under the Contract Documents. Engineering construction drawings and specifications, as well as any additional information concerning the Work to be performed passing from or through the Observer, shall not be interpreted as requiring or allowing the Contractor to deviate from the Contract documents, the plans and specifications; the intent of such drawings, specifications and any other such information being to define with specificity the agreement of the parties as to the Work the Contractor is to perform.

Any review of work in process, or any visit or observation and inspection during construction, or any clarification of plans and specifications, by the Observer or the County, or any agent, employee, or representative of either of them, whether through personal observation or inspection on the Project site or by means of approval of shop drawings for temporary construction or construction processes, or by other means or methods, is agreed by the Contractor to be for the purpose of observing the extent and nature of work completed or being performed, as measured against the drawings and specifications constituting the Contract Documents, or for the purpose of enabling the Contractor to more fully understand the plans and specifications so that the completed construction work will conform thereto, and shall in no way relieve the Contractor from full and complete responsibility for the proper performance of its work on the Project, including but not limited to the propriety of means and methods of the Contractor in performing in accordance with the Contract Documents, and the adequacy of any designs, plans or other facilities for accomplishing such performance. Deviation by the Contractor from plans and specifications that may have been in evidence during any such visitation or observation by the Observer, the Engineer, or any of their representatives, whether called to the Contractor's attention or not, shall in no way relieve the Contractor from its responsibility to complete all work in accordance with the Contract Documents.

## **2.08 Contractor's Understanding**

It is understood and agreed that the Contractor has, by careful examination, satisfied itself as to the nature and location of the Work, the conformation of the ground, the character, quality and quantity of the materials to be encountered, the character of equipment and facilities needed preliminary to and during the prosecution of the Work, the general and local conditions, and all other matters which can in any way affect the Work under the Contract Documents.

## **2.09 Character of Workers**

The Contractor agrees to employ only orderly and competent workers, skillful in the performance of the type of work required under the Contract Documents, to do the Work; and agrees that whenever the Observer shall inform it in writing that any workers on the Work are, in its opinion, incompetent, unfaithful or disorderly, or refuse instructions from the Observer in the absence of the Superintendent, such worker shall be discharged from the Work and shall not again be employed on the Work without the Observer's written consent. No illegal alien may be employed by any Contractor for work on this Project, and a penalty

of \$500.00 per day will be assessed for each day and for each illegal alien who works for the Contractor at this Project.

## **2.10 Shop Drawings**

The Contractor shall submit to the Observer, with such promptness as to cause no delay in its own work or in that of any other contractor, a minimum of four (4) stamped/reviewed copies, unless otherwise specified, of all shop and/or setting drawings and schedules required for the work of the various trades, and the Engineer of Record shall pass upon them with reasonable promptness, making desired corrections. Note: A single copy of the reviewed drawings shall be retained by the reviewer, the County, and the County's Representative for their records. The Contractor may not submit more than four different shop drawing plans for review in any one week. The Engineer of Record shall return the shop drawings to the Contractor, via the GEC, within three (3) weeks of its having received them, with appropriate comments. The Contractor shall make any corrections required by the Engineer of Record, file with it two (2) corrected copies and furnish such other copies as may be needed. The Engineer of Record's approval of such drawings or schedules shall not relieve the Contractor from responsibility for deviations from drawings or specifications, unless the Contractor has in writing called the Engineer of Record's attention to such deviations at the time of submission, nor shall it relieve Contractor from responsibility for errors of any sort in shop drawings or schedules. It shall be the Contractor's responsibility to fully and completely review all shop drawings to ascertain their effect on its ability to perform the required work in accordance with the Contract Documents and within the time for completion thereof. Any shop drawings which are required for temporary supports must be signed and sealed by an Engineer registered in the State of Texas.

Such review by the Engineer of Record shall be for the sole purpose of determining the sufficiency of said shop drawings or schedules to result in finished improvements in conformity with the plans and specifications, and shall not relieve the Contractor of its duties and obligations, as an independent contractor, set forth in the Contract Documents. It is hereby expressly understood and agreed that the Engineer of Record does not assume any duty to pass upon the propriety or adequacy of such drawings or schedules, or any means or methods reflected thereby, in relation to the safety of either person or property during the Contractor's performance hereunder.

## **2.11 Preliminary Approval**

The Observer shall not have the power to waive the obligations of the Contract Documents for the furnishing by the Contractor of good material, and of its performing good work as herein described, and in full accordance with the Contract Documents. No failure or omission of the Observer to discover, object to or condemn any defective work or material shall release the Contractor from the obligations to fully and properly perform in full accordance with the Contract Documents, including without limitation, the obligation to at once tear out, remove and properly replace any defective work or material at any time prior to final acceptance upon the discovery of said defective work or material; provided, however, that the Observer shall, upon request of the Contractor, inspect and accept or reject any material furnished, and in the event the material has been once accepted by the Observer,

such acceptance shall be binding on the County unless it can be clearly shown that such material furnished does not meet the specifications for this work.

Any questioned work may be ordered to be taken up or removed for re-examination by the Observer, prior to final acceptance, and if found not in accordance with the plans and/or specifications for said work, all expenses relating to the removing, re-examination and replacement shall be solely borne by the Contractor. Otherwise, if the questioned work is found to be in accordance with the plans and/or specifications for said work, the expense thus incurred shall be allowed as Extra Work and shall be paid for by the County; provided, however, where inspection or approval is specifically required by the specifications prior to performance of certain work, should the Contractor proceed with such work without requesting prior inspection or approval, the Contractor shall bear all expense of taking up, removing, and replacing this work if so directed by the Observer.

## **2.12 Defects and Their Remedies**

It is further agreed that if the Work or any part thereof, or any material brought on the site of the Work for use in the Work or selected for the same, shall be deemed by the Observer as unsuitable or not in conformity with the Contract Documents, or the intent thereof, the Contractor shall, after receipt of notice thereof from the Observer, forthwith remove such material and rebuild or otherwise remedy such work so that it shall be in full accordance with the Contract Documents.

## **2.13 Changes and Alterations**

The Contractor further agrees that the County may make such changes and alterations as the County may see fit in the line, grade, form, dimensions, plans or materials for the Work herein contemplated, or any part thereof, either before or after the beginning of the construction, without affecting the validity of the Contract Documents.

If such changes or alterations diminish the quantity of the Work to be done, they shall not constitute the basis for a claim for damages or anticipated profits on the Work that may be dispensed with, except as provided for unit price items under Section 5 "Measurement and Payment". If the amount of work is increased, and the Work can fairly be classified under the specifications, such increase shall be paid for according to the quantity actually done and at the unit price, if any, established for such work under the Contract Documents, except as provided for unit price items under Section 5 "Measurement and Payment". Otherwise, such additional work shall be paid for as provided under Extra Work. In the event the County makes such changes or alterations as shall make useless any work already done or material already furnished or used in said work, then the County shall compensate the Contractor for any material or labor so used, and for any actual loss occasioned by such change, due to actual expense incurred in preparation for the Work as originally planned.

### **3. General Obligations and Responsibilities**

#### **3.01 Keeping of Plans and Specifications Accessible and Keeping a Superintendent on the Project Site**

The Contractor shall keep one (1) copy of the plans and specifications constantly accessible on the Work, with the latest revisions noted thereon. The Contractor shall give the Work its constant attention to facilitate the progress thereof and shall cooperate with the Construction Observer in every way possible. The Contractor shall designate, to the Construction Observer in writing, the name of a Superintendent, employed by the firm, regardless of how much of the Work may be sublet. The Superintendent will be available at all time. In the event a competent superintendent is not available, the Construction Observer may suspend work until one is available.

#### **3.02 Ownership of Documents**

All drawings, specifications and copies thereof furnished by the Engineer of Record shall not be reused on other work, and, with the exception of the signed contract sets, are to be returned to the Engineer of Record on request, at the completion of the work. All models, drawings, specifications and copies thereof are the property of the County.

#### **3.03 Adequacy of Design**

It is understood that the County believes it has employed competent engineers and designers. It is therefore agreed that the County and Engineer shall be responsible for the adequacy of the design, sufficiency of the Contract Documents, the safety of the structure and the practicability of the operations of the completed project provided that the Contractor has complied with the requirements of the said Contract Documents, all approved modifications thereof, and additions and alterations thereto approved in writing by the County. The burden of proof of such compliance shall be upon the Contractor to show that it has complied with the said requirements of the Contract Documents, approved modifications thereof, and all approved additions and alterations thereto.

The paper copies of the Contract Documents are considered to be the official contract documents. Any request by the Contractor and use thereof of electronic or digital information, including engineering design and survey files, shall be at the sole risk and legal responsibility of the Contractor. Neither the County nor the Engineer of Record makes any warranty or representation as to the compatibility of the files provided with other software programs, nor shall they be held responsible for subsequent uses of the data by the Contractor or anyone who may obtain the data from the Contractor. **THE CONTRACTOR SHALL, TO THE FULLEST EXTENT PERMITTED BY LAW, INDEMNIFY AND HOLD THE COUNTY ITS AGENTS, EMPLOYEES, OR REPRESENTATIVES AND THE ENGINEER OF RECORD HARMLESS FROM ANY AND ALL CLAIMS, SUITS, LIABILITY, DEMANDS OR COSTS ARISING OUT OF OR RESULTING FROM SUCH USE.** Because data stored on electronic media can deteriorate undetected or be modified undetected, neither the County nor the Engineer of Record can be held liable for the completeness or correctness of the electronic data once in possession of the Contractor.



### **3.04 Contractor's Responsibility for Work**

Until the issuance of the Certificate of Completion for the Project, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part thereof by the action of the elements or from any other cause, whether arising from the execution or from the non execution of the Work.

In case of suspension of work for any cause, the Contractor shall be responsible for the preservation of all materials. The Contractor shall provide suitable drainage of the roadway in good and passable condition until Final Completion, except as outlined below for opening the roadway to traffic.

Whenever, in the opinion of the Observer, any roadway or portion thereof is in suitable condition for travel, it shall be opened to traffic; provided, however, such opening shall not be held to be, in any way, the final acceptance of the roadway or any part thereof or be held as a waiver of any of the provisions of the Contract Documents. Where it is considered by the Observer to be in the public interest and so ordered in writing by the Observer, any Substantially Completed roadway or portion thereof may be opened to traffic as follows:

- (1) When both required by plans, job sequence or the approved traffic control plan, and when the County accepts responsibility for maintaining such portion of the roadway opened to traffic.
- (2) When work is suspended for a period of time at the convenience of the County, the County will assume the responsibility for maintaining the entire roadway during the period of suspension; or
- (3) When the roadway or portion thereof is opened to traffic during construction operations at the convenience of the County, the County will assume responsibility for the maintenance of the traveled way and shoulders during the period in which it is opened to traffic.

The County, in assuming responsibility for maintenance under this provision, may require the Work to be done in accordance with Section 6, "Extra Work and Claims".

Except for damage by the Contractor or damage caused by the Contractor's operations, the Contractor will not be responsible for repair of damage to existing facilities or damage to completed and accepted work such as guard fence, bridge wings, railing, illumination assemblies, underpass structure, traffic barriers, delineator assemblies, signs, sign bridges, changeable message signs, vehicle impact attenuators (crash cushions and guardrail end treatments) and traffic signals, where such damage is caused by (a) motor-vehicle, seacraft or aircraft that are not being operated by Contractor; (b) railroad-train collision (c) vandalism; (d) Acts of God, such as earthquake, tidal wave, tornado, hurricane, or other cataclysmic phenomena of natures; or (e) Acts of Governmental Authorities.

Upon completion of all work provided for in the Contract Documents for any individual limits, control or project, the Observer may make an inspection, and if the Work is found to be satisfactory, the Contractor will be released from further maintenance on that portion of

the Work, except for damage caused by the Contractor or its operations. Such partial acceptance must be made in writing and shall in no way void or alter any terms of the Contract Documents. Other specific units of the Project will be accepted on an individual basis when shown on the plans or as approved, in writing, by the Observer.

### **3.05 Protection Against Accident to Employees and the Public**

The Contractor shall at all times exercise reasonable precautions for the safety of employees and others on or near the Work and shall comply with all applicable provisions of federal, state, and municipal safety laws and building and construction codes. All machinery and equipment and other physical hazards shall, except where incompatible with federal, state, or municipal laws or regulations, be guarded in accordance with the "Manual of Accident Prevention in Construction" of the Associated General Contractors of America. The Contractor shall provide such machinery guards, safe walkways, ladders, bridges, gangplanks, and other safety devices. The safety precautions actually taken and their adequacy shall be the sole responsibility of the Contractor, acting at its discretion as an independent contractor.

Within 24 hours after Contractor becomes aware of the occurrence of any accident or other event which results in, or might result in, injury to the person or property of anyone, whether or not it results from or involves any action or failure to act by the Contractor or any employee or agent of the Contractor and which arises in any manner from the performance of the Work, the Contractor shall send a written report of such accident or other event to the County and the Observer, setting forth a full and concise statement of the facts pertaining thereto. Such statement shall include a written recordation of the location of the event and the circumstances surrounding the event through photographs, interviewing witnesses, obtaining of medical reports and other documentation that defines the event. The Contractor shall also provide to the County a copy of any and all accident reports received from safety officials or agencies. Copies of such documentation shall be provided to the County and the Observer for their records. The Contractor shall also immediately send the County and the Observer a copy of any summons, subpoena, notice, or other documents served upon the Contractor, its agents, employees, or representatives, or received by it or them, in connection with any matter before any court arising in any manner from the Contractor's performance of the Work.

### **3.06 Performance and Payment Bonds**

Unless otherwise specified, it is further agreed by the parties to the Contract Documents that the Contractor will execute separate performance and payment bonds, each in the sum of one hundred (100%) percent of the total Contract Price, on forms acceptable to County, guaranteeing faithful performance of the Work and the fulfillment of any guarantee required, and further guaranteeing payment to all persons supplying labor and materials or furnishing Contractor with any equipment in the execution of the Work subject of the Contract Documents. It is agreed that the Contractor shall have no rights under the Contract Documents until such performance and payment bonds are furnished to and approved by the County.

Unless otherwise specified, the cost of the premium for the performance and payment bonds shall be included in the price bid by the Contractor for the Work subject of the Contract Documents, and no extra payment for such bonds will be made by the County.

Each bond shall be executed by a corporate surety or corporate sureties, with an A.M. Best rating of "B" or better, duly authorized to do business and to issue surety bonds in the State of Texas. If any surety upon any bond furnished in connection herewith becomes insolvent, or otherwise not authorized to do business in this state, the Contractor shall promptly furnish equivalent security to protect the interests of the County and of persons supplying labor, materials and equipment in the prosecution of the Work subject of the Contract Documents. Furthermore, the surety company underwriting the bonds must be acceptable to the County.

Each bond shall be accompanied by a valid Power of Attorney (issued by the surety company and attached, signed and sealed, with the corporate embossed seal, to the bond) authorizing the agent who signs the bond to commit the company to the terms of the bond, and stating on the face of the Power of Attorney the limit, if any, in the total amount for which such agent is empowered to issue a single bond.

### **3.07 Protection of Adjoining Property**

The Contractor shall take proper means to protect the adjacent or adjoining property or properties, in any way encountered, which might be injured or seriously affected by any process of construction to be undertaken pursuant to the Contract Documents, from any damage or injury by reason of said process of construction; and the Contractor shall be liable for any and all claims for such damage on account of its failure to fully protect all adjoining property. **THE CONTRACTOR AGREES TO INDEMNIFY, SAVE AND HOLD HARMLESS THE COUNTY, THE OBSERVER THE GEC AND THE ENGINEER OF RECORD, AS WELL AS ANY OF THEIR AGENTS, REPRESENTATIVES, OFFICERS OR EMPLOYEES AGAINST ANY CLAIM OR CLAIMS FOR DAMAGES DUE TO ANY INJURY TO ANY ADJACENT OR ADJOINING PROPERTY, ARISING OR GROWING OUT OF THE PERFORMANCE OF THE WORK, BUT ANY SUCH INDEMNITY SHALL NOT APPLY TO ANY CLAIM OF ANY KIND ARISING SOLELY OUT OF THE EXISTENCE OR CHARACTER OF THE WORK.**

### **3.08 Protection Against Claims of Subcontractors, Laborers, Materialmen and Furnishers of Machinery, Equipment and Supplies**

**THE CONTRACTOR AGREES THAT IT WILL INDEMNIFY, DEFEND AND SAVE HARMLESS THE COUNTY, THE OBSERVER, THE GEC AND THE ENGINEER OF RECORD, AS WELL AS ANY OF THEIR AGENTS, REPRESENTATIVES, OFFICERS OR EMPLOYEES FROM ALL CLAIMS GROWING OUT THE LAWFUL DEMANDS OF SUBCONTRACTORS, LABORERS, WORKERS, MECHANICS, MATERIALMEN AND FURNISHERS OF MACHINERY, MACHINERY PARTS, EQUIPMENT, POWER TOOLS, AND ALL SUPPLIES, INCLUDING COMMISSARY, INCURRED IN THE FURTHERANCE OF THE PERFORMANCE OF THE WORK SUBJECT OF THE CONTRACT DOCUMENTS.** When so desired by the County, the Contractor shall furnish satisfactory evidence that all obligations of the nature hereinabove designated have been paid, discharged or waived. If the Contractor fails to furnish such evidence to County's complete satisfaction, then the County may either pay directly any unpaid bills of which the County has written notice of, or may withhold from

the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to liquidate any and all such lawful claims. When satisfactory evidence is furnished that all liabilities have been fully discharged, payments to the Contractor shall be resumed in full in accordance with the terms of the Contract Documents, but in no event shall the provisions of this sentence be construed to impose any obligation upon the County by either the Contractor or its surety.

### **3.09 Protection Against Royalties or Patented Invention**

The Contractor shall pay all royalties and license fees, and shall provide for the use of any design, device, material or process covered by letter patent or copyright by suitable legal agreement with the patentee or owner. **THE CONTRACTOR SHALL DEFEND ALL SUITS OR CLAIMS FOR INFRINGEMENT OF ANY PATENT OR COPYRIGHT RIGHTS AND SHALL INDEMNIFY AND SAVE HARMLESS THE COUNTY, THE OBSERVER THE GEC AND THE ENGINEER OF RECORD, AS WELL AS ANY OF THEIR AGENTS, REPRESENTATIVES, OFFICERS OR EMPLOYEES FROM ANY LOSS ON ACCOUNT THEREOF, EXCEPT THAT THE COUNTY SHALL DEFEND ALL SUCH SUITS AND CLAIMS AND SHALL BE RESPONSIBLE FOR ALL SUCH LOSS WHEN A PARTICULAR DESIGN, DEVICE, MATERIAL OR PROCESS OR THE PRODUCT OF A PARTICULAR MANUFACTURER OR MANUFACTURERS IS SPECIFIED OR REQUIRED BY THE COUNTY; PROVIDED, HOWEVER, IF CHOICE OF ALTERNATE DESIGN, DEVICE, MATERIAL OR PROCESS IS ALLOWED TO THE CONTRACTOR, THEN THE CONTRACTOR SHALL INDEMNIFY AND SAVE THE COUNTY HARMLESS FORM ANY LOSS ON ACCOUNT THEREOF.** If the material or process specified or required by the County is known by the Contractor to be an infringement, the Contractor shall be responsible for such loss unless it promptly gives such information to the County.

### **3.10 Laws and Ordinances**

The Contractor shall at all times observe and comply with all federal, state and local laws, ordinance and regulations, which in any manner affect the Contract Documents or the Work, and **SHALL INDEMNIFY AND SAVE HARMLESS THE COUNTY, THE OBSERVER THE GEC AND THE ENGINEER OF RECORD, AS WELL AS ANY OF THEIR AGENTS, REPRESENTATIVES, OFFICERS OR EMPLOYEES AGAINST ANY CLAIM ARISING FROM THE VIOLATION OF ANY SUCH LAWS, ORDINANCES, AND REGULATIONS WHETHER BY THE CONTRACTOR OR ITS EMPLOYEES, EXCEPT WHERE SUCH VIOLATIONS ARE CALLED FOR BY THE PROVISIONS OF THE CONTRACT DOCUMENTS.** If the Contractor observes that the plans and specifications are at variance therewith, it shall promptly notify the Observer, in writing, and any necessary changes shall be prepared as provided in the Contract Documents for changes in the Work. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Observer, the Contractor shall bear all costs arising therefrom.

In case the County is a body politic and corporate, the law from which it derives its powers, insofar as the same regulates the objects for which, or the manner in which, or the conditions under which the County may enter into contract, shall be controlling and shall be considered as part of the Contract Documents to the same effect as though embodied herein.

### **3.11 Assignment and Subletting**

The Contractor further agrees that it will retain personal control and will give its personal attention to the fulfillment of the Work strictly in accordance with the Contract Documents and that Contractor will not assign, by Power of Attorney or otherwise, or sublet any right or interest it may have under the Contract Documents without the written consent of the Observer, and that no part or feature of the Work will be sublet to anyone objectionable to the Observer or the County. The Contractor further agrees that the subletting of any portion or feature of the Work, or materials required in the performance of the Work, shall not relieve the Contractor from its full obligations to the County as provided in the Contract Documents.

### **3.12 Indemnification**

**THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS THE COUNTY, THE OBSERVER, THE GEC AND THE ENGINEER OF RECORD AND THEIR RESPECTIVE OFFICERS, AGENTS AND EMPLOYEES, FROM AND AGAINST ALL DAMAGES, CLAIMS, LOSSES, DEMANDS, SUITS, JUDGMENTS AND COSTS, INCLUDING REASONABLE ATTORNEYS' FEES AND EXPENSES, ARISING OUT OF OR RESULTING FROM THE PERFORMANCE OF THE WORK, PROVIDED THAT ANY SUCH DAMAGE, CLAIM, LOSS, DEMAND, SUIT, JUDGMENT, COST OR EXPENSE:**

- (1) IS ATTRIBUTABLE TO BODILY INJURY, SICKNESS, DISEASE OR DEATH OF ANY PERSON INCLUDING CONTRACTOR'S EMPLOYEES AND ANY SUBCONTRACTOR'S EMPLOYEES AND ANY SUB-SUBCONTRACTOR'S EMPLOYEES, OR TO INJURY TO OR DESTRUCTION OF TANGIBLE PROPERTY INCLUDING CONTRACTOR'S PROPERTY (OTHER THAN THE WORK ITSELF) AND THE PROPERTY OF ANY SUBCONTRACTOR OF SUB-SUBCONTRACTOR INCLUDING THE LOSS OF USE RESULTING THEREFROM; AND,**
- (2) IS CAUSED IN WHOLE OR IN PART BY ANY INTENTIONAL OR NEGLIGENT ACT OR OMISSION OF THE CONTRACTOR, ANY SUBCONTRACTOR, ANY SUB-SUBCONTRACTOR OR ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY ANY ONE OF THEM OR ANYONE FOR WHOSE ACTS ANY OF THEM MAY BE LIABLE.**

**THE OBLIGATION OF THE CONTRACTOR UNDER THIS PARAGRAPH SHALL NOT EXTEND TO THE LIABILITY OF THE OBSERVER, THE ENGINEER, THE GEC, THE ENGINEER OF RECORD THEIR AGENTS OR EMPLOYEES ARISING OUT OF THE PREPARATION OF MAPS, PLANS, REPORTS, SURVEYS, CHANGE ORDERS, DESIGNS OR SPECIFICATIONS, OR THE APPROVAL OF MAPS, PLANS, REPORTS, SURVEYS, CHANGE ORDERS, DESIGNS OR SPECIFICATIONS OR THE ISSUANCE OF OR THE FAILURE TO GIVE DIRECTIONS OR INSTRUCTIONS BY THE OBSERVER, ITS AGENTS OR EMPLOYEES, PROVIDED SUCH IS THE SOLE CAUSE OF THE INJURY OR DAMAGE.**

**IN ANY AND ALL CLAIMS AGAINST THE COUNTY, THE OBSERVER THE GEC OR THE ENGINEER OF RECORD OR ANY OF THEIR AGENTS OR EMPLOYEES BY ANY EMPLOYEE OF THE CONTRACTOR, ANY SUBCONTRACTOR, ANY SUB-SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY ANY OF THEM, OR ANYONE FOR WHOSE ACTS ANY OF THEM MAY BE LIABLE, THE INDEMNIFICATION OBLIGATION UNDER SECTION 3.12 SHALL NOT BE**

**LIMITED IN ANY WAY BY ANY LIMITATION ON THE AMOUNT OR TYPE OF DAMAGES, COMPENSATION OR BENEFITS PAYABLE BY OR FOR THE CONTRACTOR OR ANY SUBCONTRACTOR OR SUB-SUBCONTRACTOR UNDER WORKERS' COMPENSATION ACTS, DISABILITY BENEFIT ACTS OR OTHER EMPLOYEE BENEFIT ACTS.**

### **3.13 Insurance**

The Contractor at its own expense shall purchase, maintain and keep in force such insurance as will protect Contractor from claims set forth below which may arise out of or result from the Contractor's operations under the Contract Documents, whether such operations be by itself or by any Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable.

- (1) Workman's compensation claims, disability benefits and other similar employee benefit acts;
- (2) Claims for damages because of body injury, occupational sickness or disease, or death of its employees, and claims insured by usual bodily injury liability coverages;
- (3) Claims for damages because of bodily injury, sickness or disease, or death of any person other than its employees, and claims insured by usual bodily injury liability coverages; and
- (4) Claims for damages because of injury to or destruction of tangible property, including loss of use resulting therefrom.

**CERTIFICATE OF INSURANCE.** Before commencing any of the Work, Contractor shall file with the County valid Certificates of Insurance acceptable to the County and the Observer. Such Certificates shall contain a provision that coverages afforded under the policies will not be canceled until at least thirty (30) days prior written notice has been given to the County.

The Contractor shall also file with the County valid Certificates of Insurance covering all Sub-contractors of the Contractor.

### **3.14 Final Clean-up**

Upon the completion of the Work and before acceptance and Final Payment will be made, the Contractor shall clean and remove from the site of the Work all surplus and discarded materials, temporary structures and debris of every kind. The Contractor shall leave the site of the Work in a neat and orderly condition at least equal to that which originally existed. Surplus and waste materials removed from the site of the Work shall be disposed of at locations that are both satisfactory to the Observer and in accordance with the laws pertaining to the disposal of such surplus, debris and waste materials.

In the event the Contractor fails or refuses to clean and remove surplus materials and debris as provided above, the County or the Observer may do so, or cause same to be done, at the

Contractor's expense, and the reasonable cost thereof shall be deducted from any amounts that are owing to the Contractor.

#### **4. Prosecution and Progress**

##### **4.01 Time and Order of Completion**

It is the meaning and intent of the Contractor Documents, unless otherwise specifically provided, that the Contractor shall be allowed to prosecute its work at such times and seasons, in such order of precedence, and in such manner as shall be most conducive to the economy of construction; provided, however, that the order and the time of prosecution shall be such that the Work shall be substantially completed, as a whole and in part, in accordance with the Contract Documents and within the time of completion designated in the Contractor's bid or proposal; provided, however, when the County is having other work done on the same Project or an adjoining project, either by contract or by its own force, the Observer may direct the time and manner of constructing the Work done under the Contract Documents, so that conflict will be avoided and the construction of the various works and projects being performed for the County shall be harmonized.

Unless otherwise specified, the Contractor shall plan to begin work 10 calendar days from the authorization date to begin work as designated by the Notice to Proceed.

The Contractor shall submit, at such times as may reasonably be requested by the Observer, schedules which shall show the order in which the Contractor proposes to carry on the Work, the dates at which the Contractor will start the several parts of the Work, and estimated dates of completion of the several parts.

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.

##### **4.02 Extension of Time**

Should the Contractor be delayed in the completion of the Work by any act or neglect of the County, the Observer or the Engineer of Record, or of any employee of either, or by other contractors employed by the County, or by changes ordered in the Work, or by strikes, lockouts, fires, and unusual delays by common carriers, or unavoidable cause or causes beyond the Contractor's control, or by any cause which the Observer shall decide justifies the delay, then an extension of time shall be allowed for completing the Work, sufficient to compensate for the delay, the amount of the extension to be determined by the Observer; provided, however, before the Observer may decide whether or not to allow such an extension of time, the Contractor must tender a prompt written request for an extension of time wherein the Contractor shall give the Observer a written description of the cause of such delay. Adverse weather conditions will not be justification for extension of time on "Calendar Days" contracts.

#### **4.03 Hindrances and Delays**

No claims shall be made by the Contractor for damages resulting from hindrances or delays from any cause (except where the Work is stopped by order of and for the convenience of the County) during the progress of any portion of the Work embraced in the Contract Documents. In case said work shall be stopped by the act of the County, then such expense, as in the sole judgment of the Observer is caused by such stoppage of said work, shall be paid by the County to the Contractor.

### **5. Measurement and Payment**

#### **5.01 Quantities and Measurements**

No extra or customary measurements of any kind will be allowed. Rather the actual measured and/or computed length, area, solid contents, number and weight only shall be considered, unless otherwise specifically provided otherwise in the Contract Documents.

#### **5.02 Estimated Quantities**

The Contract Documents are intended to show clearly all work to be done and material to be furnished hereunder. Where the estimated quantities are shown for the various classes of work to be done and material to be furnished under the Contract Documents, they are approximate and are to be used only as a basis for estimating the probable cost of the Work and for comparing the proposals offered for the Work. It is understood and agreed that the actual amount of work to be done and material to be furnished under the Contract Documents may differ somewhat from these estimates.

Plans quantities may or may not represent the exact quantity of work performed or material moved, handled, or placed during the execution of the Work. For plans quantity measurement items, the estimated bid quantities are designated as final payment quantities, unless revised by the governing specifications. If the actual 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 Documents, an adjustment may be made to the quantity of authorized work done for payment purposes. The party 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 the Contract Documents. When quantities are revised by a change in design approved by the County, 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.

Where payment is based on the unit price method, the Contractor agrees that it will make no claim for damages, anticipated profits or otherwise on account of any differences which may be found between the quantities of work actually done, the material actually furnished under the Contract Documents and the estimated quantities contemplated and contained in the proposal; provided, however, that in case the actual quantity of any major item should



become as much as twenty-five percent (25%) more than or twenty-five percent (25%) less than the estimated or contemplated quantity for such items, then either party to the Agreement, upon demand, shall be entitled to revised consideration upon the portion of the Work above or below twenty-five percent (25%) of the estimated quantity.

A "Major Item" shall be construed to be any individual bid item incurred in the proposal that has a total cost equal to or greater than five percent (5%) of the total contract cost, computed on the basis of the proposal quantities and the contract unit prices.

Any revised consideration is to be determined by agreement between the parties, otherwise by the terms of the Contract Documents, as provided under Section 6.03 "Extra Work".

### **5.03 Price of Work**

In consideration of the furnishing of all the necessary labor, equipment and material, and the completion of all of the Work by the Contractor, and on the completion of all of the Work and on the delivery of all material in full conformity with the specifications and stipulations contained in the Contract Documents, the County agrees to pay the Contractor the Contract Price that is set forth in the Agreement. The Contractor hereby agrees to receive such Contract Price in full for furnishing all material and all labor required for the Work, also for all expense incurred by Contractor, and for well and truly performing the same and the whole thereof in the manner with and in accordance to the Contract Documents.

### **5.04 Partial Payments**

On or before the first Wednesday of each month, the Contractor shall submit to the Observer a statement showing the total value of the Work performed up to and including the last day of the preceding month. The statement shall also include the value of all sound materials delivered on the job site and to be included in the Work and all partially completed work whether bid as a lump sum or a unit item which, in the opinion of the Observer, is acceptable. The Observer shall either examine and approve by signature or modify and approve such modified statement.

The County shall then pay the Contractor, within 30 days of the statement submittal, the total amount of the approved statement, less ten percent (10%) of the amount thereof, which ten percent (10%) shall be retained until Final Payment, and further less all previous payments and all further sums that may be retained by the County under the terms of the Contract Documents and/or under state or federal law. It is understood, however, that in case the whole work be near to completion and some unexpected and unusual delay occurs due to no fault or neglect on the part of the Contractor, then the County may, upon written recommendation of the Observer, pay a reasonable and equitable portion of the retained percentage to the Contractor; or the Contractor, at the County's option, may be relieved of the obligation to fully complete the Work and, thereupon, the Contractor shall receive payment of the balance due Contractor under the contract subject to the terms and conditions stated in the Contract Documents.

- (1) When work progress is fifty percent (50%) complete, as determined by the value of the work completed to date against the original or revised contract amount, whichever is greater, the County may reduce the amount retained to five percent (5%) of the value of all work satisfactorily complete to date, including the value paid for materials on hand, provided, in the sole opinion of the Observer, the Contractor is making satisfactory progress toward completion of the project in a timely manner and there is no other cause to retain a greater percentage.
- (2) Upon issuance of the NOTICE OF SUBSTANTIAL COMPLETION and agreement to final project quantities, the percent retained may be further reduced, at the discretion of the Engineer and the Observer, to two percent (2%) of the total value of all work completed to date. This amount shall be retained until Final Payment and close out of the project.

#### **5.05 Punch List**

The Contractor shall notify the Observer in writing when, in the Contractor's opinion, the Work has been "Substantially Completed" and when so notifying the Observer, the Contractor shall furnish to the Observer, in writing, a detailed list of unfinished work, also known as the Punch List. The Observer will review the Punch List and will add any items that the Contractor failed to include on said list. The fact that a structure or facility has been "Substantially Completed" shall not excuse the Contractor from performing all of the Work undertaken, whether such work is of a minor or major nature. Furthermore, the Contractor shall remain obligated to fully complete the Work and perform its obligations under the Contract Documents after the Work has been Substantially Completed.

#### **5.06 Final Completion and Acceptance**

The Contractor shall have a specified time period for completion of the Punch List items, as set forth in Section XI of the Special Conditions, "Completion of Work on Time." Within ten (10) days after the Contractor has given the Observer written notice that the Punch List has been completed, the Observer shall inspect the Work and within said time, if the Work is found to be completed in accordance with the Contract Documents, the Observer shall issue to the Contractor its Certificate of Completion. In the event the Punch List has not been completed, the Observer shall advise the Contractor, in writing, of the Observer's basis for deeming the Punch List incomplete. Following the Contractor's receipt of the Observer's notice that the Punch List is incomplete, the Contractor shall complete the remaining items prior to the expiration of the above referenced specified time period for completion of the Punch List items. Upon satisfactory completion of the Punch List and the issuance of the Certificate of Completion, it shall be the Contractor's responsibility to submit the contract close-out documents, which shall include the record drawings, maintenance bond and Affidavit of All Bills Paid, and thereupon it shall be the duty of the County to issue a Certificate of Acceptance (Final Acceptance) to the Contractor.

#### **5.07 Final Payment**

Upon the issuance of the Notice of Substantial Completion, the Observer shall proceed to make final measurements and prepare final statement for the value of all work performed and materials furnished under the terms of the Contract Documents and shall certify same to the

County, and, then, Final Payment shall be made to the Contractor. At the County's sole discretion, this payment may include payment for work remaining to be performed in association with the removal of temporary erosion controls or the establishment of permanent stabilization measures. On or after the 30th day, and before the 35th day after the date of the Certificate of Acceptance, the balance due the Contractor under the terms of the Contract Documents shall be paid. Neither the Certificate of Acceptance nor the Final Payment, nor any provision in the Contract Documents, shall relieve the Contractor of the obligation for fulfillment of any warranty which may be required.

#### **5.08 Payments Withheld**

The County may, on account of subsequently discovered evidence, withhold or nullify the whole or part of any certificate to such extent as may be necessary to protect itself from loss on account of:

- (a) Defective work not remedied or other obligations hereunder not completed.
- (b) Claims filed or reasonable evidence indicating the probable or potential filing of claims.
- (c) Failure of the Contractor to make payments properly to Subcontractors or for material or labor.
- (d) Damage to the County or another contractor's work, material or equipment.
- (e) Reasonable doubt that the Work can be completed for the unpaid balance of the contract amount or Contract Price.
- (f) Reasonable indication that the Work will not be completed within the contract time.
- (g) Other causes affecting the performance of the Work subject of the Contract Documents.

When the above grounds are removed or the Contractor provides a surety bond satisfactory to the County, which will protect the County in the amount withheld, payment shall be made for amounts withheld because of them.

#### **5.09 Delayed Payments**

Should the County fail to make payment to the Contractor of the sum named in any partial or final statement, when such payment is due, then the County shall pay to the Contractor, in addition to the sum shown as due by such statement, interest thereon in accordance with Texas Government Code Section 2251.025. More specifically, the rate of interest that shall accrue on a late payment is the rate in effect on September 1 of County's fiscal year in which the payment becomes due. The said rate in effect on September 1 shall be equal to the sum of one percent (1%); and (2) the prime rate published in the Wall Street Journal on the first day of July of the preceding fiscal year that does not fall on a Saturday or Sunday. County's payment of the amount due plus said interest shall fully liquidate any injury to the Contractor growing out of such delay in payment. It is expressly agreed that delay by the County in making payment to the Contractor of the sum named in any partial or final statement shall not constitute, on the part of the County, a breach under the Contract Documents, nor shall it serve as an abandonment by the County. Furthermore, any delay by the County in making payment to the Contractor of the sum named in any partial or final statement shall not, to any

extent or for any time, relieve the Contractor of its obligations to fully and completely perform pursuant to the terms of the Contract Documents.

## **6. Extra Work and Claims**

### **6.01 Change Orders**

Without invalidating the Agreement or any terms of the Contract Documents, the County may, at any time or from time to time, order additions, deletions or revisions to the Work. Any such additions, deletions or revisions to the Work may only be effectuated and authorized by written Change Order. The said written Change Order shall be prepared by the GEC for execution by the County and the Contractor. The Change Order shall set forth the basis for any change in Contract Price, as hereinafter set forth in Section 6.03, Extra Work, and for any change in contract time which may result from the change.

In the event the Contractor shall refuse to execute a Change Order which has been prepared by the GEC and executed by the County, the GEC may, in writing, instruct the Contractor to proceed with the Work as set forth in the Change Order and the Contractor shall thereafter proceed with such work. The Contractor may make claim against the County for Extra Work involved under the Change Order, as hereinafter provided.

### **6.02 Minor Changes**

The Observer may authorize minor changes in the Work which are not inconsistent with the overall intent of the Contract Documents and which do not involve an increase in Contract Price. If the Contractor believes that any minor change or alteration authorized by the Observer involves Extra Work which entitles it to an increase in the Contract Price, the Contractor shall make written request to the Observer for a written Field Order. For purposes of this section, a "Field Order" shall mean the Contractor's cost proposal for the Extra Work that the Contractor believes would increase the Contract Price.

In such case, the Contractor, by copy of its communication to the Observer or by separate writing, shall advise the County of its request to the Observer for a written Field Order. The Contractor's notice to the County shall inform the County that the work subject of the written Field Order may result in an increase in the Contract Price.

Any request by the Contractor for a change in Contract Price shall be made prior to commencing the work covered by the proposed change.

### **6.03 Extra Work**

It is agreed that the basis of compensation to the Contractor for work either added or deleted by a change order or for which a claim for Extra Work is made shall be determined by the unit prices upon which the Work and Project was bid to the extent such work can be fairly classified within the various work item descriptions. For work that cannot be fairly classified within the said various work item descriptions, the basis of compensation to the Contractor

for work either added or deleted by a change order or for which a claim for Extra Work is made shall be determined by one or more of the following methods:

Method (A)

By agreed unit prices; or

Method (B)

By agreed lump sum; or

Method (C)

If neither Method (A) nor Method (B) is agreed upon before the Extra Work is commenced, then the Contractor shall be paid the "actual field cost" of the Work, plus fifteen percent (15%).

In the event said Extra Work is performed and paid for under Method (C), then the provisions of this paragraph shall apply and the "actual field cost" is hereby defined to include the cost to the Contractor of all workmen, such as foremen, timekeepers, mechanics and laborers, and materials, supplies, trucks, rentals on machinery and equipment, for the time actually employed or used on such Extra Work, plus actual equipment, for the time actually employed or used on such Extra Work, plus actual transportation charges necessarily incurred, together with all power, fuel, lubricants, water and similar operating expenses, also all necessary incidental expenses incurred directly on account of such Extra Work, including Social Security, Old Age Benefits and other payroll taxes, and a rateable proportion of premiums on performance and payment bonds and maintenance bonds, public liability and property damage and workers' compensation, and all other insurance as may be required by any law or ordinance, or directed or agreed to by the County. The Observer may direct the form in which accounts of the "actual field cost" shall be kept and the records of these accounts shall be made available to the Observer. The Observer or the County may also specify, in writing before the Extra Work commences, the method of doing the Extra Work and the type and kind of machinery and equipment to be used; otherwise these matters shall be determined by the Contractor. Unless otherwise agreed upon, the prices for the use of machinery and equipment shall be determined by using one hundred percent (100%), unless otherwise specified, of the latest schedule of Equipment ownership Expense adopted by the Associated General Contractors of America. Where practicable the terms and prices for the use of machinery and equipment shall be incorporated in the written Extra Work order. The fifteen percent (15%) of the "actual field cost" to be paid the Contractor shall cover and compensate Contractor for its profit, overhead, general superintendence and field office expense, and all other elements of cost and expense not embraced within the "actual field cost" as herein defined, save that where the Contractor's camp or field office must be maintained primarily on account of such Extra Work; then the cost to maintain and operate the same shall be included in the "actual field cost."

No claim for Extra Work of any kind will be allowed unless ordered, in writing, by the Observer. In case any orders or instructions, either oral or written, appear to the Contractor to involve Extra Work for which Contractor should receive compensation or an adjustment in

the construction time, Contractor shall make written request to the Observer for written order authorizing such Extra Work. Should a difference of opinion arise as to what does or does not constitute Extra Work, or as to the payment therefor, and the Observer insists upon its performance, the Contractor shall proceed with the Work after making written request for written order and shall keep an accurate account of the "actual field cost" thereof, as provided under Method (C).

#### **6.04 Time of Filing Claims**

The County and Contractor hereby agree and acknowledge that all questions of dispute or adjustment presented by the Contractor shall be in writing and filed with the Observer within thirty (30) days after the Observer has given any directions, order or instruction to which the Contractor desires to take exception. The Observer shall reply within thirty (30) days to such written exceptions by the Contractor and render the Observer's final decision in writing. In case the Contractor should appeal from the Observer's decision, the Contractor may file with the County its objection. It is further agreed that the acceptance by the Contractor of the Final Payment shall serve as a bar to any claims that the Contractor may have for matters arising prior to or after the Contractor's acceptance of the Final Payment.

#### **6.05 Continuing Performance**

The Contractor shall continue performance of the Work during all disputes or disagreements with the County. The production or delivery of goods, the furnishing of services and the construction of projects or facilities shall not be delayed, prejudiced or postponed pending resolution of any disputes or disagreements, except as the County may otherwise agree in writing.

### **7. Abandonment of Contract**

#### **7.01 Abandonment by Contractor**

In case the Contractor should abandon and fail or refuse to resume work within ten (10) days after written notification from either the County or the Observer, or if the Contractor fails to comply with the orders of the Observer when such orders are consistent with the Contract Documents, then and in such case where performance bonds exist, the appropriate sureties on these bonds shall be provided with a notice of abandonment and notice for completion whereby (i) the sureties are notified of the Contractor's abandonment or Contractor's failure or refusal to resume work; and (ii) the sureties are directed to complete the Work. A copy of the notice of abandonment and notice for completion shall be delivered to the Contractor.

After receiving a copy of the above described notice of abandonment and notice for completion, the Contractor shall not remove from the Project any machinery, equipment, tools, materials or supplies that then currently exist on the Project site, but the same, together with any materials and equipment under contract for the Work, may be held for use on the Project by the County or the surety on the performance bond, or another contractor in completion of the Work; and the Contractor shall not receive any rental or credit therefor (except when used in connection with Extra Work, where credit shall be allowed as provided for under Section 6, Extra Work and Claims, herein), it being understood that the use of such

equipment and materials will ultimately reduce the cost to complete the Work and be reflected in the final settlement.

Where there is no performance bond provided or in case the surety should fail to commence compliance within ten (10) days after service of the herein above provided notice of abandonment and notice for completion, then the County may provide for completion of the Work in either of the following elective manners:

- (1) The County may thereupon employ such force of men and use such machinery, equipment, tools, materials and supplies as the County may deem necessary to complete the Work and charge the expense of such labor, machinery, equipment, tools, materials and supplies to the Contractor, and expense so charged shall be deducted and paid by the County out of such monies as may be due, or that may thereafter at any time become due to the Contractor under and by virtue of the Contract Documents. In case such expense is less than the sum which would have been payable under the Contract Documents if the same had been completed by the Contractor, then the Contractor shall receive the difference. In case such expense is greater than the sum which would have been payable under the Contract Documents if the same had been completed by the Contractor, then the Contractor and/or its surety shall pay the amount of such excess to the County, or
- (2) The County, under sealed bids, after five (5) days notice published one or more times in a newspaper having general circulation in the area of the location of the Project, may let a contract for the completion of the Work under substantially the same terms and conditions which are provided in the Contract Documents. In case there is any increase in cost to the County under the new contract as compared to what would have been the cost under the Contract Documents, such increase shall be charged to the Contractor and the surety shall be and remain bound therefor. However, should the cost to complete any such contract prove to be less than what would have been the cost to complete under the Contract Documents, the Contractor and/or its surety shall be credited therewith.

When the Work shall have reached Final Completion, the Contractor and its surety shall be so notified and Certificates of Completion and Acceptance, as provided in Section 5.06 herein above, shall be issued. A complete itemized statement of the contract accounts, certified by the Observer as being correct, shall then be prepared and delivered to the Contractor and its surety, whereupon the Contractor and/or its surety, or the County as the case may be, shall pay the balance due as reflected by said statement within fifteen (15) days after the date of such Certificate of Completion.

In the event the statement of accounts shows that the cost to complete the Work is less than that which would have been the cost to the County had the Work been completed by the Contractor under the terms of the Contract Documents, or when the Contractor and/or its surety shall pay the balance shown to be due by them to the County, then all machinery, equipment, tools, materials or supplies left on the site of the Project shall be turned over to the Contractor and/or its surety.

Should the cost to complete the Work exceed the amount the County would have been obligated to pay the Contractor had the Work been completed by the Contractor under the terms of the Contract Documents, and should the Contractor and/or its surety fail to pay the amount due the County within the time designated hereinabove, and should there remain any machinery, equipment, tools, materials or supplies on the site of the Project, notice thereof, together with an itemized list of such equipment and materials, shall be mailed to the Contractor and its surety at the respective addresses designated in the Contract Documents. After properly tendering such notice, such property shall be held at the risk of the Contractor and its surety subject only to the duty of the County to exercise ordinary care to protect such property. After fifteen (15) days from the date of said notice, the County may sell such machinery, equipment, tools, materials or supplies and apply the net sum derived from such sale to the credit of the Contractor and its surety. Such sale may be made at either public or private sale, with or without notice, as the County may elect. The County shall release, to their proper owners, any machinery, equipment, tools, materials, or supplies, which remain on the Project and which belong to persons other than the Contractor or its surety. The books on all operations provided herein shall be opened to the Contractor and its surety.

#### **7.02 Abandonment by the County**

In the event that the County should fail, within ten (10) days after receiving written notification from the Contractor, to comply with the terms of the Contract Documents, then the Contractor may suspend or wholly abandon the Work, and may remove therefrom all machinery, tools and equipment, and all materials on the Project site that have not been included in payments to the Contractor and have not been wrought into the Work. Thereupon, the Observer shall make an estimate of the total amount earned by the Contractor, which estimate shall include the value of all work actually completed by said Contractor (at the prices stated in the Contract Documents), the value of all partially completed work at a fair and equitable price, and the amount of all Extra Work performed at the prices agreed upon, or provided for by the terms of the Contract Documents. The Observer shall then make a final statement of the balance due the Contractor by deducting from the above estimate all previous payments by the County and all other sums that may be retained by the County under the terms of the Agreement and the Contract Documents and the Observer shall certify same to the County who shall pay to the Contractor on or before thirty (30) days after the date of the Observer's certification.

### **8. Subcontractors**

#### **8.01 Award of Subcontracts for Portions of the Work**

Unless otherwise specified in the Contract Documents or in the Instructions to Bidders, the Contractor, as soon as practicable after the award of the contract, shall furnish to the Observer, in writing for acceptance by the County, a list of the names of the Subcontractors proposed for the principal portions of the Work. The Observer shall promptly notify the Contractor, in writing, if the County, after due investigation, has objection to any Subcontractor on such list and does not accept such Subcontractor.



The Contractor shall not contract with any Subcontractor or any person or organization (including those who are to furnish materials or equipment fabricated to a special design) proposed for portions of the Work designated in the Contract Documents or in the Instructions to Bidders or, if none is so designated, with any Subcontractor proposed for the principal portions of the Work who has been rejected by the County. The Contractor will not be required to contract with any Subcontractor or person or organization against whom the Contractor has a reasonable objection.

If the County refuses to accept any Subcontractor or person or organization on a list submitted by the Contractor in response to the requirements of the Contract Documents or the Instructions to Bidders, the Contractor shall submit an acceptable substitute and the Contract Price shall be increased or decreased by the difference in cost occasioned by such substitution and an appropriate change order shall be issued; however, no increase in the Contract Price shall be allowed for any such substitution unless the Contractor has acted promptly and responsively in submitting for acceptance any list or lists of names as required by the Contract Documents or the Instructions to Bidders.

If the County requires a change of any proposed Subcontractor or person or organization previously accepted by them, the Contract Price shall be increased or decreased by the difference in cost occasioned by such change and an appropriate change order shall be issued.

The Contractor shall not make any substitution for any Subcontractor or person or organization that has been accepted by the County, unless the substitution is acceptable to the County.

## **8.02 Subcontractual Relations**

All work performed for the Contractor by a Subcontractor shall be pursuant to an appropriate written agreement between the Contractor and the Subcontractor (and where appropriate between Subcontractors and Sub-subcontractors) which shall contain provisions that:

- (1) preserve and protect the rights of the County, the Observer, the GEC and the Engineer of Record under the contract with respect to the Work to be performed under the subcontract so that the subcontracting thereof will not prejudice such rights;
- (2) require that such work be performed in accordance with the requirements of the Contract Documents;
- (3) require submission to the Contractor of the applications for payment under each subcontract to which the Contractor is a party, in reasonable time to enable the Contractor to apply for payment in accordance with the Contract Documents;
- (4) require that all claims for additional costs, extensions of time, damages for delays or otherwise with respect to subcontracted portions of the Work shall be submitted to the Contractor (via any Subcontractor or Sub-subcontractor where appropriate) in sufficient time so that the Contractor may comply in the manner provided in the Contract Documents for like claims by the Contractor upon the County;
- (5) obligate each subcontractor specifically to consent to the provisions of this section.

A copy of all such signed subcontract agreements shall be filed by the Contractor with the Observer before the Subcontractor shall be allowed to commence work.

### **8.03 Payments to Subcontractors**

The Contractor shall pay each Subcontractor, upon receipt of payment from the County, an amount directly based upon the value of the Work performed and allowed to the Contractor on account of such Subcontractor's work, less the percentage retained from payments to the Contractor. The Contractor shall also require each Subcontractor to make similar payments to its subcontractors.

If the Observer fails to approve a payment for any cause which is the fault of the Contractor and not the fault of a particular Subcontractor, the Contractor shall pay the Subcontractor, on demand made at any time after the Certificate for Payment should otherwise have been issued, for its work to the extent completed, less the retained percentage, if any.

The Observer may, on request and at its discretion, furnish to any Subcontractor, if practicable, information regarding percentages of completion certified to the Contractor on account of work done by such Subcontractors.

Neither the County, the Observer nor the Engineer shall have any obligation to pay or to see to the payment of any monies to such Subcontractor except as may otherwise be required.

## **9. Protection of Persons and Property**

### **9.01 Safety Precautions and Programs**

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work.

### **9.02 Safety of Persons and Property**

The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury, or loss to:

- (1) all employees on the Work and all other persons who may be affected thereby;
- (2) all the Work and all materials and equipment to be incorporated therein, whether in storage or off the site, under the care, custody or control of the Contractor or any of its Subcontractors or Sub-subcontractors; and
- (3) other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, fences, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

The Contractor shall comply with all applicable laws, ordinances, rules, regulations and lawful orders of any public authority having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. Contractor shall erect and maintain, as required by existing conditions and progress of the Work, all reasonable safeguards for safety

and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent utilities.

When the use or storage of explosives or other hazardous materials or equipment is necessary for the execution of the Work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.

All blasting, including methods of storing and handling explosives and highly inflammable materials, shall conform to federal, state, local laws and ordinances.

The following is a list of requirements in addition to federal, state, and local laws and ordinances:

- (1) The Contractor shall furnish the County with a Certificate of Blasting Insurance in the amount of \$300,000.00 for each contract, at least twenty-four (24) hours prior to using explosives. A blasting permit must be obtained from the appropriate jurisdictions at least five (5) days prior to use of explosives. If blasting is covered under the Contractor's General Insurance Certificate for each contract, a separate blasting certificate will not be required.
- (2) The following public utility companies and departments will be notified by the Contractor, on every occasion, at least twenty-four (24) hours prior to the use of explosives: Water and Wastewater, Electric, Gas, Telephone and the County Engineering Department.
- (3) Explosive materials to be used shall be limited to blasting agents and dynamite, unless prior approval of other materials is obtained in writing from the Engineering Department.
- (4) During blasting, all reasonable precautions shall be taken to protect pedestrians, passing vehicles, and public or private property. Blasting mats or protective cover shall be used when required by the Observer, the permit, or by safe blasting practices.
- (5) All explosives shall be stored in accordance with all applicable laws and codes.
- (6) The Engineer or its representative shall have the right to limit the use of explosives and/or blasting methods which in its opinion are dangerous to the public or nearby property of any kind.
- (7) The Contractor, at its expense, shall promptly repair or replace all items known to be damaged as a result of blasting. All claims of damage shall be investigated by the County or by consulting firms approved by the County.
- (8) The Contractor shall maintain accurate records throughout the blasting operations showing the type explosive used, number of holes, pounds per hole, depth of hole, total pounds per shot, delays used, date and time of blast and initials of the Observer. The Contractor is fully responsible for all claims resulting from its blasting operation.

All damage or loss to any property referred to in this article caused, in whole or in part, by the Contractor, any Subcontractor, any Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, shall be

remedied by the Contractor, except damage or loss attributable solely to faulty drawings or specifications or solely to the acts or omissions of the County its agents, employees, or representatives or anyone employed by either of them, and not attributable in any degree to the fault or negligence of the Contractor.

The Contractor shall designate a responsible member of its organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated in writing by the Contractor to the County.

### **9.03 Location and Protection of Utilities**

Notwithstanding any other provision of the Contract Documents, the Contractor shall be solely responsible for the location and protection of any and all public utility lines and utility customer service lines in the Project area. The Contractor shall exercise due care to locate and to mark, uncover or otherwise protect all such lines in the construction zone and any of the Contractor's work or storage areas. Upon request, the County shall provide such information as it has about the location and grade of water, sewer, gas, and telephone and electric lines and other utilities in the Work area but such information shall not relieve or be deemed to be in satisfaction of the Contractor's obligation hereunder, which shall be primary and nondelegable. Any such lines damaged by the Contractor's operations shall be immediately repaired by the Contractor or it shall cause such damage to be repaired at its expense.

## **10. Termination**

### **10.01 Termination by the County for Cause**

Conditions for termination are as follows:

- (A) Without prejudice to any other legal or equitable right or remedy which it would otherwise possess hereunder or as a matter of law, the County shall be entitled, by giving Contractor five (5) days prior written notice, to terminate the Agreement in its entirety at any time:
  - (1) If the Contractor becomes insolvent, voluntarily files for bankruptcy, is the subject of an involuntary petition for bankruptcy commenced by its creditors, makes a general assignment for the benefit of creditors or becomes the subject of any other proceeding commenced under any statute or law for the relief of debtors; or
  - (2) If a receiver trustee or liquidator of any of the property or income of Contractor shall be appointed; or
  - (3) If Contractor:
    - (a) Shall fail to prosecute the Work or any part thereof with diligence necessary to insure its progress and completion as prescribed by the time schedules; and shall fail to take such steps to remedy such default within ten (10) days after written notice thereof from the County; or
  - (4) If Contractor:
    - (a) Shall commit a default under any of the terms, provisions, conditions, or covenants contained in the Contract Documents; and

- (b) Shall fail to take such steps to remedy such default within ten (10) days after written notice thereof from the County.
- (B) In the event of County's termination for cause, Contractor shall only be paid its reimbursable costs incurred prior to the effective date of the termination notice and shall not be entitled to receive any further fixed fee payments hereunder and shall be further subject to any claim the County may have against Contractor under other provisions of the Contract Documents or as a matter of law, including the refund of any overpayment of reimbursable costs and/or fixed fee.
- (C) If the Agreement is terminated for cause, the County shall have the right, but shall not be obligated, to complete the Work itself or by others; and to this end, the County shall be entitled to take possession of and use such equipment and materials as may be on the Project site, and to exercise all rights, options, and privileges of Contractor under its subcontracts, purchase orders, or otherwise; and Contractor shall promptly assign such rights, options and privileges to the County. If the County elects to complete the Work itself or by others, pursuant to the foregoing, the Contractor will reimburse the County for all costs incurred by the County (including, without limitation, applicable, general, and administrative expenses, and field overhead, and the cost of necessary equipment, materials, and field labor) in correcting work by Contractor which fails to meet contract requirements.

Nothing contained in the preceding sections shall require the County to pay for any of the Work which is unsatisfactory, as determined by the Observer or which is not submitted in compliance with the terms of the Contract Documents. The County shall not be required to make any payments to Contractor when Contractor is in default under the Contract Documents.

This Article shall not constitute a waiver of any right, at law or at equity, which the County may have if Contractor is in default, including the right to bring legal action for damages or to force specific performance of the terms and conditions of the Contract Documents.

## **10.02 Termination for Convenience**

In connection with the Work outlined in the Contract Documents, it is agreed and fully understood by Contractor, that the County may cancel or indefinitely suspend further work hereunder or terminate the Agreement for the convenience of the County, upon fifteen (15) days written notice to Contractor. In the event the County terminates the Agreement for convenience, it is hereby understood and acknowledged by the Contractor that immediately upon receipt of the County's notice of termination, all work and labor being performed under the Contract Documents shall cease. Contractor shall invoice the County for all work satisfactorily completed and shall be compensated in accordance with the terms of the Contractor Documents for work accomplished prior to the receipt of said notice. No amount shall be due for lost or anticipated profits. However, no cost incurred after the effective date of the notice of termination shall be treated as reimbursable costs unless it relates to carrying out the un-terminated portion or taking closeout measures.

### **10.03 Obligations of Contractor Following Termination**

After receipt of a notice of termination, whether such termination be for cause or convenience, Contractor shall, in good faith and to the best of its ability, do all things necessary to assure the efficient proper closeout of the terminated work (including the protection of County property). Among other things, the Contractor shall, except as otherwise directed or approved by the County:

- (1) Stop the Work on the date and to the extent specified in the notice of termination.
- (2) Place no further orders for subcontracts for services, equipment or materials, except as may be necessary for completion of such portion of the Work as is not terminated.
- (3) Terminate all orders and subcontracts to the extent that they relate to the performance of the Work terminated by the notice of termination.
- (4) Assign to the County, in the manner and to the extent directed by it, all right title, and interest of Contractor under the orders or subcontracts so terminated; in which case, the County shall have the right to settle or pay any or all claims arising out of such termination of such orders and/or subcontracts.
- (5) With the approval of the County, settle all outstanding liabilities and all claims arising out of such termination or orders and subcontracts.
- (6) Deliver to the County, all documents, property, plans, field surveys, maps, cross sections and other data, designs and work related to the Project, which shall become the property of the County upon termination. The delivery of such items shall be made in a reasonably organized form, without restriction on future use. Should the County subsequently contract with a new contractor for continuation of services on the Project subject of the Contract Documents, Contractor shall cooperate in providing information to the County and the new contractor.

## **11. Inspection and Audit**

Contractor's records shall be subject to audit and such records shall include, but not be limited to accounting records, written policies and procedures; subcontract files (including proposals of successful and unsuccessful bidders, bid recaps, etc.); original estimates; estimating work sheets; correspondence; change order files (including documentation covering negotiated settlements); back charge logs and supporting documentation; general ledger entries detailing cash and trade discounts earned, insurance rebates and dividends; and any other Contractor records which may have a bearing on matters of interest to the County in connection with the contractor's work for the County. All of the foregoing, hereinafter referred to as "records," shall be open to inspection and subject to audit and/or reproduction by County or its authorized representative to the extent necessary to adequately permit evaluation and verification of:

- (a) Contractor compliance with the Contract Documents,
- (b) compliance with County's business ethics policies,
- (c) compliance by other contractors or subcontractors with contracts with County or Contractor, and
- (d) compliance with provisions for pricing change orders, invoices or claims submitted by the Contractor or any of its payees.

Other specific records subject to audit include all information, materials and data of every kind and character such as documents, subscriptions, recordings, computerized information, agreements, purchase orders, leases, contracts, commitments, arrangements, notes, daily diaries, superintendent reports, drawings, receipts, vouchers and memoranda, and any and all other agreements, sources of information that may, in County's judgment, have any bearing on or pertain to any matters, rights, duties or obligations under or covered by the Contract Documents. Such records subject to audit shall also include those records necessary to evaluate and verify direct and indirect costs, (including overhead allocations) as they may apply to costs associated with this Project. In those situations where Contractor's records have been generated from computerized data (whether mainframe, mini-computer, or PC based computer systems), Contractor agrees to provide County's representatives with extracts of data files in computer readable format on data disks or suitable alternative computer data exchange formats.

The County or its designee shall be entitled to audit all of the Contractor's records for a period of three (3) years after final payment or a longer period if required by law.

Contractor shall require all payees (including those entering into lump sum subcontracts and lump sum major material purchase orders), to comply with the provisions of this article by insertion of the requirements hereof in a written contract agreement between Contractor and payee. Requirements to include flow-down audit provisions in contracts with payees will apply to Subcontractors, Sub-Subcontractors, material suppliers, etc. when working under any type of contract including lump sum agreement, unit price agreements, time and material agreements, cost plus agreements, or other agreements. Contractor will cooperate fully and will cause all payees to cooperate fully in furnishing or in making available to County from time to time whenever requested in an expeditious manner any and all such information, materials and data required by this section.

County's agent or its authorized representative shall have access to the Contractor's facilities, shall be allowed to interview all current or former employees to discuss matters pertinent to the performance of the Work, shall have access to all necessary records, and shall be provided adequate and appropriate work space, in order to conduct audits in compliance with this section.

**SECTION 12**  
**SPECIAL CONDITIONS OF AGREEMENT**



## Table of Contents

<b>I.</b>	<b>County</b>
<b>II.</b>	<b>Program Manager</b>
<b>III.</b>	<b>General Engineering Consultant (GEC)</b>
<b>IV.</b>	<b>The Construction Observer</b>
<b>V.</b>	<b>Engineer of Record</b>
<b>VI.</b>	<b>Insurance</b>
<b>VII.</b>	<b>Record ("As-Built") Drawings</b>
<b>VIII.</b>	<b>Limit of Financial Resources</b>
<b>IX.</b>	<b>Limits of Work and Payment</b>
<b>X.</b>	<b>State Sales Tax</b>
<b>XI.</b>	<b>Completion of Work on Time</b>
<b>XII.</b>	<b>Layout and Construction Stakes</b>
<b>XIII.</b>	<b>Safety</b>
<b>XIV.</b>	<b>Maintenance Bond Term &amp; Amount</b>
<b>XV.</b>	<b>Safety Restrictions - Work Near High Voltage Lines</b>
<b>XVI.</b>	<b>Erosion Control</b>
<b>XVII.</b>	<b>Discovery of Hazardous Materials</b>
<b>XVIII.</b>	<b>Submittals – Certificate of Compliance</b>
<b>XIX.</b>	<b>Unavailability of Materials</b>
<b>XX.</b>	<b>Traffic Control</b>
<b>XXI.</b>	<b>Temporary Traffic Handling Devices</b>
<b>XXII.</b>	<b>Roadway Signs</b>
<b>XXIII.</b>	<b>Project Signs</b>
<b>XXIV.</b>	<b>Permits</b>
<b>XXV.</b>	<b>Landscape Restoration</b>
<b>XXVI.</b>	<b>Existing Fencing</b>
<b>XXVII.</b>	<b>Easements</b>
<b>XXVIII.</b>	<b>Limits of Contractor's Operation</b>
<b>XXIX.</b>	<b>Maintenance of Pedestrian Walkways</b>
<b>XXX.</b>	<b>Spoil</b>
<b>XXXI.</b>	<b>Materials Testing</b>
<b>XXXII.</b>	<b>Pre-Construction Conference</b>
<b>XXXIII.</b>	<b>Weight Tickets</b>
<b>XXXIV.</b>	<b>Confined Space Entry Program</b>
<b>XXXV.</b>	<b>Tree and Plant Protection</b>
<b>XXXVI.</b>	<b>Prosecution and Progress</b>
<b>XXXVII.</b>	<b>Sanitary Provisions</b>
<b>XXXVIII.</b>	<b>Work Near Railroads</b>

## **SPECIAL CONDITIONS**

### **I. County**

Williamson County, a political subdivision of the State of Texas, acting through its County Judge, or his designee, agents or employees, whom Contractor has entered into the Agreement and for whom the Work is to be performed, is referred to as "County". The County shall be contacted through its Purchasing Department for contract related subjects and through the County Engineer's office for design and construction related subjects:

Purchasing Department  
Williamson County  
901 South Austin Avenue  
Georgetown, TX 78626

County Engineer  
Williamson County  
3151 SE Inner Loop  
Georgetown, TX 78626

### **II. Program Manager**

**Prime Strategies, Inc.** is the County's Program Manager for the Project. The Program Manager represents the County and oversees the planning, design, review, and coordination of the design and construction phases of the Project.

### **III. General Engineering Consultant (GEC)**

**HTNB Corporation** is the consulting engineering firm representing and assisting the County in the design, review, and coordination of the design and construction phases of the project, including oversight of the construction engineering and inspection services performed on the Project.

### **IV. The Construction Observer**

**Williamson County or Representative** is the "Construction Observer" referred to herein and in the Contract Documents. The Construction Observer will be responsible for performing construction observation services on the Project.

### **V. Engineer of Record**

**K. Friese and Associates** is the County's design professional, who shall provide professional engineering services as defined in the Texas Government Code Chapter 2254, Subchapter A, and referred to as the "Engineer of Record" in the "General Conditions of Agreement" contained in the Contract Documents. Nothing contained in the Contract Documents shall create any contractual or agency relationship between the Engineer of Record and the Contractor.

### **VI. Insurance**

The Contractor will carry Workmen's Compensation Insurance, Public Liability and Property Damage Insurance, and Automobile Insurance sufficient to provide adequate protection against damage claims which may arise from operations under the Contract Documents, in compliance with the following:

Contractors Insurance: Without limiting any of the other obligations or liabilities of the Contractor, during the term of the Agreement and prior to Final Completion, the Contractor and each subcontractor, at their own expense, shall purchase and maintain the herein stipulated minimum insurance with companies duly approved to do business in the State of Texas and satisfactory to the County. Certificates of each policy shall be delivered to the County before any work is started, along with a written statement from the issuing company stating that said policy shall not be canceled, non-renewed or materially changed without 30 days advance written notice being given to the County. Prior to the effective date of cancellation, Contractor must deliver to the County a replacement certificate of insurance or proof of reinstatement. A model Certificate of Insurance is illustrated herein. Coverage shall be of the following types and not less than the specified amounts:

- (a) workers' compensation as required by Texas law, with the policy endorsed to provide a waiver of subrogation as to the County; employer's liability insurance of not less than \$500,000 for each accident, \$500,000 disease--each employee, \$500,000 disease-policy limit.
- (b) commercial general liability insurance, including independent contractor's liability, completed operations and contractual liability covering, but not limited to, the liability assumed under the indemnification provisions of the Contract Documents, fully insuring Contractor's (or subcontractor's) liability for injury to or death of County's employees and third parties, extended to include personal injury liability coverage with damage to property of third parties, with minimum limits as set forth below:

General Aggregate	\$1,000,000
Operations Aggregate	\$1,000,000
Personal and Advertising Injury	\$600,000
Each Occurrence	\$600,000
Fire Damage (any one fire)	\$50,000
Medical Expense (any one person)	\$5,000

The policy shall include coverage extended to apply to completed operations, asbestos hazards (if this project involves work with asbestos) and XCU (explosion, collapse and underground) hazards. The completed operations coverage must be maintained for a minimum of one year after Final Completion and acceptance of the Work, with evidence of same filed with County.

- (c) comprehensive automobile and truck liability insurance, covering owned, hired and non-owned vehicles, with a combined bodily injury and property damage minimum limit of \$600,000 per occurrence; or separate limits of \$250,000 for bodily injury (per person), \$500,000 bodily injury (per accident) and \$100,000 for property damage. Such insurance shall include coverage for loading and unloading hazards.

"Umbrella" Liability Insurance: The Contractor shall obtain, pay for and maintain umbrella liability insurance during the contract term, insuring Contractor for an amount of not less than \$1,000,000 per occurrence combined limit for bodily injury and property damage that follows form and applies in excess of the primary liability coverages required herein above. The policy shall provide "drop down" coverage where underlying primary insurance coverage limits are insufficient or exhausted. County and Project Engineer shall be named as additional insured.

#### Policy Endorsements and Special Conditions

- (a) Each insurance policy to be furnished by Contractor shall include the following conditions by endorsement to the policy:
  - (1) name the County, the Program Manager, the County's Representatives, the Construction Observer and the Engineer of Record as an additional insured as to all applicable coverage;
  - (2) each policy shall require that 30 days prior to the cancellation, non-renewal or any material change in coverage, a notice thereof shall be given to County by certified mail.
  - (3) the term "County" shall include all authorities, boards, bureaus, commissions, divisions, departments and offices of the County and individual members, employees and agents thereof in their official capacities, and/or while acting on behalf of the County;
  - (4) the "Program Manager" represents and assists the County in the planning, design, review, and coordination of the design and construction phases of the project.
  - (5) the policy phrase "other insurance" shall not apply to the County where the County is an additional insured on the policy; and
  - (6) all provisions of the Contract Documents concerning liability, duty and standard of care together with the indemnification provision, shall be underwritten by contractual liability coverage sufficient to include such obligations within applicable policies.
- (b) Insurance furnished by the Contractor shall also be in accordance with the following requirements:
  - (1) any policy submitted shall not be subject to limitations, conditions or restrictions deemed inconsistent with the intent of the insurance requirements to be fulfilled by Contractor. The County's decision thereon shall be final;
  - (2) all policies are to be written through companies duly licensed to transact that class of insurance in the State of Texas; and
  - (3) all liability policies required herein shall be written with an "occurrence" basis coverage trigger.
- (c) Contractor agrees to the following:
  - (1) Contractor hereby waives subrogation rights for loss or damage to the extent same are covered by insurance. Insurers shall have no right of recovery or subrogation against the County, it being the intention that the insurance policies shall protect all

- parties to the Agreement and be primary coverage for all losses covered by the policies;
- (2) companies issuing the insurance policies and Contractor shall have no recourse against the County for payment of any premiums or assessments for any deductibles, as all such premiums and deductibles are the sole responsibility and risk of the Contractor;
  - (3) approval, disapproval or failure to act by the County regarding any insurance supplied by the Contractor (or any subcontractors) shall not relieve the Contractor of full responsibility or liability for damages and accidents as set forth in the contract documents. Neither shall the bankruptcy, insolvency or denial of liability by the insurance company exonerate the Contractor from liability; and
  - (4) no special payments shall be made for any insurance that the Contractor and subcontractors are required to carry; all are included in the contract price and the contract unit prices.

Any of such insurance policies required under the Contract Documents may be written in combination with any of the others, where legally permitted, but none of the specified limits may be lowered thereby.

The Contractor shall furnish the County with satisfactory proof that it has provided adequate insurance coverage in amounts and by approved carriers as required by the Contract Documents.

## **VII. Record ("As-Built") Drawings**

The Contractor shall mark all changes and revisions on all of its copies of the working drawings during the course of the Project as they occur. Upon completion of the Project and prior to Final Acceptance and Payment, the Contractor shall submit to the Construction Observer one set of its working drawings, dated and signed by the Contractor and its project superintendent and labeled as "As-Built", that shows all changes and revisions outlined above and that shows field locations of all above ground appurtenances including, but not limited to valves, fire hydrants and manholes. These as-built drawings shall be forwarded to the GEC and then to the County and become the property of the County. Each appurtenance shall be located by at least two (2) horizontal distances measured from existing, easily identifiable, immovable appurtenances such as fire hydrants or valves. Property pins can be used for as-builts tie-ins provided no existing utilities as previously described are available. Costs for delivering as-built drawings shall be subsidiary to other bid items.

## **VIII. Limit of Financial Resources**

The County has a limited amount of financial resources committed to this Project; therefore, it shall be understood by Contractor that the County may be required to change and/or delete any items which it may feel is necessary to accomplish all or part of the scope of work within its limit of financial resources. Contractor shall be entitled to no claim for damages or anticipated profits on any portion of work that may be omitted. At any time during the duration of the Project, the County reserves the right to omit any

work from the Contract Documents. Unit prices for all items previously approved in the Contract Documents shall be used to delete or add work per change order.

#### **IX. Limits of Work and Payment**

It shall be the obligation of the Contractor to complete all work included in the Contract Documents, so authorized by the County, as described in the Contract Documents and Technical Specifications. Any question arising as to the limits of work shall be left up to the interpretation of the Engineer and/or Observer.

#### **X. State Sales Tax**

On a contract awarded by a governmental entity for the construction of a publicly-owned improvement in a street right-of-way or other easement which has been dedicated to the public and to the an Organization which qualifies for exemption pursuant to the provisions of Article 20.04 (F) of the Texas Limited Sales, Excise and Use Tax Act, the Contractor can probably be exempted in the following manner:

The Contractor may buy tax-free any materials incorporated into the project by issuing a resale certificate in lieu of paying the sales tax at the time of purchase. The Contractor may then accept an exemption certificate from the City for the materials.

Even with a separated contract, the rental of equipment and the purchase of items which do not ultimately become part of the physical structure will still be subject to state and local sales taxes.

#### **XI. Completion of Work on Time**

The Contractor agrees that time is of the essence and that the definite value of damages which would result from delay would be incapable of ascertainment and uncertain, so that for each day of delay beyond the number of days herein agreed upon for the Substantial Completion of the Work specified in the Contract Documents and contracted for, after due allowance for such extension of time as is provided for under the provisions of Section 4.02 of the General Conditions, the County may withhold permanently from the Contractor's total compensation, not as penalty but as liquidated damages, the sum as specified in Special Specification 000-001 per calendar day.

Furthermore, it is agreed by the Contractor that the time period between Substantial Completion and Final Completion shall be no longer than **30** calendar days. This separate time period shall be for completion of the Punch List, as set forth in Section 5.06 of the General Conditions, Final Completion and Acceptance. In the event that Contractor fails to attain Final Completion on or before the expiration of the above said time period, the Contractor shall be subject to the remedies set forth in the Contract Documents. More specifically, the Contractor shall be subject to the terms set forth under Section 7.01 of the General Conditions, Abandonment by the Contractor. In addition to exercising its rights and remedies under the Contract Documents, the County may also exercise any remedy that may be available to it under the law or in equity.

**XII. Layout and Construction Stakes**

All construction staking shall be performed by the Contractor at the Contractor's expense.

**XIII. Safety**

The Contractor must use methods of construction that meet or exceed Occupational Safety and Health Administration Standards and any other local, state or federal regulations for safety that are in effect. The Contractor will have a trench safety plan prepared and sealed by Contractor's registered professional engineer.

**XIV. Maintenance Bond Term & Amount**

The required Maintenance Bond amount for this Project shall be twenty percent (20%) of the total amount bid and the bond period shall be two years from date of acceptance of completion, as noted on the Certificate of Completion.

**XV. Safety Restrictions - Work Near High Voltage Lines**

The following procedures shall be followed for work near high voltage lines on the Project.

- (a) A warning sign not less than five (5) inches by seven (7) inches, painted yellow with black letters that are legible at twelve (12) feet shall be placed inside and outside vehicles such as cranes, derricks, power shovels, drilling rigs, pile drivers, hoisting equipment or similar apparatus. The warning sign shall read as follows: "Warning-Unlawful to Operate This Equipment Within Six Feet of High Voltage Lines".
- (b) Equipment that may be operated with ten (10) feet of high voltage lines shall have an insulating cage guard around the boom or arm (except backhoes or dippers), and insulator links on the lift hook connections.
- (c) When necessary to work within six (6) feet of high voltage electrical lines, notify the power company. The electric company will erect temporary mechanical barriers, de-energize the line, or raise or lower the line. All such work done by the power company shall be at the expense of the contractor. The contractor shall maintain an accurate log of all such calls to the electric company.
- (d) No person shall work within six (6) feet of high voltage lines without protection measures having been taken as outlined in Paragraph C.

**XVI. Erosion Control**

Contractor shall comply with all laws prohibiting the pollution of any lake, stream, river, or wetland by the dumping of any refuse, rubbish, dredge material, or debris therein.

The Contractor will file the Notice of Intent (NOI) and the Notice of Termination (NOT) as the Project's operator. All required Permits and Notices shall be posted by the Contractor at the Project site.

Contractor shall apply temporary and/or permanent erosion and sedimentation controls, as specified in the plans or directed to disturbed roadside areas, fifteen feet and beyond from road pavement, prior to initiating road base operations. Following asphalt paving of road pavement, apply temporary and/or permanent erosion and sedimentation controls to remaining disturbed areas, as specified in the plans or as directed.

Contractor shall be responsible for the maintenance of all temporary and permanent water quality and erosion control measures proposed under the Storm Water Pollution Prevention Plan (SWPPP) or the Water Pollution Abatement Plan (WPAP) for the duration of the Project construction. Upon completion of construction and before the Construction Observer issues the Certificate of Completion, Contractor shall be responsible for the removal of all temporary measures and the cleaning and resetting of all permanent measures. All costs associated with this work shall be considered subsidiary to other bid items and no additional compensation shall be allowed.

Contractor shall take special precautions during all periods of heavy rainfall and at all locations where storm water, groundwater and/or mud and debris may enter the sewer systems. All mud, stones, and debris that enter the sewer systems due to Contractor's operations, or Contractor's neglect, shall be cleaned from the system by Contractor. It shall be Contractor's responsibility to see that such storm water, groundwater and debris do not enter the sewer system. All costs for such work shall be merged in the unit prices bid and no additional compensation shall be allowed.

If it is necessary in the prosecution of the Work to interrupt existing surface drainage, sewers, or under drainage, temporary drainage shall be provided until permanent drainage work is completed. The construction of all temporary drainage installations shall be considered as incidental to the construction of the Work. Drainage ways shall be kept clear or other satisfactory provisions made for drainage.

Contractor shall be responsible for and shall take all reasonable and necessary precautions to preserve and protect all existing tile drains, sewers, and other subsurface drains, or parts thereof, which may be continued in service without



change. Contractor shall repair, at its own expense, any and all damage to such facilities resulting from negligence or carelessness on the part of its operations.

The Construction Observer shall be responsible for the monitoring and inspection of the erosion control measures by completion of the Construction Pollution Prevention Plan Inspection and Maintenance Report, as required for coverage under the Texas Pollutant Discharge Elimination System (TPDES) General Construction Permit (TXR150000).

**XVII. Discovery of Hazardous Materials**

If, during the course of the Work, the existence of hazardous material, including asbestos containing material, is observed in the work area, the Contractor shall immediately notify the County in writing. The Contractor shall not perform any work pertinent to the hazardous material prior to receipt of special instructions from the County. Asbestos containing material includes transit pipe.

**XVIII. Submittals – Certificate of Compliance**

The Contractor shall submit to the Construction Observer a Certificate of Compliance from the manufacturer and/or supplier of each and every specified material or manufactured equipment item. The said certificate shall state that the material or the item of equipment to be furnished has been manufactured with materials in accordance with the applicable sections of all required codes, specifications, and standards as required by the specifications.

**XIX. Unavailability of Materials**

If the Contractor is unable to furnish or use any of the materials or equipment specified because of any order by a governmental agency limiting the manufacture or use, or because of the supply situation in the general market for such material or equipment, the Contractor shall offer substitutes therefor. The substitutes shall be suitable for the purpose, considering the factors of quality, serviceability, appearance, and maintenance. No substitute shall be used until the Engineer has approved it.

No consideration will be given to the use of substitutes on account of market conditions unless the Contractor demonstrates that, for the item in question, the Contractor placed its order without delay, that it has shown due diligence in attempting to locate the item as specified, and that the unavailability is due to market conditions in general throughout the particular industry.

If substitutes are used in the Work, the compensation to be paid to the Contractor shall be subject to review and adjustment. As a general principle, if the Engineer shall determine that the substitute will be less satisfactory, the Contractor shall allow a credit to the County; only under unusual circumstances shall there be an increase in compensation to the Contractor on account of substitution. The basis upon which the amount of price and adjustments will be founded shall be the cost of the appropriate items at the time the bids for the Project were opened.

**XX. Traffic Control**

Access shall be provided for residents and emergency vehicles at all times. When it becomes necessary to restrict access, the Contractor shall notify all applicable agencies (i.e. Fire Department, E.M.S., Public Works, etc.) a minimum of five (5) working days in advance of the proposed restrictions. At the end of each day, two lanes of traffic shall be opened to the public, unless otherwise stated in the Contract Documents.

**XXI. Temporary Traffic Handling Devices**

The Contractor shall furnish, erect and maintain all necessary barricades, lights, warning signs and temporary pavement markings as shown on the Plans and/or in accordance with the Texas Manual on Uniform Traffic Control Devices and with the Specifications in the Contract Documents. In addition, the Contractor shall provide flag-persons and take necessary precautionary measures for the protection of persons, property and the Work, when deemed necessary by the County or the Construction Observer.

The Construction Observer shall be responsible for the monitoring and inspection of the traffic control measures by completion of the Traffic Control Devices Inspection Report (TCDIR), and the Contractor shall be responsible for compliance with the terms of the TCDIR procedures.

**XXII. Roadway Signs**

All permanent and temporary roadway signage designated in the Contract Documents shall be in accordance with the Texas Manual on Uniform Traffic Control Devices.

**XXIII. Project Signs**

The Contractor shall erect at the site of construction, and maintain during construction, signs satisfactory to the County identifying the Project and indicating that the government is participating in the development of the Project. Two project signs will be required for the Project. The two said signs shall be 8' X 4' and made out of white 10 mm corrugated plastic with pressure sensitive vinyl lettering to include: Williamson County Road Bond Program, County Tax Dollars at Work, with the Williamson County Seal, the Project's name, and a brief description relating to the estimated date of completion, contact phone number, website address and the appropriate Williamson County Commissioner's name and precinct number. For more information, contact "Quick Signs" at (512) 251-5517. Furnishing, installing and maintaining these signs shall be considered subsidiary to Item 502, "Barricades, Signs and Traffic Handling".

**XXIV. Permits**

The Contractor shall be responsible for obtaining any and all required construction permits. Contractor agrees to comply with all conditions of the permits and to maintain copies of the permits at the site at all times while the Work is in progress. The County shall be responsible for obtaining Section 404

permits from the U.S. Army Corps of Engineers as part of the Project design. When Contractor-initiated changes in the construction method changes the impacts to waters of the U.S., Contractor shall be responsible for obtaining new or revised Section 404 permits.

**XXV. Landscape Restoration**

If not designated as a specific pay item in bid package, the Contractor shall take the means necessary to protect all trees, shrubbery and sod. Protection, removal and replacement of existing landscaping will be in accordance with the Contract Documents.

**XXVI. Existing Fencing**

All fences encountered during construction within the right-of-way (ROW) shall be removed by the Contractor under "Preparing Right-of-Way." Permanent fencing, designating the ROW, will be provided by others, unless otherwise shown in the Contract Documents. The Contractor will be required to coordinate preparing ROW operations and fence removal and installations with the landowners as needed.

**XXVII. Easements**

Any easements, both temporary and permanent, required for the Project will be provided by the County as shown in the Contract Documents. Other easements required or desirable by the Contractor shall be arranged by the Contractor at its sole expense. The easements shall be cleaned after use and restored to their original conditions, or better by the Contractor. In the event additional work is required by the Contractor, it shall be the Contractor's responsibility to obtain written permission from the property owners involved for the use of additional property required. No additional payment will be allowed for this item.

**XXVIII. Limits of Contractor's Operation**

The Contractor shall limit construction operations to within the ROW or the easement unless otherwise directed by the County or its authorized representative.

**XXIX. Maintenance of Pedestrian Walkways**

The Contractor will be required to maintain clear walkways for pedestrians during construction in a manner to provide access in the most convenient and safest manner consistent with essential construction operations. Specifically, the following will be enforced.

Pedestrian traffic may be blocked at a location where work is actually in progress. Signs, barricades, and warning devices must be placed at nearest crosswalks approaching the construction site from every direction advising pedestrians of the blockage and advising them to use alternate routes.

Access to doorways and pedestrian entrances must be maintained at all times during hours that access is needed by business. Paving by sections or providing temporary access may be required.

No more than one corner of any intersection may be under construction at any one time. Work must be completed and opened for use by pedestrians before starting work on any other corner of an intersection.

The Contractor will be expected to diligently pursue construction from start to completion at every location to avoid prolonged and unnecessary disruptions to pedestrian traffic.

This work shall be considered incidental and not a separate pay item, unless provided otherwise in the Contract Documents.

**XXX. Spoil**

All excavated material unfit for backfill, waste material accumulated on the job, and any material surplus to that needed in the prosecution of the Work shall be removed from the site by the Contractor and properly and legally disposed of at its expense, unless otherwise directed by the Observer. **THE CONTRACTOR SHALL INDEMNIFY AND SAVE HARMLESS THE COUNTY, ALL OF ITS OFFICERS, AGENTS, AND EMPLOYEES FROM ALL SUITS, ACTIONS, OR CLAIMS OF ANY CHARACTER RESULTING FROM ITS ARRANGEMENTS FOR THE DISPOSAL OF SPOIL.** This shall be incidental and not a separate pay item.

**XXXI. Materials Testing**

Quality Control testing of all materials, construction items or products incorporated in the work shall be performed by the Contractor at the Contractor's expense, and shall be performed in accordance with the Quality Control (QC) / Quality Assurance (QA) program outlined in Appendix A.

Quality Assurance sampling and testing for acceptance may be required for quality assurance of used materials as directed by the Construction Observer or the County. The cost of such tests will be incurred by the County and coordinated by the Construction Observer through funds made available to the Construction Observer under his/her agreement with the County for the professional services related to construction engineering and inspection on the Project.

The Contractor shall furnish for review by the Construction Observer, not later than 10 days after receipt of notice to proceed, a Quality Control Plan consisting of plans, procedures, and organization necessary to produce an end product which complies with the contract documents. The Contractor will be allowed the latitude to develop standards of control subject to approval by the County. As a minimum, the plan shall include description of the type and frequency of

inspection staffing, materials handling and control, and testing deemed necessary to measure and control quality as specified by the contract documents.

**XXXII. Pre-Construction Conference**

Before the Project work order is issued, a pre-construction conference shall be held with representatives of the County and the Contractor. The Contractor shall plan to submit a schedule of operations at the pre-construction conference, unless otherwise notified. See Section XXXVI-Prosecution and Progress for additional construction schedule requirements.

**XXXIII. Weight Tickets**

The Contractor will be responsible for providing asphalt and aggregate tickets for quantity verifications on all asphaltic concrete used for the Project.

**XXXIV. Confined Space Entry Program**

It shall be the responsibility of the Contractor to implement and maintain a variable "Confined Space Entry Program" which must meet OSHA requirements for all its employees and subcontractors at all times during construction. OSHA defines all active sewer manholes, regardless of depth, as "permit required confined spaces". Contractors shall submit an acceptable "Confined Space Entry Program" for all applicable manholes and maintain an active file for these manholes. The cost of complying with this program shall be subsidiary to the pay items involving work in confined spaces.

**XXXV. Tree and Plant Protection**

Scope: Provide complete protection and maintenance of existing trees, shrubs, and grass areas designated to remain within construction limits and/or right-of-way.

Coordination: Coordinate protection of existing trees, shrubs and grass areas with other trades so as to prevent damage to these items.

Payment for Damages: If existing trees, shrubs or grass areas are destroyed, killed or badly damaged as a result of construction observations, Contract sum will be reduced by the amount of assessed damages. Damages will be evaluated by the Construction Observer, using the following:

Trees: International Shade Tree Conference Standards and following formula – measurement of a cross section of tree trunk will be made at a point 2 feet above existing grade level to determine cross section area in square inches. Assessment for damage will be \$27.00 per square inch.

Shrubs and Grass Areas: An initial fine of \$1,000 shall be imposed for any unauthorized disturbance within the boundaries of the shrub and grass areas to remain within the right-of-way and outside the limits of disturbance. This

disturbance includes but is not limited to: parking or intrusion of equipment or vehicles; storage of any materials, and any unauthorized damage and/or removal of vegetation. In addition to the initial fine, a base fine of \$8.00 for every square foot of area of damaged vegetation within any areas designated to remain on the plans shall be imposed. The areas covered under this section include but are not limited to: areas designated to remain or no-work areas. In determining the amount of fine, the Construction Observer shall consider the degree and extent of harm caused by the violation, the cost of rectifying the damage, and whether the violation was committed willfully.

Materials: Tree Protection lumber dimensions shall be 4X4 and 2X4 sizes.

Protection: The Contractor shall protect existing trees, shrubs, and grass areas within construction limits from the following damage:

- (1) Compaction of root area by equipment, vehicles or material storage;
- (2) Trunk damage by moving equipment material storage, nailing or bolting;
- (3) Strangling by tying ropes or guy wires to trunks or large branches;
- (4) Poisoning by pouring solvents, gas, paint or other chemicals on or around trees and roots;
- (5) Cutting of roots by excavating or ditching;
- (6) Damage of branches by improper pruning;
- (7) Drought from failure to water or by cutting or changing normal drainage pattern past roots;
- (8) Changes of soil pH factor by disposal of lime base materials such as concrete or plaster;
- (9) Do not cut roots 1-1/2" in diameter or over. Excavation and earthwork within drip line of trees shall be done by hand.

Install barricade protection around trees and shrubs, constructed of 4X4 posts and 2X4 stringers top and bottom. Install protection prior to demolition or excavation operations. Leave protection until construction operations are essentially complete.

Maintenance:

- (1) Water trees and shrubs within construction limits as required to maintain their health during course of construction operations.
- (2) Pruning will be performed by County.

#### **XXXVI. Prosecution and Progress**

At the pre-construction meeting, the Contractor shall submit for acceptance a schedule of all planned work activities and sequences that is intended to be followed in order to both substantially and fully complete the Work within the

allotted time periods (the "Project Schedule"). The purpose of the County requiring the Project Schedule shall be to:

- (1) Ensure adequate planning during the prosecution and progress of the work in accordance with the allowable number of working/ calendar days and all milestones;
- (2) Assure coordination of the efforts of the Contractor, County, Program Manager, Construction Observer, utilities and others that may be involved in the Project;
- (3) Assist the Contractor, County, Program Manager and Construction Observer in monitoring the progress of the Work and evaluating proposed changes to the Contract Documents; and
- (4) Assist the County, Program Manager and Construction Observer in administering the time requirements set forth in the Contract Documents.

A Type B Schedule will be required on all projects. Following is the schedule requirements:

Type B Schedule:

The Contractor shall create and maintain a Critical Path Method (CPM) Project Schedule showing the manner of prosecution of work that it intends to follow in order to both substantially and fully complete the Work within the allotted time periods. The Project Schedule shall employ computerized CPM for the planning, scheduling and reporting of the work as described in this specification. The CPM Project Schedule shall be prepared using the Precedence Diagram Method (PDM). The Contractor shall create and maintain the schedule using the latest version, at the time of the award of the Project, of Primavera System, Inc. Primavera Project Planner or Suretrak Project Scheduler computer scheduling software, except when a general note requires otherwise. Microsoft Project will not be acceptable. No direct compensation will be allowed for fulfilling these requirements, as such work is considered subsidiary to the various bid items of the Project.

- (1) Personnel. The Contractor shall provide an individual, referred to hereinafter as the Scheduler, to create and maintain the CPM schedule. He or she shall be proficient in CPM analysis and shall be able to perform required tasks on the specified software. The Scheduler shall be made available for discussion or meetings when requested by the County, Construction Observer or Program Manager.
- (2) Schedule. The Project Schedule shall show the sequence and interdependence of activities required for complete performance of the

work. The Contractor shall be responsible for assuring all work sequences are logical and show a coordinated plan of the Work.

Each activity on the schedule shall be described by: An activity number utilizing an alphanumeric designation system tied to the traffic control plans, and that is agreeable to the County, Program Manager, or Construction Observer; concise description of the Work represented by the activity; and activity durations in whole working days with a maximum of twenty (20) working days. Durations greater than twenty (20) working days may be used for non-construction activities (mobilization, submittal preparation, curing, etc.), and other activities mutually agreeable between the Contractor and County, Program Manager or Construction Observer. The Contractor shall provide a legend for all abbreviations. The activities shall be coded so that organized plots of the schedule may be produced. Typical activity coding includes: Traffic control phase, location and work type. If allowed and if the Contractor chooses to use Suretrak Project Manager to create the schedule, the Contractor shall not use the independent activity type. This would cause the schedule to be incompatible with Primavera Project Planner.

The activity durations shall be based on the quantity for the individual work activity divided by a production rate. An estimated production rate for each activity shall also be shown.

The Contractor shall plan and incorporate major resources into the schedule. Major resources are defined as crews and equipment that constrain the Contractor from pursuing available work. The resources shall accurately represent the Contractor's planned equipment and manpower to achieve the productivity rates specified above.

Seasonal weather conditions shall be considered and included in the CPM schedule for all work influenced by temperature and/or precipitation. Seasonal weather conditions shall be determined by an assessment of average historical climatic conditions. Average historical weather data is available through the National Oceanic and Atmospheric Administration (NOAA). These effects will be simulated through the use of work calendars for each major work type (i.e., earthwork, concrete paving, structures, asphalt, drainage, etc.) Project and work calendars should be updated each month to show days actually able to work on the various work activities.

“Total float” is defined as the amount of time between the early start date and the late start date, or the early finish date and the late finish date, for each and every activity in the schedule. Float time in the schedule is a shared commodity between the County and the Contractor.



Only responsible delays in activities that affect milestone dates or the Project's completion date, as determined by CPM analysis, will be considered for a time extension.

The schedule shall show the sequence and interdependence of activities required for complete performance of the work. The schedule shall be prepared and maintained in accordance with the scheduling requirements stated in this Section and shall include two (2) organized plots with the activities logically grouped using the activity coding. The Contractor shall also provide an electronic copy of the schedule on diskette or CD-ROM.

The schedule shall encompass the time from the start of the Contract Time to the Project's Final Completion. The longest path through the schedule shall be readily discernable on the plot of the schedule.

- (3) Joint Review, Revision and Acceptance. Within twenty (20) calendar days of receipt of the Contractor's proposed schedule, the County or its authorized agents shall evaluate the schedule for compliance with this specification, and notify the Contractor of the findings. If the County or its authorized personnel request a revision or justification, the Contractor shall provide a satisfactory revision or adequate justification to the satisfaction of the Construction Observer or County authorized personnel within seven (7) calendar days.

If the Contractor submits a CPM schedule for acceptance which is based on a sequence of work not in the Contract Documents, then the Contractor shall notify the County or its authorized entities in writing, separate from the schedule submittal.

The County's review and acceptance of the Contractor's Project Schedule is for conformance to the requirements of the Contract Documents only. Review and acceptance by the County or other authorized personnel of the Contractor's Project Schedule does not relieve the Contractor of any of its responsibility for the Project Schedule, or of the Contractor's ability to meet interim milestone dates (if specified) and the Final Completion date, nor does such review and acceptance expressly or by implication warrant, acknowledge or admit the reasonableness of the logic, durations, manpower or equipment loading of the Contractor's Project Schedule. In the event the Contractor fails to define any element of work, activity or logic and the County's review does not detect this omission or error, such omission or error, when discovered by the Contractor or County and its authorized personnel, shall be corrected by the Contractor at the next monthly schedule update and shall not affect the project completion date.

- (4) Updates. The Project Schedule shall be updated on a monthly basis and shall be required as a basis for the pay application approval. The Project

Schedule update shall be submitted on the first working day of each month. The Contractor shall meet with the Construction Observer or County authorized personnel each month at a scheduled update meeting to review actual progress made through the data date of the schedule update. The review of progress will include dates activities actually started and/or completed, and the percentage of work completed or remaining duration on each activity started and/or completed. The percentage of work complete shall be calculated by utilizing the quantity and productivity rate information. The Project Schedule update shall include one (1) copy of the following information:

- a) Electronic copy of the updated schedule including revisions and changes on diskette or CD-ROM.
  - b) One (1) logically organized plot of the schedule update if requested by the County or its authorized personnel.
- (5) Project Schedule Revisions. If the Contractor desires to make major changes in the Project Schedule, the Contractor shall notify the County or Construction Observer in writing. The written notification shall include the reason for the proposed revision, what the revision is comprised of, and how the revision was incorporated into the schedule. In addition to the written notification of the revision, the Contractor shall provide an electronic copy and one logically organized plot of the schedule including the revision if requested by the County or Construction Observer.

Major changes are hereby defined as those that may affect compliance with the requirements of the Contract Documents or those that change the critical path. All other changes may be accomplished through the monthly updating process.

- (6) Time Impact Analysis. The Contractor shall notify the County or Construction Observer when an impact may justify an extension of Contract Time or adjustment of milestone dates. This notice shall be made in writing as soon as possible, but no later than the end of the next estimate period after the commencement of an impact or the notice for a change is given to the Contractor. Not providing notice to the County or Construction Observer by the end of the next estimate period will indicate the Contractor's approval of the time charges as shown on that time statement. Future consideration of that statement will not be permitted and the Contractor forfeits its right to subsequently request a time extension or time suspension unless the circumstances are such that the Contractor could not reasonably have knowledge of the impact by the end of the next estimate period.

When changes are initiated or impacts are experienced, the Contractor shall submit to the County or Construction Observer a written time impact analysis describing the influence of each change or impact.

A time impact analysis is an evaluation of the effects of changes in the construction sequence, contract, plans, or site conditions on the Contractor's plan for constructing the Project, as represented by the Project Schedule. The purpose of the time impact analysis is to determine if the overall Project has been delayed, and if necessary, to provide the Contractor and the County a basis for making adjustments to the time allotted for Substantial Completion and Final Completion.

A time impact analysis shall consist of one or all of the steps listed below.

Step 1. Establish the status of the Project before the impact using the most recent Project Schedule update prior to the impact occurrence.

Step 2. Predict the effect of the impact on the most recent Project Schedule update prior to the impact occurrence. This requires estimating the duration of the impact and inserting the impact into the schedule update. The Contractor shall demonstrate how the impact was inserted into the schedule showing the added or modified activities and the added or modified relationships. Any other changes made to the schedule including modifications to the calendars or constraints shall be noted.

Step 3. Track the effects of the impact on the schedule during its occurrence. Note any changes in sequencing, and mitigation efforts.

Step 4. Compare the status of the Work prior to the impact (Step 1) to the prediction of the effect of the impact (Step 2), and to the status of the work during and after the effects of the impact are over (Step 3). Note that if an impact causes a lack of access to a portion of the Project, the effects of the impact may extend to include a reasonable period for remobilization.

The time impact analysis shall include an electronic copy of the complete schedule prepared in Step 2. If the Project Schedule is revised after the submittal of a time impact analysis but prior to its approval, the Contractor shall promptly indicate in writing to the County or Construction Observer the need for any modification to its time impact analysis.

Only one (1) copy of each time impact analysis shall be submitted within fourteen (14) calendar days after the completion of an impact. The County or Construction Observer may require Step 1 and Step 2 of the time impact analysis be submitted at the commencement of the impact, if needed to make a decision regarding the suspension of Contract Time.

Approval or rejection of each time impact analysis by the County, Construction Observer or Program Manager shall be made within fourteen (14) calendar days after receipt unless subsequent meetings and negotiations are necessary.

The time impact analysis shall be incorporated into and attached to any relevant change order(s) and/or supplemental agreement(s).

#### **XXXVII. Sanitary Provisions**

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

#### **XXXVIII. Work Near Railroads**

##### **(A) General.**

If the work crosses or is in close proximity to a railroad, do not interfere with the use or operation of the railroad company's trains or other property. Assign responsible supervisory personnel to ensure that tracks and adjacent areas are clear of debris, road materials, and equipment. It is the Contractor's responsibility to contact the railroad to determine the railroad's requirements for work within the railroad right of way and to comply with the requirements. The County will not reimburse the Contractor for any cost associated with these requirements. If the work requires construction within 25 ft. horizontally of the near rail or if the tracks may be subject to obstruction due to construction operations, notify the Engineer and the Railroad Company at least 3 days before performing work. The railroad company will provide flaggers during this work. If railroad flaggers will be needed longer than 2 consecutive days, request them at least 30 days before performing work within the railroad right of way. Flaggers provided by the railroad company will be paid for by the County. Do not store material or equipment in the Railroad's right of way within 15 ft. of the centerline of any track. Do not place any forms or temporary falsework within 8.5 ft. horizontally from the centerline or 22 ft. vertically above the top of rails of any track, unless otherwise shown in the Contract Documents.

##### **(B) Temporary Crossings.**

If a temporary crossing is needed, obtain permission from the railroad company before crossing the tracks. Execute the "Agreement for Contractor's Temporary Crossing" if required by the Railroad Company. The Contractor shall ensure that the tracks are left clear of equipment and debris that would endanger the safe operation of railroad traffic. Provide a crossing guard on each side of the crossing to direct equipment when hauling across the tracks. The Contractor shall stop construction traffic a safe distance away from the crossing upon the approach of railroad traffic.

Work for temporary crossings will not be paid for directly, but shall be subsidiary to items of the Work subject of the Contract Documents. Work performed by the Railroad Company for the temporary crossing, except flaggers, will be at the Contractor's expense.

**SECTION 13**  
**TECHNICAL SPECIFICATIONS**

**Williamson County**  
**Project: Forest North Drainage Improvements**

**GENERAL NOTES: Revised March 31, 2016**

**MODIFIED STANDARDS**

The following standard detail sheet or sheets have been modified:

Safety End Treatment Type II - Parallel

**GENERAL**

References to manufacturer's trade name or catalog numbers are for the purpose of identification only. Similar materials from other manufacturers are permitted if they are of equal quality, comply with the specifications for this project, and are approved.

The allowable working hours are between the hours of 8:00 AM to 5:00 PM, unless written approval is provided by the County.

The Contractor shall provide a three-week look ahead each week to the Construction Observer

The Contractor shall progress work one zone at a time. Once work begins within a Zone all work must be completed before work begins in the following zone. The Contractor shall obtain written approval from the Construction Observer any time work is to be performed in two zones at the same time. Any advanced signing shall be moved with the construction activities of the zone currently being worked on.

The Construction Observer and Contractor's Representative will make personal contact with each residence at least two weeks prior to working adjacent to their property and before removing any landscaping, fences, sprinkler systems, etc.

If work is performed at Contractor's option, when inclement weather is impending, and the work is damaged by subsequent precipitation, the Contractor is responsible for all costs associated with replacing the work, if required.

The roadbed shall be free of organic material prior to placing any section of the pavement structure.

Equip all construction equipment used in roadway work with highly visible omnidirectional flashing warning lights.

Provide a smooth, clean sawcut along the existing asphalt or concrete pavement structure, as directed. Consider subsidiary to the pertinent Items.

Contractor shall keep all areas clean and all litter and trash will be picked up in the work area. Supply litter barrels in enough numbers at locations as directed to control litter within the project. Consider subsidiary to pertinent Items.

A self-contained vacuum broom must be available at all times to sweep the roadway and keep it free of sediment as directed. The contractor will be responsible for any sweeping above and

**Williamson County**  
**Project: Forest North Drainage Improvements**

beyond the normal maintenance required to keep fugitive sediment off the roadway as directed by the Construction Observer.

Protect all areas of the right of way, which are not included in the actual limits of the proposed construction areas, from disturbance. Restore any area disturbed because of the Contractor's operations to a condition as good as, or better than, before the beginning of work at no cost to the County.

Damage to existing pipes and SET's due to Contractor operations shall be repaired at Contractor's expense.

Storing construction equipment, materials, and stockpiles of any type within the right of way overnight will not be permitted. The Contractor will not have exclusive use of right of way but will cooperate in the use of the right of way with the city/county and various public utility companies as required.

The Project Superintendent will be capable of speaking English and will be available on the project at all times when work is being performed, including subcontractor work. The Superintendent will be available and on-call 24 hours a day.

The Contractor shall backfill all open trenches daily.

Existing fences to be removed can be salvaged and re-used as approved by the Observer. If existing fence is not salvageable, replace fence in-kind with new materials.

**ITEM 100 - PREPARING RIGHT OF WAY**

Contractor shall remove all cut wood daily. Burning of brush is prohibited.

Trim vegetation around signs and other obstructions. Consider subsidiary to pertinent Items.

Use hand methods or other means to remove objectionable material and obstructions, if doing work by mechanical methods is impractical. Consider subsidiary to the pertinent Items.

The contractor shall notify the construction inspector prior to clearing operations. Upon notification, the observer will schedule a walk-through with the contractor and designate all trees and other features to be protected during construction. The contractor shall not begin any clearing of the right-of-way prior to this walk-through. The designated trees shall be protected in accordance with the plans and specifications, or as directed by the inspector. no fences shall be removed without notification to the observer.

Removal of any obstructions on the right of way that are not shown on the plans is included under preparing right of way. The inspector shall be notified prior to removal of obstructions. All right of way clearing operations will be coordinated with the project's sw3p and as directed or approved by the construction observer.



**Williamson County**  
**Project: Forest North Drainage Improvements**

The contractor may be required to trim and remove brush and trees in order to construct the project or to provide a horizontal clearance of approximately 2 feet inside the right of way line and a vertical clearance of at least 12 feet. For this operation, no vertical flailing equipment shall be used and the method shall be approved by the construction observer.

The contractor is responsible for plugging and capping all irrigation systems at the right of way line. The contractor shall notify the property owner at least 48 hours in advance of performing modifications to irrigation systems.

**ITEM 110 & 132 – EXCAVATION & EMBANKMENT**

Unsuitable material encountered in a cut or fill section will be considered waste. The Construction Observer will define unsuitable material. Material, which the Contractor might deem to be unsatisfactory or unsuitable, due to moisture content, will not be considered unsuitable material, unless otherwise approved.

Obtain approval of all compaction equipment prior to all backfilling and embankment operations.

**ITEM 132 – EMBANKMENT**

The underlying layer or existing subgrade must be prepared and inspected prior to placement of the embankment. Proof roll the pavement area according to Item 216 prior to placement of embankment or subsequent layers. Payment will subsidiary to the various bid items of the contract.

Correct unstable material (e.g. dry, wet, loose, etc.) to a depth of 6 inches below existing grade. This work will be considered subsidiary to pertinent bid items. Drying required deeper than 6 in. below existing grade will be paid for in accordance with Item 6.03., “Extra Work and Actual Field Cost.”

**ITEM 160 & 161 – TOPSOIL AND COMPOST**

All topsoil shall be compost amended topsoil in accordance with 161-WC 001 and shall be placed in accordance with 160-WC 001.

**ITEM 169 – SOIL RETENTION BLANKETS**

Use materials from prequalified material producers list as shown on the Texas Department of Transportation (TxDOT) ----- Construction Divisions (CST) materials producers list. See TxDOT website ([www.txdot.gov/Business with TxDOT > Materials Information > Material Producer List](http://www.txdot.gov/Business%20with%20TxDOT%20Materials%20Information%20Material%20Producer%20List)) for list of pre-qualified manufacturers. Direct all questions to the Maintenance Division, Vegetation Management Section, 125 E. 11th Street, Austin, TX 78701-2483.

**ITEM 340 - DENSE-GRADED HOT-MIX ASPHALT**

Perform work during good weather, unless otherwise directed. If work is performed at Contractor's option, when inclement weather is impending, and the work is damaged by subsequent precipitation, the Contractor is responsible for all costs associated with replacing the work, if required.

**ITEM 400 - EXCAVATION AND BACKFILL FOR STRUCTURES**

Cut pavements with the use of a saw as directed. Consider subsidiary to pertinent Items.

**Williamson County**  
**Project: Forest North Drainage Improvements**

Obtain approval of all compaction equipment prior to all backfilling and embankment operations.

Use Class "B" sand bedding for pipe and box culvert installation unless otherwise directed.

**ITEM 432 – RIPRAP**

Fibers for Concrete as defined in DMS-4550 will not be allowed.

Make 5-inches thick unless otherwise noted or directed.

Where any proposed riprap joins existing riprap, saw cut the existing riprap and dowel/epoxy the joint as directed. Consider subsidiary to the pertinent Items.

Additional riprap may be required, as determined by the Construction Observer, near the end of project completion, due to unanticipated erosion locations. Any additional, approved riprap will be paid under this Item.

Consider saw cutting of riprap as subsidiary.

**ITEM 459 – GABIONS**

Removal of existing gabions is considered subsidiary to installation of new gabions.

**ITEM 465 – JUNCTION BOXES, MANHOLES AND INLETS**

Curb Inlet heights (H) shown in plans are for contractor information. Curb & gutter at curb inlets should be constructed to match profile and cross slope of roadway.

Adjust inlet locations to the upstream side of driveways to accommodate driveway relocation.

Consider excavation and backfill, frames, grates, rings and covers subsidiary to pertinent Items.

Provide temporary drainage at each curb inlet and maintain until the final course of asphaltic concrete pavement is placed.

**ITEM 467 - SAFETY END TREATMENT**

Cut pipe ends, in the field, to match roadway side slopes, or as directed. Apply asphalt base aluminum paint to the cut ends.

All Type II SET's shall have mitered pipe ends and cast-in-place riprap aprons.

**ITEM 496 - REMOVING STRUCTURES**

Provide a detailed plan for the removal of the existing structure(s) to include the schedule of removal and list of all equipment to be used.

No demolition work over, around, or in the Lake Creek Tributary 1 will be allowed to proceed until the Construction Observer has approved the Demolition Plan. There may be other

**Williamson County**  
**Project: Forest North Drainage Improvements**

requirements associated with this item, to be determined dependent on the Demolition Plan submitted.

Include a Traffic Control Plan (TCP) for any Structure(s) Removal, as directed.

The structure or structures to be removed may have surface coatings, which may contain hazardous materials. Provide for the safety and health of employees and abide by all OSHA Standards and Regulations as well as those set by Texas Department of State Health Services (DSHS).

The structural steel to be removed may contain lead paint. Submit a proposed demolition plan for approval by the Construction Observer at least 60 days prior to the desired demolition date. Demolition plan should limit disturbing where lead paint is located when possible. If flame cutting methods will be used and lead paint cannot be avoided, the County will arrange to have the paint removed at the indicated flame-cutting locations. The paint will be removed by a separate contractor for a width of 4". No paint removal will be required if other demolition methods are employed.

The removal of all items indicated to be removed and replaced shall be considered subsidiary to the replacement item unless otherwise indicated, this shall include all appurtenances including headwalls, wingwalls, SETs, etc.

**ITEM 502 - BARRICADES, SIGNS, AND TRAFFIC HANDLING**

Unless otherwise approved, 1 lane in each direction shall remain open at all times.

The Observer is the authority to approve additional lane closures, prior to any work.

Maintain a written record of documentation of "The Additional Approved Lane Closures."

Submit and secure concurrence, prior to the publication of any notices or placement of any traffic control devices for implementation of the traffic control plan, hereinafter called a Lane Closure Notice (LCN).

Present to the Observer, an LCN for traffic control, which is proposed for implementation, a minimum of four (4) full working days preceding any proposed implementation date. Indicate the estimated date, time, duration, and location for the proposed work. As a part of the LCN submit a written description of the lane closure(s) depicting the proposed traffic control devices used, based on the appropriate plan sheet, TxDOT or TMUTCD standards, and an operational description of the work to be performed.

Present to the Observer, LCN's proposed to detour traffic, a minimum of seven (7) full calendar days preceding any proposed implementation date.

Present to the Observer, LCN's proposed for night work, a minimum of seven (7) full calendar days preceding any proposed implementation date.

**Williamson County**  
**Project: Forest North Drainage Improvements**

Receive concurrence prior to LCN implementation.

Meet with the Construction Observer prior to roadway and lane closures to ensure that sufficient equipment, materials, devices, and workers will be used. Discuss contingency plans at that time. Consider inclement weather prior to implementing the lane closures.

Submit a cancellation of any lane closures, no later than noon on the day preceding the proposed work.

Take immediate action to modify Closures / Traffic Control, if at any time backup (roadway queuing) becomes unreasonable (greater than 20 minutes). Have in place, a contingency plan of how this will occur.

Within the limits of the project, provide standard barricades, warning signs, delineators, lights, 28-inch cones, and flaggers in enough numbers and combinations, as directed.

**ITEM 530 – INTERSECTIONS, DRIVEWAYS, AND TURNOUTS**

Notify property owners a minimum of 48 hours in advance of beginning work on their driveways. Provide, to the Observer, a list of each notification and contact prior to each closure.

Provide access, at all times, to adjacent property. Construct driveways one-half sections, to allow access.

Do not completely close driveways for reconstruction purposes, unless a reasonable alternate access exists to the property, as approved.

**ITEM 560 - MAILBOX ASSEMBLIES**

Supplement each new mailbox installation with Type 2 object marker placed on the mailbox support in a vertical position 6 in. below the bottom of the mailbox.

Reflective tape may be used to simulate a Type 2 marker placed on tubular supports. Use tape that meets DMS-8600. The simulated marker will consist of three (3)--2¾-inch x 2¾-inch pieces of yellow high intensity tape spaced 1 inch apart.

The Type 2 marker will consist of OM-2SR or OM-2VP object markers if delineator post supports are used. Bi-directional brackets may be required on Size 2 mailbox installations. Consider subsidiary to the pertinent Items.

Contractor shall coordinate the locations of temporary mailboxes with the engineer and homeowner. All temporary replacement products shall match the setup approved by the engineer. This work shall be considered subsidiary to the installation of the proposed mailbox.

Contractor shall replace all mailboxes disturbed by the work with the existing mailboxes removed or with mailboxes approved by the engineer. This work shall be coordinated with the sequence of construction within the plan set. all permanent replacement products used shall

**Williamson County**  
**Project: Forest North Drainage Improvements**

match the existing mailboxes removed or be replaced with Gibraltar mailboxes Freemont post mount mailbox and post kit model #fc000b01 or equivalent approved by the engineer.

**ITEM 644 - SMALL ROADSIDE SIGN ASSEMBLIES**

Fabricate all small signs not detailed on the plans in conformance with the latest edition of the “Standard Highway Sign Designs for Texas.”

<http://www.txdot.gov/business/resources/signage.html>

All existing regulatory signs must remain displayed at all times unless the roadway is closed to traffic.

**ITEM 6001 – PORTABLE CHANGEABLE MESSAGE SIGN**

Provide 2 “Electronic” Portable Changeable Message Sign(s) (EPCMS) as part of the traffic control operations and provide another one that is available to utilize when a backup is needed. Consider the one designated for backup as subsidiary to the various Items of the project. All EPCMS will be exclusive to this project, unless otherwise approved. Placement location and message as directed.

**ITEM SS1335 PRECONSTRUCTION SURVEY**

A pre-construction survey must be performed prior to any construction activities including video and photos documenting all existing conditions.

# Governing Specifications

**FOREST NORTH RESIDENTIAL DRAINAGE IMPROVEMENTS**  
**WILLIAMSON COUNTY**  
GOVERNING SPECIFICATIONS  
(STANDARD SPECIFICATIONS, SPECIAL PROVISIONS, AND SPECIAL SPECIFICATIONS)

WHERE DISCREPANCIES OCCUR BETWEEN THE VARIOUS GOVERNING SPECIFICATIONS, THE SPECIAL PROVISIONS SHALL GOVERN OVER BOTH STANDARD SPECIFICATIONS AND SPECIAL SPECIFICATIONS.

ALL SPECIFICATIONS AND SPECIAL PROVISIONS APPLICABLE TO THIS PROJECT ARE IDENTIFIED AS FOLLOWS:

STANDARD SPECIFICATIONS:      ADOPTED BY THE TEXAS DEPARTMENT OF  
TRANSPORTATION NOVEMBER 1, 2014. STANDARD  
SPECIFICATIONS ARE INCORPORATED INTO THE  
CONTRACT BY REFERENCE.

< >      REFERENCE ITEMS NOT USED ON THIS CONTRACT  
( )      REFERENCE ITEMS USED ON THIS CONTRACT

ITEMS 1 - 9 ARE SUPERSEDED BY THE CONTRACT GENERAL AND SPECIAL CONDITIONS, WHERE APPLICABLE. WHEREVER, IN THE TXDOT STANDARD SPECIFICATIONS, REFERENCE IS MADE TO THE STATE OF TEXAS, THE DEPARTMENT AND ITS REPRESENTATIVES, SUCH REFERENCE SHALL BE TAKEN TO MEAN WILLIAMSON COUNTY AND ITS REPRESENTATIVES.

ITEM 100	PREPARING RIGHT OF WAY <103>
ITEM 110	EXCAVATION (132)
ITEM 132	EMBANKMENT (100) (160)(204) <210><216><260>(400)
ITEM 160	FURNISHING AND PLACING TOPSOIL (168)
ITEM 161	COMPOST (160)
ITEM 164	SEEDING FOR EROSION CONTROL <162><166>(168)
ITEM 168	VEGETATIVE WATERING
ITEM 169	SOIL RETENTION BLANKET
ITEM 400	EXCAVATION AND BACKFILL FOR STRUCTURES (110)(132)<401>(402)<403><416> <420><421><423>
ITEM 402	TRENCH EXCAVATION PROTECTION
ITEM 432	RIPRAP <247><420>(421)<431>(440)
ITEM 459	GABIONS AND GABION MATTRESSES
ITEM 464	REINFORCED CONCRETE PIPE (400)(402)<403>(467)<476>
ITEM 465	JUNCTION BOXES, MANHOLES AND INLETS (400)<420>(421)(424)(440)(471)
ITEM 467	SAFETY END TREATMENT (400)<420><421>(432)(440)(442)(445)<460>(464)
ITEM 496	REMOVING STRUCTURES
ITEM 500	MOBILIZATION
ITEM 502	BARRICADES, SIGNS AND TRAFFIC HANDLING
ITEM 506	TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL CONTROLS (161) (432)<556>
ITEM 530	INTERSECTIONS, DRIVEWAYS AND TURNOUTS <247><260><263><275><276><292> <316><330><334>(340)(360)(421)(440)
ITEM 531	SIDEWALKS <104>(360)<420><421>(440)(530)
ITEM 550	CHAIN LINK FENCE <421>(445)
ITEM 552	WIRE FENCE (445)(492)
ITEM 560	MAILBOX ASSEMBLIES
ITEM 644	SMALL ROADSIDE SIGN SUPPORTS AND ASSEMBLIES <421><440><441><442>(445) <636><643><656>
ITEM 752	TREE AND BRUSH REMOVAL

STANDARD SPECIFICATIONS: MOST CURRENT VERSION ADOPTED BY THE CITY OF AUSTIN

ITEM 701S      FENCING <403S>

SPECIAL PROVISIONS: THE CONTENT OF THE SPECIAL PROVISIONS ARE INCLUDED ON THE FOLLOWING PAGES.

SPECIAL PROVISION TO ITEM 000	000-001
SPECIAL PROVISION TO ITEM 002	002-WC1
SPECIAL PROVISION TO ITEM 002	002-WC2
SPECIAL PROVISION TO ITEM 002	002-WC3
SPECIAL PROVISION TO ITEM 161	161-WC001
SPECIAL PROVISION TO ITEM 164	164-WC001
SPECIAL PROVISION TO ITEM 168	168-WC001
SPECIAL PROVISION TO ITEM 500	500-WC01
SPECIAL PROVISION TO ITEM 502	502-WC01

SPECIAL SPECIFICATIONS: THE CONTENT OF THE SPECIAL SPECIFICATIONS ARE INCLUDED ON THE FOLLOWING PAGES.

ITEM SS1004	TREE PROTECTION
ITEM SS1335	PRECONSTRUCTION SURVEY
ITEM SS2241	IRRIGATION SYSTEM CAPPING

GENERAL: THE ABOVE-LISTED SPECIFICATION ITEMS ARE THOSE UNDER WHICH PAYMENT IS TO BE MADE. THESE, TOGETHER WITH SUCH OTHER PERTINENT ITEMS, IF ANY, AS MAY BE REFERRED TO IN THE ABOVE-LISTED SPECIFICATION ITEMS, AND INCLUDING THE SPECIAL PROVISIONS AND SPECIAL SPECIFICATIONS LISTED ABOVE, CONSTITUTE THE COMPLETE SPECIFICATIONS FOR THIS PROJECT.

*Charlotte Gilpin*



*4-19-16*

Seal appear hereon for all materials excluding utilities.



**FOREST NORTH RESIDENTIAL DRAINAGE IMPROVEMENTS**  
**WILLIAMSON COUNTY**  
**GOVERNING SPECIFICATIONS**  
(STANDARD SPECIFICATIONS, SPECIAL PROVISIONS, AND SPECIAL SPECIFICATIONS)

WHERE DISCREPANCIES OCCUR BETWEEN THE VARIOUS GOVERNING SPECIFICATIONS, THE SPECIAL PROVISIONS SHALL GOVERN OVER BOTH STANDARD SPECIFICATIONS AND SPECIAL SPECIFICATIONS.

ALL SPECIFICATIONS AND SPECIAL PROVISIONS APPLICABLE TO THIS PROJECT ARE IDENTIFIED AS FOLLOWS:

STANDARD SPECIFICATIONS: ADOPTED BY CITY OF AUSTIN STANDARD SPECIFICATIONS, SERIES 100 THROUGH 16000, ADOPTED APRIL 6, 1986, AS AMENDED. STANDARD SPECIFICATIONS ARE INCORPORATED INTO THE CONTRACT BY REFERENCE.

WHEREVER, IN THE CITY OF AUSTIN STANDARD SPECIFICATIONS, REFERENCE IS MADE TO THE CITY OF AUSTIN, THE CITY AND ITS REPRESENTATIVES, SUCH REFERENCE SHALL BE TAKEN TO MEAN WILLIAMSON COUNTY AND ITS REPRESENTATIVES.

210	02/24/10	Flexible Base
340	09/26/12	Hot Mix Asphaltic Concrete Pavement
402	11/13/07	Controlled Low Strength Material
406	09/26/12	Reinforcing Steel
408	11/13/07	Concrete Joint Materials
410	09/26/12	Concrete Structures
504	02/24/10	Adjusting Structures
506	03/15/11	Manholes
508	02/24/10	Miscellaneous Structures and Appurtenances
509	09/26/12	Excavation Safety Systems
510	10/03/13	Pipe
511	09/26/12	Water Valves

STANDARD SPECIFICATIONS: MOST CURRENT VERSION ADOPTED BY THE CITY OF AUSTIN.

**Special Provisions to City Standard Technical Specifications**

SP504S	04/20/16 Adjusting Structures
SP510S	04/20/16 Pipe
SP1901S	04/20/16 Scope of Work for Asbestos Abatement

SPECIAL PROVISIONS: THE CONTENT OF THE SPECIAL PROVISIONS IS INCLUDED ON THE FOLLOWING PAGES.

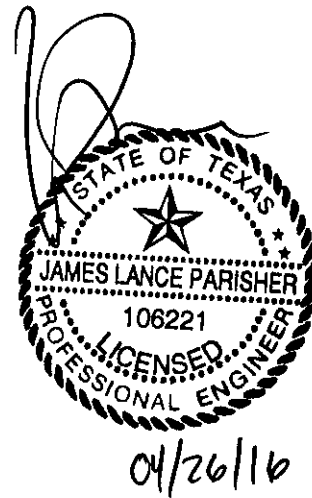
**Special Specifications**

01901	03/10/16	Scope of Work - Asbestos Abatement
01902	03/10/16	Project Coordination - Asbestos Abatement
01904	03/10/16	Codes and Regulations - Asbestos Abatement
01911	03/10/16	Respiratory Protection - Asbestos Abatement
01915	03/10/16	Work Area Clearance (PCM) - Asbestos Abatement
01917	03/10/16	Disposal of Asbestos Containing Waste Materials

SPECIAL SPECIFICATIONS: THE CONTENT OF THE SPECIAL SPECIFICATIONS IS INCLUDED ON THE FOLLOWING PAGES.

GENERAL: THE ABOVE-LISTED SPECIFICATION ITEMS ARE THOSE UNDER WHICH PAYMENT IS TO BE MADE. THESE, TOGETHER WITH SUCH OTHER PERTINENT ITEMS, IF ANY, AS MAY BE REFERRED TO IN THE ABOVE-LISTED SPECIFICATION ITEMS, AND INCLUDING THE SPECIAL PROVISIONS AND SPECIAL SPECIFICATIONS LISTED ABOVE, CONSTITUTE THE COMPLETE SPECIFICATIONS FOR THIS PROJECT.

**END**



Seal appear hereon for all materials for water and wastewater construction, excluding dry utilities and drainage construction.

# Special Provisions

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## Special Provision 000-001

### Schedule of Liquidated Damages

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Table1  
Schedule of Liquidated Damages

For Dollar Amount of Original Contract		Dollar Amount of Daily Contract Administration Liquidated Damages per Working Day
From More Than	To and Including	
0	100,000	570
100,000	500,000	590
500,000	1,000,000	610
1,000,000	1,500,000	685
1,500,000	3,000,000	785
3,000,000	5,000,000	970
5,000,000	10,000,000	1125
10,000,000	20,000,000	1285
20,000,000	Over 20,000,000	2590

## Special Provision 002—WC1

### Right Of Way Important Notice to Contractors



The contractor's attention is directed to the fact that there may be some outstanding right of way acquisitions as of 4/20/16 required for the construction of this project. The county anticipates that these acquisitions will be completed as shown.

For the contractor's information, the following is a list of all tracts of right of way required for the construction of the project. the contractor is invited to review the outstanding acquisitions with the engineer assigned to this project and listed in the "notice to contractors." an extension of work time may be granted, as necessary, for delays caused by interference with acquisitions beyond the estimated dates of clearance.

The following right of way tracts are to be acquired as shown. The approximate location is based on the project centerline/baseline stationing.

DESCRIPTION	OWNER	LOCATION	*ESTIMATED DATE OF ACQUISITION
TEMP. CONST. ESMT.	WARD	9615 MOORBERRY ST	June 2016
TEMP. CONST. ESMT.	BURZYNSKI	13201 WOODTHORPE ST	June 2016
TEMP. CONST. ESMT.	THOMAS	9507 BRAEBURN GLEN	June 2016
TEMP. CONST. ESMT.	ROWALD	9300 CHATTERTON CT	June 2016
TEMP. CONST. ESMT.	VAN SICKLER	9401 MEADOWHEATH DR / 9401 STILLFOREST	June 2016
TEMP. CONST. ESMT. & PERM. ESMT.	TYRONE	9306 MEADOWHEATH DR	June 2016
TEMP. CONST. ESMT. & PERM. ESMT.	FISHER	9308 MEADWOHEATH DR	June 2016
TEMP. CONST. ESMT.	OESTRICK	9417 BRAEBURN GLEN	May 2016
TEMP. CONST. ESMT.	EHLERS	13302 BRIAR HOLLOW DR	June 2016

\* Estimated

## Special Provision 002—WC2

### Utilities Important Notice to Contractors



The contractor's attention is directed to the fact that there may be some outstanding utility adjustments as of 4/20/16 required for the construction of this project. The county anticipates that these utility adjustments will be completed as shown.

The contractor is invited to review the outstanding utility adjustments with the engineer assigned to this project and listed in the "notice to contractors." an extension of work time may be granted, as necessary, for delays caused by utility interference with this work.

The following utilities are to be adjusted by their owners and are to be completed as shown. The approximate location is based on the project centerline/baseline stationing.

<b>UTILITIES AT BRIAR HOLLOW</b>			
<b>Utility Owner</b>	<b>Approximate Location</b>	<b>Estimated Clearance Date</b>	
<b>AT&amp;T</b>	<b>Briar Hollow Dr.</b> <b>Sta. 04+70</b> <b>Channel BH2-1</b> <b>Sta. 09+87</b>	<b>July 30, 2016</b>	
<b>UTILITIES AT TICHESTER</b>			
<b>Austin Energy</b>	<b>Briar Hollow Dr.</b> <b>Sta. 06+25</b>	<b>June 30, 2016</b>	

UTILITIES AT WISTERWOOD			
AT&T	Braeburn Glen St.		
	Sta. 02+84, Sta. 06+30, Sta. 08+50	July 30, 2016	
Austin Energy	Braeburn Glen St.		
	Sta. 06+30	June 30, 2016	

UTILITIES AT STILLFOREST			
AT&T	Stillforest St.		
	Sta. 07+22	July 30, 2016	
Austin Energy	Stillforest St.		
	Sta. 07+22	June 30, 2016	
Time Warner Cable	Stillforest St.		
	Sta. 07+22	July 30, 2016	

UTILITIES AT BRAEBURN			
<b>AT&amp;T</b>	<b>Braeburn Glen St.</b> <b>Sta. 03+00</b> <b>Broadmeade Ave.</b> <b>Sta. 03+21</b>	<b>July 30, 2016</b>	
<b>Austin Energy</b>	<b>Braeburn Glen St.</b> <b>Sta. 03+00</b> <b>Ditch Drain</b>	<b>June 30, 2016</b>	
UTILITIES AT SHERBROOKE			
<b>AT&amp;T</b>	<b>Broadmeade Ave. North of</b> <b>Sherbrooke St.</b> <b>Sta. 02+40</b>	<b>July 30, 2016</b>	
<b>Austin Energy</b>	<b>Broadmeade Ave. North of</b> <b>Sherbrooke St.</b> <b>Sta. 02+40</b>	<b>June 30, 2016</b>	

\* Estimated



# Special Provision 002—WC3

## Environmental Permitting

### Important Notice to Contractors



The Contractor's attention is directed to the fact that there may be some outstanding environmental permits as of April 2016 required for the construction of this project. The County anticipates that these permits will be acquired as shown.

The Contractor is invited to review the outstanding permitting requirements with the Engineer assigned to this project and listed in the "Notice to Contractors." An extension of work time may be granted, as necessary, for delays caused by environmental permitting interference with this work.

The following environmental reports and/or permits are to be completed or secured as shown.

PERMIT/REPORT	REQUIRED	NOT REQUIRED	ESTIMATED DATE OF APPROVAL
Environmental Impact Statement		X	
Environmental Assessment		X	
Categorical Exclusion		X	
Phase 1 Environmental Assessment		X	
Jurisdictional Waters Survey		X	
Archaeological Investigations		X	
Cultural Resources Survey		X	
Karst Survey	X		June 2016*
Habitat Assessment	X		June 2016*
Geological Survey	X		June 2016*
Contributing Zone Plan		X	
Water Pollution Abatement Plan		X	
Air Quality Analysis		X	
Noise Quality Analysis		X	

\*Reports are complete with exception to the following locations:

9613 Moorberry, 9615 Moorberry, 9306 Meadowheath, 9308 Meadowheath, 9417 Braeburn Glen.

# Special Provision 160-WC001

## Topsoil



For this project, Item 160, "Topsoil," of the Standard Specifications, is hereby voided and replaced in its entirety with the clauses and requirements below.

### PART 1 – GENERAL

#### 1.1 DESCRIPTION

Furnish and apply topsoil as shown in the plans or as directed.

#### 1.2 RELATED ITEMS

- A. Item 161–WC001, "Compost"
- B. Item WC101, "Soil Ripping"

#### 1.3 MEASUREMENT

This item will be measured by the 100-ft. station along the baseline of each roadbed, by the square yard complete in place, or by the cubic yard in vehicles at the point of delivery.

#### 1.4 PAYMENT

Unless topsoil is specified as a pay item, the work performed and materials furnished in accordance with this item will not be paid for directly, but will be subsidiary to pertinent Items.

When topsoil is specified on the plans as a pay item, the work performed and topsoil furnished will be paid for at the unit price bid for "Furnishing and Placing Topsoil" of the depth specified on the plans (except for measurement by the cubic yard). This price is full compensation for securing necessary sources and royalties, furnishing topsoil, excavation, loading, hauling, stockpiling and placing, watering, rolling and equipment, labor, materials, tools, and incidentals. Limits of excavation and embankment for payment are shown in Figure 1.

#### 1.5 QUALITY CONTROL SUBMITTALS

- A. Submit one (1) pound sample of on-site stockpiled topsoil for approval.
- B. Submit imported topsoil and supplier information, including product composition, as well as a one (1) pound sample for approval.
- C. A statement that the on-site stockpiled topsoil has met the decomposition process.

### PART 2 – PRODUCTS

#### 2.1 MATERIALS

- A. Use easily cultivated, fertile topsoil, through fresh mining, that is free from objectionable material such as weed seeds, roots, rhizomes, or stolons, has a high resistance to erosion, and is able to support plant growth.

1. Obtain topsoil from the right-of-way at sites of proposed excavation or embankment when specified on the plans or as directed.
2. Secure additional topsoil, if necessary, from approved sources outside the right-of-way in accordance with all applicable environmental laws, rules, regulations, and requirements. Ensure that the topsoil obtained from sites outside the right-of-way has a pH of 5.5 to 8.5.
3. Topsoil is subject to testing by the Engineer.
4. Use water that is clean and free of industrial wastes and other substances harmful to the growth of vegetation.

## PART 3 – EXECUTION

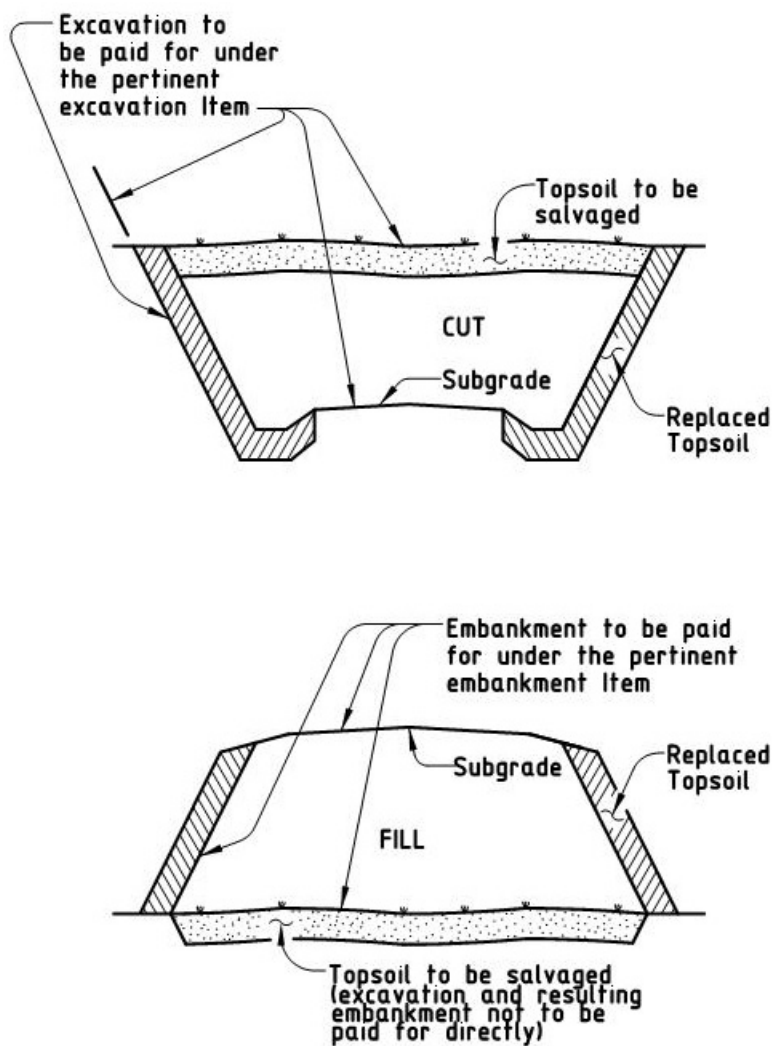
### 3.1 SEQUENCING

- A. Following removal of the existing vegetation from the site (if specified), excavate in specified areas and place in a stockpile on-site. Complete the decomposition process in stockpile prior to installation or use of topsoil at depths specified on plans. Install topsoil prior to installation of erosion control compost (ECC). Reference Item 161-WC001, "Compost" for installation specifications.

### 3.2 CONSTRUCTION

#### A. Installation

1. Remove and dispose of objectionable material from the topsoil source before beginning the work.
2. Place excavated topsoil in stockpiles no less than three (3) feet by three (3) feet by three (3) feet in size at designated locations along the right-of-way line or as directed.
3. Keep source and stockpile areas drained during the period of topsoil removal and leave them in a neat condition when removal is complete.
4. From June 1 to October 15, completely turn the stockpiled mulch once per month. Internal temperature of the material should be 120°F – 140°F. Stockpile should continue to be turned and remain at this internal temperature for no less than one (1) month before use.
5. From October 16 to May 31, if the average outdoor temperature is below 75°F, remove and discard the top six (6) inches of the stockpile. It is not necessary to turn the stockpile during this time period.
6. Stockpiles should be surrounded by biodegradable erosion control logs to prevent run-off of material.
7. Uniformly blend topsoil per "Compost" if specified as Compost Modified Topsoil (CMT). Reference "Compost" for installation specifications.
8. For subsoils that are not compacted, scarify or break the surface of the soil with a flexible tine harrow one (1) to two (2) inches in depth. Spread the topsoil to a uniform loose cover at the thickness specified. Place and shape the topsoil to no greater than 70% – 75% Proctor density. Soils compacted above the specified Proctor density must be ripped until they are within the desired percentages according to Item WC101, "Soil Ripping." Apply the topsoil to the ripped soil and work into the lower soil horizons with a harrow.



**Figure 1**  
**Roadway cross sections showing payment for excavation and embankment.**

END OF SECTION

# Special Provision 161-WC001

## Compost



For this project, Item 161, "Compost," of the Standard Specifications, is hereby voided and replaced in its entirety with the clauses and requirements below.

### PART 1 – GENERAL

#### 1.1 DESCRIPTION

Furnish and apply compost as shown in the plans or as directed.

#### 1.2 RELATED ITEMS

- A. Item WC102, "Mulch"
- B. Item WC101, "Soil Ripping"
- C. Item 164-WC001, "Seeding for Erosion Control"
- D. Item 160-WC001, "Topsoil"
- E. United States Code of Federal Regulations (CFR), Title 40, Part 503 standards for Class A biosolids
- F. Texas Commission on Environmental Quality (TCEQ) health and safety regulations as defined in the Texas Administrative Code (TAC), Chapter 332, including the time and temperature standards in Subchapter B, Part 23
- G. USCC Seal of Testing Assurance (STA) program

#### 1.3 MEASUREMENT

This item will be measured by the square yard or cubic yard.

#### 1.4 PAYMENT

Unless compost is specified as a pay item, the work performed and the materials furnished in accordance with this Item will not be paid for directly, but will be subsidiary to pertinent items.

When compost is specified on the plans as a pay item, the work performed and the compost furnished will be paid for at the unit price bid for "Compost Manufactured Topsoil" or "Erosion Control Compost" of the depth specified. This price is full compensation for furnishing materials, labor, equipment, maintenance, tools, supplies, and incidentals.

#### 1.5 QUALITY CONTROL SUBMITTALS

- A. Prior to the delivery of the compost to the site, the following submittals are to be provided to the Owner's representative for approval:
  - 1. A statement that the compost meets federal and state health and safety regulations.

2. A statement that the composting process has met time and temperature requirements.
3. A copy of the producer's STA certification.
4. A copy of the lab analysis, performed by an STA-certified lab, verifying the compost meets the materials requirements, for every 1000 CY of material. Test data should not be older than one (1) month old.
5. The compost installation method.
6. A copy of purchase receipt from approved vendor.
7. A copy of the current TCEQ compliance statement signed by the facility manager when furnishing biosolids compost.
8. A copy of the compost analysis from the compost supplier that lists NO<sub>3</sub>, NH<sub>4</sub>, and P levels (parts per million).

## PART 2 – PRODUCTS

### 2.1 MATERIALS

#### A. Compost

1. Furnish compost that has been produced by aerobic (biological) decomposition of organic matter and meets the requirements set forth by the United States Department of Agriculture and the United States Composting Council (USCC), "Test Methods for Examination of Composting and Compost" (TMECC), shown in 2.1.A.2.
2. Physical Requirements for Compost:
  - a. Particle Size: 95% passing 5/8 inch, 70% passing 3/8 inch in accordance with TMECC 02.02-B, "Sample Sieving for Aggregate Size Classification"
  - b. Heavy Metals: Pass in accordance with TMECC 04.06, "Heavy Metals and Hazardous Elements"
    - i. 04.06-As, Arsenic
    - ii. 04.06-Cd, Cadmium
    - iii. 04.06-Cu, Copper
    - iv. 04.06-Pb, Lead
    - v. 04.06-Hg, Mercury
    - vi. 04.06-Mo, Molybdenum
    - vii. 04.06-Ni, Nickel
    - viii. 04.06-Se, Selenium
    - ix. 04.06-Zn, Zinc
  - c. Soluble Salts: 5.0 max.\* dS/m in accordance with TMECC 04.10-A, "1:5 Slurry Method, Mass Basis" (\*A soluble salt content up to 10.0 dS/m for compost used in CMT will be acceptable)

- d. pH: 5.5 – 8.5\*\* in accordance with TMECC 04.11-A, "1:5 Slurry pH" (\*\*A maximum pH of 9.5 will be acceptable for manure compost)
  - e. Maturity: greater than 80% in accordance with TMECC 05.05-A, "Germination and Root Elongation"
  - f. Organic Matter Content: 25% – 65%\*\*\* (dry mass) in accordance with TMECC 05.07-A, "Loss-On-Ignition Organic Matter Method" (\*\*\*A minimum organic matter content of 10% will be acceptable for manure compost)
  - g. Stability: less than 0.5 mg CO<sub>2</sub> carbon/g compost carbon/day
  - h. Fecal Coliform: Pass in accordance with TMECC 07.01-B, "Fecal Coliforms"
3. Compost feedstock may include, but is not limited to, leaves and yard trimmings, biosolids, food scraps, food-processing residuals, manure or other agricultural residuals, forest residues, bark, and paper.
  4. Compost shall be reasonably free (less than 1% by dry weight) of manmade foreign matter. The organic matter shall not possess objectionable odor and shall not resemble the raw material from which it was derived. Particle size shall meet the following additional specifications: maximum particle length 0.5 inches
  5. Ensure compost does not contain any visible refuse, other physical contaminants, or any substance considered to be harmful to plant growth, as approved by the engineer. Do not use materials that have been treated with chemical preservatives as a compost feedstock or as wood chips.
  6. Provide compost meeting all applicable CFR, Title 40, Part 503 standards for Class A biosolids and TCEQ health and safety regulations as defined in the TAC, Chapter 332, including the time and temperature standards in Subchapter B, Part 23. Meet the requirements of the USCC STA program. (TxDOT, 2014)
  7. Compost shall be obtained from any of the following approved vendors (vendors that utilize static compost piling are preferred):
    - a. Organics by Gosh, Austin, TX  
(512) 276-1211
    - b. Garden-Ville, Austin, TX  
(888) 655-6115
    - c. Geo Growers, Austin, TX  
(512) 892-2722
    - d. Soil Express, Prosper, TX  
(972) 347-2994

**B. Compost Manufactured Topsoil (CMT)**

CMT consists of blended compost, as specified in 2.1.A, and mineral soil. The Contractor shall determine the blend based on the compost supplier's nutrient analysis and the corresponding ratios in Table 1. The mineral soil should have a soil texture of less than 75% sand and organic matter less than 2%. Measures must be taken to avoid weed contamination, through fresh mining, or complete cover or non-use of top six (6) inches of stockpiled material. Reference Item 160-WC001, "Topsoil" for stockpiling specifications of on-site excavated topsoil. Material sources

must be approved by the Owner's Representative. Dilution of compost must not be achieved with organic matter (mulch).

**Table 1: Compost to Mineral Soil Amendment Ratios for Compost Manufactured Topsoil (CMT)**

<b>Compost Condition NO<sub>3</sub>, NH<sub>4</sub>, or P (available):</b>	<b>Ratio (volume) Compost: Soil</b>
exceed 2000 ppm (0.2%)	1:25
are less than 2000 ppm (0.2%), but greater than 1000 ppm (0.1%)	1:20
are less than 1000 ppm (0.1%), but greater than 500 ppm (0.05%)	1:10
are less than 500 ppm (0.05%), but greater than 250 ppm (0.025%)	1:4
are less than 250 ppm (0.1%), but greater than 100 ppm (0.05%)	2:3

Source: Lady Bird Johnson Wildflower Center, 2010

C. Erosion Control Compost (ECC)

ECC consists of compost, as specified in 2.1.A, blended with mulch in a ratio of three (3) parts compost to one (1) part mulch (3:1). Mulch to be in accordance with Item WC102, "Mulch."

## **PART 3 – EXECUTION**

### **3.1 SEQUENCING**

A. CMT

Initiate site preparation, CMT and fine grading prior to any native grass and wildflower seeding as specified in the plans or as directed to disturbed roadside areas and channels. If road base operations have not been completed, exclude site preparation and CMT installation fifteen (15) ft. from the road pavement.

B. ECC

Initiate site preparation, topsoil installation, fine grading, and ECC topdressing installation prior to any grass and wildflower seeding as specified in the plans or as directed to disturbed roadside areas and channels. If road base operations have not been completed, exclude site preparation and ECC topdressing installation fifteen (15) ft. from the road pavement.

C. Following road pavement, initiate specified CMT or ECC installation prior to grass and wildflower seeding to remaining disturbed areas, as specified in the plans or as directed.

### **3.2 CONSTRUCTION**

A. Site Preparation

1. Remove debris, unsatisfactory soil materials, and obstructions from surface prior to CMT or ECC installation.
2. Remove top growth of vegetation to remain by mowing to a six (6) inch height to ensure that the CMT or ECC contacts the surface material.
3. CMT and ECC should not be installed onto compacted soil. Scarify or break the surface of the soil with a flexible tine harrow one (1) to two (2) inches in depth.



## B. Installation

1. Apply CMT or ECC evenly at depths and locations as indicated in the drawings or as directed.
2. Installation method of the CMT or ECC is to be determined by the Contractor and submitted for approval. Any of the following are acceptable methods of installation:
  - a. By hand raking
  - b. By mechanized spreader
  - c. By a pneumatic blower – Seed can be mixed with CMT or ECC during this application. Reference Item 164-WC001, "Seeding for Erosion Control."
3. Depending on slope, accessibility of location, and rockiness of the terrain, the Contractor is to select an approved installation method that is the least invasive to the adjacent areas.
4. Spread the CMT or ECC to a uniform loose cover at the thickness specified.
5. Till the CMT to a depth no less than four (4) inches to integrate into the subsoil.
6. Lightly rake the ECC compost to ensure good seed to compost contact.
7. Apply ECC at least three (3) ft. over the shoulder of a slope to prevent rill formation and erosion of compost.
8. Do not apply ECC on surfaces with a slope greater than 4:1.
9. Do not apply on surfaces that are muddy, frozen, or contain frost or ice.
10. Do not roll or tamp CMT or ECC.
11. Do not compact the CMT or ECC after application with heavy equipment or foot traffic.

## 3.3 MAINTENANCE

### A. Requirements

1. Maintain CMT or ECC in a functional condition at all times and correct deficiencies immediately until acceptance of project.
2. Install additional CMT or ECC as directed by the Owner's Representative after inspection.
3. Protect areas from traffic and repair or re-establish if damaged or compacted.
4. Restore appearance, quality, and condition to match adjacent work if damaged.

### B. Schedule

1. The CMT or ECC should be inspected weekly until native grass is established, in accordance with the Stormwater Pollution Prevention Plan (SW3P), and within 24 hours of every one-half (½) inch or greater rain event until project completion.

END OF SECTION

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## Special Provision 164-WC001

### Seeding for Erosion Control

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For this project, Item 164, "Seeding for Erosion Control," of the Standard Specifications, is hereby voided and replaced in its entirety with the clauses and requirements below.

#### PART 1 – GENERAL

##### 1.1 DESCRIPTION

Provide and install native grass seeding as shown in the plans or as directed.

##### 1.2 RELATED ITEMS

- A. Item 161-WC001, "Compost"
- B. Item 168-WC001, "Vegetative Watering"
- C. Item 160-WC001, "Topsoil"
- D. Item 636, "Aluminum Signs"
- E. Item 644, "Small Roadside Sign Supports and Assemblies"

##### 1.3 REFERENCES

- A. Federal Seed Act
- B. Texas Seed Law
- C. Texas Fertilizer Law

##### 1.4 MEASUREMENT

This item will be measured by the square yard.

##### 1.5 PAYMENT

- A. The work performed and the materials furnished in accordance with the seeding Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Seeding for Erosion Control." This price is full compensation for furnishing materials, including seed, fertilizer, mowing, labor, equipment, maintenance, tools, supplies, and incidentals.
- B. When humic acid or MycoApply Endo are specified on the plans as a pay item, the work performed and the material furnished will be paid for at the unit price bid for "Humic Acid" or "MycoApply Endo" at the application rates specified. This price is full compensation for furnishing materials, labor, equipment, water, tools, supplies, and incidentals.

## 1.6 QUALITY CONTROL SUBMITTALS

- A. Submit seeding product data, including plant tags and seed certification for native grass seed mix for approval.
- B. Submit seed planting equipment method, manufacturer, and data for approval.
- C. Submit product data and sample for sign in accordance with Tex-726-I.
- D. Submit humic acid and MycoApply Endo product data and supplier's information for approval.
- E. Submit fertilizer analysis, manufacturer, and product data for approval.

## PART 2 – PRODUCTS

### 2.1 MATERIALS

#### A. Native Grass Seed

Provide seed as shown in the plans or as directed, using Tables 1 – 11 to determine the appropriate seed mix and rates, and meeting the requirements of the Federal Seed Act and Texas Seed Law, including the testing and labeling for pure live seed (PLS = Purity and Germination). Minimum purity shall be 50%. The seed test to be conducted by the State Seed Laboratory, and a seed test report shall be submitted in accordance with 1.6, "Quality Control Submittals." Each type (mix) of seed must be mixed by the supplier and delivered in labeled and unopened bags or containers, unless otherwise approved by the Owner's representative. Do not blend the seed mixes on site. Use within twelve (12) months from that date of analysis. When Buffalograss is specified, use seed treated with KNO<sub>3</sub> (potassium nitrate) to overcome dormancy.

Parts A and B of the seed mix tables are the primary seed mixes for application. Part A is not required unless shown in the plans. In the event that a species in Part A or B of the mixes is not seasonally available, coordinate with the seed supplier to designate substitute species and quantities in the mix using Part C of the tables. Substitutions will only be allowed at the discretion of the County.

Seeds must be stored in a dry, well-ventilated location away from contaminants. Seed storage humidity level should be lower than 75%. Store any unused seed in a water resistant container. If seed will be stored longer than one (1) year, the optimal temperature range would be 40°F – 60°F.

During transit (from storage to sowing), seed should be protected from dramatic temperature fluctuations day after day; temperature cannot exceed 100°F at any time. Seed must remain dry and protected from sun exposure. The transit period may not exceed ten (10) days.

Obtain native grass seed from any three of the approved providers:

1. Native American Seed, Junction TX  
(800) 728-4043
2. Wildseed Farms, Fredericksburg, TX  
(800) 848-0078
3. Douglass King Company, San Antonio, TX  
(888) 357-3337

Table 1: Type 1 – Tall Native Grass Seed Mix with Wildflowers for Edward's Plateau and Blackland Prairie Eco-Regions

Part A: Wildflowers		
Species	Common Name	lbs. per acre
Cassia (Chamaecrista) fasciculata	Partridge Pea	5.00
Centaurea americana	American Basketflower	5.00
Coreopsis tinctoria	Plains Coreopsis	2.00
Desmanthus illinoensis	Illinois Bundleflower	3.75
Engelmannia pinnatifida (Engelmannia peristenia)	Engelmann Daisy (Cutleaf Daisy)	9.00
Gaillardia pulchella	Indian Blanket	7.50
Helianthus maximiliani	Maximilian Sunflower	2.00
Ipomopsis rubra	Standing Cypress	3.00
Monarda citriodora	Lemon Mint	1.50
Oenothera speciosa	Pink Evening Primrose	0.50
Rudbeckia hirta	Black-eyed Susan	0.50
Thelesperma filifolium	Greenthread	2.00
		41.75
Part B: Grasses		
Species	Common Name	lbs. per acre
Bouteloua curtipendula	Sideoats Grama	14.00
Bouteloua gracilis	Blue Grama	15.00
Buchloe dactyloides	Buffalograss	6.00
Elymus canadensis	Canada (Prairie) Wildrye	10.00
Leptochloa dubia	Green Sprangletop	4.00
Panicum virgatum	Switchgrass (Upland)	2.00
Schizachyrium scoparium	Little Bluestem	4.00
Sorghastrum nutans	Indian Grass	3.00
		58.00
Part C: Replacement Species and/or Species Added for Increased Diversity		
Species	Common Name	lbs. per acre
Andropogon gerardii	Big Bluestem	4.00
Argemone albiflora	White Prickly Poppy	3.00
Bothriochloa laguroides	Silver Bluestem	
Bouteloua rigidiseta	Texas Grama Grass	2.70
Callirhoe leiocarpa	Annual Winecup	1.20
Castilleja indivisa	Indian Paintbrush	0.15
Dalea candida (Petalostemon candidus)	White Prairie Clover	1.00
Eragrostis trichoides	Sand Lovegrass	0.50
Iatris mucronata	Gayfeather	2.50
Lindheimera texana	Texas Yellow Star	3.00
Oenothera missouriensis	Missouri Primrose	0.50
Oenothera speciosa	Pink Evening Primrose	0.50
Salvia azurea	Pitcher Sage	0.25
Salvia farinacea	Mealy Blue Sage	1.50
Simsia calva	Bush Sunflower	1.75
Solidago nemoralis	Grey Goldenrod	1.75
"Midway Mix" (Native American Seed)	Grasses 1 ft. – 2 ft. tall	2.50

Source: Lady Bird Johnson Wildflower Center, 2010

Table 2: Type 2 – Tall Native Grass Seed Mix with Wildflowers for Post Oak Savanna Eco-Region

Part A: Wildflowers		
Species	Common Name	lbs. per acre
Cassia (Chamaecrista) fasciculata	Partridge Pea	5.00
Centaurea americana	American Basketflower	5.00
Coreopsis tinctoria	Plains Coreopsis	1.00
Desmanthus illinoensis	Illinois Bundleflower	3.75
Engelmannia pinnatifida (Engelmannia peristenia)	Engelmann Daisy (Cutleaf Daisy)	9.00
Ipomopsis rubra	Standing Cypress	3.00
Monarda citriodora	Lemon Mint	1.50
Oenothera speciosa	Pink Evening Primrose	0.25
Rudbeckia hirta	Black-eyed Susan	0.50
Thelesperma filifolium	Greenthread	2.00
		31.00
Part B: Grasses		
Species	Common Name	lbs. per acre
Bouteloua curtipendula	Sideoats Grama	14.00
Bouteloua gracilis	Blue Grama	15.00
Buchloe dactyloides	Buffalograss	6.00
Elymus canadensis	Canada Wildrye	10.00
Eragrostis trichoides	Sand Lovegrass	0.50
Panicum virgatum	Switchgrass (Upland)	10.00
Schizachyrium scoparium	Little bluestem (Native)	4.00
Sporobolus cryptandrus	Sand Dropseed	1.00
Sorghastrum nutans	Indian Grass	3.00
		63.5
Part C: Replacement Species and/or Species added for Increased Diversity		
Species	Common Name	lbs. per acre
Andropogon gerardii	Big Bluestem Grass	2.00
Argemone albiflora	White Prickly Poppy	2.00
Asclepias tuberosa	Butterfly Weed	2.50
Bouteloua rigidiseta	Texas Grama Grass	2.25
Callirhoe leiocarpa	Annual Winecup	1.00
Castilleja indivisa	Indian Paintbrush	0.15
Corydalis curvisiliqua	Scrambled Eggs	0.50
Iatris mucronata	Gayfeather	2.25
Lindheimera texana	Texas Yellow Star	3.00
Salvia azurea	Pitcher Sage	1.50
Salvia farinacea	Mealy Blue Sage	1.50
Simsia calva	Bush Sunflower	1.25
Tridens flavus	Purpletop (Grass)	2.25
"Midway Mix" (Native American Seed)	Grasses 1 ft. – 2 ft. tall	2.00

Source: Lady Bird Johnson Wildflower Center, 2010

Table 3: Type 3 – Riparian Native Grass Seed Mix for Edward's Plateau, Blackland Prairie, and Post Oak Savannah Eco-Regions

Part A: Wildflowers		
Species	Common Name	lbs. per acre
<i>Centaurea Americana</i>	American Basketflower	5.00
<i>Coreopsis tinctoria</i>	Plains Coreopsis	4.00
<i>Desmanthus illinoensis</i>	Illinois Bundleflower	7.50
<i>Engelmannia pinnatifida</i> ( <i>Engelmannia peristenia</i> )	Engelmann Daisy (Cutleaf Daisy)	9.00
<i>Helianthus maximiliani</i>	Maximilian Sunflower	2.00
<i>Oenothera speciosa</i>	Pink Evening Primrose	0.50
<i>Rudbeckia (Dracopis) amplexicaulis</i>	Clasping Coneflower	3.00
		31.00
Part B: Grasses		
Species	Common Name	lbs. per acre
<i>Bouteloua curtipendula</i>	Sideoats Grama	14.00
<i>Bouteloua gracilis</i>	Blue Grama	15.00
<i>Buchloe dactyloides</i>	Buffalograss	6.00
<i>Elymus canadensis</i>	Canada (Prairie) Wildrye	10.00
<i>Leptochloa dubia</i>	Green Sprangletop	4.00
<i>Panicum virgatum</i>	Switchgrass (Upland)	2.00
<i>Schizachyrium scoparium</i>	Little Bluestem	4.00
<i>Sorghastrum nutans</i>	Indian Grass	3.00
<i>Tripsacum dactyloides</i>	Eastern Gamagrass	10.00
		68.00
Part C: Replacement Species and/or Species Added for Increased Diversity		
Species	Common Name	lbs. per acre
<i>Andropogon gerardii</i>	Big Bluestem	1.00
<i>Andropogon glomeratus</i>	Bushy Bluestem Grass (for moist areas)	0.50
<i>Chasmanthium latifolium</i>	Inland Sea Oats	1.50
<i>Physostegia intermedia</i>	Obedient Plant	0.50
<i>Solidago altissima (S. canadensis)</i>	Tall Goldenrod	0.75
<i>Solidago gigantea</i>	Giant Goldenrod	0.75
<i>Salvia azurea</i>	Pitcher Sage	0.75
"Midway Mix" (Native American Seed)	Grasses 1 ft. – 2 ft. tall	2.50

Source: Lady Bird Johnson Wildflower Center, 2009

Table 4: Type 4 – Cool Season Native Grass Seed Mix for Edward's Plateau, Blackland Prairie, and Post Oak Savannah Eco-Regions

Species	Common Name	lbs. per acre
<i>Elymus canadensis</i>	Prairie Wildrye	10.00
<i>Pascopyrum smithii</i>	Western Wheatgrass	9.00
<i>Dalea candida (var. candida)</i>	White Prairie Clover	3.00
		22.00

Source: Lady Bird Johnson Wildflower Center, 2009

Table 5: Type 5 – Standard Native Grass Seed Mix for Edward's Plateau and Blackland Prairie Eco-Regions

Species	Common Name	lbs. per acre
<i>Bouteloua curtipendula</i>	Sideoats grama	14.00
<i>Bouteloua gracilis</i>	Blue grama	15.00
<i>Buchloe dactyloides</i>	Buffalograss	6.00
<i>Elymus canadensis</i>	Canada wildrye	10.00
<i>Leptochloa dubia</i>	Green sprangletop	4.00
<i>Panicum virgatum</i>	Switchgrass (upland variety)	2.00
<i>Schizachyrium scoparium</i>	Little bluestem (native)	4.00
<i>Sorghastrum nutans</i>	Indian grass	3.00
		58.00

Source: Lady Bird Johnson Wildflower Center, 2009

Table 6: Type 6 – Standard Native Grass Seed Mix for Post Oak Savannah Eco-Region

Species	Common Name	lbs. per acre
<i>Bouteloua curtipendula</i>	Sideoats grama	14.00
<i>Bouteloua gracilis</i>	Blue grama	15.00
<i>Buchloe dactyloides</i>	Buffalograss	6.00
<i>Elymus canadensis</i>	Canada wildrye	10.00
<i>Eragrostis trichoides</i>	Sand lovegrass	0.50
<i>Panicum virgatum</i>	Switchgrass (upland variety)	10.00
<i>Schizachyrium scoparium</i>	Little bluestem (native)	4.00
<i>Sporobolus cryptandrus</i>	Sand dropseed	1.00
<i>Sorghastrum nutans</i>	Indian grass	3.00
		63.50

Source: Lady Bird Johnson Wildflower Center, 2009

Table 7: Type 7 – Standard Short Native Grass Seed Mix for Edward's Plateau and Blackland Prairie Eco-Regions

Part A: Wildflowers		
Species	Common Name	lbs. per acre
<i>Cassia (Chamaecrista) fasciculata</i>	Partridge Pea	5.00
<i>Coreopsis tinctoria</i>	Plains Coreopsis	1.00
<i>Lupinus texensis</i>	Bluebonnet	15.00
<i>Gaillardia pulchella</i>	Indian Blanket	10.00
<i>Mondarda citriodora</i>	Lemon Mint	3.00
<i>Oenothera speciosa</i>	Pink Evening Primrose	0.50
<i>Rudbeckia hirta</i>	Black-eyed Susan	2.00
<i>Thelesperma filifolium</i>	Greenthread	1.50
		38.00
Part B: Grasses		
Species	Common Name	lbs. per acre
<i>Bouteloua curtipendula</i>	Sideoats Grama	21.00
<i>Bouteloua gracilis</i>	Blue Grama	35.00
<i>Buchloe dactyloides</i>	Buffalograss	50.00
<i>Elymus Canadensis</i>	Prairie Wildrye	10.00
<i>Eragrostis trichoides</i>	Sand Lovegrass	0.50
		116.5

Part C: Replacement Species and/or Species added for Increased Diversity		
Species	Common Name	lbs. per acre
<i>Bouteloua rigidiseta</i>	Texas Gama Grass	2.25
<i>Callirhoe leiocarpa</i>	Annual Winecup	1.00
<i>Castilleja indivisa</i>	Indian Paintbrush	0.15
<i>Corydalis curvisiliqua</i>	Scrambled Eggs	0.50
<i>Iatris mucronata</i>	Gayfeather	2.25
<i>Oenothera missouriensis</i>	Missouri Primrose	1.75
<i>Dalea candida</i> ( <i>Petalostemon candidus</i> )	White Prairie Clover	0.75
<i>Salvia farinacea</i>	Mealy Blue Sage	1.50
<i>Simsia calva</i>	Bush Sunflower	1.75
"Midway Mix" (Native American Seeds)	Grasses 1 ft. – 2 ft. tall	2.50

Source: Lady Bird Johnson Wildflower Center, 2010

**Table 8: Type 8 – Standard Short Native Grass Seed Mix For Post Oak Savannah Eco-Region**

Part A: Wildflowers		
Species	Common Name	lbs. per acre
<i>Cassia (Chamaecrista) fasciculata</i>	Partridge Pea	5.00
<i>Centaurea americana</i>	American Basketflower	5.00
<i>Coreopsis tinctoria</i>	Plains Coreopsis	2.00
<i>Desmanthus illinoensis</i>	Illinois Bundleflower	3.75
<i>Engelmannia pinnatifida</i>	Engelmann Daisy (Cutleaf Daisy)	9.00
<i>Gaillardia pulchella</i>	Indian Blanket	7.50
<i>Ipomopsis rubra</i>	Standing Cypress	3.00
<i>Mondardo citriodora</i>	Lemon Mint	1.50
<i>Oenothera speciosa</i>	Pink Evening Primrose	0.25
<i>Rudbeckia herta</i>	Black-eyed Susan	0.50
<i>Thelesperma filifolium</i>	Greenthread	2.00
		39.50
Part B: Grasses		
Grasses	Species	lbs. per acre
<i>Bouteloua curtipendula</i>	Sideoats Grama	14.00
<i>Bouteloua gracilis</i>	Blue Grama	15.00
<i>Buchloe dactyloides</i>	Buffalograss	6.00
<i>Elymus canadensis</i>	Canada Wildrye	10.00
<i>Schizachyrium scoparium</i>	Little Bluestem (Native)	8.00
		53.00
Part C: Replacement Species and/or Species added for Increased Diversity		
Grasses	Species	lbs. per acre
<i>Argemone albiflora</i>	White Prickly Poppy	2.50
<i>Bouteloua rigidiseta</i>	Texas Grama Grass	2.75
<i>Callirhoe leiocarpa</i>	Annual Winecup	1.00
<i>Castilleja indivisa</i>	Indian Paintbrush	0.15
<i>Eragrostis trichoides</i>	Sand Lovegrass	0.50
<i>Iatris mucronata</i>	Gayfeather	2.50



<i>Lindheimera texana</i>	Texas Yellow Star	3.00
<i>Oenothera missouriensis</i>	Missouri Primrose	0.50
<i>Oenothera speciosa</i>	Pink Evening Primrose	0.25
<i>Salvia azurea</i>	Pitcher Sage	0.75
<i>Salvia farinacea</i>	Mealy Blue Sage	1.50
<i>Simsia calva</i>	Bush Sunflower	1.25
"Midway Mix" (Native American Seeds)	Grasses 1 ft. – 2 ft. tall	2.50

Source: Lady Bird Johnson Wildflower Center, 2010

**Table 9: Type 9 – Bare Patch Repair Mix for Edward’s Plateau, Blackland Prairie, and Post Oak Savannah Eco-Regions**

Species	Common Name	lbs. per acre
<i>Bouteloua curtipendula</i>	Sideoats grama	25.00
<i>Bouteloua gracilis</i>	Blue grama	10.00
<i>Leptochloa dubia</i>	Green sprangletop	10.00
		45.00

Source: Lady Bird Johnson Wildflower Center, 2009

**Table 10: Type 10 – Warm Season Mix for Edward’s Plateau, Blackland Prairie, and Post Oak Savannah Eco-Regions**

Species	Common Name	lbs. per acre
<i>Seleria italica</i>	Foxtail Millet	34
		34

**Table 11: Type 11 – Substitute Standard Mix for Blackland Prairie Eco-Regions**

Species	Common Name	lbs. per acre
<i>Cynodon dactylon</i>	Bermuda	10
		10

**B. Cool Season Temporary Cover Seed**

If native grass seed is to be installed during the winter period of November 8<sup>th</sup> to February 14<sup>th</sup>, then Table 4 (temporary cool season mix) must be incorporated into the native grass seed mix, as specified on the plans, or as directed.

**C. Warm Season Temporary Cover Seed**

Between the dates of May 1<sup>st</sup> to August 31<sup>st</sup>, use Temporary Warm Season Seeding (Type 10) as specified on the plans, or as directed.

**D. Warm Season Permanent Cover Seed Substitute**

For installation in areas with curb and gutter, substitute applicable Type 7 or Type 8 Standard Short Native Grass Seed in lieu of Tall Native selections.

**E. Substitute Standard Mix for Blackland Prairie Eco-Regions**

Table 11 (Type 11) may be substituted in areas where adjacent private property employs the use of herbicides which limits the plant establishment of specified seasonal seeding.

## F. Compost Manufactured Topsoil (CMT) and Erosion Control Compost (ECC)

As specified in Item 161–WC001, "Compost."

## G. Topsoil

As specified in Item 160–WC001, "Topsoil."

## H. Humic Acid

Humic Acid can be obtained from the following supplier or approved equal:

1. Medina Agriculture Products  
(830) 426-3011

## I. Fertilizer

Use a complete fertilizer containing nitrogen (N), phosphoric acid (P), and potash (K) nutrients. Ensure at least 50% of the nitrogen component is a slow-release sulfur-coated urea. Ensure that fertilizer is in an acceptable condition for distribution in containers labeled with product analysis. Fertilizer is subject to testing in accordance with Texas Fertilizer Law. Deliver and apply the complete fertilizer uniformly, as a dry material, at a rate equal to 60 lbs. of nitrogen per acre or at the analysis and rate specified on the plans.

## J. Mycorrhizal Fungi

MycoApply Endo, produced by Mycorrhizal Applications, Inc., can be obtained from the following supplier or approved equal:

1. Horizon Distributors, Inc.  
(512) 282-2331

This product will require de-chlorinated, clean, fresh water for application.

## K. Vegetative Watering

Clean, fresh, and free of substances or matter that could inhibit vigorous growth of plants. As specified in Item 168–WC001, "Vegetative Watering."

## L. No Mowing Notice Sign

As specified in Item 636, "Aluminum Signs."

## M. Sign Support

As specified in Item 644, "Small Roadside Sign Supports and Assemblies."

## PART 3 – EXECUTION

### 3.1 SEQUENCING

- A. Following fine grading and topsoil or compost/fertilizer installation, initiate seed installation as specified in the plans or as directed to disturbed roadside areas and channels. If road base operations have not been completed, exclude seeding install fifteen (15) ft. from the road pavement.

- B. Following road pavement, initiate seed installation following grading and topsoil or compost/fertilizer installation to remaining disturbed areas, as specified in the plans or as directed.
- C. Install no mowing notice signs in accordance with the plans or as directed at time of Final Acceptance.

### 3.2 CONSTRUCTION

#### A. Installation

1. Remove and dispose of objectionable material from the topsoil source before beginning the work.

#### B. Site Preparation

1. Remove all invasive species.
  - a. Invasive weeds, either living plants or weed seed, shall be minimized at the site using appropriate herbicide application and/or weed-free soil amendments. Mow, burn, or apply herbicides as needed to control unwanted vegetation as directed.
2. Seed should not be installed onto compacted soil. Scarify or break the surface of the soil with a flexible tine one (1) to two (2) inches in depth in the area to be seeded.
3. Apply specified compost/fertilizer and/or topsoil to the seeding surface (refer to plans for required depth).
4. Humic Acid concentrate shall be mixed with clean, fresh water prior to application. Apply humic acid and water mixture to all areas to receive any type of native grass seeding at the rate of one (1) gallon of humic acid concentrate per acre (or 0.16 teaspoons per square yard).
5. MycoApply Endo shall be mixed with de-chlorinated, clean, fresh water prior to application. The water MUST be de-chlorinated or the fungi in the MycoApply Endo will die. Apply MycoApply Endo mixture to all areas to receive any type of native grass seeding at the rate of 10 lbs. per acre (or 0.0336 ounces per square yard).
6. The humic acid and the MycoApply Endo can be mixed together with de-chlorinated water and applied to areas to receive any native grass seeding at the same time. The water MUST be de-chlorinated or the fungi in the MycoApply Endo will die.
7. Seed area in accordance with the plans or as directed, with regard to installation specification below.

#### C. Installation

Apply the entire specified amount of seed to the area to be seeded. Application rates should be set to allow at least two complete passes over seeding area so the area is completely and evenly covered. Lightly rake compost and/or topsoil to ensure good seed contact. Seeds should not be buried at a depth over ¼ inches.

##### 1. Broadcast Seeding

All areas shown to be seeded in the plans must be broadcast unless otherwise directed by the Engineer. Broadcast seed using hand or mechanical distribution in a uniform manner. Coordinate the application rate setting with the Owner's Representative prior to application. Apply seed on the surface of compost or topsoil. The seedbed should be culti-packed or rolled before and after seeding to ensure seed contact with the soil. Roll the seeding areas along slope contours. Wind speed should be fifteen (15) mph or less during seeding. Up to one-third ( $\frac{1}{3}$ ) of the seed may remain on top of the soil surface.

## 2. No-Till Drill Seeding

No-till drill seeding should only be used when directed by the Engineer. Use a no-till drill to reduce the risk of erosion and loss of seed. Ensure the drill opening size is adequate to allow free movement of full range of seed sizes being planted. Coordinate the application rate setting with the Owner's Representative prior to application. Plant seed parallel to the contour of the slopes.

## 3. Pre-mixing Seed with Compost (CMT and ECC)

Apply uniform dry mixture of seed and compost pneumatically only as directed by the Engineer in areas shown in the plans to a depth not to exceed two (2) inches. Pre-mixing the seed with compost will aid in a uniform application of seed.

## D. Seeding Schedule

- The preferred time to seed is from September 21<sup>st</sup> to November 7<sup>th</sup> to take advantage of winter rains.
- Native Grass Seeding Schedule:

**Table 12: Seeding Schedule**

	<b>*OPTIMUM PLANTING TIME*</b>			
	Fall Seeding	Winter Seeding	Spring Seeding	Summer Seeding
Seeding Dates	Sept. 21 <sup>st</sup> – Nov. 7 <sup>th</sup>	Nov. 8 <sup>th</sup> – Feb. 14 <sup>th</sup>	Feb. 15 <sup>th</sup> – June 15 <sup>th</sup>	June 16 <sup>th</sup> – Sept. 20 <sup>th</sup>
Grass Type	Type 1 Type 2 Type 5 Type 7 Type 8 Type 9 Type 11	Type 1 Type 2 Type 5 Type 6 Type 7 Type 9 Type 11	Type 5 or 6	Type 10
		PLUS	PLUS (Only if Directed)	PLUS
Supplemental Grass		Apply the Table 4: Type 4 Cool Season Non-Native Grass Seed Mix	Apply the Table 2: Type 2 Wildflower Seed Mix in the next Fall Seeding Time Period	Apply the Permanent Type 1, Type 3, or Type 5 Grass Mix in the Fall Seeding Time Period

## E. Vegetative Watering

Provide vegetative watering to seeded areas shown on the plan immediately after seed installation for healthy vegetative establishment, in accordance with Item 168-WC001, "Vegetative Watering" or as directed.

## F. No Mow Signs

At final acceptance, post signs at locations indicated on the plans or as directed to prevent mowing of established native grass stands.

## 3.3 MAINTENANCE

### A. Requirements

- Maintain the native grass areas during and after construction until the certificate of completion is issued.

2. Maintain the ECC if the seeding time falls in the summer period. Seed the specified grass mix when the fall seeding period begins.
3. Maintain native grass areas to establish vigorous growth and plant establishment of native grass mix. Establish an overall vegetative cover of 70% – 80% minimum with no single bare area larger than 100 SF. Areas should have at least 30% of species diversity and be four (4) to six (6) inches in height.
4. Watering of the native grass seed shall be in accordance with Item 168-WC001, "Vegetative Watering."
5. Posted signs should be repaired or replaced immediately if found to be damaged or missing.

B. Schedule

1. Inspect the grass areas weekly and within 24 hours after each rain event of one-half (½) inch or more. Restore eroded areas to finished grade and reseed.
2. Reseed areas that have not established if grass cover is less than 80% of coverage (TCEQ, 2005).
3. Inspect seeded areas every two weeks during establishment phase to check for invasive species, refer to Invasive Species Control.

END OF SECTION

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## Special Provision 168-WC001

### Vegetative Watering

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For this project, Item 168, "Vegetative Watering," of the Standard Specifications, is hereby voided and replaced in its entirety with the clauses and requirements below.

#### **PART 1 – GENERAL**

##### **1.1 DESCRIPTION**

Provide and distribute water to promote growth of vegetation as specified or as directed.

##### **1.2 RELATED ITEMS**

- A. Item 164-WC001, "Seeding for Erosion Control"
- B. Item WC104, "Wildflower Seeding"
- C. Item 170, "Irrigation System"

##### **1.3 MEASUREMENT**

This item will be measured by the 1000 gallons as applied.

##### **1.4 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 "Vegetative Watering." This price is full compensation for furnishing and operating watering equipment and measuring devices for furnishing and applying water, including hauling, equipment, labor, and incidentals.

##### **1.5 QUALITY CONTROL SUBMITTALS**

- A. Submit water source and technique of application for approval.
- B. Submit a layout drawing and shop drawings of the temporary irrigation system (drip or rotor/spray irrigation) for approval.
- C. Submit a report of pH and soluble salt levels of the irrigation water for approval prior to installation.
- D. Submit a weekly report for each delivery of water per water truck, if source of water is off-site.

## PART 2 – PRODUCTS

### 2.1 MATERIALS

#### A. Water

Use water that is clean and free of industrial wastes and other substances harmful to the growth of vegetation. Do not incorporate fertilizer into the water for irrigation. The pH should be between 6.5 and 8.4 to be acceptable for use as irrigation water (MSUES, 2009). Soluble salt levels between 0 and 1,500 mmhos/cm are acceptable for use (CTIP, 2008).

#### B. Temporary Irrigation

For materials, refer to Item 170, "Irrigation System."

## PART 3 – EXECUTION

### 3.1 SEQUENCING

A. Vegetative watering shall commence following installation of seeding and plants.

### 3.2 CONSTRUCTION

#### A. Schedule

1. Apply vegetative watering in the appropriate quantities and frequencies shown in Table 2 for native grass and wildflower seeded areas and Table 3 for planted trees and shrubs or to replace moisture loss per evapotranspiration (ET) rate, whichever is greater. Significant on-site rainfall of one-half (½) inch or greater allows the postponement of watering until the next scheduled irrigation.
2. Daily ET rates for the County may be found at this AgriLife Extension website: <http://texaset.tamu.edu/>

See an example as shown in Table 1.

How to use this table: Look at the first column, ETo, for the inches of water lost per day in evapotranspiration. Add the inches for the last 7 or 14 days (depending on your watering phase shown in Tables 2 and 3) of ETo to get the total number of inches lost by evapotranspiration. This is the amount of watering that needs to be applied to the vegetation at the frequency given in Tables 2 and 3.

Table 1: ET and Weather Data – 14 Day Table (for example only)

Georgetown II Weather Station  
Station Sponsored by : Williamson County Extension

Date	ETo PET (in)	Tmax (F)	Tmin (F)	RHmin (%)	Solar (MJm2)	Rain (in)	Wind 4am (mph)	Wind 4pm (mph)
2010-08-26	0.20	90	76	35	15.47	0.00	4.91	4.15
2010-08-27	0.25	93	67	21	26.20	0.00	0.33	7.51
2010-08-28	0.24	95	62	23	26.05	0.00	0.10	4.28
2010-08-29	0.29	95	70	32	22.64	0.00	8.42	8.55
2010-08-30	0.30	96	78	38	20.19	0.00	8.73	8.46
2010-08-31	0.27	95	75	41	21.45	0.00	5.91	6.64
2010-09-01	0.28	95	77	38	21.56	0.00	5.55	6.35
2010-09-02	0.22	91	77	49	17.02	0.00	8.52	6.62
2010-09-03	0.16	84	71	49	11.92	0.18	1.34	9.83
2010-09-04	0.25	88	69	37	23.25	0.00	4.65	6.88
2010-09-05	0.24	91	67	32	23.00	0.00	0.49	6.55
2010-09-06	0.20	89	69	54	18.45	0.05	2.96	11.46
2010-09-07	0.06	77	72	84	2.64	4.74	4.73	14.46
2010-09-08	0.11	83	74	73	7.36	4.69	12.68	4.04
14 Day Summary	3.07	90	72	43	18.37	9.66	4.95	7.56

Note: Reported are the average hourly values, not the absolute highs and lows.

Source: AgriLIFE EXTENSION - Texas A&M System

Table 2: Vegetative Watering Schedule for Native Grass, Wildflower Seeding, and Live Root Plantings

Time Period	Irrigation Application Amount*	Frequency**
Day of Installation	Min. 1 inch	Min. 2 times per day
Phase 1 – Next 10 days	Min. 1 inch	Min. 1 time per day (no rain)
Phase 2 – Next 14 days	Min. 1 inch or replace weekly ET	Min. 2 times per week (no rain or dew)
Phase 3 – Until Plant Establishment	Min. 1.5 inches or replace weekly ET	Min. 1 time per every other week, or as necessary***

Source: Adapted from COA, 2009 & TCEQ, 2005.

**Note 1:** \*5.6 gallons per square yard = 1 inch of applied water

**Note 2:** \*\*Reduce irrigation frequency if during period of seasonal rains, since the watering frequency will greatly depend on the time of year. Deviations from the above watering schedule should be approved.

**Note 3:** \*\*\*Irrigation in Phase 3 should pause during the dormant season, beginning on December 15<sup>th</sup>, and should be reinstated beginning February 15<sup>th</sup>.

**Note 4:** Reference Item 164-WC001, "Seeding for Erosion Control" 3.3 Maintenance Requirements for plant establishment specifications.

**Note 5:** Stop irrigation if there is puddling.



Table 3: Vegetative Watering Schedule for Planted Trees and Shrubs

Time Period	Irrigation Application Amount*	Frequency**
Day of Installation	Saturate Root Depth	Min. 1 times per day
Phase 1 – Next 14 days	Saturate Root Depth	Min. 1 time per every other day, or as necessary
Phase 2 – Until Plant Establishment	Saturate Root Depth	Min. 1 time per week, or as necessary***

Source: Adapted from COA, 2009 & TCEQ, 2005.

**Note 1:** \*5.6 gallons per square yard = 1 inch of applied water

**Note 2:** \*\*Reduce irrigation frequency if during period of seasonal rains, since the watering frequency will greatly depend on the time of year. Deviations from the above watering schedule should be approved.

**Note 3:** \*\*\*Irrigation in Phase 2 should pause during the dormant season, beginning on December 15<sup>th</sup>, and should be reinstated beginning February 15<sup>th</sup>.

**Note 4:** Stop irrigation if there is puddling.

B. General Guidelines:

1. Contractor should determine the vegetative watering technique (temporary drip irrigation, temporary rotor or spray irrigation, or water truck) most appropriate for the project if not specified in the plans.
2. After approval of drip or rotor/spray irrigation technique (if selected as the appropriate technique), produce shop drawings for these systems for approval by the Engineer.
3. Apply water to all newly vegetated areas as shown on the plans or as directed.
4. Irrigation water should not cause excessive run-off.
5. Water should ensure 100% coverage on all seeded and planted areas.
6. Overspray onto pavement is not allowed.

C. Temporary drip irrigation guidelines:

1. Install temporary drip irrigation lines per approved shop drawings.
2. Irrigation system should provide coverage to 100% of plant establishment areas.
3. Drip irrigation water should come from one of the following sources, submit water source for approval.
  - a. Tie into existing water source or well.
  - b. Pump water from nearby creek or river with the use of a generator. Obtain approval from Construction Observer prior to pumping.
  - c. Tie temporary irrigation line to a water truck.
  - d. Store water in a storage tank and locate at the highest elevation on the site to effectively move water to each emitter through pressure.
4. Pressure compensating emitters should be used on hilly sites.

5. Two emitters should be placed at each plant to ensure adequate watering in case one emitter becomes clogged.
6. Drip system components may consist of barbed emitters in polyethylene tubing or in-line emitter tubing. Spaghetti tubing from multi-nozzle emitter heads should not be used due to ease of damage and numerous parts involved.
7. Irrigation piping and all related equipment should be removed from site at acceptance at the conclusion of the establishment period.

D. Temporary rotor or spray irrigation guidelines:

1. Install temporary rotor or spray irrigation lines per approved shop drawings.
2. Irrigation system should provide coverage to 100% of plant establishment areas.
3. Rotor or spray water should come from one of the following sources, submit water source to Owner's representative for approval.
  - a. Tie into existing water source or well.
  - b. Pump water from nearby creek or river with the use of a generator. Obtain approval from Construction Observer prior to pumping.
  - c. Tie temporary irrigation line to a water truck.
  - d. Store water in a storage tank and locate at the highest elevation on the site to effectively move water to each emitter through pressure.
4. Pressure compensating emitters shall be used on hilly sites.
5. Collect water lines and all irrigation equipment at the conclusion of the establishment period.

E. Water truck distribution:

1. Furnish and operate water truck equipment to apply water at a uniform and controllable rate that does not scour or erode the soil or seeding bed or wash away seeds or plantings. Applying water in multiple passes may be necessary to avoid scouring or erosion.
2. The water truck operator should not drive within designated seeding or planting areas.
3. The water spray should be directed upwards to distribute the water force and reduce potential erosion.

### 3.3 MAINTENANCE

- A. The contractor should maintain the irrigation system and inspect designated seeding or planting areas after each watering to ensure adequate water distribution. If erosion or seed washout occurs, soil and compost shall be restored to finished grade and the area shall be reseeded (refer to Item 164-WC001, "Seeding for Erosion Control").
- B. Irrigation water lines should remain intact and functioning during the establishment period. The contractor should inspect equipment, including drip lines, connectors, and main lines on a regular basis to ensure that they are operable and do not leak. Broken water lines should be repaired immediately.

- C. The site should be inspected after irrigation applications to ensure watering trucks have not eroded soil or compost or washed out seeds or plants. Soils compacted by water trucks are to be ripped. Refer to Item WC101, "Soil Ripping." Damaged areas should be regraded and reseeded immediately.

END OF SECTION

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## Special Provision to Item 500

### Mobilization

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Item 500, "Mobilization," 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 500.3., "Payment."** The 6<sup>th</sup> and 7<sup>th</sup> bullet is deleted and replaced by the following:

- Upon Final Completion, 97% of the mobilization lump sum bid will be paid. Previous payments under this Item will be deducted from this amount, and
- Payment for the remainder of the lump sum bid for "Mobilization" will be made with the Final Payment after all submittals are received, final quantities have been determined, and when any separate vegetative establishment and maintenance, test, and performance periods provided for in the Contract have been successfully completed and the County has issued the Certificate of Acceptance.

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## Special Provision to Item 502

### Barricades, Signs, and Traffic Handling

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For this project, Item 502, "Barricades, Signs, and Traffic Handling," 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 502.4.1.3., "Maximum Total Payment Prior to Acceptance" is voided and replaced by the following:

**Maximum Total Payment Prior to Completion.** The total payment for this Item will not exceed 10% of the total Contract amount before final completion in accordance with General Conditions of Agreement, Section 5.06, "Final Completion and Acceptance." The remaining balance will be paid in accordance with Section 502.4.1.5, "Balance Due."

Article 502.4.1.5., "Balance Due" is voided and replaced by the following:

**Balance Due.** If all work is complete in accordance with General Conditions of Agreement, Section 5.06, "Final Completion and Acceptance," before payment of the amount allowed by this Article, the balance due will be paid with the Final Payment.

# Special Provision 506-WC001

## 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.

### PART 1 – GENERAL

#### 1.1 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 (SW3P) in the plans and the Texas Pollutant Discharge Elimination System (TPDES) General Permit TXR150000.

#### 1.2 MEASUREMENT

##### A. 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.

##### 1. Linear Measurement

When rock filter dams are measured by the foot, measurement will be along the centerline of the top of the dam.

##### 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.

a. Installation: Measurement will be made in final position.

b. Removal: Measurement will be made at the point of removal.

##### B. Temporary Pipe Slope Drains

Temporary pipe slope drains will be measured by the foot.

##### C. 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.

##### D. Construction Exits

Construction exits will be measured by the square yard of surface area.

##### E. Earthwork for Erosion and Sediment Control

### 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.

### 2. Volume Measurement

#### a. In Place

##### i. Excavation

Excavation will be measured by the cubic yard in its original position and the volume computed by the method of average end areas.

##### ii. 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.

#### b. 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.

### F. Construction Perimeter Fence

Construction perimeter fence will be measured by the foot.

### G. Sandbags for Erosion Control

Sandbags will be measured as each sandbag or by the foot along the top of sandbag berms or dams.

### H. Temporary Sediment-Control Fence

Installation or removal of temporary sediment-control fence will be measured by the foot.

### I. 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.

### J. Vertical Tracking

Vertical tracking will not be measured or paid for directly, but is considered subsidiary to this Item.

## 1.3 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.

#### A. 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:

##### 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.

##### 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.

#### B. 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."



### C. 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."

### D. 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."

### E. Earthwork for Erosion and Sediment Control

#### 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.

#### 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.

#### F. 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 be not 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.

#### G. 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.

#### H. 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:

##### 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.

##### 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.

#### I. 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:

## 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.

## 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.

## J. Vertical Tracking

Vertical tracking will not be measured or paid for directly, but is considered subsidiary to this Item.

**PART 2 – PRODUCTS****2.1 MATERIALS**

Furnish materials in accordance with the following:

- Item 161, "Compost"
- Item 432, "Riprap"
- Item 556, "Pipe Underdrains"

## A. Rock Filter Dams

## 1. Aggregate

Furnish aggregate with hardness, durability, cleanliness, and resistance to crumbling, flaking, and eroding acceptable to the Owner. Provide the following:

- a. Type 1, Type 2, and Type 4 rock filter dams: Use three (3) inches to six (6) inches aggregate.
- b. Type 3 rock filter dams: Use four (4) inches to eight (8) inches aggregate.

## 2. Wire

Provide minimum twenty (20) gauge galvanized wire for the steel wire mesh and tie wires for Types 2 and Type 3 rock filter dams. Type 4 dams require:

- a. a double-twisted, hexagonal weave with a nominal mesh opening of 2½ inches by 3¼ inches;
- b. minimum 0.0866 inches steel wire for netting;
- c. minimum 0.1063 inches steel wire for selvages and corners; and
- d. minimum 0.0866 inches for binding or tie wire.

## 3. Sandbag Material

Furnish sandbags meeting Section 506.2.8., "Sandbags," except that any gradation of aggregate may be used to fill the sandbags.

## B. 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."

## C. 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 six (6) inches and a maximum volume of one-half (½) ft.<sup>3</sup> for the construction of energy dissipaters.

## D. Construction Exits

Provide materials that meet the details shown on the plans and this Section.

## 1. Rock Construction Exit

Provide crushed aggregate for long-term 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 four (4) inch to eight (8) inch aggregate for Type 1. Use two (2) inch to four (4) inch aggregate for Type 3.

## 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 one-half (½) inch diameter, unless otherwise shown on the plans or allowed. Provide plywood or pressed wafer board at least one-half (½) inch thick for short-term exits.

## 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.

## E. Embankment for Erosion Control

Provide rock, loam, clay, topsoil, or other earth materials that will form a stable embankment to meet the intended use.

## F. Pipe

Provide pipe outlet material in accordance with Item 556, "Pipe Underdrains," and details shown on the plans.

## G. Construction Perimeter Fence

## 1. Posts

Provide essentially straight wood or steel posts that are at least sixty (60) inches long. Furnish soft wood posts with a minimum diameter of three (3) inches or use nominal two (2) inch by four (4) inch boards. Furnish hardwood posts with a minimum cross-section of 1½ inches by 1⅞ inches. Furnish T-shaped or L-shaped steel posts with a minimum weight of 0.5 lbs. per foot.

## 2. Fence

Provide orange construction fencing as approved.

## 3. Fence Wire

Provide eleven (11) gauge or larger galvanized smooth or twisted wire. Provide sixteen (16) gauge or larger tie wire.

## 4. Flagging

Provide brightly-colored flagging that is fade-resistant and at least  $\frac{3}{4}$  inches wide to provide maximum visibility both day and night.

## 5. Staples

Provide staples with a crown at least one-half ( $\frac{1}{2}$ ) inch wide and legs at least one-half ( $\frac{1}{2}$ ) inch long.

## 6. Used Materials

Previously used materials meeting the applicable requirements may be used if approved.

## H. Sandbags

Provide sandbag material of polypropylene, polyethylene, or polyamide woven fabric with a minimum unit weight of four (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 twenty-four (24) inches to thirty (30) inches long, sixteen (16) inches to eighteen (18) inches wide, and six (6) inches to eight (8) inches 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  $\frac{3}{8}$  inch.

## I. Temporary Sediment Control Fence

Provide a net-reinforced fence using woven geo-textile fabric. Logos visible to the traveling public will not be allowed.

## 1. Fabric

Provide fabric materials in accordance with DMS-6230, "Temporary Sediment Control Fence Fabric."

## 2. Posts

Provide essentially straight wood or steel posts with a minimum length of 48 inches, unless otherwise shown on the plans. Furnish soft wood posts at least three (3) inches in diameter or use nominal two (2) inch by four (4) inch boards. Furnish hardwood posts with a minimum cross-section of  $1\frac{1}{2}$  inches by  $1\frac{1}{2}$  inches. Furnish T-shaped or L-shaped steel posts with a minimum weight of 1.3 lbs. per foot.

3. Net Reinforcement

Provide net reinforcement of at least 12½ gauge galvanized welded wire mesh, with a maximum opening size of two (2) inches by four (4) inches, at least twenty-four (24) inches wide, unless otherwise shown on the plans.

4. Staples

Provide staples with a crown at least ¾ inch wide and legs one-half (½) inch long.

5. Used Materials

Use recycled material meeting the applicable requirements if approved.

J. Biodegradable Erosion Control Logs

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. 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.

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.

## PART 3 – EXECUTION

### 3.1 Construction

#### A. Contractor Responsibilities

Implement the Owner's SW3P for the project in accordance with the plans and specifications, TPDES General Permit TXR150000, and as directed by the Owner. Develop and implement an SW3P 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.

## B. General

## 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.

## 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. 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.

## 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.

## 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 off-site 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.

## C. Installation, Maintenance, and Removal Work

Perform work in accordance with the SW3P, 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 as 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.

## 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 Type 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:

### a. Type 1: Non-reinforced

- i. Height: At least eighteen (18) inches measured vertically from existing ground to top of filter dam
- ii. Top Width: At least two (2) ft.
- iii. Slopes: No steeper than 2:1

### b. Type 2: Reinforced

- i. Height: At least eighteen (18) inches measured vertically from existing ground to top of filter dam
- ii. Top Width: At least two (2) ft.
- iii. Slopes: No steeper than 2:1

### c. Type 3: Reinforced

- i. Height: At least thirty-six (36) inches measured vertically from existing ground to top of filter dam
- ii. Top Width: At least two (2) ft.
- iii. Slopes: No steeper than 2:1

### d. 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 four (4) inch to 5 inch spacing for vertical filling. Pull the end lacing rod at one end until tight, wrap around the end, and twist four (4) times. Fill with stone at the filling end, pull the rod tight, cut the wire with approximately six (6) inches remaining, and twist wires four (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.

### e. Type 5: Provide rock filter dams as shown on the plans.

## 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 eight (8) inch 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 one (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 ten (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. 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 nine (9) inches at the flume outlet to the limits shown on the plans or as directed.

### 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-term or short-term use.

#### a. 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 fourteen (14) ft. for one-way and twenty (20) ft. for two-way traffic for the full width of the exit or as directed.

i. Type 1: Construct to a depth of at least eight (8) inches using crushed aggregate as shown on the plans or as directed.

ii. Type 2: Construct using railroad ties and timbers as shown on the plans or as directed.

#### b. Short-Term

i. 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.

ii. Type 4: Construct as shown on the plans or as directed.

### 5. Earthwork for Erosion Control

Perform excavation and embankment operations to minimize erosion and to remove collected sediments from other erosion control devices.

#### a. 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 ten (10) or more disturbed acres at one time, not including off-site areas.

b. Excavation of Sediment and Debris

Remove sediment and debris when accumulation affects the performance of the devices, after a rain, and when directed.

6. Construction Perimeter Fence

Construct, align, and locate fencing as shown on the plans or as directed.

a. Installation of Posts

Embed posts eighteen (18) inches deep or adequately anchor in rock, with a spacing of eight (8) ft. to ten (10) ft.

b. Wire Attachment

Attach the top wire to the posts at least three (3) ft. from the ground. Attach the lower wire midway between the ground and the top wire.

c. Flag Attachment

Attach flagging to both wire strands midway between each post. Use flagging at least eighteen (18) inches long. Tie flagging to the wire using a square knot.

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 six (6) inches 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 one-half (½) 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.

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.

a. Installation of Posts

Embed posts at least eighteen (18) inches deep, or adequately anchor if in rock, with a spacing of six (6) ft. to eight (8) ft. and install on a slight angle toward the runoff source.

b. Fabric Anchoring

Dig trenches along the uphill side of the fence to anchor six (6) inches to eight (8) inches of fabric. Provide a minimum trench cross-section of six (6) inches by six (6) inches. Place the fabric against the side of the trench and align approximately two (2) inches of fabric along the bottom in the upstream direction. Backfill the trench, then hand-tamp.

c. Fabric and Net Reinforcement Attachment

Attach the reinforcement to wooden posts with staples, or to steel posts with T-clips, in at least four (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 fifteen (15) inches or less.

d. Fabric and Net Splices

Locate splices at a fence post with a minimum lap of six (6) inches attached in at least six (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:

- i. fabric with minimal or no visible signs of biodegradation (weak fibers);
- ii. fabric without excessive patching (more than one (1) patch every fifteen (15) ft. to twenty (20) ft.);
- iii. posts without bends; and
- iv. backing without holes.

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.

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 twelve (12) inches long by two (2) inches to four (4) inches wide by one-half (½) inch to two (2) inches deep. Do not exceed twelve (12) inches between track impressions. Install continuous linear track impressions where the twelve (12) inches length impressions are perpendicular to the slope. Vertical tracking is required on projects where soil disturbing activities have occurred unless otherwise approved.

END OF SECTION

### Special Provision 504S – Adjusting Structures

Add the following to section 504S.6 – Payment:

A.

Pay Item No. SP 504S-GV:	Remove Valve	Per Each
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### Special Provision 510– Pipe – 10-3-13

Section 510.4 Measurement. Add the following:

Connecting to Asbestos Concrete Pipe throughout the project shall conform to the Specifications in Sections: 01910, 01902, 01904, 01910, 01915, and 01917 of this document, also all notes called out on the plans, and all State requirements as listed in said specifications to protect the workers and the general public safety.

Section 510.5 Payment. Add the following

(14) AC-Pipe Connections.

When called for in the bid, wet connections to Asbestos Concrete pipe will be paid at the unit price per each, complete in place, according to the size of the main in service and connection size, and shall be full compensation for all work required to make the connection and place the pipe in service. (See subsection 510.3 'Construction Methods' part (24) (b) 'Wet Connections to Existing Water System'). The AC-Pipe connections shall also conform to all Asbestos Specifications in Sections: 01910, 01902, 01904, 01910, 01915, and 01917 of this document, also all notes called out on the plans, and all State requirements as listed in said specifications to protect the workers and the general public safety.

Pay Item No. 510-JW-AC: ____x____ Dia:	Wet Connections, ____Dia x ____Dia	Per Each.
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### Special Provision Section 1901 – Scope of Work for Asbestos Abatement

Add a Measurement section with the following:

- A. Regarding the removal of asbestos cement pipe up to existing couplings, the work performed and materials furnished shall be measured per linear feet (LF).
- B. Regarding mobilization for asbestos abatement activities, the work performed shall be measured per each (EA).
- C. Regarding the handling, bagging, labeling, transportation and disposal of asbestos cement pipe by a licensed asbestos abatement personnel, the work performed and materials furnished shall be measured per work day (WD).

Add a Payment section with the following:

A.

<b>Pay Item No. SP 1901-1:</b>	Removing AC Pipe	Per Linear Foot
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B.

<b>Pay Item No. SP 1901-2:</b>	Mobilization for Asbestos Abatement	Per Each
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C.

<b>Pay Item No. SP 1901-3:</b>	Asbestos Pipe Removal, Handling, Bagging, Labeling, Transportation, Disposal By a Licensed Asbestos Abatement Personnel, Complete in Place	Per Working Day
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# Special Specifications

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# Special Specification WC101

## Soil Ripping

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### PART 1 – GENERAL

#### 1.1 DESCRIPTION

Soil ripping is a treatment measure that loosens overly compacted soil. Soil ripping is the plowing of the ground to alleviate compaction to allow for vegetated growth and to prevent erosion in sheet flow conditions. Perform soil ripping on designated areas according to the plans or as directed.

#### 1.2 RELATED ITEMS

- A. Item 160-WC001, "Topsoil"
- B. Item 161-WC001, "Compost"
- C. Item WC102, "Mulch"
- D. Item 164-WC001, "Seeding for Erosion Control"
- E. Item 506-WC001, "Temporary Erosion, Sedimentation and Environmental Controls"

#### 1.3 MEASUREMENT & PAYMENT

Not measured or paid directly. This item is subsidiary to other items in the contract. The contractor should apply the quantity of project seeding area with 2.2 and 2.3 of this specification for estimation purposes.

#### 1.4 QUALITY CONTROL SUBMITTALS

- A. Submit soil ripping equipment data for approval, prior to installation.

### PART 2 – EXECUTION

#### 2.1 SEQUENCING

- A. Complete final grading in accordance with the plans or as directed.
- B. Soil ripping should be performed prior to the installation of compost and/or topsoil, mulch, and/or native grass seeding and wildflower seeding.

#### 2.2 CONSTRUCTION

- A. Installation:
  - 1. All soil surfaces with a slope of 3:1 or less that are compacted due to equipment traffic should be ripped.
  - 2. Perform soil ripping parallel and perpendicular (in both directions) to the slope at location, groove spacing, and depth shown on the plans as well as any additional areas that have been compacted during construction

activities to achieve a standard proctor density of 80% – 85% in channels and 70% – 75% in non-channel areas.

3. If construction activities are on-going, repeat procedure as necessary.
4. Soil ripping should not be implemented within a drainage channel or in channel flow conditions.

## 2.3 MAINTENANCE

- A. Routinely inspect the soil ripping weekly during construction and within 24 hours after every one-half ( $\frac{1}{2}$ ) inch or greater rainfall event. Inspections should ensure that:
  1. No slumping of the rips has occurred.
  2. The ripping was installed at the appropriate depth and spacing.
  3. The contour rips are parallel and perpendicular to the slope.
- B. If major slumping or slope failure occurs, the area should be regraded and reseeded. If minor slumping or rills occur, the specified topsoil and/or compost and seeding for the area in the plans may be applied, at the discretion of the Owner's Representative.
- C. Continue to inspect the area on a weekly basis until vegetation has been established.

END OF SECTION



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# Special Provision WC102

## Mulch

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### PART 1 – GENERAL

#### 1.1 DESCRIPTION

Furnish and apply mulch as shown in the plans or as directed.

#### 1.2 RELATED ITEMS

- A. Item 161-WC001, "Compost"
- B. Item WC103, "Mulch Topdressing"
- C. Item 506-WC001, "Temporary Erosion, Sedimentation, and Environmental Controls"

#### 1.3 MEASUREMENT & PAYMENT

Not measured or paid directly. This item is subsidiary to other items of the contract.

#### 1.4 QUALITY CONTROL SUBMITTALS

- A. Submit one (1) pound sample of on-site shredded mulch for approval.
- B. Submit imported organic mulch product data and supplier information, including product composition, as well as a one (1) pound sample for approval.
- C. A statement that the shredded mulch has met the decomposition process.

### PART 2 – PRODUCTS

#### 2.1 MATERIALS

- A. Mulch can be on-site shredded organic mulch or an imported organic mulch product.
  - 1. Mulch can be comprised of wood chips, shredded bark, shredded landscape trimmings, or coarse compost material originating from the 3-county Central Texas region (Williamson, Travis, and Hays).
  - 2. Mulch to be shredded with no pieces greater than three (3) inches in length and with all pieces passing through a two (2) to three (3) inch screen.
  - 3. Invasive species should be excluded from mulch.
  - 4. Color: natural wood.
  - 5. Contamination: less than 0.5% weight by volume.
  - 6. Mulch to have undergone a decomposition process either on-site or at a supplier's location.

## PART 3 – EXECUTION

### 3.1 SEQUENCING

- A. For mulch material that has not gone through the stockpiling and decomposition process: Following removal of the existing vegetation from the site, shred the material to the specified size and place in a stockpile on-site. Complete the decomposition process in stockpile prior to installation or use of mulch at depths specified on plans. If using the mulch for dust control, compaction control, or on existing vegetation to remain, place immediately after the completion of the decomposition process.

### 3.2 CONSTRUCTION

- A. Installation
  - 1. Shred trees and vegetation to the specified size requirements.
  - 2. Apply Nitrogen at the rate of one (1) part Nitrogen to ten (10) parts mulch.
  - 3. Stockpile the mulch and allow to sit or cook for a period of no less than three (3) weeks if the temperature is above 70°F. If the temperature is below 70°F, extend the sitting or cooking time to five (5) to six (6) weeks.
  - 4. Turn the stockpile at least twice per week during the sitting or cooking period.
  - 5. Stockpiles should be surrounded by biodegradable erosion control logs within 24 hours of placement to prevent run-off of the material.

END OF SECTION

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# Special Specification WC103

## Mulch Topdressing

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### PART 1 – GENERAL

#### 1.1 DESCRIPTION

Furnish and apply mulch topdressing as shown in the plans or as directed.

#### 1.2 RELATED ITEMS

A. Item WC 102 "Mulch"

#### 1.3 MEASUREMENT

This item will be measured by the cubic yard.

#### 1.4 PAYMENT

The work performed and the materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Mulch Topdressing." This price is full compensation for furnishing materials, including mowing, labor, equipment, maintenance, tools, supplies, and incidentals.

#### 1.5 QUALITY CONTROL SUBMITTALS

A. Submit samples and product data in conformance with Item WC102, "Mulch," Part 1, 1.4, "Quality Control Submittals."

### PART 2 – PRODUCTS

#### 2.1 MATERIALS

A. Mulch

As specified in Item WC102, "Mulch"

### PART 3 – EXECUTION

#### 3.1 SEQUENCING

A. Apply mulch topdressing to vehicular drives, under driplines of existing trees, and to other designated locations, as specified on the plans or as directed after rough grading operations are complete.

#### 3.2 CONSTRUCTION

A. Vegetation Removal

1. Remove vegetation as shown in the plans or as directed.

2. Conduct mulching operations at approved locations.
  3. Stockpile mulch in locations shown on plans or as directed. Reference Item WC102, "Mulch," for stockpiling specifications.
- B. Site Preparation
1. Grade and remove debris, unsatisfactory soil materials, and obstructions from surface prior to mulch application.
  2. Remove top growth of vegetation to ensure that the mulch contacts the surface material.
- C. Installation
1. Apply mulch topdressing evenly at depths and locations as indicated in the drawings or as directed.
  2. Do not roll, tamp, or compact mulch topdressing.
  3. Apply mulch topdressing under driplines of existing tree locations for moisture retention and inhibiting of invasive growth as shown on plans at a minimum depth of five (5) inches and a maximum depth of eighteen (18) inches. Do not pile the mulch against tree trunks or root flares.
  4. Spread mulch on vehicle drives for compaction reduction and dust abatement at a maximum eighteen (18) inch depth.
  5. Contractor should remove and dispose of mulch topdressing in areas designated for seeding prior to seed installation.

### 3.3 MAINTENANCE

- A. Requirements
1. Replace the mulch topdressing immediately if loosened or missing.
  2. After the completion of construction, mulch topdressing shall be spread out or removed to ensure the total depth surrounding the critical root zones of vegetation is between five (5) inches and six (6) inches. Depth should not exceed six (6) inches.
- B. Schedule
1. The mulch topdressing should be inspected weekly, in accordance with the Stormwater Pollution Prevention Plan (SW3P) and within 24 hours after every one-half ( $\frac{1}{2}$ ) inch or greater rain event until project completion to identify loosened or missing mulch cover.

END OF SECTION

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# Special Specification WC104

## Wildflower Seeding

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### PART 1 – GENERAL

#### 1.1 DESCRIPTION

Provide and install wildflower seeding as shown in the plans or as directed.

#### 1.2 RELATED ITEMS

- A. Item 164-WC001, "Seeding for Erosion Control"
- B. Item 636, "Aluminum Signs"
- C. Item 644, "Small Roadside Sign Supports and Assemblies"

#### 1.3 REFERENCES

- A. Federal Seed Act
- B. Texas Seed Law

#### 1.4 MEASUREMENT

Seeding items will be measured by the square yard, by the acre, or by the pound.

#### 1.5 PAYMENT

- A. The work performed and the materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Wildflower Seeding." This price is full compensation for furnishing materials, including seed, mowing, labor, equipment, maintenance, tools, supplies, and incidentals.

#### 1.6 QUALITY CONTROL SUBMITTALS

- A. Submit product data, including plant tags and seed certification for wildflower seed mix for approval.
- B. Submit seeding equipment method, manufacturer, and data for approval.
- C. Submit product data and sample for sign in accordance with Tex-726-I.

## PART 2 – PRODUCTS

### 2.1 MATERIALS

#### A. Wildflower Seed

Provide seed as shown in the plans or as directed, meeting the requirements of the Federal Seed Act and Texas Seed Law, including the testing and labeling for pure live seed (PLS = Purity and Germination). Minimum purity shall be 50%. The seed test to be conducted by the State Seed Laboratory and a seed test report shall be submitted in accordance with 1.6, "Quality Control Submittals." Each type (mix) of seed shall be mixed by the supplier and delivered in labeled and unopened bags or containers, unless otherwise approved by the Owner's representative. The Contractor shall not blend the seed mixes on site. Use within twelve (12) months from that date of analysis.

Seeds shall be stored in a dry, well-ventilated location away from contaminants. Seed storage humidity level should be lower than 75%. Store any unused seed in a water-resistant container. If seed will be stored longer than one (1) year, the optimal temperature range would be 40°F – 60°F.

During transit (from storage to sowing), seed should be protected from dramatic temperature fluctuations day after day; temperature cannot exceed 100°F at any time. Seed must remain dry and protected from sun exposure. The transit period may not exceed ten (10) days.

Wildflower seed shall be obtained from any three of the approved providers:

1. Native American Seed, Junction, TX

(800) 728-4043

2. Wildseed Farms, Fredericksburg, TX

(800) 848-0078

3. Douglass King Company, San Antonio, TX

(888) 357-3337

#### B. No Mowing Notice Sign

As specified in Item 636, "Aluminum Signs."

#### C. Sign Support

As specified in Item 644, "Small Roadside Sign Supports and Assemblies."

## PART 3 – EXECUTION

### 3.1 SEQUENCING

- A. Install wildflower seed after native grass establishment.

- B. Remove all invasive species.

- C. Mow established grass and other low growing vegetation in wildflower seeding areas shown on plans to a maximum height of four (4) inches, or six (6) inches if in a location where permanent soil retention blanket exists, as specified in Item 40, "Mowing."

### 3.2 CONSTRUCTION

#### A. Site Preparation

1. Remove all invasive species

Invasive species, either living plants or weed seed, shall be minimized at the site using appropriate herbicide application and/or weed-free soil amendments. Mow, burn, or apply herbicides as needed to control unwanted vegetation in accordance with Invasive Species Control or as directed.

2. Mow established grass to four (4) inches if seeding into established vegetation.
3. Scarify the soil surface by dragging a harrow across the ground using equipment that will not compact or uproot existing vegetation. Tilling and compost application shall not be used in Wildflower Seeding.
4. Seed area in accordance with the plans or as directed with regard to installation specification below.

#### B. Installation

Seeds should not be buried at a depth over ¼ inch.

1. Broadcast Seeding

All areas shown to be seeded in the plans must be broadcast unless otherwise directed by the Engineer. Broadcast seed using hand or mechanical distribution in a uniform manner. Coordinate the application rate setting with the Owner's Representative prior to application. Apply seed on the surface of compost or topsoil. The seedbed should be culti-packed, or rolled, before and after seeding to ensure seed contact with the soil. Roll the seeding areas along slope contours. Wind speed should be fifteen (15) mph or less during seeding. Up to one-third ( $\frac{1}{3}$ ) of the seed may remain on top of the soil surface.

2. No-Till Drill Seeding

No-till drill seed only as directed by the Engineer. All areas shown in the plans to be seeded must be drill seeded unless directed by the Engineer. This method is appropriate in locations where compost modified topsoil is not specified. Use a no-till drill to reduce the risk of erosion and loss of seed. Ensure the drill opening size is adequate to allow free movement of full range of seed sizes being planted. Coordinate the application rate setting with the Owner's Representative prior to application. Plant seed parallel to the contour of the slopes.

#### C. Seeding Schedule

1. September 21<sup>st</sup> to November 7<sup>th</sup>: apply wildflower seed mix.
2. November 8<sup>th</sup> to September 20<sup>th</sup>: do not apply wildflower seed mix during this period.

#### D. Vegetative Watering

Provide vegetative watering to seeded areas shown on the plan immediately after seed installation for healthy vegetative establishment, in accordance with Item 168-WC001, "Vegetative Watering" or as directed.

#### E. No Mow Signs

At final acceptance, post signs at locations indicated on the plans or as directed to prevent mowing of established native grass stands.

### 3.3 MAINTENANCE

#### A. Requirements

1. Maintain the wildflower areas during and after construction until the certificate of completion is issued.
2. Maintain the wildflower areas to establish vigorous growth and plant establishment of wildflower mix. Establish an overall vegetative cover of 70% – 80% minimum with no single bare area larger than 100 SF. Areas should have at least 30% of species diversity and be four (4) inches to six (6) inches in height.
3. Watering of the wildflower seed shall be in accordance with Item 168-WC001, "Vegetative Watering."
4. Posted signs should be repaired or replaced immediately if found to be damaged or missing.

#### B. Schedule

1. Inspect the wildflower areas weekly and within 24 hours after each rain event of one-half (½) inch or more. Restore eroded areas to finished grade and reseed.
2. Reseed areas that have not established if wildflower cover is less than 80% of coverage (TCEQ, 2005).
3. Inspect seeded areas every two (2) weeks during establishment phase to check for invasive species, refer to Invasive Species Control.

END OF SECTION





**SCOPE OF WORK  
FOR  
ASBESTOS ABATEMENT  
ACTIVITIES**

**IN SUPPORT OF  
FOREST NORTH DRAINAGE IMPROVEMENTS PROJECT**

**WILLIAMSON COUNTY**

**TEXAS**

**BY  
CITY OF AUSTIN  
BUILDING SERVICES DEPARTMENT  
AUSTIN, TEXAS 78702  
(512) 974-7154**

**MARCH 10, 2016**

**DIVISION 1 - GENERAL REQUIREMENTS**

- 01901 Scope of Work - Asbestos Abatement
- 01902 Project Coordination - Asbestos Abatement
- 01904 Codes and Regulations - Asbestos Abatement
- 01910 Worker Protection - Asbestos Abatement
- 01911 Respiratory Protection - Asbestos Abatement
- 01915 Work Area Clearance (PCM) Asbestos Abatement
- 01917 Disposal of Asbestos Containing Waste Materials

3.10.16

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C. Wade Mullin  
Licensed Asbestos Consultant  
License Number 10-5093  
Expiration Date 2/7/2017

## SECTION 1901

### SCOPE OF WORK ASBESTOS ABATEMENT

#### PROJECT/WORK IDENTIFICATION

Project name is Asbestos Abatement of Asbestos Cement Pipe in support of the **Forest North Drainage Improvements Project locations in Williamson County, Texas.**

#### PART 1 - GENERAL:

This project is to be conducted in accordance with the Texas Asbestos Health Protection Act, as amended, Chapter 1954, Texas Occupations Code, effective June 1 2003, formerly Texas Civil Statutes, Article 4477-3a, 29 CFR 1910.1001, 29 CFR 1926.1101, 40 CFR part 763 subpart G and 40 CFR part 61 subpart M.

The location and approximate quantities of asbestos materials provided in these specifications are estimates only and do not include any hidden materials not identified. The Contractor is responsible to field verify for actual quantities which these plans and specifications represent. No additional compensation will be made to the Contractor(s) for differences between the estimated quantities and the actual quantities unless prior written approval is obtained from the Owner or his representative.

The Contractor's asbestos abatement workers shall have the appropriate certifications, licenses, and training for asbestos abatement work and supervision in the State of Texas.

#### **1.01 Summary of Work:**

Briefly and without force and effect upon the contract documents, the work of the contract can be summarized as follows:

The purpose of this item is to remove and dispose of asbestos containing materials (ACM) associated with asbestos containing (AC) cement pipe for the **Forest North Drainage Improvements Project locations in Williamson County, Texas.**

The Contractor is required to assist the general contractor in removing the following approximate quantities at these locations within the project area;

**Briar Hollow Zone: 20 LF of 8" diameter AC pipe**

**Wisterwood Zone : 53 LF of 8" diameter AC pipe and 27 LF of 6" diameter AC pipe**

**Braeburn Zone : 45 LF of 8" diameter AC pipe**

**Tichester Zone : 10 LF of 8" diameter AC pipe**

**Stillforest Zone : 40 LF of 8" diameter AC pipe and 25 LF of 6" diameter AC pipe**

**Sherbrook Zone : 30 LF of 8" diameter AC pipe and 91 LF of 6" diameter AC pipe.**

**The asbestos contractor will assist with any connections, removal of segments and all taps and tie-ins to AC pipe. Any pipe scheduled to be abandoned will be properly grouted per CoA specifications. The contractor will remove and dispose of as ACM all asbestos cement**

pipe and debris using the procedures as outlined below. In addition, the contractor is to assist with any connections to existing asbestos cement piping.

The Contractor shall conduct all abatement work in accordance with the current revisions to the Texas Department of Health Rules, T.A.H.P.R. dated March 2003.

**Asbestos Superintendent:** Provide a full-time Asbestos Superintendent on site who is licensed in accordance with Texas Civil Statutes, Article 4477-3a, paragraph 289.144, and all adoptions to Article 4477-3a, and experienced in administration and supervision of asbestos abatement projects including work practices, protective measures for building and personnel, disposal procedures, etc. This person is the Competent Person as required by OSHA in 29 CFR 1926.1101 for the Contractor and is the Contractor's representative responsible for compliance with all applicable federal, state and local regulations, particularly those relating to asbestos containing materials.

**Asbestos Workers:** All workers actively involved in the removal and replacement of asbestos material will be Licensed Asbestos Workers with the State of Texas.

### **Removal of AC Water and/or Wastewater Lines**

The Contractor shall establish a regulated area with caution tape surrounding the work area and place a drop cloth consisting of six mil thick sheet plastic below the pipe where it will be cut or otherwise disturbed. The Contractor can use a hammer and chisel to split the top and bottom of the couplings (collars) on each end so that an entire section of pipe can be removed. The couplings shall be kept wet with amended water (water to which a surfactant has been added) or a removal encapsulant while this is being done. Once this has been accomplished, the section of pipe and the couplings can be removed from the trench and wrapped in two layers of true six mil thick sheet plastic. Completely seal the sheet plastic with duct tape and duct tape any tears in the plastic. The Contractor is not allowed to use high speed saws to cut the pipe at any time. If needed, hand operated cutters or chain mounted snap cutters can be used as long as the area to be cut is kept wet with amended water or a removal encapsulant during this process. As stated above, if the Contractor chooses to use a hand operated cutter or chain mounted snap cutter, a drop cloth consisting of six mil thick sheet plastic shall be placed below the area to be cut. All debris collected on the drop cloth as well as the drop cloth itself, shall be kept wet during removal and promptly placed into a disposal bag and sealed using duct tape at the completion of the removal process. All visible debris located in the trench shall also be placed into a disposal bag. Once this has been accomplished, the disposal bag containing the debris and the drop cloths shall be placed into another disposal bag and sealed using duct tape. All protective clothing worn by the Contractor and their personnel shall also be placed in disposal bags. At the end of the project, the Contractor shall discard their respirator filters as ACM by disposing of them in disposal bags. The disposal bags used to contain all asbestos containing debris, drop cloths, protective clothing, and respirator filters shall adhere to the following guidelines:

**Disposal Bags:** Provide 6 mil thick leak-tight polyethylene bags labeled with three labels with text as follows:

**First Label:**

CAUTION  
CONTAINS ASBESTOS FIBERS  
AVOID OPENING OR BREAKING CONTAINER

BREATHING ASBESTOS IS HAZARDOUS TO YOUR HEALTH

Second Label: Provide in accordance with 29 CFR 1910.1200(f) of OSHA's Hazard Communication standard:

DANGER  
CONTAINS ASBESTOS FIBERS  
AVOID CREATING DUST  
CANCER AND LUNG DISEASE HAZARD  
BREATHING AIRBORNE ASBESTOS, TREMOLITE, ANTHOPHYLLITE, OR  
ACTINOLITE FIBERS IS HAZARDOUS TO YOUR HEALTH

Third Label: Provide in accordance with U.S. Department of Transportation Regulation on hazardous waste marking. 49 CFR parts 171 and 172. Hazardous Substances: Final Rule:

RQ HAZARDOUS  
SUBSTANCE,  
CLASS 9,  
NA2212, PG III  
(ASBESTOS)

**All transporters of asbestos containing materials shall be licensed by the Department of State Health Services.**

**The Contractor shall label all piping wrapped in true six mil thick sheet plastic with the same type of labeling as the disposal bags.**

All equipment used on this project ( i.e. HEPA-vacuums ) shall be free of any visible debris and operational. The Owner's Representative along with the Contractor's designated supervisor shall inspect all equipment prior to it being brought into the work area. If any debris found on the equipment is suspected to be ACM, the equipment shall be wet wiped and decontaminated. **The decontamination of the equipment shall not take place on the project site.**

**If applicable, all taps to existing water lines are to be conducted using wet/pressure tapping. Once the taps are made the hydrants shall be flushed on both sides of the work area to help prevent contamination of the water supply. Installing a wastewater service in AC pipe shall be done by removing a full section of pipe and installing a "tee". Replace the remainder of pipe as specified.**

All removal work associated with the ACM piping shall be done using the appropriate worker protection and respiratory protection as stated below as a minimum:

**The minimum respiratory protection during removal will be half face dual cartridge respirators equipped with HEPA cartridges. The Contractor shall provide information to assure that the above respiratory protection is sufficient in accordance with 29 CFR 1926.1101 negative exposure assessment requirements.**

The abatement must comply with these Specifications, the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), State of Texas and local



regulations. Whenever there is a conflict or overlap of the above references, the most stringent provisions are applicable.

The Contractor shall submit a work plan detailing the work procedures they will employ. This work plan shall be reviewed and approved by the Owner's Representative prior to any removal work.

The Contractor shall provide all workers working in the vicinity of active electrical sources with appropriate protective equipment including insulating gloves, boots, and non-conductive tools (while HEPA-Vacuuming).

The Contractor will inform the Owner and Owner's Representative of any hidden or unidentified conditions which may result in a change order or additional cost to the bid price of the contract. This notice will require written approval by the Owner's Representative prior to accomplishing the additional work.

The Contractor will be required to repair any damage to the facility or equipment of the Owner as the result of the abatement project. Any replacement items (paint, panels, etc.) will be of equal quality and color of the damaged items. This work shall be accomplished at the completion of the abatement project and prior to the Owner re-occupying the space. The project will not be considered complete until the repair work has been done and found acceptable by the Owner.

All asbestos containing materials shall be wetted with amended water or a removal encapsulant prior to and during the removal. The contractor can start the removal process after the Owner's Representative is satisfied that the ACM has been adequately wetted. The Owner's Representative has been given the authority to present the contractor with either a written or verbal Stop Work Order if they notice that any ACM is being removed without it being adequately wetted or if they become aware of any deviation from the project specifications or Department of State Health Services Regulations.

**Final clearance for asbestos abatement work shall be obtained by PCM method as outlined in Section 01915.** Upon successful completion of required work activities the Owner's Representative shall visually inspect the work area for final clearance. Downwind area air samples collected during abatement can be used as final clearance samples if they do not exceed 0.01 f/cc by Phase Contrast Microscopy analysis.

All equipment used on this project ( i.e. HEPA-vacuums, negative air machines ) shall be free of any visible debris and operational. The Owner's Representative along with the contractor's designated supervisor shall inspect all equipment prior to it being brought into the work area. If any debris found on the equipment is suspected to be ACM, the equipment shall be wet wiped and decontaminated. The decontamination of the equipment shall not take place on the project site.

The Contractor shall adequately staff this project such that it will be completed in accordance with the Contract Documents. If the project is not completed within this time frame, the Owner will backcharge the Contractor for any charges incurred by the Owner for additional Owner Representative services required to complete this project.

**The Contractor shall submit the names and resumes (including pertinent project experience) of at least two (2) properly licensed supervisors to be used to conduct this asbestos abatement project. If the supervisors submitted are approved by the Owner, the**

**Contractor shall ensure that at least one of these project supervisors are on site throughout the project including final tear down operations. The Contractor shall not substitute an approved project supervisor without the prior approval of the Owner.**

All Contractor worker and supervisory personnel at the work site shall properly trained, equipped and possess valid and current Texas Department of State Health Services Asbestos Licenses and associated training certificates. During all phases of this project, the Contractor project site supervisor shall remain at the project site during all work activities.

The Contractor shall submit a work plan detailing the work procedures they will employ. This work plan shall be reviewed and approved by the Owner's Representative prior to any removal work.

The Contractor shall provide all workers working in the vicinity of active electrical sources with appropriate protective equipment including insulating gloves, boots, and non-conductive tools (while HEPA-Vacuuming).

The abatement must comply with these Specifications, the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), State of Texas and local regulations. Whenever there is a conflict or overlap of the above references, the most stringent provisions are applicable.

The Contractor will inform the Owner and Owner's Representative of any hidden or unidentified conditions which may result in a change order or additional cost to the bid price of the contract.

This notice will require written approval by the Owner's Representative prior to accomplishing the additional work.

## **ASBESTOS ABATEMENT**

During the Work, the City or the City's Representative will provide a licensed asbestos inspector to oversee the Contractor's abatement work, collect area samples, and identify asbestos-containing materials. The Contractor shall coordinate the abatement schedule with the asbestos inspector such that the inspector can be present at key times during the abatement and identify asbestos-containing materials as soon as suspect material is encountered. The Contractor shall also accept all City Representative decisions regarding the presence of asbestos-containing materials. **The contractor shall conduct their own required employee monitoring for asbestos related activities in conformance with OSHA requirements.**

The Contractor shall notify the City's Representative asbestos inspector of any suspected asbestos-containing materials encountered during the work as soon as it is discovered.

The Contractor shall abate or contain for disposal all asbestos-containing materials encountered during the equipment dismantling work if abatement or containment is required to prevent asbestos release during dismantling.

Where asbestos-containing materials requiring abatement are encountered during the project, the Contractor shall stop work and abate the material or otherwise contain it for disposal as necessary. Until abatement can be performed, the Contractor shall take actions as necessary and feasible to protect workers from exposure to airborne asbestos and prevent disturbance of the material. The

contractor will establish a regulated area until such time as the area or equipment can be abated.

The Contractor shall provide personnel to perform the surveillance of asbestos abatement containment areas 24 hours per day, 7 days per week during the operation of ventilation units. The duties of such personnel shall include maintenance of pressure differential containment and regular inspection of the work areas for fire prevention and prevention of incidents which could cause the release of materials.

### **ASBESTOS CONTAINING MATERIALS**

The following asbestos containing materials are known to be present at work sites near the Forest North Drainage Improvements Project, Williamson County, Texas. If any other materials are found, which are suspected of containing asbestos notify immediately the Owner's Representative. The amount of ACM listed below are approximate. The Contractor shall field verify the quantities.

LOCATION	ITEM	APPROXIMATE AMOUNT	TYPE OF ASBESTOS
Various along road	AC Pipe	341 Linear feet	est 50% Chrysotile

#### **1.02 INSPECTION:**

Prior to commencement of work, inspect all areas in which work will be performed. Prepare a listing of damage to structure, surfaces, equipment or of surrounding properties which could be misconstrued as damage resulting from the work. Photograph or video tape existing conditions as necessary to document conditions. Submit to Owner's Representative prior to starting work.

#### **1.03 PLAN OF ACTION:**

Submit a detailed plan of the procedures proposed for use in complying with the requirements of this Specification. Include in the plan the location and layout of decontamination areas, the sequencing of asbestos work, the interface of trades involved in the performance of work, methods to be used to assure the safety of building occupants and visitors to the site, disposal plan including location of approved disposal site, and a detailed description of the methods to be employed to control pollution. Expand upon the use of portable HEPA ventilation system, closing out of the area HVAC system, method of removal to prohibit visible emissions in work area, and packaging of removed asbestos debris. The plan must be approved by the Owner's Representative prior to commencement of work.

#### **1.04 POTENTIAL ASBESTOS HAZARD:**

The disturbance or dislocation of asbestos containing materials may cause asbestos fibers to be released into the building's atmosphere, thereby creating a potential health hazard to workmen and building occupants. Apprise all workers, supervisory personnel, subcontractors and consultants who



will be at the jobsite of the seriousness of the hazard and of proper work procedures which must be followed.

Where in the performance of the work, workers, supervisory personnel, subcontractors, or consultants may encounter, disturb, or otherwise function in the immediate vicinity of any identified asbestos containing materials, take appropriate continuous measures as necessary to protect the building from the contamination with airborne asbestos. Such measures shall include the procedures and methods described herein, and compliance with regulations of applicable federal, state and local agencies.

#### **1.05 CONTRACTOR USE OF PREMISES:**

General: The Contractor shall limit his use of the premises to the work indicated.

Use of the Site: Confine operations at the site to the areas permitted under the contract. Portions of the site beyond areas on which work is indicated are not to be disturbed. Conform to site rules and regulations affecting the work while engaged in project abatement.

Keep existing driveways, parking spaces and entrances serving the premises clear and available to the Owner and his employees at all times.

Do not unreasonably encumber the site with materials or equipment. Confine stockpiling of materials and location of storage to areas indicated at the pre-abatement meeting.

Lock automotive type vehicles, such as passenger cars and trucks and other mechanized or motorized construction equipment, when parked and unattended, so as to prevent unauthorized use. Do not leave such vehicles or equipment unattended with the motor running or the ignition key in place or accessible to unauthorized persons.

Use of existing toilets within the building by the Contractor and his personnel, will not be permitted.

Owner Occupancy: The building will not be occupied by the Owner during the asbestos abatement project.

#### **1.06 SUBMITTALS**

The Contractor shall prepare an Asbestos Abatement Plan and submit it to the City with the Contractor's Health and Safety Plan (HASP) prior to mobilization. The Asbestos Abatement Plan shall include the following information:

Discussion of the general plan for containment around equipment to be abated, decontamination plans, and waste management procedures.

Drawings showing general containment, decontamination, and bag out facility plans.

Contractor's work schedule, including a plan for sequencing work around areas or individual pieces of equipment that require asbestos abatement.

Waste containment plan, describing how the Contractor will abate particular pieces of



equipment.

A plan for protecting the safety of workers and visitors in the surrounding areas.

A fire and containment protection plan, including emergency procedures and contacts.

Current copies of all applicable permits, licenses, certifications, training documents, and regulatory notices.

List of asbestos abatement workers with social security numbers

Certificates of worker acknowledgement

Medical examination results

Before the Start of Work: Submit the following to the Owner and Owner's Representative for review. Do not begin work until these Submittals are returned with Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use or final-but-restricted use. **Allow 3 days time for review of submittals.**

- A. **Plan of Action:** Submit as a written report.
- B. **Inspection:** Submit written report on inspection carried out as required by this section. Include copies of all photographs, videotapes, etc.
- C. **Alternative Methods:** Submit, in writing, any alternative methods proposed to accomplish the work of this contract.
- D. Submit copies of valid and current Texas Department of State Health Services Asbestos Licensing and associated training certificates for all worker and supervisory personnel at the work site. In addition, copies of the appropriate DOT certifications required for the manifesting and transporting of hazardous materials must be submitted.

### **SPECIAL SPECIFICATIONS**

***In addition to the work procedures outlined in the Master Specification which apply to the project described herein, the following Special Specifications apply:***

***The contractor shall conduct all abatement work in accordance with the current revisions to the Department of State Health Services Rules, T.A.H.P.R. dated March 2003.***

**END OF SECTION**

## SECTION 01902

### PROJECT COORDINATION

#### **PART 1 - GENERAL**

##### **1.01 RELATED DOCUMENTS:**

Drawings and general provisions of the Contract, and other Division-1 Specification sections, apply to work of this section.

##### **1.02 ABATEMENT TIME:**

The use of insufficient labor or equipment for abatement purposes or inadequate scheduling of materials or equipment will not be allowed as cause for delay. Extension of time or extra cost will not be allowed for failure to complete the project on time due to insufficient labor or equipment.

##### **1.03 ADMINISTRATIVE AND SUPERVISORY PERSONNEL:**

General Superintendent: Provide a full-time General Superintendent on site who is licensed in accordance with Texas Civil Statutes, Article 4477-3a, paragraph 289.144, and all adoptions to Article 4477-3A, and experienced in administration and supervision of asbestos abatement projects including work practices, protective measures for building and personnel, disposal procedures, etc. This person is the Competent Person as required by OSHA in 29 CFR 1926 for the Contractor and is the Contractor's representative responsible for compliance with all applicable federal, state and local regulations, particularly those relating to asbestos containing materials.

Asbestos Workers: All workers actively involved in the removal and replacement of asbestos material will be Licensed Asbestos Workers with the State of Texas.

##### **1.04 PROGRESS MEETING**

In addition to specific coordination and pre-construction meetings, and other regular project meetings held for other purposes, the Owner's Representative will hold general progress meetings as required. The meetings will be attended by a representative of the contractor authorized to make decisions for the contractor.

##### **1.05 PRE-CONSTRUCTION CONFERENCE:**

An initial progress meeting, recognized as the "Pre-Construction Conference" will be convened by the Owner and the Owner's Representative prior to the start of any work. The meeting will be attended by the general superintendent of the contractor, Owner's Representative(s), project administrator, and other entities concerned with the asbestos abatement work.

##### **1.06 DAILY LOG**

General: Maintain within the decontamination unit a daily log documenting the dates and time of, but not limited to, the following items:

Personnel, by name, entering and leaving the work area, air monitoring results, and any equipment/supplies decontaminated and brought out through the decontamination unit.

## **1.07 SPECIAL REPORTS:**

General: Except as otherwise indicated, submit special reports directly to the Owner's Representative or the Owner within one day of occurrence requiring special report, with copy to others affected by occurrence.

Reporting Unusual Events: When an event of unusual and significant nature occurs at site (examples: failure of negative pressure system, rupture of temporary containments), prepare and submit a special report listing chain of events, persons participating, response by contractor's personnel, evaluation of results or effects, and similar pertinent information. When such events are known or predictable in advance, advise Owner in advance at earliest possible date.

Reporting Accidents: Prepare and submit reports of significant accidents, at site and anywhere else work is in progress. Record and document data and actions; comply with industry standards. For this purpose, a significant accident is defined to include events where personal injury is sustained, or property loss of substance is sustained, or where the event posed a significant threat of loss or personal injury.

## **1.08 CONTINGENCY PLAN:**

Contingency Plan: Prepare a contingency plan for emergencies including fire, accident, power failure, negative air system failure, or any other event that may required modification or abridgment of decontamination or work area isolation procedures. Include in plan specific procedures for decontamination or work area isolation. Note that nothing in this specification should impede safe exiting or providing of adequate medical attention in the event of an emergency.

Post: In clean room of the personnel decontamination unit telephone numbers and locations of emergency services including but not limited to fire, ambulance, doctor, hospital, police, power company, telephone company.

## **1.09 NOTIFICATIONS**

Notify other entities at the job site of the nature of the asbestos abatement activities, location of asbestos containing materials, requirements relative to asbestos set forth in these specifications and applicable regulations.

Notify Emergency Service Agencies including fire, police, ambulance or other agency that may service the abatement work site in case of an emergency. Notification is to include methods of entering work area, emergency entry and exit locations, and other information needed by agencies providing emergency services.

## **PART 2 - PRODUCTS (Not Applicable)**

## **PART 3 - EXECUTION (Not Applicable)**

**- END OF SECTION -**

## **SECTION 01904**

### **CODES AND REGULATIONS**

#### **PART 1 - GENERAL**

##### **1.01 RELATED DOCUMENTS:**

Drawings and general provisions of the contract, and other Division-1 Specification sections, apply to work of this section.

##### **1.02 DESCRIPTION OF THE WORK:**

This section sets forth governmental regulations and industry standards which are included and incorporated herein by reference and made a part of the specification. This section also sets forth those notices and permits which are known to the Owner and which either must be applied for and received, or which must be given to governmental agencies before start of work.

Requirements include adherence to work practices and procedures set forth in applicable codes, regulations and standards.

Requirements include obtaining permits, licenses, inspections, releases and similar documentation, as well as payments, statements and similar requirements associated with codes, regulations and standards.

##### **1.03 CODES AND REGULATIONS:**

General Applicability of Codes, Regulations and Standards: Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, all applicable codes, regulations, and standards have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the contract documents, or as if published copies are bound herewith.

Contractor Responsibility: The contractor shall assume full responsibility and liability for the compliance with all applicable Federal, State, and local regulations pertaining to work practices, hauling, disposal, and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable Federal, State and local regulations. The contractor shall hold the Owner and Owner's Representative harmless for failure to comply with any applicable work, hauling, disposal, safety, health or other regulation on the part of himself, his employees, or his subcontractors.

Federal Requirements: Which govern asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:

U.S. Department of Labor, Occupational Safety and Health Administration, (OSHA), including but not limited to:

Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite; Final rules, Title 29, Part 1910, section 1001 and part 1926, Section 1101 of the Code of Federal Regulations



Respiratory Protection; Title 29, Part 1910, Section 134 of the Code of Federal Regulations  
Construction Industry; Title 29, Part 1926, of the Code of Federal Regulations

Construction Industry  
Title 29, Part 1926 of the Code of Federal Regulations

Access to Employee Exposure and Medical Records, Title 29, Part 1910, Section 2 of the Code of Federal Regulations

Hazard Communication; Title 29, Part 1910, Section 1200 of the Code of Federal Regulations

Specifications for Accident Prevention Sign and Tags; Title 29, Part 1910, Section 145 of the Code of Federal Regulations

U.S. Department of Transportation:

Hazardous Substances  
Title 49, Part 171 and 172 of the Code of Federal Regulations

U.S. Environmental Protection Agency (EPA) including but not limited to:

Asbestos Abatement Projects Rule 40

40 CFR Part 763

CPTS 62044, FRL 2843-9

Title 34, Part 231, Appendix C, Procedures for Containing and Removing Building Materials Containing Asbestos

Title 40, Part 61, Sub-part A of the Code of Federal Regulations National Emission Standard for Asbestos

Title 40, Part 61, Sub-part M (Revised Sub-part B) of the Code of Federal Regulations

American National Standards Institute (ANSI) Publication:

Z9.2-79 Fundamentals Governing the Design and Operation of Local Exhaust Systems

American Society for Testing and Materials (ASTM) Publication:

E 849-82 Safety and Health Requirements relating to Occupational Exposure to Asbestos

State Requirements: Texas Civil Statutes, Article 4477-3a, and all adoptions, (TAHPR) Asbestos Exposure in Public Buildings, requires licensure of persons engaged in the removal or encapsulation of asbestos, or other asbestos related activities in all buildings of public occupancy or access.

Local Requirements: Abide by all local requirements which govern asbestos abatement work or hauling and disposal of asbestos waste materials.

## **1.04 STANDARDS:**

General Applicability of Standards: Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, all applicable standards have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies are bound herewith.

Contractor Responsibility: The Contractor shall assume full responsibility and liability for the compliance with all standards pertaining to work practices, hauling, disposal, and protection of workers, visitors to the site, and persons occupying area adjacent to the site. The Contractor shall hold the Owner and the Owner's Representative harmless for failure to comply with any applicable standard on the part of himself, his employees, or his sub-contractors.

Standards: Which govern asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:

American National Standards Institute (ANSI)  
1430 Broadway  
New York, New York 10018  
(212) 354-3300

Fundamentals Governing the Design and Operation of Local Exhaust Systems Publication Z9.2-79

Practices for Respiratory Protection  
Publication Z288.2-80

American Society for Testing and Materials  
1916 Race Street  
Philadelphia, PA 19103  
215/299-5400

Safety and Health Requirements Relating to Occupational Exposure to Asbestos E 849-82

Specification for Encapsulants for Friable Asbestos Containing Building Materials Proposal P-189

"Guide" Specification - 02080 Asbestos Removal AIA Service Corporation  
1735 New York Avenue NW  
Washington, DC

AWCI Guide Specifications for the abatement of asbestos release from spray-or trowel applied materials in buildings and other structural designs

U.S. Department of Commerce

National Institute of Standards & Technology

National Engineering Lab

Center for Building Technology

## **1.05 EPA GUIDANCE DOCUMENTS:**

EPA Guidance Documents: Which discuss asbestos abatement work or hauling and disposal of asbestos waste materials are listed below for the Contractor's information only. These documents do not describe the work and are not a part of the work of this contract. EPA maintains an information number (800-334-8571), publications can be ordered from (800-424-9065) and (554-1404 in Washington, DC):

Asbestos-Containing Materials in School Buildings - A Guidance Document  
Part 1 & 2 (Orange Books)  
EPA C00090 (out of print)

Guidance for Controlling Asbestos-Containing Materials in Buildings  
EPA 560/5-85-024 (Purple Book)

Friable Asbestos-Containing Materials in Schools: Identification and Notification Rule (40 CFR Part 763)

Evaluation of the EPA Asbestos-In-Schools Identification and Notification Rule  
EPA 560/5-84-005

Asbestos in Buildings: National Survey of Asbestos-Containing Friable Materials  
EPA 560/5-84-006

Asbestos in Buildings: Guidance for Service and Maintenance Personnel  
EPA 560/5-85-018

Asbestos Waste Management Guidance  
EPA 530-SW-85-007

Asbestos Fact Book  
EPA Office of Public Affairs

Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials

Commercial Laboratories with Polarized Light Microscopy Capabilities for Bulk Asbestos Identification.

A Guide to Respiratory Protection for the Asbestos Abatement Industry  
EPA-560-OPTS-86-001

Managing Asbestos In Place: A Building Owners Guide to Operations and Maintenance Programs for Asbestos Containing Materials  
EPA 20T-2003 July 1990

## **1.06 NOTICES:**

U.S. Environmental Protection Agency notification to the USEPA is mandated by the National Emission Standards for Hazardous Pollutants (NESHAPS) Asbestos Regulations (40 CFR 61, Subpart M) for any project which involves the removal of asbestos containing materials. The Texas Department of State Health Services requires written notification no less than ten working days prior to any asbestos abatement activity, renovation or O&M activity affecting ACM, or any demolition in facilities or public buildings.

Written notification as required by USEPA National Emission Standards for Hazardous Air Pollutants (NESHAPS) and the Texas Department of State Health Services shall be submitted by the Contractor to the following address:

Asbestos Notification Section  
Department of State Health Services  
PO Box 143538  
Austin, Texas 78714-3538

Notification: The following information will be included in the notification sent to the NESHAP contact:

Name and address of owner or operator.

Description of the facility being demolished or renovated, including the size, age, and prior use of the facility.

Estimate of the approximate amount of friable asbestos material present in the facility in terms of linear feet of pipe, and surface area of other facility components.

Location of the facility being renovated.

Scheduled starting and completion dates of renovation.

Nature of planned renovation and method(s) to be used.

Procedures to be used to comply with the requirements of USEPA National Emission Standards for Hazardous Air Pollutants (NESHAPS) Asbestos Regulations (40 CFR 61, Subpart M).

Name and location of the waste disposal site where the friable asbestos waste material will be deposited.

Supplement information may be required on the Contractor's part to obtain approval. The Contractor will provide whatever information requested by the regulatory agencies.

### **1.07 NOTICES:**

Submit notices required by federal, state and local regulations together with proof of timely transmittal to agency requiring the notice.

Permits: All asbestos waste is to be transported by an entity maintaining a current "Industrial Waste Hauler Permit" specifically for asbestos containing materials, as required for transporting of asbestos containing materials to a disposal site.

Licenses: Maintain current State Asbestos Abatement Contractor License or local jurisdiction for the removal, transporting, disposal or other regulated activity relative to the work of this contract.

### **PART 2 - PRODUCTS (Not Applicable)**

### **PART 3 - EXECUTION (Not Applicable)**

**- END OF SECTION -**



## SECTION 01910

### WORKER PROTECTION

#### **PART 1 - GENERAL**

THE MINIMUM RESPIRATORY PROTECTION DURING REMOVAL INSIDE CONTAINMENTS WILL BE POWERED AIR-PURIFYING RESPIRATORS. HALF FACE DUAL CARTRIDGE RESPIRATORS EQUIPPED WITH HEPA/ORGANIC CARTRIDGES CAN BE USED DURING THE REMOVAL OF FLOOR TILE MASTIC IF USING CHEMICAL SOLVENTS. THE CONTRACTOR SHALL PROVIDE INFORMATION TO ASSURE THAT THE ABOVE RESPIRATORY PROTECTION IS SUFFICIENT IN ACCORDANCE WITH 29 CFR 1926.1101 NEGATIVE EXPOSURE ASSESSMENT REQUIREMENTS.

##### **1.01 RELATED DOCUMENTS:**

Drawings and general provisions of the Contract, and other Division-1 Specification sections, apply to work of this section.

##### **1.02 DESCRIPTION OF WORK:**

This section describes the equipment and procedures required for protecting workers against asbestos contamination and other workplace hazards except for respiratory protection.

##### **1.03 RELATED WORK SPECIFIED ELSEWHERE:**

Respiratory protection is specified in Section 01911.

##### **1.04 WORKER TRAINING:**

Train, in accordance with 29 CFR 1926 and 40 CFR part 763, all workers in the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and area protective measures. Include but do not limit the topics covered in part 763 to the following:

Methods of recognizing asbestos.

Health effects associated with asbestos.

Relationship between smoking and asbestos in producing lung cancer.

Nature of operations that could result in exposure to asbestos.

Importance of and instruction in the use of necessary protective controls, practices and procedures to minimize exposure including:

- Engineering controls
- Work practices
- Respirators
- Housekeeping procedures
- Hygiene facilities
- Protective clothing
- Decontamination procedures
- Emergency procedures

## Waste disposal procedures

Purpose, proper use, fitting, instructions, and limitations of respirators as required by 29 CFR 1910.134.

Appropriate work practices for the work.

Requirements of medical surveillance program.

Review of 29 CFR 1926.

Negative air systems.

Work practices including hands on or on-job training.

Personal decontamination procedures.

Air monitoring, personal and area.

### **1.05 MEDICAL EXAMINATIONS:**

Provide medical examinations for all workers who may encounter an airborne fiber level of 0.1 f/cc or greater for an 8 hour time weighted average. In the absence of specific airborne fiber data, provide medical examination for all workers who will enter the work area for any reason. Examination shall, as a minimum, meet OSHA requirements as set forth in 29 CFR 1926. In addition, provide an evaluation of the individual's ability to work in environments capable of producing heat stress in the worker.

### **1.06 SUBMITTALS:**

Before start of work: Submit the following to the Owner's Representative for review. Do not start work until these submittals are returned with Owner's Representative action stamp indicating that the submittal is returned for unrestricted use.

State and local License: Submit evidence that all workers have been trained, certified and accredited as required by state or local code or regulation.

Certificate Worker Acknowledgment: Submit an original signed copy of the Certificate of Worker's Acknowledgment found at the end of this section, for each worker who is to be at the job site or enter the work area.

Report from medical examination: Conducted within last 12 months as part of compliance with OSHA medical surveillance requirements for each worker who is to enter the work area. Submit, at a minimum, for each worker the following:

Name and Social Security Number

Physicians written opinion from examining physician including at a minimum the following:

Whether worker has any detected medical conditions that would place the worker at an increased risk of material health impairment from exposure to asbestos.

Any recommended limitations on the worker or on the use of personal protective equipment such as respirators.

Statement that the worker has been informed by the physician of the results of the medical examination and of any medical conditions that may result from asbestos exposure.

Copy of information that was provided to physician in compliance with 29 CFR 1926.

Statement that the worker is able to wear and use the type of respiratory protection proposed for the project, and is able to work safely in an environment capable of producing heat stress in the worker.

## **PART 2 - EQUIPMENT**

### **2.01 PROTECTIVE CLOTHING:**

Coveralls: Provide disposable full-body coveralls and disposable head covers and require that they be worn by all workers in the work area. Provide a sufficient number for all required changes for all workers in the work area.

Hard Hats: Provide head protectives (hard hats) as required by OSHA for all workers and provide spares for use by Owner. Label hats with same warning labels as used on disposal bags. Require hard hats to be worn at all times that work is in progress that may potentially cause head injury. Provide hard hats of type with plastic strap type suspension. Require hats to remain in the work area throughout the work. Thoroughly clean, decontaminate and bag hats before removing them from work area at the end of the work.

Goggles: Provide eye protectives (goggles) as required by OSHA for all workers involved in scraping, spraying, or any other activity which may potentially cause eye injury.

Gloves: Provide work gloves to all workers and require that they be worn at all times in the work area. Do not remove gloves from work area, dispose of an asbestos contaminated waste at the end of the work.

### **2.02 ADDITIONAL PROTECTIVE EQUIPMENT:**

New/unused respirators, disposable coveralls, head covers, and footwear covers shall be provided by the Contractor for the Owner and other authorized representatives. Provide two (2) respirators and six (6) complete coveralls and, where applicable, six (6) respirator filter changes per day.

## **PART 3 - EXECUTION**

### **3.01 GENERAL:**

Provide worker protection as required by the most stringent OSHA and/or EPA standards applicable to the work. The following procedures are minimums to be adhered to regardless of fiber count in the work area.

Each time work area is entered, remove all street clothes in the changing room of the personnel decontamination unit and put on new disposable coverall, new head cover, and a clean respirator. Proceed through shower room to equipment room and put on work boots.

### **3.02 DECONTAMINATION PROCEDURES:**

Require all workers to adhere to the following personal decontamination procedures whenever they leave the work area:

Type C Supplied Air or Powered Air-Purifying Respirators: Require that all workers use the following decontamination procedure as a minimum requirement whenever leaving the work area:

When exiting area, remove disposable coveralls, disposable head covers, and disposable footwear covers or boots in the equipment room.

Still wearing respirators, proceed to showers. Showering is mandatory. Care must be taken to follow reasonable procedures in removing the respirator to avoid asbestos fibers while showering. The following procedure is required as a minimum:

Thoroughly wet body including hair and face. If using a Powered Air-Purifying Respirator (PAPR), hold blower unit above head to keep canisters dry.

With respirator still in place, thoroughly wet body, hair, respirator face piece, and all parts of the respirator except the blower unit and battery pack on a PAPR. Pay particular attention to seal between face and respirator and under straps.

Take a deep breath, hold it and/or exhale slowly, completely wet hair, face, and respirator. While still holding breath, remove respirator and hold it away from face before starting to breath.

Carefully wash facepiece of respirator inside and out.

If using PAPR, shut down in the following sequence, first cap inlets to filter cartridges, then turn off blower unit (this sequence will help keep debris which has collected on the inlet side of filter from dislodging and contaminating the outside of the unit). Thoroughly wash blower unit and hoses. Carefully wash battery pack with wet rag. Be extremely cautious of getting water in battery pack as this will short out and destroy battery.

Shower completely with soap and water.

Rinse thoroughly.

Rinse shower room walls and floor prior to exit.

Proceed from shower to changing room and change into street clothes or into new disposable work items.

Air Purifying-Negative Pressure Respirators: Require that all workers use the following decontamination procedure as a minimum requirement whenever leaving the work area with a half or full face cartridge type respirator:

When exiting area, remove disposable coveralls, disposable headcovers, and disposable footwear covers or boots in the equipment room.

Still wearing respirators, proceed to showers. Showering is mandatory. Care must be taken to follow reasonable procedures in removing the respirator and filters to avoid asbestos fibers while showering. The following procedure is required as a minimum:

Thoroughly wet body from neck down.

Wet hair as thoroughly as possible without wetting the respirator filter if using an air purifying type respirator.

Take a deep breath, hold it and/or exhale slowly, complete wetting of hair, thoroughly wetting face, respirator and filter (air purifying respirator). While still holding breath, remove respirator and hold it away from face before starting to breath.

Dispose of wet filters from air purifying respirator.

Carefully wash facepiece of respirator inside and out.

Shower completely with soap and water.

Rinse thoroughly.

Rinse shower room walls and floor prior to exit.

Proceed from shower to changing room and change into street clothes or into new disposable work items.

Require that workers NOT eat, drink, smoke, chew gum or tobacco in the work area. To eat, chew, drink or smoke, workers shall follow the procedure described above, then dress in street clothes before entering the non-work areas of the building.

### **3.03 CERTIFICATE OF WORKER'S ACKNOWLEDGEMENT:**

Following this section is a Certificate of Worker Training. After each worker has been included in the contractor's Respiratory Protection Program, completed the training program, and medical examination, secure a fully executed copy of this form.

**END OF SECTION -**



## SECTION 01911

### RESPIRATORY PROTECTION

**PART 1 - GENERAL** - THE MINIMUM RESPIRATORY PROTECTION DURING REMOVAL WILL BE HALF FACE DUAL CARTRIDGE RESPIRATORS EQUIPPED WITH HEPA CARTRIDGES. THE CONTRACTOR SHALL PROVIDE INFORMATION TO ASSURE THAT THE ABOVE RESPIRATORY PROTECTION IS SUFFICIENT IN ACCORDANCE WITH 29 CFR 1926.1101 NEGATIVE EXPOSURE ASSESSMENT REQUIREMENTS.

#### **1.01 RELATED DOCUMENTS:**

Drawings and general provisions of the Contract, and other Division-1 Specification sections, apply to work of this section.

#### **1.02 DESCRIPTION OF WORK:**

Instruct and train each worker involved in asbestos abatement in proper respiratory use and require that each worker always wear a respirator, properly fitted on the face in the work area from the start of any operation which may cause airborne asbestos dust until the work area is completely decontaminated. Use respiratory protection appropriate for the dust level encountered in the work place or as required for other toxic or oxygen-deficient situations encountered.

#### **1.03 STANDARDS:**

Except to the extent that more stringent requirements are written directly into the contract documents, the following regulations and standards have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the contract documents or as if published copies were bound herewith. Where there is a conflict in requirements set forth in these regulations and standards, meet the more stringent requirement.

#### **1.04 SUBMITTALS:**

Before start of work submit the following to the Owner's Representative for review. Do not begin work until these submittals are returned with the Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use.

Product Data: Submit manufacturer's product information for each component used, including NIOSH and MSHA Certifications for each component in an assembly and/or for entire assembly.

System Diagram: When a Type "C" supplied air respiratory system is required by the work, submit drawing showing assembly of components into a complete supplied air respiratory system. Include diagram showing location of compressor, filter banks, backup air supply tanks, hose line connections in work area(s), routing of air lines to work area(s) from compressor.

Operating Instruction: Submit complete operating and maintenance instructions for all components and systems as a whole. Submittal is to be in bound manual form suitable for field use.

Respiratory Protection Program: Submit level of respiratory protection intended for each operation required by the project. Submit this information on a "Respiratory Protection Program" form.

Historic Airborne Fiber Data/Negative Initial Exposure Assessment: Submit airborne asbestos fiber count data calculated by an independent air monitoring firm within the last 12 months to substantiate selection of proposed respiratory protection. Data should include Negative Initial Exposure Assessment which means a demonstration by the employer/contractor, which complies with the criteria in the paragraph of this section; 29 CFR 1926.110 (f)(2)(iii), that employee exposure during an operation is expected to be consistently below the PELs. Data submitted shall include at least the following for each procedure required by the work:

Date of Measurements

Employees Monitored

Operations Monitored and Control Methods Used

Sampling and Analytical Methods Used and Evidence of their Accuracy

Number, Duration, and Results of Samples Taken

#### **1.05 AIR QUALITY FOR SUPPLIED AIR RESPIRATORY SYSTEMS:**

If at any time, Type "C" supplied air respirator are used or required, provide air used for breathing in Type "C" supplied air respiratory systems that meets or exceeds standards set for C.G.A. Type 1 (Gaseous Air) Grade D.

#### **1.06 ALLOWABLE CONTAMINANTS:**

The following table sets for the quantity of any given contaminant allowed according to the referenced standards:

CONTAMINANT	CGA TYPE 1 (Gaseous Air)			CSA Z180.1
	Grade D	Grade E	Grade H	
Carbon Monoxide, PPM/V	10	10	5	5
Carbon Dioxide, PPM/V	1000	500	.5	500
Condensed Hydrocarbons, (mg/cu meter)	5	5	---	1
Gaseous Hydrocarbons - As Methane, PPM/V	---	---	10	25
Water Vapor - PPM/V	(1)	(1)	(1)	27
Dewpoint	-50F	-50F	-50F	-63F
Objectionable Odors	None	None	None	None
Nitrogen Dioxide, PPM/V	---	---	0.5	0.2

Nitrous Oxide, PPM/V	---	---	---	5
Sulfur Dioxide	---	---	0.5	---
Halogenated solvents, PPM/V	---	---	1	---
Other gaseous contaminants	---	---	---	(2)
Inorganic particles, (mg/cu meter)	---	---	---	1
Oxygen content (v/v)	19.5 – 23.5%			

---

**NOTE:**

Indicates that the standard shows no limiting characteristics:

- (1) The CGA standards do not call out a specific moisture limit when the ambient temperature is above freezing. However, since a moisture content no greater than a -50 Degrees Fahrenheit dewpoint (66 PPM/V) is necessary for carbon monoxide elimination, the CO limits could not be met unless the air were dried to a -50 Degrees Fahrenheit dewpoint or better.
- (2) Maximum allowable content of trichlorotrifluoroethane, dichlorodifluoromethane, and chlorodifluoromethane is 2 PPM/V for each. Unlisted contaminants shall not exceed one-tenth of the threshold limit values (TLV's) for chemical substances in workroom air adopted by the American Conference of Governmental Industrial Hygienists (ACGIH).

**1.07 DELIVERY:**

Deliver replacement parts, etc., not otherwise labeled by NIOSH or MSHA to job site in manufacturer's containers.

**PART 2 - EQUIPMENT**

**2.01 AIR PURIFYING RESPIRATORS:**

Respirator Bodies: Provide half face or full face type respirators. Equip full face respirators with a nose cup or other anti-fogging device as would be appropriate for use in air temperatures less than 32 degrees Fahrenheit.

Filter Cartridges: Provide, at a minimum, HEPA type filters labeled with NIOSH certification for "Radionuclides, Radon Daughters, Dust, Fumes, Mists including Asbestos-Containing Dusts and Mists" and color coded in accordance with ANSI Z228.2 (1980). In addition, a chemical cartridge section may be added, if required, for solvents, etc., in use. In this case, provide cartridges that have each section of the combination canister labeled with the appropriate color code and NIOSH certification (P100).



Non-permitted respirators: Do not use single use, disposable or quarter face respirators.

## **2.02 SUPPLIED AIR RESPIRATOR SYSTEMS:**

Provide equipment capable of producing air of the quality and volume required by the above reference standards applied to the job site conditions and crew size. Comply with provisions of this specification if more stringent than the governing standard.

Face Piece and Hose: Provide full face piece and hose by same manufacturer that has been certified by NIOSH as an approved Type "C" respirator assembly operating in pressure demand mode with a positive pressure face-piece.

Auxiliary backup system: In atmospheres which contain sufficient oxygen (greater than or equal to 10.5% oxygen) provide a pressure-demand full face piece supplied air respirator equipped with an emergency back up HEPA filter.

Escape air supply: In atmospheres which are oxygen deficient (less than 19.5% oxygen) provide a pressure-demand full face piece supplied air respirator incorporating an auxiliary self-contained breathing apparatus (SCBA) which automatically maintains an uninterrupted air supply in pressure demand mode with a positive pressure face piece.

Backup air supply: Provide a reservoir of compressed air located outside the work area which will automatically maintain a continuous uninterruptable source of air automatically available to each connected face piece and hose assembly in the event of compressor shut-down, contamination of air delivered by compressor, power loss or other failure. Provide sufficient capacity in the back-up air supply to allow a minimum escape time of one-half hour times the number of connections available to the work area. Air requirement at each connection is the air requirement of the respirators in use plus the air requirement of an average sized adult male engaged in moderately strenuous activity.

Warning-device: Provide a warning device that will operate independently of the building's power supply. Locate so that the alarm is clearly audible above the noise level produced by equipment and work procedures in use, in all parts of the work area and at the compressor. Connect alarm to warn of:

Compressor shut down or other fault requiring use of backup air supply, carbon monoxide (CO) levels in excess of 5 PPM/V.

Carbon Monoxide (CO) Monitor: Continuously monitor and record on a strip chart recorder carbon monoxide (CO) levels. Place monitors in the air line between compressor and back-up air supply and between backup air supply and workers. Connect monitors so that they also sound an alarm as specified under "Warning Devices".

Compressor Shut Down: Interconnect monitors, alarms and compressor so that compressor is automatically shut down and the alarms sounded if any of the following occur:

Carbon Monoxide (CO) concentrations exceed 5 PPM/V in the air line between the filter bank and backup air supply.

Compressor temperature exceeds normal operating range.

Compressor Motor: Provide a compressor driven by an electric motor. Do not use a gas or diesel engines to drive compressor. Insure that electrical supply available at the work site is adequate to energize motor.

Compressor Location: Locate compressor outside of building in location that will not impede access to the building, and that will not cause a nuisance by virtue of noise or fumes to occupied portions of the building.

Air Intake: Locate air intake remotely from any source of automobile exhaust or any exhaust from motors or buildings.

After Cooler: Provide an after cooler at entry to filter system which is capable of reducing temperatures to outside ambient air temperatures.

Self Contained Breathing Apparatus (SCBA): Configure system to permit the recharging of 1/2 hour 2260 PSI SCBA cylinders.

### **PART 3 - EXECUTION**

#### **3.01 GENERAL:**

Respiratory Protection Program: Comply with ANSI Z88.2 - 1980 "Practices for Respiratory Protection" and OSHA 29 CFR 1910 and 1926.

Require that respiratory protection be used at all times that there is any possibility of disturbance of asbestos-containing materials whether intentional or accidental.

Require that a respirator be worn by anyone in a work area at all times, regardless of activity, during a period that starts with any operation which could cause airborne dust until the area has been cleared for re-occupancy in accordance with Section 01915.

Regardless of airborne fiber levels: Require that the minimum level of respiratory protection used be powered air-purifying respirators with high efficiency filters for removal work inside containments and half face dual cartridge respirators equipped with organic/high efficiency filters for the removal of floor tile mastic using chemical solvents.

Do not allow the use of single-use, disposable, or quarter-face respirators for any purpose.

#### **3.02 FIT TESTING:**

Initial Fitting: Provide initial fitting of respiratory protection during a respiratory protection course of training set up and administered by a Certified Industrial Hygienist. Fit types of respirator to be actually worn by each individual. Allow an individual to use only those respirators for which he has been trained and fit.

On a weekly basis, check the fit of each worker's respirator by having irritant smoke blown onto the respirator from a smoke tube in accordance with the fit test procedures outlined in 29 CFR 1910.134 Appendix A.

Upon each wearing: Require that each time an air-purifying respirator is put on that it be checked for fit with a positive and negative pressure fit test in accordance with the manufacturer's instructions or ANSI Z88.2 (1980) and 29 CFR 1910.134.

### 3.03 TYPE OF RESPIRATORY PROTECTION REQUIRED:

Provide respiratory protection as indicated in paragraph below. Where paragraph below does not apply, determine the proper level of protection by dividing the expected or actual airborne fiber count in the work area by the "protection factors" given below. The level of respiratory protection which supplies an airborne fiber level inside the respirator, at the breathing zone of the wearer, at or below the permissible exposure limit (PEL) is the minimum level of protection allowed.

### 3.04 PERMISSIBLE EXPOSURE LIMIT (PEL):

8-Hour Time Weighted Average (TWA) of asbestos fibers to which any worker may be exposed shall not exceed the following.

Fibers: For purposes of this section, fibers are defined as all fibers regardless of composition as counted in the OSHA Reference Method (ORM), NIOSH 7400 procedure, or asbestos fibers of any size as counted using either a scanning or transmission electron microscope.

Time Weighted Average (TWA) - 0.1 fibers/cubic centimeter

Excursion Limit - 1.0 fiber/cubic centimeter over any thirty (30) minute sampling period.

### 3.05 RESPIRATORY PROTECTION FACTOR:

<u>RESPIRATOR TYPE</u>	<u>PROTECTION FACTOR</u>
Air purifying: Negative pressure respirator High efficiency filter Half facepiece	10
Air purifying: Negative pressure respirator High efficiency filter Full facepiece	50
Powered-air purifying (PAPR): Positive pressure respirator High efficiency filter Full facepiece	1000
Powered-air purifying (PAPR): Positive pressure respirator High efficiency filter Half facepiece	50
Type C supplied air: Positive pressure respirator Continuous-flow Half facepiece	50

Type C supplied air: Positive pressure respirator Continuous-flow Full facepiece	1000
Type C supplied air: Positive pressure respirator Pressure demand Half facepiece	50
Type C supplied air: Positive pressure respirator Pressure demand Full facepiece	1000
Type C supplied air: Positive pressure respirator Demand mode Half facepiece	10
Type C supplied air: Positive pressure respirator Demand mode Full facepiece	50
Self-contained breathing apparatus (SCBA): Demand mode Half facepiece	10
Self-contained breathing apparatus (SCBA): Demand mode Full facepiece	50
Self-contained breathing apparatus (SCBA): Pressure demand Full facepiece	10,000

### 3.06 **AIR PURIFYING RESPIRATORS:**

Negative pressure - half or full face mask: Supply a sufficient quantity of respirator filters approved for asbestos so that workers can change filters during the work day. Require that respirators be wet-rinsed and filters discarded each time a worker leaves the work area. Require that new filters be installed each time a worker re-enters the work area. Store respirators and filters at the job site in the changing room and protect totally from exposure to asbestos prior to their use.

Powered air purifying - half or full face mask: Supply a sufficient quantity of high efficiency respirator filters approved for asbestos dust so that workers can change filters at any time that flow through the face piece decreases to the level at which the manufacturer recommends filter replacement. Require that regardless of flow, filter cartridges be replaced after 40 hours of use. Require that HEPA elements in filter cartridges be protected from wetting during showering. Require entire exterior housing of respirator including blower unit, filter cartridges, hoses, battery pack, face mask, belt, and cords to be washed each time a worker leaves the work area. Caution should be used to avoid shorting battery pack during washing. Provide an extra battery pack for each respirator so that one can be charging while one is in use.

### **3.07 TYPE "C" RESPIRATOR:**

Air Systems Monitor: Continuously monitor the air system operation including compressor operation, filter system operation, backup air capacity and all warning and monitoring devices at all times that system is in operation. Assign an individual trained, by manufacturer of the equipment in use or by a Certified Industrial Hygienist, in the operation and maintenance of the system to provide this monitoring. Assign no other duties to this individual which will take him away from monitoring the air system.

### **3.08 RESPIRATORY PROTECTION PROGRAM:**

Submit a completed "Respiratory Protection Program" form indicating type of respiratory protection proposed for each portion of the work.

**- END OF SECTION -**



## CERTIFICATE OF WORKER'S ACKNOWLEDGEMENT

PROJECT \_\_\_\_\_ DATE \_\_\_\_\_

PROJECT ADDRESS \_\_\_\_\_

SUBCONTRACTOR'S NAME \_\_\_\_\_

WORKING WITH ASBESTOS CAN BE DANGEROUS. INHALING ASBESTOS FIBERS HAS BEEN LINKED WITH VARIOUS TYPES OF CANCER. IF YOU SMOKE AND INHALE ASBESTOS FIBERS THE CHANCE THAT YOU WILL DEVELOP LUNG CANCER IS GREATER THAN THAT OF THE NON-SMOKING PUBLIC.

Your employer's contract for the above project requires that: You be supplied with the proper respirator and be trained in its use. You be trained in safe work practices and in the use of the equipment found on the job. You receive a medical examination. These things are to have been done at no cost to you. By signing this certification you are assuring the owner that your employer has met these obligations to you.

RESPIRATORY PROTECTION: I have been trained in the proper use of respirators, and informed of the type respirator to be used on the above referenced project. I have a copy of the written respiratory protection manual issued by my employer. I have been equipped at no cost with the respirator to be used on the above project.

TRAINING COURSE: I have been trained in the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and area protective measures. The topics covered in the course included the following:

- Physical characteristics of asbestos
- Health hazards associated with asbestos
- Respiratory protection
- Use of protective equipment
- Negative pressure systems
- Work practices including hands on or on-job training
- Personal decontamination procedures
- Air monitoring, personal and area

MEDICAL EXAMINATION: I have had a medical examination within the past 12 months which was paid for by my employer. This examination included: health history, pulmonary function tests and may have included an evaluation of a chest x-ray.

Signature \_\_\_\_\_

Printed Name \_\_\_\_\_

Social Security Number \_\_\_\_\_

Witness \_\_\_\_\_

**CERTIFICADO DE CONOCIMIENTO DEL TRABAJADOR:**  
**(CERTIFICATE OF WORKER'S ACKNOWLEDGMENT: Spanish Version)**

NOMBRE DEL PROYECTO \_\_\_\_\_ FECHA \_\_\_\_\_

DOMICILIO DEL PROYECTO \_\_\_\_\_

NOMBRE DEL CONTRACTISTA \_\_\_\_\_

TRABAJAR CON ASBESTOS PUEDE SER PELIGROSO. EL RESPIRAR FIBRAS DE ASBESTOS A SIDO ASOCIADO CON VARIOS TIPOS DE CANCER. SI TU FUMAS Y RESPIRAS FIBRAS DE ASBESTOS, LAS POSIBILIDADES DE DESARROLLAR CANCER EN LOS PULMONES SON MAYORES QUE EN LAS PERSONAS QUE NO FUMAN.

El contrato de trabajo de tu patron con el dueño de este proyecto requiere que: se te debe proporcionar un respirador apropiado y se te enseñe como usarlo. Tu debes ser entrenado para trabajar con medidas de seguridad y se te enseñe a usar el equipo y herramienta que se requiere para trabajar. Que seas examinado por un medico. Estas cosas deben ser hechas sin costo alguno para ti. Al firmar este certificado tu estas asegurando al dueño del proyecto que tus patrones ya cumplieron con estas obligaciones (de proporcionarte equipo adecuado, entrenarte en practicas de seguridad y pasar por un chequeo medico). Por lo que se esta de acuerdo en mantener al dueño del proyecto, sus consejeros, laboratorio de analisis y sus representantes fuera de responsabilidad en todas y cada una de las quejas que puedan resultar de, o relacionadas con este proyecto.

PROTECCION RESPIRATORIA: Yo he sido entrenado en el use apropiado de respiradores, y he sido informado del tipo de respirador que debe ser usado en este proyecto. Yo tengo una copia escrita del manual de proteccion respiratoria proporcionado por mis patrones. Yo he sido equipado sin costo alguno para me con el respirador que debe ser usado en este proyecto.

CURSO DE ENTRENAMIENTO: Yo he sido entrenado en los peligros relacionados con el manejo de asbestos y con el respirar polvo de asbestos y he sido entrenado en los procedimientos de trabajo adecuados y medidas de proteccion personales en el area de trabajo. Los temas vistos en el curso incluyen los siguientes:

- Caracteristicas fisicas de asbestos
- Peligros de salud asociado con asbestos
- Uso de equipo de proteccion
- Sistemas de aire negativos
- Practicas de trabajo mientras se trabaja o se entrena
- Procedimientos de descontaminacion personal
- Muestreo del aire, personal y del area

EXAMEN MEDICO: Yo he sido examinado dentro de lost ultimos 12 meses el cual fue pagado por mis patrones. Esta examinacion incluye: historia de salud, pruebas de funcion pulmonares y podria tener incluida una evaluacion de rayos x del torax.

Firma: \_\_\_\_\_

Nombre Escrito: \_\_\_\_\_

Numero Del Seguro Social: \_\_\_\_\_

Testigo: \_\_\_\_\_

## SECTION 01915

### WORK AREA CLEARANCE (PCM)

**PART 1 - GENERAL:** CLEARANCE AIR SAMPLES WILL BE COLLECTED AND THE SAMPLES FROM THE WORK AREAS WILL BE ANALYZED USING PCM METHOD.

#### **1.01 RELATED DOCUMENTS:**

Drawings and general provisions of the Contract, and other Division - 1 Specification sections, apply to work of this section.

#### **1.02 CONTRACTOR RELEASE CRITERIA:**

The work is complete when the work area is visually clean and airborne fiber levels have been reduced to the level specified below.

#### **1.03 AIR MONITORING:**

To determine if the elevated airborne fiber counts encountered during demolition operations have been reduced to the specified level, the Owner's Representative will secure samples and analyze them according to the following procedures.

Fibers Counted: "Fibers" referred to in this section shall be as defined in NIOSH Method 7400, Issue 2.

#### **1.04 SAMPLING:**

The type of sample to be collected will be determined by the CIH retained by the Owner. In the case of aggressive air sampling, the sampling techniques are as follows:

There are not standards available for flow rate of leaf blowers or large fans. However this information is not critical to the success of the procedure.

Before sampling pumps are started the exhaust from forced air equipment (leaf blower with at least 1 horsepower electric motor) will be swept against the abated area and all surfaces. This procedure will be continued for five (5) minutes per 10,000 cubic feet of room volume.

#### **1.05 SCHEDULE OF AIR SAMPLES:**

**GENERAL:** The number and volume of air samples taken and analytical methods used by the Owner will be in accordance with the following schedule. Sample volumes given may vary depending upon the analytical instruments used.

Visual Inspection: Required as a prerequisite of air testing, is set forth in section 01914.

Air Monitoring: Performed by the Owner during abatement work, is described in section 01906.



If results of the first set of air samples show that the Contractor has not achieved clearance level, it is the Contractor's responsibility to perform the additional work required for clearance. In addition, the Contractor will be responsible for all costs involved with any additional air sampling to be performed (cost of analysis and collection).

**PHASE CONTRAST MICROSCOPY (PCM):**

LOCATION SAMPLED	NUMBER OF SAMPLES	FILTER MEDIA	DETECTION LIMIT (FIBERS/CC)	MINIMUM VOLUME (LITERS)	FLOW RATE LPM
Inside Affected Functional Space	5 (minimum)	Mixed Cellulose Ester 0.80 Micron	0.01	1500	2-10

Analysis: Fibers on each filter will be measured using PCM procedures in accordance with NIOSH 7400, Issue 2.

Release Criteria: Decontamination of the work site is complete when every work area sample is below or equal to 0.01 f/cc of air sampled or the baseline whichever is higher.

Phase Contract Microscopy: The services of a testing laboratory will be employed by the Owner to perform laboratory analysis of the air samples. A microscope and technician will be set up on site so that verbal results can be obtained immediately. If site conditions dictate that the testing laboratory cannot set up on site, verbal results shall be relayed to the Owner as well as the contractor within four hours of the collection of the clearance samples. A complete record certified by the testing laboratory of all air monitoring tests and results will be furnished to the Owner.

**PART 2 - PRODUCTS (Not Applicable)**

**PART 3 - EXECUTION (Not Applicable)**

**- END OF SECTION -**

### **VERIFICATION OF FINAL VISUAL INSPECTION**

In accordance with Section 01914 "Project Decontamination" and the Texas Asbestos Health Protection Rules, Section 295.58 (3)(C), the Contractor hereby certifies that he has visually inspected the work area after the containment and all other materials have been removed from the site (all surfaces including pipes, beams, ledges, walls, ceiling and floor, etc.) and has found no dust, debris or residue.

BY: (Signature) \_\_\_\_\_ (Date) \_\_\_\_\_

(Print Name) \_\_\_\_\_

(Print Title) \_\_\_\_\_

(Print Project Name) \_\_\_\_\_

(Print Name of Abatement Contractor) \_\_\_\_\_

### **OWNER REPRESENTATIVE VERIFICATION**

In accordance with Section 01914 "Project Decontamination" and the Texas Asbestos Health Protection Rules, Section 295.58 (3)(C), the Owner Representative, a Texas State licensed Asbestos Consultant or his designated representative, hereby certifies that he has visually inspected the work area after the containment and all other materials have been removed from the site (all surfaces including pipes, beams, ledges, walls, ceiling and floor, etc.) and has found no dust, debris or residue.

BY: (Signature) \_\_\_\_\_ (Date) \_\_\_\_\_

(Print Name) \_\_\_\_\_

(Print Title) \_\_\_\_\_

(Print Project Name) \_\_\_\_\_

(Print Company Affiliation) \_\_\_\_\_

## **SECTION 01917**

### **DISPOSAL OF ASBESTOS-CONTAINING WASTE MATERIAL**

#### **PART 1 - GENERAL**

##### **1.01 RELATED DOCUMENTS:**

Drawings and general provisions of the Contract, and Division-1 Specification sections, apply to work of this section.

##### **1.02 DISPOSAL:**

Friable asbestos-containing waste material and debris that is packaged in accordance with the provision of this specification may be disposed of at designated sanitary landfills when certain precautions are taken.

Notice to appropriate Environmental Protection Agency regional office.

Notice and permit from appropriate State and/or local Agencies.

See Section 01904 for agency locations and code.

Dispose of non-friable asbestos containing material in accordance with applicable regulations.

##### **1.03 SUBMITTALS:**

Submit copies of all manifest, including DOT shipping receipts, and landfill site receipts to Owner's Representative within 15 calendar days of project completion.

#### **PART 2 - PRODUCTS (Not Applicable)**

#### **PART 3 - EXECUTION**

##### **3.01 GENERAL:**

Carefully load containerized waste on sealed trucks or other appropriate vehicles for transport. Exercise care before and during transport, to insure that no unauthorized persons have access to the material.

Do not store disposal bagged material outside of the work area. Take bags from the work area directly to a sealed truck or dumpster. Label containers or bags with the name of the waste generator and the location at which the waste was generated.

Do not transport disposal bagged material on open trucks. The interior of the vehicle where bags are being transported shall be lined with 6 mil thick polyethylene. Double bagged material may be transported on open trucks if they are first loaded in sealed drums. Label drums with the same warning label as bags. Uncontaminated drums may be reused. Treat drums that have been contaminated as asbestos-containing waste and dispose of in accordance with the specification.

Advise the sanitary landfill operator at least twenty-four hours in advance of transport of the quantity of material to be delivered.

At the burial site, sealed plastic bags shall be carefully removed from the truck. If bags are broken or damaged in transit, leave in the truck and clean entire truck and contents using procedures set forth in Section 01914 Project Decontamination.

Retain receipts from landfill for material disposed of.

Final payment may be withheld by the Owner until all the properly executed manifests have been submitted to the Owner's Representative.

**- END OF SECTION -**

## **APPENDIX A**

### **QUALITY CONTROL / QUALITY ASSURANCE PROGRAM**

## **Appendix A**

### **Quality Control / Quality Assurance Program**

#### **Section 1. Overview**

##### **Introduction**

Williamson County has established the following Quality Control (QC) / Quality Assurance (QA) Program to assure that the materials and workmanship incorporated into any roadway or highway construction project are in reasonable conformity with the requirements of the approved plans and specifications, including any approved changes. It consists of an "Acceptance Program" and a "QA Program" based on test results obtained by qualified persons and equipment.

This QC/QA Program allows for the use of validated contractor-performed QC test results as part of an acceptance decision. It also allows for the use of test results obtained by commercial laboratories in the QA Program in acceptance decisions, as well. The effectiveness of the "Acceptance Program" shall be the responsibility of the Construction Observer.

##### **Definitions**

**Acceptance Program** - All factors that comprise the Williamson County's determination of the quality of the product as specified in the contract requirements. These factors include QC and QA verification sampling and testing, and inspection.

**Quality Control Program** - The contractor's systematic program detailing the control measures and reporting requirements necessary to achieve reasonable conformance with the requirements of the approved plans and specifications.

**Quality Assurance Program** - Activities that are an unbiased and independent evaluation of all the inspection, sampling and testing procedures used in the acceptance program.

**Proficiency Samples** - Homogenous samples that are distributed and tested by two or more laboratories and/or personnel. The test results are compared to assure that the laboratories and/or personnel are obtaining the same results.

**Qualified Laboratories** - Laboratories that are capable as defined by appropriate programs established by Williamson County and as indicated in the "Laboratory Qualification Program". As a minimum, the qualification program shall include provisions for checking testing equipment and the laboratory shall keep records of calibration checks.

**Qualified Sampling and Testing Personnel** - Personnel who are capable as defined by appropriate programs established as stated in Section 6 of this Appendix.

**Quality Assurance** – All those planned and systematic actions necessary to provide confidence that a product or service will satisfy given requirements for quality.

**Quality Control** - All contractor/vendor operational techniques and activities that are performed or conducted to fulfill the contract requirements.

**Vendor** – A supplier of project-produced material that is not the contractor.

**Verification Sampling and Testing** - Sampling and testing performed to validate the quality of the product, which consists of the QC and QA sampling and testing.

## Section 2. Acceptance Program

Materials incorporated into any roadway or highway construction project shall be subject to verification sampling and testing, and inspection as part of the QC program outlined below:

- Quality Control Inspection
  - ◆ Contractor-performed QC Inspection will be required as part of the acceptance decision. Inspection check lists for the following structural items shall be completed and submitted as part of the acceptance program:
    - Item 400 – Excavation & Backfill
    - Item 416 – Drilled Shaft Foundations
    - Item 420 – Concrete Structures
    - Item 421 – Hydraulic Cement Concrete
    - Item 422 – Bridge Deck
    - Item 423 – Retaining Wall
    - Item 425 – Precast Pre-stressed Concrete Structural Members
    - Item 440 – Reinforcing Steel
    - Item 442 – Metal for Structures
    - Item 462 – Concrete Box Culverts
    - Item 464 – Reinforced Concrete Pipe
  - Sample Inspection check lists are included at the end of this Appendix.
  - ◆ The contractor shall designate individual(s) responsible for the QC Inspection for the project or each work element thereof. The designated QC individual(s) will maintain responsibility for providing reports detailing the compliance of each work element to the requirements of the approved project plans and specifications.
  - ◆ The QC report will detail requirements of the approved project plans and specifications and measures initiated to ensure reasonable conformity.
  - ◆ The contractor shall submit the QC Plan for acceptance detailing the individuals & methods(s) intended to be used to obtain reasonable conformance to the approved project plans and specifications.
- Quality Control Sampling, Testing and frequency
  - ◆ Contractor-performed QC sampling and testing will be used as part of an acceptance decision.
  - ◆ The frequency and location will be according to the “Project Test” frequency as shown in Appendix B. This project has been designed utilizing TxDOT Specifications; therefore, the 2005 TxDOT Guide Schedule for Sampling and Testing has been adopted for the testing program. As a County-developed project, all references to TxDOT in the testing program shall be understood to mean Williamson County, and all references to the Engineer shall be understood to mean the County Engineer or his designated representative(s).
  - ◆ These QC sampling and testing personnel, laboratories, and equipment shall be qualified according to the "Sampling and Testing Personnel Qualification Program" and the "Laboratory Qualification Program" and shall be evaluated under the "Quality Assurance Program" contained herein.

- ◆ Any equipment used to perform QC sampling and testing shall be subject to an evaluation by QA sampling and testing personnel. This evaluation shall include calibration checks and split or proficiency sample tests. The requirements for, and frequency of, equipment calibration are shown in Appendix B. Acceptable tolerance limits for the comparison of test results from split or proficiency samples are shown in "Acceptable Tolerance Limits for Independent Assurance."
- ◆ Any individual who performs verification or QC sampling and testing shall be evaluated by QA sampling and testing personnel. This evaluation shall include observations and split or proficiency sample testing. Acceptable tolerance limits for the comparison of test results for split or proficiency samples are shown in "Acceptable Tolerance Limits for Quality Assurance."
- ◆ Furthermore, these QC test results may be validated by verification test results obtained from independently taken samples at the direction of the Construction Observer or the County.



### Section 3. Quality Assurance Program

This Quality Assurance Program; as deemed necessary by the County or the Construction Observer; shall evaluate all QC inspection, sampling and testing procedures, personnel, and equipment used as part of the acceptance program.

- QA Inspection
  - ◆ The Construction Observer will be responsible for QA inspection. The inspection will be performed at periodic intervals to assure compliance with the accepted QC program, as well as to assure reasonable close conformity to the approved project plans and specifications.
- Sampling and Testing Frequency and Location
  - ◆ Quality Assurance sampling and testing shall be performed at the same location and frequency established for the Project Tests in the "Guide Schedule of Sampling and Testing" found in Appendix B.
  - ◆ The frequency for the "Independent Assurance Tests" shall be as directed by the Construction Observer.
- Testing Equipment
  - ◆ Laboratory testing equipment used for QA sampling and testing shall be qualified according to the "Laboratory Qualification Program."
  - ◆ All laboratories used for QA sampling and testing must be AASHTO accredited and listed as an accepted Lab by the County.
  - ◆ The frequency for qualifying QA sampling and testing equipment shall not exceed one (1) year or as directed by the Construction Observer.
  - ◆ Calibration/verification is required whenever the laboratory or equipment is moved.
  - ◆ The QA equipment shall be other than that used for performing verification or QC testing.
- Testing Personnel
  - ◆ Laboratory personnel who perform QA sampling and testing shall be in accordance with the "Sampling and Testing Personnel Qualification Program" Included herein.
  - ◆ The individuals performing QA sampling and testing shall be other than those who perform other verification or QC testing.
- Comparison of QC and QA Test Results
  - ◆ Acceptable tolerance limits for the comparison of test results from split and proficiency samples are shown in "Acceptable Tolerance Limits for Independence Assurance."
  - ◆ If the comparison of the test results do not comply with the tolerances, an engineering review of the test procedures and equipment shall be performed immediately to determine the source of the discrepancy.
  - ◆ Corrective actions must be identified and incorporated as appropriate.

Test results from all samples involved in the Quality Assurance Program shall be documented and reported in the project files.

- Dispute Resolution System
  - ◆ Testing disputes arising between the Construction Observer, or his/her designated agents, and the Contractor shall be resolved in a reliable, unbiased manner. The decision of the County, the Construction Observer, or their authorized representatives will be final.

#### **Section 4. Materials Certification**

The Independent Assurance agency shall submit a "Certificate of Materials" to the Construction Observer indicating the conformity of tested materials to the approved plans and specifications including any exceptions, if applicable.

**Section 5. Conflict of Interest**

To avoid an appearance of a conflict of interest, sampling and testing of materials under the QA program shall be performed at a qualified laboratory other than the laboratory used for project testing by the Contractor.

## **Section 6. Sampling and Testing Personnel Qualification Program**

### **Purpose**

This program provides uniform Countywide procedures for sampling and testing personnel qualification to ensure that tests required by the specifications are performed according to the prescribed sampling and testing methods.

### **Sampling and Testing Personnel Qualification**

Sampling and testing personnel will be qualified to perform tests for the acceptance of materials in the areas of Portland cement concrete, soils and aggregates and bituminous materials. The test methods for which individuals can be qualified include, but are not limited to, the following.

(\* Denotes tests on which split or proficiency sample evaluations are required.)

#### **Soils & Aggregates (100-E Series & 400-A Series)**

Tex-101-E, Preparing Soil and Flexible Base Materials for Testing

Tex-102-E, Determining Slaking Time

Tex-103-E, Determining Moisture Content in Soil Materials

Tex-104-E, Determining Liquid Limit of Soils\*

Tex-105-E, Determining Plastic Limit of Soils\*

Tex-106-E, Calculating the Plasticity Index of Soils\*

Tex-107-E, Determining the Bar Linear Shrinkage of Soils\*

Tex-108-E, Determining the Specific Gravity of Soils

Tex-110-E, Particle Size Analysis of Soils\*

Tex-111-E, Determining the Amount of Material in Soils Finer than 75  $\mu$ m (No.200) Sieve

Tex-113-E, Laboratory Compaction Characteristics and Moisture-Density Relationship of Base Materials

Tex-114-E, Laboratory Compaction Characteristics and Moisture-Density Relationship of Subgrade and Embankment Soils

Tex-115-E, Field Method for Determining In-Place Density of Soils and Base Materials

Tex-116-E, Ball Mill Method for Determining the Disintegration of Flexible Base Material

Tex-117-E, Triaxial Compression Tests for Disturbed Soils and Base Materials

Tex-120-E, Soil-Cement Testing

Tex-121-E, Soil-Lime Testing

Tex-126-E, Molding, Testing, and Evaluating Bituminous Black Base Materials\*

Tex-127-E, Lime Fly-Ash Compressive Strength Test Methods

Tex-128-E, Determining Soil pH

Tex-129-E, Measuring the Resistivity of Soil Materials

Tex-140-E, Measuring Thickness of Pavement Layer

Tex-400-A, Sampling Stone, Gravel, Sand, and Mineral Aggregates

Tex-401-A, Sieve Analysis of Fine and Coarse Aggregate\*

Tex-402-A, Fineness Modulus of Fine Aggregate

Tex-403-A, Saturated Surface Dry Specific Gravity and Absorption of Aggregates

Tex-404-A, Determining Unit Mass (Weight) of Aggregates

Tex-405-A, Determining Percent Solids and Voids in Concrete Aggregates

Tex-406-A, Material Finer Than 75  $\mu$ m (No. 200) Sieve in Mineral Aggregates (Decantation Test for Concrete Aggregates)

Tex-408-A, Organic Impurities in Fine Aggregate for Concrete

Tex-409-A, Free Moisture and Water Absorption in Aggregate for Concrete

Tex-409-A, Free Moisture and Water Absorption in Aggregate for Concrete

Tex-411-A, Soundness of Aggregate by Using Sodium Sulfate or Magnesium Sulfate

Tex-413-A, Determining Deleterious Materials in Mineral Aggregates

Tex-425-A, Determining Moisture Content in Fine Aggregate by the "Speedy" Moisture Method

Tex-460-A, Determining Crushed Face Particle Count

**Bituminous (200-F Series)**

Tex-200-F, Sieve Analysis of Fine and Coarse Aggregate\*

Tex-201-F, Bulk Specific Gravity and Water Absorption of Aggregate

Tex-202-F, Apparent Specific Gravity of Material Finer than 180  $\mu$ m (No. 80) Sieve

Tex-203-F, Sand Equivalent Test\*

Tex-204-F, Design of Bituminous Mixtures

Tex-205-F, Laboratory Method of Mixing Bituminous Mixtures

Tex-206-F, Compacting Test Specimens of Bituminous Mixtures\*

Tex-207-F, Determining Density of Compacted Bituminous Mixtures\*

Tex-208-F, Test for Stabilometer Value of Bituminous Mixtures\*

Tex-210-F, Determining Asphalt Content of Bituminous Mixtures by Extraction\*

Tex-211-F, Recovery of Asphalt from Bituminous Mixtures by the Abson Process

Tex-212-F, Determining Moisture Content of Bituminous Mixtures

Tex-213-F, Determining Hydrocarbon-Volatile Content of Bituminous Mixtures

Tex-217-F, Determining Deleterious Material and Decantation Test for Coarse Aggregates

Tex-221-F, Sampling Aggregate for Bituminous Mixtures, Surface Treatments and Limestone Rock Asphalt

Tex-222-F, Sampling Bituminous Mixtures

Tex-224-F, Determining Flakiness Index

Tex-226-F, Indirect Tensile Strength Test

Tex-227-F, Theoretical Maximum Specific Gravity of Bituminous Mixtures\*

Tex-228-F, Determining Asphalt Content of Bituminous Mixtures by the Nuclear Method\*

Tex-229-F, Combined HMAC Cold-Belt Sampling and Testing Procedure

Tex-236-F, Determining Asphalt Content from Asphalt Paving Mixtures by the Ignition Method\*

**Concrete (400-A Series)**

Tex-407-A, Sampling Freshly-Mixed Concrete

Tex-414-A, Air Content of Freshly Mixed Concrete by the Volumetric Method\*

Tex-415-A, Slump of Portland Cement Concrete\*

Tex-416-A, Air Content of Freshly Mixed Concrete by the Pressure Method\*

Tex-417-A, Unit Weight, Yield, and Air Content (Gravimetric) of Concrete

Tex-418-A, Compressive Strength of Cylindrical Concrete Specimens\*

Tex-419-A, Compressive Strength of Concrete Using Portions of Beams Broken in Flexure

Tex-424-A, Obtaining and Testing Drilled Cores of Concrete

Tex-436-A, Measuring Texture Depth by the Sand Patch Method

Tex-437-A, Test for Flow of Grout Mixtures (Flow Cone Method)

Tex-447-A, Making and Curing Concrete Test Specimens

Tex-448-A, Flexural Strength of Concrete Using Simple Beam Third-Point Loading\*

Tex-450-A, Capping Cylindrical Concrete Specimens

Tex-460-A, Determining Crushed Face Particle Count

**Asphalt (500-C Series)**

Tex-502-C, Penetration of Bituminous Materials (refer to AASHTO T 49)

Tex-530-C, Effect of Water on Bituminous Paving Mixtures

Tex-531-C. Prediction of Moisture-Induced Damage to Bituminous Paving Materials Using Molded Specimens

Tex-1000-S. Operating Pavement Profilograph and Evaluating Profiles

### **Who Must Be Qualified?**

Any individual who performs tests on materials for acceptance must be qualified.

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### **Qualification of Sampling and Testing Personnel**

All sampling and testing personnel for approved laboratories shall be qualified to do the work in accordance with "Laboratory Qualification Program".

Each laboratory shall maintain a minimum of one (1) qualified individual for each test procedure performed.



## **Section 7. Laboratory Qualification Program**

### **Purpose**

This program provides uniform countywide procedures to ensure that laboratory facilities and equipment are adequate for the performance of required sampling and testing methods.

### **Laboratories**

All laboratories that perform testing for Williamson County must be accredited under the AASHTO Laboratory Accreditation Program. These include, but are not limited to the following:

- Area/project laboratories (includes field laboratories)
- Commercial laboratories
- Contractor laboratories
- Vendor laboratories (material suppliers).

The most current AASHTO accredited laboratories in the State of Texas can be obtained at [http://patapsco.nist.gov/aashto/amrl/services/aap\\_intro.htm](http://patapsco.nist.gov/aashto/amrl/services/aap_intro.htm). In addition, Appendix C includes a list of AASHTO accredited laboratories obtained at the time this document was prepared.

### **Laboratory Qualification Responsibility**

The Construction Observer or his/her authorized representatives will be responsible to ensure all QA laboratories used for project and QA testing and sampling are qualified.

### **Qualification Process**

The laboratory qualifying authority will:

- identify the scope of testing to be performed
- verify that manuals and/or test methods used to perform tests are available and up-to-date
- document that the laboratory has the required equipment to perform the tests
- check the calibration/verification records for each piece of equipment, to include:
  - ◆ description of equipment
  - ◆ identification of any traceable standard used
  - ◆ frequency of calibration
  - ◆ date of last calibration
  - ◆ date of next calibration
  - ◆ procedure used to calibrate equipment
  - ◆ procedure used to identify equipment not in compliance.

In addition, all equipment may be subjected to calibration verification or other inspection by the qualifying authority.

### **Calibration Standards and Frequencies for Laboratory Equipment**

The standards for calibration and the frequencies for laboratory equipment calibrations shall be in accordance with appropriate testing equipment measures as indicated in the Texas Department of Transportation Manual of Testing Procedures. 100-E (Soils), 200-F (Bituminous), and 400-A (Concrete) series of TxDOT's *Manual of Testing Procedures*.

### **Frequency for Laboratory Qualification**

Laboratories shall be qualified at an interval not to exceed six (6) months, or as directed by the Construction Observer. Calibration/verification is required whenever the laboratory or equipment is moved.

### **Non-Compliance**

A laboratory that does not meet the above requirements is subject to disqualification. Any equipment in a qualified laboratory failing to meet specified equipment requirements for a specific test method shall not be used for that test method.

### **Documentation**

The Construction Observer will be responsible for verifying that laboratories are qualified to perform material testing. Documentation will be required to be kept by the qualified laboratory. Calibration records will be maintained for three (3) years, unless directed otherwise by the Construction Observer.

### **Dispute Resolution**

The County will have the final decision regarding all disputes of the laboratory qualification and calibration of testing equipment.

**Section 8. Acceptable Tolerance Limits for Quality Assurance**

The following tables indicate the acceptable tolerance limits for the specified material.

**Embankment**

<b>Embankment</b>		
<b>Procedure</b>	<b>Texas Test Method</b>	<b>Tolerance</b>
In-place Density	" <u>Tex-115-E</u> , Field Method for Determining In-Place Density of Soils and Base Materials"	± 2.5% Field Density

**Untreated & Treated Sub-base and Base Courses**

<b>Untreated &amp; Treated Sub-base and Base Courses</b>		
<b>Procedure</b>	<b>Texas Test Method</b>	<b>Tolerance</b>
In-place Density	" <u>Tex-115-E</u> , Field Method for Determining In-Place Density of Soils and Base Materials"	± 2.5% Field Density
Gradation:	" <u>Tex-110-E</u> , Particle Size Analysis of Soils"	-
> No. 4 ≤ No. 4	-	± 5% ± 3%
Liquid Limit	" <u>Tex-104-E</u> , Determining Liquid Limit of Soils"	15% of the mean*
Plasticity Index	" <u>Tex-106-E</u> , Calculating the Plasticity Index of Soils"	20% of the mean*

**Asphalt Stabilized Base**

<b>Asphalt Stabilized Base</b>		
<b>Procedure</b>	<b>Texas Test Method</b>	<b>Tolerance</b>
Gradation:	" <u>Tex-200-F</u> , Sieve Analysis of Fine and Coarse Aggregates"	-
> No. 4 ≤ No. 4	-	± 5% ± 3%
Liquid Limit	" <u>Tex-104-E</u> , Determining Liquid Limit of Soils"	15% of the mean*
Plasticity Index	" <u>Tex-106-E</u> , Calculating the Plasticity Index of Soils"	20% of the mean*
Percent Asphalt	" <u>Tex-210-F</u> , Determining Asphalt Content of Bituminous Mixtures by Extraction"	± 0.3%
-	" <u>Tex-228-F</u> , Determining Asphalt Content of Bituminous Mixtures by the Nuclear Method"	± 0.3%

-	"Tex-126-E, Molding, Testing, and Evaluating Bituminous Black Base Materials"	± 0.3%
-	"Tex-229-F, Combined HMAC Cold-belt Sampling and Testing Procedure"	± 0.3%
-	"Tex-236-F, Determining Asphalt Content from Asphalt Paving Mixtures by the Ignition Method"	± 0.3%
In-place Density (Cores)	"Tex-207-F, Determining Density of Compacted Bituminous Mixtures"	± 1% Field Density

## Surface Treatment Aggregates

Surface Treatment Aggregates		
Procedure	Texas Test Method	Tolerance
Gradation:	"Tex-200-F, Sieve Analysis of Fine and Coarse Aggregates"	-
> No. 4 ≤ No. 4	-	± 5% ± 3%

## Portland Cement Concrete Coarse Aggregate

Portland Cement Concrete Coarse Aggregate		
Procedure	Texas Test Method	Tolerance
Gradation:	"Tex-401-A, Sieve Analysis of Fine and Coarse Aggregate"	-
> No. 4 ≤ No. 4	-	± 5% ± 3%

## Portland Cement Concrete Fine Aggregate

Portland Cement Concrete Fine Aggregate		
Procedure	Texas Test Method	Tolerance
Gradation (3/8" through No. 200)	"Tex-401-A, Sieve Analysis of Fine and Coarse Aggregate"	± 3%
Sand Equivalent	"Tex-203-F, Sand Equivalent Test"	± 10

## Portland Cement Concrete Complete Mixture

Portland Cement Concrete Complete Mixture		
Procedure	Texas Test Method	Tolerance
Flexural Strength Compressive	1. "Tex-448-A, Flexural Strength of Concrete Using Simple Beam Third-Point Loading" 2. "Tex-418-A, Compressive Strength of Cylindrical Concrete Specimens"	20% of the mean*

Slump	" <u>Tex-415-A</u> , Slump of Portland Cement Concrete"	± 1.0"
Entrained Air	3. " <u>Tex-414-A</u> , Air Content of Freshly Mixed Concrete by the Volumetric Method" 4. " <u>Tex-416-A</u> , Air Content of Freshly Mixed Concrete by the Pressure Method"	± 1%

## Asphaltic Concrete Coarse Aggregate

Asphaltic Concrete Coarse Aggregate		
Procedure	Texas Test Method	Tolerance
Gradation:	" <u>Tex-200-F</u> , Sieve Analysis of Fine and Coarse Aggregates"	-
> No. 10 ≤ No. 10	-	± 5% ± 3%
Deleterious Material	" <u>Tex-217-F</u> , Determining Deleterious Material and Decantation Test for Coarse Aggregates"	± 0.3 %
Decantation	" <u>Tex-217-F</u> , Determining Deleterious Material and Decantation Test for Coarse Aggregates"	20% of the mean*

## Asphaltic Concrete Fine Aggregate

Asphaltic Concrete Fine Aggregate		
Procedure	Texas Test Method	Tolerance
Gradation (No. 10 through No. 200)	" <u>Tex-200-F</u> , Sieve Analysis of Fine and Coarse Aggregates"	± 3%
Bar Linear Shrinkage	" <u>Tex-107-E</u> , Determining the Bar Linear Shrinkage of Materials"	± 2

## Asphaltic Concrete Combined Aggregate

Asphaltic Concrete Combined Aggregate		
Procedure	Texas Test Method	Tolerance
Gradation:	" <u>Tex-200-F</u> , Sieve Analysis of Fine and Coarse Aggregates"	-
> 5/8" 5/8" through No. 200 Passing No. 200	-	± 5% ± 3% ± 1.5%
Sand Equivalent	" <u>Tex-203-F</u> , Sand Equivalent Test"	± 10

## Asphaltic Concrete Complete Mixture

Asphaltic Concrete Complete Mixture		
Procedure	Texas Test Method	Tolerance
Asphalt Content	"Tex-210-F, Determining Asphalt Content of Bituminous Mixtures by Extraction"	$\pm 0.3\%$
-	"Tex-228-F, Determining Asphalt Content of Bituminous Mixtures by the Nuclear Method"	$\pm 0.3\%$
-	"Tex-229-F, Combined HMAC Cold-belt Sampling and Testing Procedure"	$\pm 0.3\%$
-	"Tex-236-F, Determining Asphalt Content from Asphalt Paving Mixtures by the Ignition Method"	$\pm 0.3\%$
Maximum Theoretical Specific Gravity	"Tex-227-F, Theoretical Maximum Specific Gravity of Bituminous Mixtures"	$\pm 0.020$
Laboratory Molded Density	"Tex-207-F, Determining Density of Compacted Bituminous Mixtures"	$\pm 1.0\%$
Laboratory Molded Bulk Specific Gravity	"Tex-207-F, Determining Density of Compacted Bituminous Mixtures"	$\pm 0.020$
Stability	"Tex-208-F, Test for Stabilometer Value of Bituminous Mixtures"	5 points
Moisture	"Tex-212-F, Determining Moisture Content of Bituminous Mixtures"	$\pm 0.2$ mL
In-place Air Voids (Core)	"Tex-207-F, Determining Density of Compacted Bituminous Mixtures"	$\pm 1.0\%$

NOTE: The above tolerances are to be used when comparison of test results is by split samples. A tolerance of plus or minus two (2) standard deviations shall be used when comparison of test results is by proficiency samples.

\*The difference between compared test results shall not exceed the indicated percentage of the mean of the compared test results - the mean being the average of the two test results.

EXAMPLE: Plasticity Index	
Job Control test value	18
IA Test value	22
Mean	20
20% difference	4

Both values are within 20% of the mean.



Williamson County Road Bond Program  
Construction Quality Control & Quality Assurance Program

Inspection Check Lists



Williamson County  
Road Bond Program  
Inspection Check Lists

Spec Item:	400 – Excavation & Backfill for Structures	Report No.:	_____
Description:	_____	Date:	_____
Location:	_____	Time:	_____

QC Reviewer: \_\_\_\_\_

Results: ☐ Accepted ☐ Not Accepted

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

QC Reviewer Signature: \_\_\_\_\_

**Excavation and Backfill for Structures**

**Yes No NA**

**I. Excavation (400.3)**

- |                                                                                                                                                                                                                                               |                          |                          |                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|--------------------------|
| 1. Whenever excavating for installing structures across private property beyond the limits of the embankment, is the top soil removed prior excavation and kept separate and later replaced, as nearly as feasible, in its original position? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|--------------------------|

\_\_\_\_\_  
\_\_\_\_\_

- |                                                                                   |                          |                          |                          |
|-----------------------------------------------------------------------------------|--------------------------|--------------------------|--------------------------|
| 2. If trench excavation deeper than five (5) feet, is trench protection required? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|-----------------------------------------------------------------------------------|--------------------------|--------------------------|--------------------------|

\_\_\_\_\_  
\_\_\_\_\_





# Williamson County Road Bond Program Inspection Check Lists

	Yes	No	NA
3. When old or abandoned structures or foundations are encountered in the excavation, are they removed for the full width of the excavation and to a depth of one (1) foot below the bottom of the excavation? <hr/> <hr/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. During construction, did the contractor receive approval from the Engineer of Record before laying any structures in the presence of water? <hr/> <hr/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. If the excavation cannot be dewatered to the point where the subgrade is free of mud, was a concrete mixture with not less than three (3) sacks of cement per cubic yard (or other material approved by the Engineer of Record) placed a minimum of three (3) inches in depth in the bottom of the excavation? <hr/> <hr/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. For all culverts where the soil encountered at established footing grade is an unstable or incompressible material is the procedure shown in Item 400.3.A.4 followed unless other methods are called for in the plans? <hr/> <hr/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Unless otherwise shown on the plans, are all sewer pipe structures constructed in an open cut with vertical sides to a point one (1) foot above the pipe? <hr/> <hr/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Are all vertical sides sheeted and braced when necessary to maintain the required vertical excavation throughout the construction? <hr/> <hr/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. For pipe to be installed in a fill section was the embankment constructed to one (1) foot above the top of the pipe and then excavated for the pipe? <hr/> <hr/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



# Williamson County Road Bond Program Inspection Check Lists

	Yes	No	NA
10. Is the trench excavated to the width and elevations as shown in the plans? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Is the pipe, culvert, etc., properly centered in the trench? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
II. Shaping and Bedding (400.3.B)			
1. For precast box sections and pipe, is the bedding in accordance with Item 400.3.B unless otherwise shown on the plans? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. For precast pipe and box sections where cement stabilized backfill is indicated on the plans, is the excavation undercut a minimum 4 inches and backfilled with stabilized material to support the pipe at the required grade? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
III. Backfill – General (400.3.C)			
1. Is backfill material free from stones of such size as to interfere with compaction, large or frozen lumps which will not break down readily under compaction; and wood or other extraneous material? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. a. Is backfill in areas not supporting any portion of the completed roadbed, retaining wall or embankment, placed in layers not more than ten (10) inches in depth (loose measurement)? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Is backfill which will support any portion of the roadbed, retaining wall or embankment, placed in uniform layers not to exceed eight (8) inches in depth (loose measurement)? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



## Williamson County Road Bond Program Inspection Check Lists

**Yes      No      NA**

3. Is each layer of backfill material to the moisture content needed to obtain the required density?

☐      ☐      ☐

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4. If a cohesionless material, such as sand, is used, is it compacted with vibratory equipment, water ponding or a combination of both?

☐      ☐      ☐

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### IV. Backfill – Bridge Foundations, Retaining Walls and Culverts (400.3.C.2)

1. Is the material used for backfilling free of any appreciable amount of gravel or stone particles more than four (4) inches in greatest dimension and of a gradation that permits thorough compaction?

☐      ☐      ☐

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2. Are mechanical tamps or rammers required when the structure being backfilled could sustain damage from other compacting operations?

☐      ☐      ☐

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3. Are any special density requirements for backfill under or adjacent to structures met?

☐      ☐      ☐

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### V. Backfill – Pipe (400.3.C.3)

1. After the bedding and pipes have been installed as required, is the selected backfill materials brought to proper moisture condition, placed along both sides of the pipe equally, in uniform layers not exceeding eight (8) inches in depth (loose measurement), and thoroughly compacted mechanically?

☐      ☐      ☐

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# Williamson County Road Bond Program Inspection Check Lists

**Yes      No      NA**

2. Is the method of backfill in question 1 above continued in this manner to the top of pipe elevation and compacted in accordance with Item 400.3.C.1?

☐      ☐      ☐

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## VI. Cement Stabilized Backfill (400.3.C.4)

1. When required by plans, is cement stabilized backfill or flowable backfill placed equally along all sides of the structure, so as to prevent strain on or displacement of the structure; and are all voids filled?

☐      ☐      ☐

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Williamson County  
Road Bond Program  
Inspection Check Lists

Spec Item:	416 – Drilled Shaft Foundations	Report No.:	
Description:		Date:	
Location:		Time:	

QC Reviewer: \_\_\_\_\_

Results: ☐ Accepted ☐ Not Accepted

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

QC Reviewer Signature: \_\_\_\_\_

**416 – Drilled Shaft Foundations**

**Yes No NA**

**I. Materials (416.2)**

1. Did the Contractor incorporate materials into this project that meet the requirements of referenced items in Section 416.2? ☐ ☐ ☐

\_\_\_\_\_  
\_\_\_\_\_

2. Does concrete for Drilled Shafts meet the requirements of Table 1 and Table 2 for concrete class and slump? ☐ ☐ ☐

\_\_\_\_\_  
\_\_\_\_\_

3. If drilling slurry is used, does it meet the requirements of Table 3, as determined by Tex-130 E? ☐ ☐ ☐

\_\_\_\_\_  
\_\_\_\_\_



# Williamson County Road Bond Program Inspection Check Lists

## Drilled Shaft Foundations – Item 416

Yes No NA

4. Do Chemical Admixtures meet the requirements of DMS-4620?

☐ ☐ ☐

\_\_\_\_\_  
\_\_\_\_\_

### II. Construction (416.3)

#### A. Excavation

1. When excavating, was satisfactory founding material encountered at plan elevation?

☐ ☐ ☐

\_\_\_\_\_  
\_\_\_\_\_

If not, was the bottom of the shaft adjusted, or the foundation altered, as determined by the Engineer of Record, to satisfactorily comply with the design requirements?

\_\_\_\_\_  
\_\_\_\_\_

2. Is the shaft vertical alignment measured and found to be within a tolerance of 1 inch per 10 feet of depth? **(Hold Point)**

☐ ☐ ☐

\_\_\_\_\_  
\_\_\_\_\_

3. Is the center of shaft location measured and found to be not more than 1 inch from the horizontal position shown on the plans? **(Hold Point)**

☐ ☐ ☐

\_\_\_\_\_  
\_\_\_\_\_

If not, was a structural review performed?

\_\_\_\_\_  
\_\_\_\_\_

4. Did the Contractor provide suitable access and lighting for proper inspection of the completed excavation?

☐ ☐ ☐

\_\_\_\_\_  
\_\_\_\_\_



# Williamson County Road Bond Program Inspection Check Lists

## Drilled Shaft Foundations – Item 416

	Yes	No	NA
5. For abutment drill shafts, is the embankment at the bridge ends completed to grade and thoroughly compacted prior to drilling?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>			
<hr/>			
B. Requirements for Slurry Displacement Method			
1. If the slurry method is used to construct drilled shaft, is slurry mixed at the project site or is it premixed in a reservoir adjacent to the excavation (not in the shaft excavation or other hole)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>			
<hr/>			
2. During and after drilling was a head of slurry maintained in the shaft excavation at or near ground level or higher as necessary to counteract ground water pressure?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>			
<hr/>			
3. Just prior to placement of reinforcing steel, was an airlift or proper size cleanout bucket used to remove accumulated material on the bottom after the completion of drilling? <b>(Hold Point)</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>			
<hr/>			
4. Was concrete placement started within 4 hours of shaft excavation? If not, was shaft reprocessed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>			
<hr/>			
5. Is the slurry agitated if the placement of concrete is delayed to keep it liquefied?			
<hr/>			
<hr/>			



Williamson County  
Road Bond Program  
Inspection Check Lists

**Drilled Shaft Foundations – Item 416**

C. Reinforcing Steel	Yes	No	NA
1. Is the cage of reinforcing steel completely assembled according to plans and placed in the drill shaft as a unit immediately prior to concrete placement? <b>(Hold Point)</b>  _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Where spiral reinforcement is used, is it tied to longitudinal bars (not welded) at a spacing not to exceed 24 inches?  _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. In uncased shafts, are concrete spacer blocks or steel chairs placed at sufficient intervals to insure concentric spacing for the entire length of the cage?  _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. In cased shafts, are steel chair spacers or bent pieces of steel bars placed at sufficient intervals to insure concentric spacing inside the casing?  _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the cage adequately supported to control vertical displacement and racking and distortion of the steel during concrete placement and/or extraction of the casing?  _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. a. Is the elevation of the steel cage checked before and after concrete placement or after casing extraction when casing is used?  _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Did the downward movement of the steel not exceed 6 inches per 20 feet of shaft length?  _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>





# Williamson County Road Bond Program Inspection Check Lists

## Drilled Shaft Foundations – Item 416

	Yes	No	NA
c. Did the upward movement of the steel not exceed 6 inches? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Were the dowel bars checked for proper lap length between the shaft and column? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Concrete (Perform all work in accordance with the requirements of Item 420, “Concrete Structures”.)			
1. For dry shafts 24” in diameter or smaller, is concrete placed continuously through the entire length of the shaft through a suitable tube or tremie (limit freefall to 25 feet) to prevent segregation of materials?  (Note: For dry shafts over 24” diameter concrete freefall is unlimited; use 3 foot drop tube.) _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Does the elapsed time from the beginning of concrete placement into the cased portion of the shaft until the completion of extraction of the casing exceed one hour? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. At the time the concrete is placed, is the excavated drill shaft free from accumulated seep water? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Has all loose material been removed from the bottom of the excavation prior to placing concrete? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



# Williamson County Road Bond Program Inspection Check Lists

## Drilled Shaft Foundations – Item 416

	Yes	No	NA
E. Additional Requirements for Slurry Displacement or Underwater Concrete Placement Methods			
1. Is the concrete placed through a closed tremie or pumped to the bottom of the excavation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
2. If a tremie is used, is it kept full of concrete and well submerged in the previously placed concrete at all times?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
How is this determined?			
<hr/> <hr/>			
3. During the placement of concrete was the tremie raised, as necessary, to maintain the free flow of concrete and the stability of any casing used?			
<hr/> <hr/>			
4. Was additional concrete placed to ensure the removal of any contaminated concrete at the top of the shaft?			
<hr/> <hr/>			
5. For pours over water, was a collar used to capture the slurry and the top portion of concrete flushed from the shaft?			
<hr/> <hr/>			
6. If the tremie seal (separating layer between the concrete and contaminated bottom hole material) is lost, was the tremie removed, the bottom resealed and the tremie re-inserted at least 5 feet below the new seal before continuing concrete placement?			
<hr/> <hr/>			



Williamson County  
Road Bond Program  
Inspection Check Lists

**Drilled Shaft Foundations – Item 416**

	Yes	No	NA
F. Load Testing			
1. If required, were the poured drill shafts load tested after curing in accordance with Item 405, “Foundation Test Load”?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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# Williamson County Road Bond Program Inspection Check Lists

## Drilled Shaft Foundations – Item 416

### Drilled Shaft Record Form No. 416

DRILLED SHAFT				BELL FTG.		Date Drilled	Casing Used	Drilling Mud	Slurry Plmt.	Remarks
No.	Dia. (in)	Top of Shaft Elev.	Length (ft)	Dia. (CY)	Vol. (CY)					
Bent No.	Design Load			Tons per shaft						
Bent No.	Design Load			Tons per shaft						
Bent No.	Design Load			Tons per shaft						
Bent No.	Design Load			Tons per shaft						
Bent No.	Design Load			Tons per shaft						
Summary for Payment						Comments				
Total this sheet		Total this structure								
size of shaft	Length (ft.)	size of shaft	Length (ft.)							
Total Vol of Bells		Total Vol of Bells								



Williamson County  
Road Bond Program  
Inspection Check Lists

**Drilled Shaft Foundations – Item 416**

Signature/Date: \_\_\_\_\_



Williamson County  
Road Bond Program  
Inspection Check Lists

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Spec Item:	420 – Concrete Structures	Report No.:	
Description:		Date:	
Location:		Time:	

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QC Reviewer: \_\_\_\_\_

Results: ☐ Accepted ☐ Not Accepted

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

QC Reviewer Signature: \_\_\_\_\_

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**Concrete Structures**

**Yes No NA**

I. Materials (420.2) ☐ ☐ ☐

1. Were concrete structures constructed from materials conforming to  
TxDOT's Department Material Specifications in accordance with Section  
420.2?

\_\_\_\_\_  
\_\_\_\_\_

II. Construction (420.4)

A. Schedule Restrictions



# Williamson County Road Bond Program Inspection Check Lists

## Concrete Structures – Item 420

	Yes	No	NA
1. Did the Contractor comply with the schedule restrictions of Section 420.4.A, prior to erecting forms, removing forms, placement of materials, equipment and bridge rail, opening to construction or full traffic, post-tensioning or backfilling, ensure the previously placed concrete attained the minimum compressive strength or curing time?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
B. Falsework and Forms			
1. Are the working drawings for forms and falsework signed and sealed by a Registered Professional Engineer, licensed in the state of Texas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
2. Were the falsework and forms placed braced and alignments checked to ensure placement in accordance with the plans signed/sealed working drawings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
C. Reinforcement (provided under Item 440)			
1. Was reinforcing steel supports welded to I-beams or girders or to reinforcing steel as shown in the plans?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
2. Is the installation of dowels and anchor bolts in accordance with Section 420.4.G.10?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
D. Placing Concrete - General			
1. Is the temperature of structural concrete at the time of placement between 50°and 95° F?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			



# Williamson County Road Bond Program Inspection Check Lists

## Concrete Structures – Item 420

	Yes	No	NA
2. Is the temperature of each truck load of concrete for bridge slabs and top slabs of direct traffic culverts being checked and is it between 50° and 85°F?  _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Does the transporting time from the Batching Plant to the placing of concrete in the forms conform to the specification or requirements?  _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. If a pump is used to deliver concrete from the truck to the structure, is sampling for testing done at the discharge or was correlation testing performed and documented to ensure that specifications are met at the discharge end?  _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Are all forms, pre-stressed concrete panels, T-beams and concrete box beams wetted thoroughly and remaining puddles of excess water removed prior to concrete placement?  _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Does the method of handling, placing and consolidation of concrete minimize segregation of the concrete and displacement of the reinforcement?  _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Does the concrete have a free fall of five (5) feet or less except in the case of thin walls or as specified otherwise?  _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>





# Williamson County Road Bond Program Inspection Check Lists

## Concrete Structures – Item 420

	Yes	No	NA
8. Is the concrete deposited in the forms in uniform layers not more than thirty-six (36) inches in thickness unless otherwise directed by the Engineer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
9. Is the sequence of successive layers or adjacent portions of concrete such that they can be vibrated into a homogenous mass with the previously placed concrete before it sets?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
10. Is the construction sequence arranged so that cold joints in a monolithic placement is avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
11. Is the concrete vibrated immediately after placement to consolidate the concrete and have the mortar flushed to the form surfaces?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
12. Is at least one stand-by vibrator provided for emergency use in addition to those required for placement?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
13. Is the rate of placement and finish satisfactory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
14. Unless otherwise shown on the plans, for monolithic mass placements having a least dimension greater than five (5) feet, did the contractor submit a detailed plan to minimize temperature differential and meet the requirements of the Specification?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			



# Williamson County Road Bond Program Inspection Check Lists

## Concrete Structures – Item 420

	Yes	No	NA
E. Construction Joints			
1. Are all construction joints in bridge slabs of the type and at the locations shown on the plans?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
2. Are there additional bridge slab construction joints placed that are not shown on the plans?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
3. Was written authorization from the Engineer given for additional joints in these members?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>			
F. Placing Concrete in Cold Weather			
1. Is concrete placed only when the ambient temperature in the shade is 35°F and rising or above 40°F?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
2. Is the temperature maintained after placement in accordance with Section 420.4.G.11?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
G. Placing Concrete in Hot Weather			
1. Unless otherwise directed by the Engineer, is an approved retarding agent used in all concrete pours for superstructures and top slabs of direct traffic culverts when the air temperature is above 85°F?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			



# Williamson County Road Bond Program Inspection Check Lists

## Concrete Structures – Item 420

	Yes	No	NA
<b>H. Placing Concrete in Water</b>			
1. Are all classes of concrete placed under water, except Class E and Class SS, redesigned to contain an additional sack of cement per cubic yard?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
2. Is the concrete placed with a tremie meeting the requirements of Section 420.4.G.13, and is it not permitted to fall freely through the water nor disturbed after being placed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
<b>I. Placing Concrete in Superstructure</b>			
1. For simple span bridge slabs, what type of finishing machine was used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
2. If other than a mechanical longitudinal screed or a self-propelled transverse finishing machine was used, was approval given by the Engineer for small placements or unusual conditions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
<b>J. Finish of Bridge Slabs</b>			
1. Did QC Reviewer witness the dry-run with the Contractor to ensure dead load deflection, screed profile, steel elevation, tying of rebar, armor joint elevation, depth of cover, etc. was checked?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
2. Was the concrete worked with a float to ensure a smooth finish?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			



# Williamson County Road Bond Program Inspection Check Lists

## Concrete Structures – Item 420

	Yes	No	NA
3. Did QC Reviewer perform sufficient checks with a 16-ft. straight edge on the plastic concrete to ensure final surface is within specified tolerances?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
4. Did QC Reviewer continue checking and floating until the deck surface was true to grade, free of depressions, high spots, voids and rough spots?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
5. Was the surface finish achieved by using a carpet drag, burlap drag or broom?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
6. Was the finished concrete surface coated within 10 minutes with a single application of evaporation retardant at the rate recommended by the manufacturer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
7. Is the final bridge deck surface given a grooved steel tine finish approximately 1/8 to 3/16 inches deep approximately 1/8 inches wide, randomly spaced approximately 3/4 to 1 inch apart?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
8. Did the bridge deck finish meet the ride quality tolerance of 1/8 inch in ten (10) feet (10 feet straight edge test)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
9. Was the bridge deck grooved by saw-cutting in accordance with Section 420.4.I?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			



# Williamson County Road Bond Program Inspection Check Lists

## Concrete Structures – Item 420

	Yes	No	NA
K. Curing Concrete			
1. Were the curing requirements of Item 420.4.J met? (Note: See Table 1 – Please note “Exceptions to 4-Day Curing?”)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>			
<hr/>			
L. Removal of Forms and Falsework			
1. Did the Contractor remove the forms and falsework in accordance with Section 420.4.K?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>			
<hr/>			
M. Ordinary Surface Finish			
1. Unless noted otherwise in the plans, did the exposed surfaces for the following items receive an ordinary finish in accordance with Section 420.4.M?			
a. Inside and top of inlets?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Inside and top of manholes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Inside of sewer appurtenances?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Inside of culvert barrels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Bottom of bridge slab between girders or beams?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Vertical and bottom surfaces of interior concrete beams or girders?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Note: Form marks and chamfer edges do not need to be smoothed for inside of culvert barrels and bottom of bridge slabs between girders or beams.</p>			
N. Surface Finishes for Concrete (Item 427)			
1. Was the surface cleaned and patched in preparation to receive the finish coating as shown in the plans: was this work performed in accordance with the requirements of Item 427?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



# Williamson County Road Bond Program Inspection Check Lists

## Concrete Structures – Item 420

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Williamson County  
Road Bond Program  
Inspection Check Lists

Spec Item:	421 – Hydraulic Cement Concrete	Report No.:	
Description:		Date:	
Location:		Time:	

QC Reviewer: \_\_\_\_\_

Results: ☐ Accepted ☐ Not Accepted

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

QC Reviewer Signature: \_\_\_\_\_

**Portland Cement Concrete**

**Yes No NA**

**I. Materials (421.2)**

1. Do the materials used in all mixed concrete placed on the job conform to TxDOT's Department Material Specifications and other requirements of Section 421.2? ☐ ☐ ☐

2. Is the concrete mix visually checked for uniformity from the beginning to the end of each load? ☐ ☐ ☐



# Williamson County Road Bond Program Inspection Check Lists

## Hydraulic Cement Concrete – Item 421

Yes No NA

### II. Construction (421.4)

#### A. Classification and Mix Design

- |                                                                                                                              |                          |                          |                          |
|------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|--------------------------|
| 1. Are the requirements for entrained air met as outlined in Section 421.4.A.4 (Table 7)?                                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| _____                                                                                                                        |                          |                          |                          |
| _____                                                                                                                        |                          |                          |                          |
| 2. Are the requirements of Table 8 – “Slump Requirements” being met?                                                         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| _____                                                                                                                        |                          |                          |                          |
| _____                                                                                                                        |                          |                          |                          |
| 3. Is the maximum water-cement ratio exceeded?                                                                               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| _____                                                                                                                        |                          |                          |                          |
| _____                                                                                                                        |                          |                          |                          |
| 4. If question 3 is “yes”, is the ratio regularly exceeded; was a new design performed?                                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| _____                                                                                                                        |                          |                          |                          |
| _____                                                                                                                        |                          |                          |                          |
| 5. Is no water added to the concrete once discharge has begun to ensure that the maximum water-cement ratio is not exceeded? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| _____                                                                                                                        |                          |                          |                          |
| _____                                                                                                                        |                          |                          |                          |

#### B. Job Testing and Documentation

- |                                                                                                                                                                                |                          |                          |                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|--------------------------|
| 1. Was the concrete checked at the beginning of the load for slump or entrained air to prohibit placement of non-conforming material?                                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| _____                                                                                                                                                                          |                          |                          |                          |
| _____                                                                                                                                                                          |                          |                          |                          |
| 2. Is the required job site testing (strength, slump, entrained air, concrete temperature, etc.) being performed at the required frequency using proper TxDOT testing methods? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| _____                                                                                                                                                                          |                          |                          |                          |
| _____                                                                                                                                                                          |                          |                          |                          |





Williamson County  
Road Bond Program  
Inspection Check Lists

**Hydraulic Cement Concrete – Item 421**

	Yes	No	NA
3. Are the concrete tickets properly completed? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Is the amount of water withheld (based on the design water-cement ratio) at the plant shown on the concrete ticket? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. If concrete is pumped, where is sampling and testing being performed? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Were comparison tests recorded between the haul unit and the point of unit discharge after pump? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Truck Mounted Paving Mixers and Transit Mix Trucks			
1. Is each truck delivered concrete batch mixed not less than 70 nor more than 100 revolutions of the drum at the mixing speed designated by the manufacturer to produce a uniform concrete mix? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. When water is added at the job site, is the batch mixed a minimum of 25 revolutions at mixing speed? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Concrete Batch Ticket

Ticket No:

Date:

Material Information

MAT'L	Identification*	Am't Batched
AEA		oz.
RA		oz.
WRA		oz.
		oz.
CA <sub>1</sub>		lbs.
CA <sub>2</sub>		lbs.
FA <sub>1</sub>		lbs.
Cement		lbs.
Fly Ash		lbs.
		lbs.
		lbs.
		lbs.

AT PLANT									
Plant	Des. No.				Truck No.				
CY	County	Project		CCSJ					
Class	Air Temp	°F	Mixer Chg'd.		<input type="checkbox"/> AM	MAX TIME			
					<input type="checkbox"/> PM				
*%Moist	CA <sub>1</sub>	CA <sub>2</sub>	CA <sub>3</sub>	CA <sub>4</sub>	FA <sub>1</sub>	FA <sub>2</sub>			
Water:	Added (gal).		Ice. (lbs)		Max. (gal)				
Rev. Const.:	Beg.	End			Mix Rev.				
Remarks									
Plant Inspector Signature									
AT JOBSITE									
Structure	Location in Str.								
Water	Added (gal).		Ice (lbs).						
Rev. Constr.	Beg.	End.			Mix Rev.				
*Slump	%Air		*Conc. Temp		°F	*Unit Weight		Lbs/ft <sup>3</sup>	
*Bm. Or Cyl. Nos	Target Value		psi		Mixer Unloaded		<input type="checkbox"/> AM	<input type="checkbox"/> PM	
Remarks									
Plant Inspector Signature									



Williamson County  
Road Bond Program  
Inspection Check Lists

Spec Item: 422 – Reinforced Concrete Slab Report No.:  
Description: Date:  
Location: Time:

QC Reviewer:

Results: ☐ Accepted ☐ Not Accepted

Remarks:

QC Reviewer Signature:

**Reinforced Concrete Slab**

**Yes No NA**

**I. Materials (422.2)**

1. Are the materials furnished by the Contractor in accordance with the referenced Items of work and meet the requirements of Section 422.2? ☐ ☐ ☐

**II. Construction (422.3)**

**A. Pre-placement**

1. Is all placing, finishing and curing equipment in place and operational? ☐ ☐ ☐



# Williamson County Road Bond Program Inspection Check Lists

## Reinforced Concrete Slab – Item 422

	Yes	No	NA
2. Has a dry runoff the equipment been done? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Has the proper clear cover for the rebar been checked? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Does screed clear at the armor joints? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Are drains and grates at plan location and elevation? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Is sufficient plastic and curing blankets available in case of inclement weather after the pour begins? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Are forms, deck panels, beams and every element that the fresh concrete will come in contact with properly wetted? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. During Placement			
1. Has placement begun at the low end on spans with a profile grade of 1.5% or more? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Are proper clear cover depths being checked at the frequency shown in the Test Guide Schedule? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



# Williamson County Road Bond Program Inspection Check Lists

## Reinforced Concrete Slab – Item 422

	Yes	No	NA
3. Is concrete being placed between exterior and adjacent beams prior to placing concrete on overhangs? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Is the application of evaporation retardant and curing compound being applies at the times required by specification and at the rates identified by the manufacturer? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Post Placement			
1. Is the final surface within specification tolerances when checked with a 16-ft straightedge? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has concrete attained a compressive strength in accordance with Section 420.4.A and Table 5 of Section 421.4 prior to removing forms or introducing loads? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. If deck grooves are saw cut, were they installed in accordance with Section 420.4.I? _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Williamson County  
Road Bond Program  
Inspection Check Lists

Spec Item: 423 – Retaining Wall Report No.:  
Description: Date:  
Location: Time:

QC Reviewer:

Results: ☐ Accepted ☐ Not Accepted

Remarks:

QC Reviewer Signature:

**Retaining Wall**

**Yes No NA**

**I. Materials (432.2)**

1. Do the materials furnished by the Contractor meet the requirements of the referenced Items of work and other requirements of Section 432.2?

2. For non-reinforced cast-in-place, was “Class A” concrete used?

☐ ☐ ☐

3. For reinforced cast-in-place, was “Class C” concrete used?

☐ ☐ ☐



# Williamson County Road Bond Program Inspection Check Lists

## Retaining Wall – Item 423

	Yes	No	NA
4. Are precast panels fabricated with “Class H” concrete with compressive strength breaks of 4,000 psi or greater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
5. If machine-made concrete block units are used, were they cast in accordance with ASTM C-90, Class 1, Type II and meet the 28-day compressive strength of 4,000 psi with maximum moisture absorption of 7%?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
6. If machine-made concrete block units are used, were they sampled and tested in accordance with ASTM C-140 and are the molded dimensions within 1/8” tolerance, except where height must be within 1/16”?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
7. For filter fabric used in the Retaining Wall System, is it UV-resistant and does the material meet the requirements of DMS-6200?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
8. Are approved joint fillers, pads, waterstops, etc. used as shown in the plans?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
9. Does the retaining wall design service life meet the requirements of Section 423.3B?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
10. Does the backfill material conform to the gradation and other requirements stated in the plans and/or Item 423.C.2: Table 2 and Item 423.3.C.3: Table 3?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			



# Williamson County Road Bond Program Inspection Check Lists

## Retaining Wall – Item 423

### II. Construction (423.2)

**Yes   No   NA**

1. Is the foundation for the structure graded level and compacted with a roller approved prior to wall construction? (Hold Point)

☐   ☐   ☐

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2. Are any foundation soils found to be unsuitable removed and replaced?

☐   ☐   ☐

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3. Is filter fabric placed behind all wall joints, and at the intersection of retaining walls with other structures, including riprap?

☐   ☐   ☐

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4. Does the filter fabric cover joints a minimum of 6 inches on each side and is it positively held in place?

☐   ☐   ☐

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5. As select fill material is placed behind the wall panels, are the panel alignments maintained by acceptable bracing methods?

☐   ☐   ☐

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6. Do vertical tolerances and horizontal alignment tolerance not exceed  $\frac{3}{4}$ " when measured along the wall with a 10-foot straight edge?

☐   ☐   ☐

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7. Is the overall vertical tolerance of the wall (plumbness from top to bottom) within  $\frac{1}{2}$ " per 10-feet of wall height?

☐   ☐   ☐

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8. Does the backfill placement closely follow the erection of each lift of panels, and is it placed in 8" lifts and compacted to 95% of density?

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# Williamson County Road Bond Program Inspection Check Lists

## Retaining Wall – Item 423

	Yes	No	NA
9. At each reinforcement level, is the backfill leveled and compacted before placing the reinforcement?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
10. Is adjacent embankment placed to approximately the same level as the backfill material?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Note: Do not create a continuous, distinct, vertical joint between the select and embankment backfill.</p> <hr/> <hr/>			
11. Is compaction in the 3-foot strip adjacent to the backside of the wall accomplished with hand operated or walk-behind compacter?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
12. If rock backfill is used as select material, was a filter fabric layer placed before placing the last 2 feet of backfill immediately below the pavement structure or top of wall?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Note: Overlap splices by at least 18”.</p> <hr/> <hr/>			
13. Does the upper 2 feet of rock backfill contain no stones larger than 3” in their greatest dimension and is it composed of material with sufficient fines to fill the voids in a compacted state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
14. Is the wall being constructed in accordance with the details shown on the plan sheets and/or construction drawings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
15. If construction drawings are used to show the construction details, does the Reviewer have (or have access to) a copy of these drawings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			



# Williamson County Road Bond Program Inspection Check Lists

## Retaining Wall – Item 423

	Yes	No	NA
16. Are proper spacers provided between panels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>			
<hr/>			
17. Is grading and drainage maintained adjacent to the wall during construction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>			
<hr/>			
18. If temporary MSE walls are used, were the walls constructed in accordance with Section 423.3.F requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>			
<hr/>			
19. If Concrete Block Retaining Walls are used, were the walls constructed in accordance with Section 423.3.G?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/>			
<hr/>			



# Williamson County Road Bond Program Inspection Check Lists

Spec Item:	425 – Precast Pre-stressed Concrete Structural Members	Report No.:	
Description:		Date:	
Location:		Time:	
QC Reviewer:			
Results:	<input type="checkbox"/> Accepted	<input type="checkbox"/> Not Accepted	
Remarks:			
QC Reviewer Signature:			

Precast/Pre-stressed Concrete Structural Members	Yes	No	NA
I. Materials (425.2)			
1. Do the materials incorporated in the Precast Pre-stressed Concrete Structural Members conform to the reference items of work, TxDOT's Department Material Specifications and other requirements of Section 425.2?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Did the Contractor provide manufacturer's certifications for bedding strips and use adhesives or bonding agents as recommended by the polystyrene manufacturer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



# Williamson County Road Bond Program Inspection Check Lists

## Precast Pre-stressed Concrete Structural Members – Item 425

	Yes	No	NA
II. Construction (425.3)			
1. Are beams, bridge deck panels and bearing pads approved by TxDOT and is the TxDOT stamp on them?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
2. Do beams have any signs of damage such as cracks, spalling and/or “honeycombs”?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
3. Are dimensions correct?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
4. During erection of beams, did the Contractor securely tie or brace all beams in accordance with minimum erection and bracing standards?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
5. Are any safety hazards apparent (power lines, traffic hazards or other construction activities)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
6. Have beams been erected to proper alignment as shown on the plans?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
7. Are beams positioned with the proper clearance from the abutment back-wall and adjacent beam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			



Williamson County  
Road Bond Program  
Inspection Check Lists

Spec Item: 440 – Reinforcing Steel Report No.:  
Description: Date:  
Location: Time:

QC Reviewer:

Results: ☐ Accepted ☐ Not Accepted

Remarks:

QC Reviewer Signature:

**Reinforcing Steel**

**Yes No NA**

**I. Materials (440.2)**

1. Does the reinforcing steel to be welded comply with ASTM A706 or have a carbon equivalency of not more than 0.55%? ☐ ☐ ☐

2. Do the electrodes used for welding conform to the requirements of Item 448.2 for the type of reinforcing steel used? ☐ ☐ ☐



# Williamson County Road Bond Program Inspection Check Lists

## Reinforcing Steel – Item 440

	Yes	No	NA
3. Does the person performing the welding operation have welder certification paper issued by TxDOT that covers the type of work he/she is performing? (448.4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
4. Is an oven used to dry and store electrodes with low hydrogen coverings for the times and at the temperatures required? (448.4.C)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
5. Is the rebar used on the job from an approved Mill as required by Section 440.2.A?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
6. Unless otherwise shown on the plans, is the deformed rebar Grade 60 as required by Section 440.2.B?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
7. For Epoxy Coated Rebar, is the coated reinforcing steel in accordance with Table 3 (440.2.F)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
8. Are mechanical couplers used when reinforcing steel is spliced?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
9. Are all couplers furnished by the Contractor produced by a pre-qualified manufacturer? (DMS-4510)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
10. Before being used, are the couplers sampled and tested as required in Item 440.2.G and do they meet all requirements? (DMS-4510)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			



# Williamson County Road Bond Program Inspection Check Lists

## Reinforcing Steel – Item 440

	Yes	No	NA
II. Construction (440.3.C)			
1. Is steel reinforcement adequately stored above the surface of the ground upon platforms, skids or other supports and protected from damage and deterioration?  _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. In final placement, is the reinforcement free from dirt, paint, grease, oil or other foreign materials and from defects such as cracks and delaminations?  _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Are lap-splice, weld-splice, or mechanically spliced bars placed as shown on the plans and meet the requirements of Section 440.3.D and Table 5 “Minimum Lap Requirements by Bar Size”?  _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If not, was written approval given by the Engineer for additional splices?  _____ _____			
4. In the plane of the steel parallel to the nearest surface of concrete, do the bars vary from plan placement by not more than 1/12 of the spacing between bars?  _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. In the plane of the steel perpendicular to the nearest surface of concrete, do the bars vary from plan placement by not more than 1/4”?  _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Is the depth of cover (concrete) to the nearest surface of steel at least 1” unless otherwise shown on the plans?  _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Williamson County  
Road Bond Program  
Inspection Check Lists

**Reinforcing Steel – Item 440**

	Yes	No	NA
7. For bridge slabs, is the clear cover tolerance for the top mat of reinforcement 0" to 1/2"?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
8. Are bars of the proper size, location and quantity as shown on the plans?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
9. a. What type of bar supports are used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
b. Are the bar supports adequate in strength and number to hold the reinforcement in place, before and during concrete placement?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
If not, is concrete placement halted until corrective measures are taken?			
<hr/> <hr/>			
c. If individual bar supports are used, are they placed in rows at 4 ft. maximum spacing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
d. If continuous type bar supports are used, are they placed in rows at 4 ft. maximum spacing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
e. Are continuous type bar supports used when permanent metal deck forms are used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			





# Williamson County Road Bond Program Inspection Check Lists

## Reinforcing Steel – Item 440

	Yes	No	NA
10. Are all accessories used with epoxy coated reinforcement such as tie wires, bar chairs, supports or clips made of steel, fully coated with epoxy or plastic? <hr/> <hr/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Has all visible damage to the coating been repaired in accordance with Section 440.3.F.3 before the reinforcement is used? <hr/> <hr/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Is any cutting of coated reinforcement done only by sawing or shear cutting with permission of the Engineer? <hr/> <hr/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Have all cut ends been coated before the reinforcement is used? <hr/> <hr/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



# Williamson County Road Bond Program Inspection Check Lists

Spec Item:	442 – Metal for Structures	Report No.:	
Description:		Date:	
Location:		Time:	

QC Reviewer: \_\_\_\_\_

Results: ☐ Accepted ☐ Not Accepted

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

QC Reviewer Signature: \_\_\_\_\_

## Metal for Structures

Yes No NA

### I. Materials (442.2)

#### A. Non-Bridge Structures:

1. Was the structural steel delivered and used within the project tested in accordance with ASTM A370? ☐ ☐ ☐

\_\_\_\_\_

2. Does the type and grades of steel used by the Contractor in accordance with the listing in Section 442.2.2.A or as shown on the plans? ☐ ☐ ☐

\_\_\_\_\_



# Williamson County Road Bond Program Inspection Check Lists

## Metal for Structures – Item 442

Yes No NA

3. Have tension members and other components listed in Section 442.2.2.B been impact tested and do the test results conform with the Charpy V-notch (CVN) requirements of Table 1 within the above stated section?

☐ ☐ ☐

B. Other Components such as Shear Connectors, Anchors, Fasteners, Slip-resistant Deck Plates and Rail Posts:

1. Do the materials supplied to the project under this section have a certification of material properties from the manufacturer?

☐ ☐ ☐

2. Do the materials meet the ASTM requirements as shown in Section 442.2.3 per category description and tested in accordance with section requirements?

☐ ☐ ☐

C. Forgings, Castings and Extrusions (442.2.B, C, D, E, F, G):

1. Do the components under this category meet the ASTM, class, grade and/or alloy-temper as required in accordance by Section 442.2.B, C, D, E, F, G?

☐ ☐ ☐

II. Construction Methods (442.3)

1. Was the structural metal fabricated, welded and erected in accordance with Item 441, “Steel Structures”; Item 447, “Structural Bolting; Item 448, “Structural Field Welding”; and applicable AWS welding codes?

☐ ☐ ☐

2. Were the fabricated and erected structural metal members painted in accordance with Item 446, “Cleaning and Painting Steel”?

☐ ☐ ☐



Williamson County  
Road Bond Program  
Inspection Check Lists

**Metal for Structures – Item 442**

**Yes   No   NA**

3. When specified in the plans, was the fabricated steel items galvanized in accordance with Item 445, “Galvanizing”?

☐   ☐   ☐

\_\_\_\_\_  
\_\_\_\_\_

4. Were field repairs to the painting or galvanizing of fabricated and erected steel items performed in accordance with Item 446, “Cleaning and Painting” or Item 445, “Galvanizing”?

☐   ☐   ☐

\_\_\_\_\_  
\_\_\_\_\_



Williamson County  
Road Bond Program  
Inspection Check Lists

Spec Item:	462 – Concrete Box Culverts & Storm Drains	Report No.:	
	464 – Reinforced Concrete Pipe		
Description:		Date:	
Location:		Time:	

QC Reviewer: \_\_\_\_\_

Results: ☐ Accepted ☐ Not Accepted

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

QC Reviewer Signature: \_\_\_\_\_ :

**Concrete Box Culverts & Storm Drains/Reinforced Concrete Pipe**

**Yes No NA**

**I. Materials (462.2 and 464.2)**

**A. Reinforced Concrete Pipe, Concrete Box Culverts and Storm Drains**

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1. Were the individual sections of pipe or pre-cast boxes inspected and rejected if they do not have the Division of Materials and Tests monogram on them?

\_\_\_\_\_  
\_\_\_\_\_

☐ ☐ ☐

2. For cast-in-place or pre-cast box culverts and storm drains, do the materials and method of fabrication comply with the requirements of Section 462.2.A, B?

\_\_\_\_\_  
\_\_\_\_\_



# Williamson County Road Bond Program Inspection Check Lists

## Concrete Box Culverts & Storm Drains – Item 462 Reinforced Concrete Pipe – Item 464

	Yes	No	NA
3. For cast-in-place box culverts and storm drains, during fabrication, did test specimens meet the requirements of Item 421, “Hydraulic Cement Concrete”; Item 440, “Reinforcing Steel” and conform to the requirements of Item 420, “Concrete Structures”?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
4. Were the individual sections of pipe or pre-cast boxes inspected at the project site and repaired or rejected if any of the defects are found?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
5. Were pre-cast sections inspected to ensure they meet the tolerance in accordance with Section 462.2.F?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
6. Are cracks which extend into the plane of the reinforcing steel repaired in an approved manner?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
7. Are small damaged or honeycombed areas which are purely surface in nature repaired to the satisfaction of the Engineer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
8. Are precast sections stored on level blocking in a manner acceptable to the Engineer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			
9. Are lifting holes larger than 3” diameter?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<hr/> <hr/>			



# Williamson County Road Bond Program Inspection Check Lists

## Concrete Box Culverts & Storm Drains – Item 462 Reinforced Concrete Pipe – Item 464

### B. Jointing Materials

**Yes No NA**

1. For all jointing materials except mortar, has the Contractor furnished the Engineer the Manufacturer's Certificate of Compliance that complies with the requirements in Section 464.2.I?

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### II. Construction (462.3 and 464.3)

#### A. Laying Pipe and Pre-cast Boxes

1. Unless otherwise authorized by the Engineer, did the Contractor start the laying of pipe or present boxes on the bedding at the outlet end with the spigot or tongue pointing downstream and proceed toward the inlet end with the abutting sections properly matched, true to the established lines and grade?

☐ ☐ ☐

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\_\_\_\_\_

2. Is proper equipment provided for hoisting and lowering the sections of pipe or pre-cast boxes into the trench without disturbing the bedding and the sides of the trench?

☐ ☐ ☐

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\_\_\_\_\_

3. Are the ends of the pipe or precast boxes carefully cleaned, if necessary?

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\_\_\_\_\_

4. Is the pipe or pre-cast boxes fitted and matched so that when laid in the bed, it forms a smooth uniform conduit?

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\_\_\_\_\_

5. Are multiple installations of reinforced concrete pipe (RCP) laid with the center lines of individual barrels parallel?

☐ ☐ ☐

\_\_\_\_\_  
\_\_\_\_\_



# Williamson County Road Bond Program Inspection Check Lists

## Concrete Box Culverts & Storm Drains – Item 462 Reinforced Concrete Pipe – Item 464

**Yes    No    NA**

6. Unless otherwise shown on the plans for multiple installations for RCP, are the clear distances between outer surfaces of adjacent pipes as shown in Item 464.3.B (Table 5)?

☐    ☐    ☐

\_\_\_\_\_  
\_\_\_\_\_

7. Is the area for placement of structures excavated, shaped and the structures bedded and backfilled in accordance with Item 400, “Excavation and Backfill Structures”?

☐    ☐    ☐

\_\_\_\_\_  
\_\_\_\_\_

8. Unless otherwise shown on the plans or permitted in writing by the Engineer, did heavy earth moving equipment haul over the structure before a minimum of 4-feet of compacted fill was placed over the top of the structure?

☐    ☐    ☐

\_\_\_\_\_  
\_\_\_\_\_

9. Is pipe or pre-cast boxes damaged by the Contractor’s equipment removed and replaced or repaired by an approved method by the Engineer?

☐    ☐    ☐

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\_\_\_\_\_

### B. Jointing for Pipes, Concrete Box Culverts and Storm Drains

1. Does the mortar consist of one part cement, two parts sand, and sufficient water to make a plastic mix?

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\_\_\_\_\_  
\_\_\_\_\_

2. Are the structure ends cleaned and wetted before making the joint?

☐    ☐    ☐

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\_\_\_\_\_

3. After the structures are tightly jointed, is the mortar packed into the joint from both inside and outside the structure, and then the inside finished smooth and flush with adjacent joints of structure?

☐    ☐    ☐

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\_\_\_\_\_





# Williamson County Road Bond Program Inspection Check Lists

## Concrete Box Culverts & Storm Drains – Item 462 Reinforced Concrete Pipe – Item 464

**Yes   No   NA**

4. Are mortar joints cured by keeping the joints wet for at least 48 hours or until the backfill operation begins after the mortar joint has cured for at least 6 hours?

☐   ☐   ☐

5. Is no mortar jointing done when the atmospheric temperature is at or below 40°F?

☐   ☐   ☐

6. Are mortared joints protected against freezing by backfilling or other approved methods for at least 24 hours?

☐   ☐   ☐

### C. Joints using Cold-Applied, Plastic Asphalt Sewer Joint Compound

1. Are both ends of the structure clean and dry at the time the joint is made?

☐   ☐   ☐

2. Was a ½" thick layer of the compound troweled or otherwise placed in the groove end of the structure covering not less than two-thirds of the joint face around the entire circumference before the tongue end of the next structure is shoved home with sufficient pressure to make a tight joint?

☐   ☐   ☐

3. After the joint is made, is any excess mastic projecting into the structure removed?

☐   ☐   ☐

### D. Joints Using Rubber Gasket

1. Where rubber gasket joints are required by the plans, is the joint assembly made according to the recommendations of the gasket manufacturer?

☐   ☐   ☐



# Williamson County Road Bond Program Inspection Check Lists

## Concrete Box Culverts & Storm Drains – Item 462 Reinforced Concrete Pipe – Item 464

**Yes   No   NA**

2. When using rubber gaskets, are the joints water tight?

☐ ☐ ☐

\_\_\_\_\_  
\_\_\_\_\_

### E. Joints Using Pre-formed Flexible Joint Sealants

1. Are the joints placed according to the procedure shown in Article 464.3.C.4 and the manufacturer's recommendations?

☐ ☐ ☐

\_\_\_\_\_  
\_\_\_\_\_

2. Is the joint sealer placed in such manner that no dirt or other deleterious materials will come in contact with the joint sealing material?

☐ ☐ ☐

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\_\_\_\_\_

3. When the atmospheric temperature is below 60°F, are plastic joint seal gaskets either stored in an area warmed to above 70°F or artificially warmed to this temperature in a manner satisfactory to the Engineer?

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### F. Connections and Stub Ends for Pipes, Concrete Box Culverts and Storm Drains

1. Is the bottom of existing structures mortared or concreted if necessary to eliminate any drainage pockets created by the connections?

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2. Is any damage to the existing structure resulting from making the connection satisfactorily repaired by the Contractor?

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3. Unless otherwise shown on the plans, are the connections between concrete pipe and corrugated metal pipe made with a suitable concrete collar having a minimum thickness of 4"?

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# Williamson County Road Bond Program Inspection Check Lists

## Concrete Box Culverts & Storm Drains – Item 462 Reinforced Concrete Pipe – Item 464

	Yes	No	NA
4. Are stub ends, for connections to future work not shown on the plans, finished by installing watertight plugs into the free end of the pipe? <hr/> <hr/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. For precast boxes, fill lifting holes with mortar or concrete and cure or precast concrete mortar plugs may be used. Have the holes been filled accordingly prior to backfill? <hr/> <hr/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

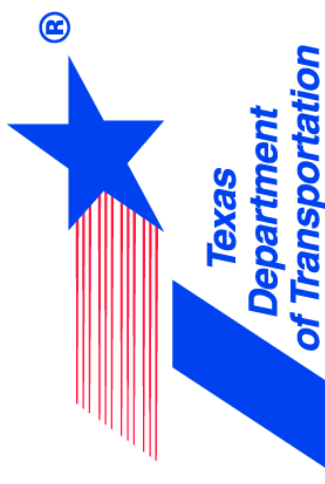
## **APPENDIX B**

### **GUIDE SCHEDULE OF SAMPLING AND TESTING**

# GUIDE SCHEDULE OF SAMPLING & TESTING

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MARCH 2015



## Using the Guide Schedule

Research of sampling and testing rates listed for project tests in the following Guide Schedule show that the Department's and the Contractor's risk of either rejecting "good" material or accepting "bad" material range from 20% to 40%.

To reduce this risk, we recommend that the sampling rate be increased during initial production. A four-fold increase in testing frequency will generally reduce risk to approximately 5%. The intent of increasing testing at the start of production is to insure that the Contractor's processes are in control and to establish acceptability requirements early.

There is a need to increase the frequency of testing for high-variability materials and when testing results do not meet specifications. The Engineer may require the Contractor to reimburse the Department for costs resulting from failing test results, in accordance with the specifications.

Materials incorporated in TxDOT projects are subjected to various quality assurance procedures such as testing (as outlined in this document), certification, quality monitoring, approved lists, etc. The Engineer and testing staff should familiarize themselves with materials to be used before work begins by reviewing the specifications and this document. Discuss material testing requirements with the Contractor.

Other testing required by the specifications, but not shown in the Guide Schedule, should be performed at a frequency necessary to provide adequate confidence that materials meet specifications.

NOTE: For projects subject to FHWA construction oversight activities, use the "[Letter of Certification of Materials Used](#)" to document reasons for material acceptance when a test fails. For all other projects, document the justification and explanation for acceptance of materials that fail project tests in the project file.

Assuring the quality of the product and proper incorporation of materials into the project begins with proper sampling practices. Sampling, testing, and construction inspection must be performed collaboratively to assure the specific attributes of the finished product reflect quality workmanship. Sampling guidance for hot-mixed asphalt is contained in Tex-225-F, Random Selection of Bituminous Mixture Samples, and the respective specification for that material. All remaining materials are covered by method and materials specifications, to which the following applies.

For acceptance testing, especially that which directly determines payment for the Contractor, sampling personnel should provide randomness in sampling by avoiding patterned sampling routines. Examples of such sampling practices are as follows:

- Soils/flexible base: Vary sampling between stockpiling operations, completed stockpile, windrow, and project site. Vary the time of day sampling is performed.
- Aggregates: Sample aggregates nearest the point of incorporation into the work. Vary sampling between stockpiling operations, completed stockpile, belt sampling, and if deemed necessary, railroad cars/trucks. Vary the time of day sampling is performed.
- Concrete (structural and miscellaneous): Always sample as near as practicable to the point of placement. For strength testing, vary the time of day or the number of truck from which the concrete is sampled. Tests for slump, air, and temperature should be done often to ensure the consistent control of the concrete production (not applicable to miscellaneous concrete).

***This Guide Schedule is applicable to all contracts associated with the 2014 Standard Specifications.***

This is a guide for minimum sampling and testing.  
Testing frequency may need to be increased for high material variability or when test results approach specification limits.

**TABLE I – EMBANKMENTS, SUBGRADES, BACKFILL, AND BASE COURSES**

		PROJECT TESTS			
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION OR TIME OF SAMPLING (D)	FREQUENCY OF SAMPLING (F)	REMARKS
EMBANKMENT (CUTS & FILLS)	Liquid Limit (A)	Tex-104-E	During stockpiling operations, from completed stockpile, or project site (B)	Materials with PI ≤ 15: 10,000 CY	For type A embankment or when required by the plans. This test may be waived for embankment cuts as directed by the Engineer. Determine a new liquid limit and plasticity index for each different material or notable change in material. Sample in accordance with Tex-100-E.
	Plasticity Index (A)	Tex-106-E		Materials with PI > 15: 5,000 CY	
	Gradation	Tex-110-E		Each 10,000 CY	
	Moisture/Density	Tex-114-E	As designated by the Engineer	As directed by the Engineer	Not required for ordinary compaction. Determine a new optimum moisture and maximum density for each different material or notable change in material. Sample in accordance with Tex-100-E.
	In-place Density (A)	Tex-115-E		Fill: each 5,000 CY min. 1 per lift.  Cut: each 6,000 LF	Not required for ordinary compaction. Determine a new optimum moisture and maximum density according to Tex-114-E for each different material or notable change in material. Correct the moisture contents measured by nuclear density gauge in Tex-115-E with the moisture contents determined in accordance with Tex-103-E, as necessary for control, for each different material or notable change in material and adjust the density accordingly. Materials such as RAP, gypsum, lime, cement, and iron ore tend to bias the counts for nuclear density gauges.
RETAINING WALL (NON-SELECT BACKFILL)	As shown above for Embankment (Cuts and Fills)		As shown above for Embankment (Cuts and Fills)	As shown above for Embankment (Cuts and Fills)	Sample in accordance with Tex-100-E.
RETAINING WALL (SELECT BACKFILL)	Gradation	Tex-110-E	During stockpiling operations, from completed stockpile, or project site (B)	Each 5,000 CY	Sample in accordance with Tex-400-A.
	Resistivity (A)	Tex-129-E	During stockpiling operations, from completed stockpile, or project site (B)	Each 5,000 CY	For material with resistivity between 1,500 and 3,000 ohm-cm, determine chloride and sulfate content, as specified in Item 423. Sample in accordance with Tex-400-A.
	pH (A)	Tex-128-E	During stockpiling operations, from completed stockpile, or project site (B)	Each 5,000 CY	Sample in accordance with Tex-400-A.

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TABLE I – EMBANKMENTS, SUBGRADES, BACKFILL, AND BASE COURSES					
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	PROJECT TESTS		REMARKS
			LOCATION OR TIME OF SAMPLING (D)	FREQUENCY OF SAMPLING (F)	
RETAINING WALL (SELECT BACKFILL) (continued)	Soundness	Tex-411-A	During stockpiling operations, or from completed stockpile	1 per source, per project	Test when backfill sources appear to contain particles such as shale, caliche, or other soft, poor-durability particles. Sample in accordance with Tex-400-A.
	In-place Density (A)	Tex-115-E	As designated by the Engineer.	1 per backfill lift, per wall	Not required for rock backfill. For walls greater than 500 ft. in length, perform one test per lift for every 500 ft. in length. (F) Correct the moisture contents measured by nuclear density gauge in Tex-115-E with the moisture contents determined in accordance with Tex-103-E for each different material or notable change in material and adjust the density accordingly.
UNTREATED BASE COURSES	Liquid Limit (A)	Tex-104-E	During stockpiling operations, from completed stockpile, or windrow (B)	Each 5,000 CY	Sample in accordance with Tex-400-A.
	Plasticity Index (A)	Tex-106-E	During stockpiling operations, from completed stockpile, or windrow (B)	Each 5,000 CY	
	Gradation (A)	Tex-110-E	During stockpiling operations, from completed stockpile, or windrow (B)	Each 5,000 CY	Sample in accordance with Tex-400-A.
	Moisture/Density	Tex-113-E	From completed stockpile at the source (E)	Each 20,000 CY	Not required for ordinary compaction. Sample in accordance with Tex-400-A.
	Wet Ball Mill (A)	Tex-116-E	From completed stockpile at the source (E)	Each 20,000 CY	As required by the plans. Sample in accordance with Tex-400-A.
	Strength (A)	Tex-117-E	From completed stockpile at the source (E)	Each 20,000 CY	As required by the plans. When base material is from a source where the District has a record of satisfactory triaxial results, the frequency of testing may be reduced to one per 30,000 CY. If any one test falls below the minimum value required, the frequency of testing will return to the original frequency of 20,000 CY. Sample in accordance with Tex-400-A.



This is a guide for minimum sampling and testing.  
Testing frequency may need to be increased for high material variability or when test results approach specification limits.

TABLE I – EMBANKMENTS, SUBGRADES, BACKFILL, AND BASE COURSES					
		PROJECT TESTS			
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION OR TIME OF SAMPLING (D)	FREQUENCY OF SAMPLING (F)	REMARKS
UNTREATED BASE COURSES	In-place Density (A)	Tex-115-E	As designated by the Engineer	Each 3,000 CY, min. 1 per lift	Correct the moisture contents measured by nuclear density gauge in Tex-115-E with the moisture contents determined in accordance with Tex-103-E; as necessary for control, for each different material or notable change in material and adjust the density accordingly. Materials such as RAP, gypsum, lime, cement, and iron ore tend to bias the counts for nuclear density gauges.
	Thickness (A)	Tex-140-E	As designated by the Engineer	Each 3,000 CY	Not required where survey grade control documents compliance.
	Organic Content	Tex-148-E	As designated by the Engineer	1 per 500 linear feet or 5,000 CY	Required for existing subgrade material and material imported from a borrow source. Soil survey and geologic maps may be used to determine sampling locations.
TREATED SUBGRADE AND BASE COURSES	Sulfate Content	Tex-145-E	As designated by the Engineer	1 per 500 linear feet or 5,000 CY	Sample in accordance with Tex-100-E. Required for existing subgrade material and material imported from a borrow source. Soil survey and geologic maps may be used to determine sampling locations.
	Liquid Limit (A)	Tex-104-E	During stockpiling operations, from completed stockpile, or windrow (B)	Each 5,000 CY	Sample in accordance with Tex-100-E. When central mix site or plant is used, windrow sampling may be waived. Sample in accordance with Tex-400-A.
	Plasticity Index (A)	Tex-106-E	During stockpiling operations, from completed stockpile, or windrow (B)	Each 5,000 CY	
	Gradation (A)	Tex-110-E	During stockpiling operations, from completed stockpile, or windrow (B)	Each 5,000 CY	Sample in accordance with Tex-400-A.
	Wet Ball Mill (A)	Tex-116-E	From completed stockpile at the source (E)	Each 20,000 CY	As required by the plans. Sample in accordance with Tex-400-A.

This is a guide for minimum sampling and testing.  
Testing frequency may need to be increased for high material variability or when test results approach specification limits.

TABLE I – EMBANKMENTS, SUBGRADES, BACKFILL, AND BASE COURSES					
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	PROJECT TESTS		REMARKS
			LOCATION OR TIME OF SAMPLING (D)	FREQUENCY OF SAMPLING (F)	
TREATED SUBGRADE AND BASE COURSES	NEW BASE MATERIAL	Strength (A)	Tex-117-E	From completed stockpile at the source (E)	Each 20,000 CY
	LIME	Compliance with DMS-6350	Tex-600-J	During delivery to project	Commercial Lime Slurry: each 200 tons of lime Carbide Lime Slurry: each 100 tons of lime
	CEMENT	Compliance with DMS-4600		Railroad car, truck, or cement bins	Verify the source is listed in the current Material Producer List for Cement. If not, sample and test in accordance with DMS-4600. (C)
	FLY ASH MATERIAL	Compliance with DMS-4615		Project samples at location designated by the Engineer	Verify the source is listed in the current Material Producer List for Fly Ash. Only materials from CSTM&P approved sources listed in the Material Producer List for Fly Ash will be accepted. Project testing is not required but it is encouraged to sample and test the material at a rate of 1 per project as a best practice. (C)
	COMPLETE MIXTURE	Pulverization Gradation	Tex-101-E Part III	Roadway, after pulverization and mixing	As necessary for control
		Soil-Cement Testing Soil-Lime Testing	Tex-120-E (Part II), or Tex-121-E (Part II)	From roadway windrow after treatment (E)	Each 20,000 CY

**TABLE I – EMBANKMENTS, SUBGRADES, BACKFILL, AND BASE COURSES**

MATERIAL OR PRODUCT		TEST FOR	TEST NUMBER	PROJECT TESTS		REMARKS
				LOCATION OR TIME OF SAMPLING (D)	FREQUENCY OF SAMPLING (F)	
TREATED SUBGRADE AND BASE COURSES	COMPLETE MIXTURE	Soil-Cement Testing Soil-Lime Testing	Tex-120-E (Part I) Tex-121-E (Part I) or Tex-127-E	From roadway windrow after treatment	As necessary for control	Perform Tex-120-E Part I on cement treated material, Tex-121-E Part I for lime-fly ash or fly ash treated material. Verifies the field strength by comparing results from the mix design. Performed at the discretion of Engineer. Sample in accordance with Tex-100-E.
		In-place Density (A)	Tex-115-E	As designated by the Engineer	Each 3,000 CY, min 1 per lift	Determine the appropriate moisture/density curve for each different material or notable change in material. Correct the moisture contents measured by nuclear density gauge in Tex-115-E with the moisture contents determined in accordance with Tex-103-E, as necessary for control, for each different material or notable change in material and adjust the density accordingly. Stabilizers and materials such as RAP, gypsum and iron ore tend to bias the counts for nuclear density gauges.
		Thickness (A)	Tex-140-E	As designated by the Engineer	Each 3,000 CY	Not required where survey grade control documents are used for compliance
RECLAIMED ASPHALT PAVEMENT (RAP), CRUSHED CONCRETE, and RECYCLED MATERIALS		Sulfate Content	Tex-145-E	During stockpiling operations, from completed stockpile, or windrow	Each 5,000 CY	Required only for contractor furnished recycled material, including crushed concrete. Not required for RAP. Sample in accordance with Tex-400-A
		Deleterious Material	Tex-413-A		Each 5,000 CY	Required only for contractor furnished recycled material, including crushed concrete. Sample in accordance with Tex-400-A.
		Decantation	Tex-406-A	During stockpiling operations, from completed stockpile, or windrow	Each 5,000 CY	Required only for contractor furnished RAP. Sample in accordance with Tex-400-A.

This is a guide for minimum sampling and testing.  
 Testing frequency may need to be increased for high material variability or when test results approach specification limits.

TABLE I – FOOTNOTES	
<b>A</b>	When this project acceptance test fails but the product is accepted, document the reasons for acceptance on the Letter of Certification of Materials Used or in the SiteManager Remarks field.
<b>B</b>	Engineer will select any of these locations or any combinations thereof with the provision that the initial sample will be obtained from the completed stockpile at the source and at least one out of ten consecutive samples will be taken at the project site (from the windrow for treated and untreated bases and embankments when possible).
<b>C</b>	Attach the corresponding QM test report for SiteManager projects to satisfy project sampling and testing requirements.
<b>D</b>	<p>For acceptance testing, especially that which directly determines payment for the Contractor, sampling personnel should provide randomness in sampling by avoiding patterned sampling routines. Examples of such sampling practices are as follows:</p> <ul style="list-style-type: none"> <li>• Soils/Flexible Base: For gradation, liquid limit, and plastic limit, vary sampling between stockpiling operations, completed stockpile, windrow, and project site. Vary the time of day sampling is performed.</li> <li>• Aggregates: Sample aggregates nearest the point of incorporation into the work. Vary sampling between stockpiling operations, completed stockpile, belt sampling, and if deemed necessary, railroad cars/trucks. Vary the time of day sampling is performed.</li> </ul>
<b>E</b>	The Engineer will sample from the completed stockpile at the source and test prior to placement.
<b>F</b>	Each test performed that is based on a quantity of material is considered “or fraction thereof” for calculating number of tests.

This is a guide for **minimum** sampling and testing.  
Testing frequency may need to be increased for high material variability or when test results approach specification limits.

**TABLE IA – ASPHALT STABILIZED BASE (Plant Mix)**

MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	PROJECT TESTS		REMARKS
			LOCATION OR TIME OF SAMPLING (C)	FREQUENCY OF SAMPLING (D)	
AGGREGATE	Gradation (A)	Tex-200-F Part I	During stockpiling operations, from completed stockpile, or prior to mixing	Each 5,000 CY	Sample in accordance with Tex-400-A.
	Liquid Limit (A)	Tex-104-E	During stockpiling operations, from completed stockpile, or prior to mixing	Each 5,000 CY	Sample in accordance with Tex-400-A.
	Plasticity Index (A)	Tex-106-E	During stockpiling operations, from completed stockpile, or prior to mixing	Each 5,000 CY	
	Wet Ball Mill or L. A. Abrasion (A)	Tex-116-E or Tex-410-A	During stockpiling operations, from completed stockpile, or prior to mixing	Each 20,000 CY	When L. A. Abrasion is specified, tests are not required when the published value of the source, as listed in the current Material Producer list for <b>BRSQC</b> , meets the project specifications. Sample in accordance with Tex-400-A. (B)
	Coarse Aggregate Angularity (A)	Tex-460-A Part I	During stockpiling operations, from completed stockpile, or prior to mixing	1 per project, per source	Not required for crushed stone sources. Sample in accordance with Tex-400-A.
	Sand Equivalent	Tex-203-F	Hot aggregate bins, feeder belt, or stockpile	1 per project, per source	When designated by the Engineer, test may be run on combined aggregates when multiple sources are used. Sample in accordance with Tex-400-A.
LIME	Compliance with DMS-6350		During delivery to the project	Hydrated Lime: 1 Per Project. Commercial Lime Slurry: each 200 tons of lime (D) Carbide Lime Slurry: each 100 tons of lime (D) Quick Lime: 1 Per Project	On projects requiring less than 50 tons, material from CSTM&P approved sources may be accepted on the basis of Producer's Certification without sampling.
RECLAIMED ASPHALT PAVEMENT (RAP), and RECYCLED AGGREGATE	Decantation	Tex-217-F Part II	During stockpiling operations, from completed stockpile, or prior to mixing	Each 10,000 CY	Sample in accordance with Tex-400-A.

TABLE IA – ASPHALT STABILIZED BASE (Plant Mix)				
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	PROJECT TESTS	
			LOCATION OR TIME OF SAMPLING (C)	FREQUENCY OF SAMPLING (D)
RECYCLED ASPHALT SHINGLES (RAS)	Decantation	Tex-217-F Part III	During stockpiling operations, from completed stockpile, or prior to mixing	Each 10,000 CY
ASPHALT BINDER	Compliance with Item 300 – Binder and Tack Coat		Sampled, tested and preapproved by CSTM&P. Take project samples when designated by the Engineer.	1 each for binder and tack coat per project, per grade, per source
COMPLETE MIXTURE	Laboratory Density (A)	Tex-126-E	Plant Mix (C)	20,000 CY (25,000 tons)
	Percent Asphalt (A)	Tex-236-F	Plant Mix (C)	Each 1,500 CY (2,000 tons) or days production
	Indirect Tensile Strength – Dry	Tex-226-F	Plant Mix	1 per project, per design
	Moisture Susceptibility	Tex-530-C	As designated by the Engineer	1 per project, per design
ROADWAY	In-Place Air Voids (A)	Tex-207-F	Roadway cores, as designated by the Engineer (C, D)	Each 2,500 CY (3,000 tons) or days production

TABLE IA – FOOTNOTES	
<b>A</b>	When this project acceptance test fails but the product is accepted, document the reasons for acceptance on the Letter of Certification of Materials Used or in the SiteManager Remarks field.
<b>B</b>	Engineer will select any of these locations or any combinations thereof with the provision that at least one out of ten consecutive samples will be taken at the project site (from the windrow for treated and untreated bases and embankments when possible).
<b>C</b>	For acceptance testing, especially that which directly determines payment for the Contractor, sampling personnel should provide randomness in sampling by avoiding patterned sampling routines. Examples of such sampling practices are as follows: <ul style="list-style-type: none"> <li>• Soils/flexible base: Vary sampling between stockpiling operations, completed stockpile, windrow, and project site. Vary the time of day sampling is performed.</li> <li>• Aggregates: Sample aggregates nearest the point of incorporation into the work. Vary sampling between stockpiling operations, completed stockpile, belt sampling, and if deemed necessary, railroad cars/trucks. Vary the time of day sampling is performed.</li> </ul>
<b>D</b>	Each test performed that is based on a quantity of material is considered “or fraction thereof” for calculating number of tests.

**TABLE II – SEAL COAT**

MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	PROJECT TESTS		REMARKS
			LOCATION OR TIME OF SAMPLING (C)	FREQUENCY OF SAMPLING (D)	
AGGREGATE	Gradation (A)	Tex-200-F, Part I	Stockpile (At source or at point of delivery)	One each 1,000 CY	Rate may be reduced to one each 2,000 CY if the Engineer approves a contractor quality control plan. Sample in accordance with Tex-221-F.
	L. A. Abrasion (A)	Tex-410-A	Stockpile	1 per 20,000 CY	Verify the published value of the source, as listed in the current Material Producer list for <b>BRSQC</b> , meets the project specifications. If not, sample and test at 1 per 20,000 CY prior to use. Sample in accordance with Tex-221-F. (B)
	Magnesium Soundness (A)	Tex-411-A	Stockpile	1 per 20,000 CY	Verify the published value of the source, as listed in the current Material Producer list for <b>BRSQC</b> , meets the project specifications. If not, sample and test at 1 per 20,000 CY prior to use. Sample in accordance with Tex-221-F. (B)
	Surface Aggregate Classification (A)	Tex-612-J Tex-411-A	Stockpile	1 per 20,000 CY	Verify the published value of the source, as listed in the current Material Producer list for <b>BRSQC</b> , meets the project specifications. If not, sample and test at 1 per 20,000 CY prior to use. Sample in accordance with Tex-221-F. (B)
	Pressure Slake (A)	Tex-431-A	Stockpile	1 per 20,000 CY	Same as above. Required only for lightweight aggregate. Sample in accordance with Tex-221-F.
	Freeze Thaw (A)	Tex-432-A	Stockpile	1 per 20,000 CY	Same as above. Required only for lightweight aggregate. Sample in accordance with Tex-221-F.
	Unit Weight	Tex-404-A	Stockpile	1 per 20,000 CY	Same as above. Required only for lightweight aggregate. Sample in accordance with Tex-221-F.
	24 hr Water Absorption (A)	Tex-433-A	Stockpile	1 per 20,000 CY	Same as above. Required only for lightweight aggregate. Sample in accordance with Tex-221-F.
	Coarse Aggregate Angularity	Tex-460-A	Stockpile	1 per 20,000 CY	Only required for crushed gravel. Sample in accordance with Tex-221-F.
	Deleterious Material (A)	Tex-217-F Part I	Stockpile	1 per 10,000 CY	Not required for lightweight aggregate. Sample in accordance with Tex-221-F.
	Decantation (A)	Tex-406-A	Stockpile	1 per 10,000 CY	Sample in accordance with Tex-221-F.
	Flakiness Index	Tex-224-F	Stockpile	Frequency as directed by the Engineer	Sample in accordance with Tex-221-F.



This is a guide for minimum sampling and testing.  
Testing frequency may need to be increased for high material variability or when test results approach specification limits.

TABLE II – SEAL COAT				
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	PROJECT TESTS	
			LOCATION OR TIME OF SAMPLING (C)	FREQUENCY OF SAMPLING (D)
	Micro Deval	Tex-461-A	Stockpile	1 per project or as necessary for control
	White Rock Count	Tex-220-F	Stockpile	
	Naturally Impregnated Bitumen Content	Tex-236-F	Stockpile	
PRECOATED AGGREGATE	Asphalt Content	Tex-236-F	Stockpile	Frequency as directed by the Engineer when a target value is specified
ASPHALT	Compliance with Item 300		Sampled, tested and preapproved by CSTM&P. Take project samples when designated by the Engineer from the distributor or transport.	1 per project, per grade, per source

REMARKS

Compare result to published value listed in the current Material Producer List for **BRSQC**. Submit sample to CSTM&P for Soundness and LA Abrasion testing when results differ by more than 3% points, unless otherwise directed by the Engineer. Sample in accordance with Tex-221-F.

Required only for Limestone Rock Asphalt. Not required when CSTM&P provides inspection at the plant. Sample in accordance with Tex-221-F.

Required only for Limestone Rock Asphalt. Not required when CSTM&P provides inspection at the plant. Sample in accordance with Tex-221-F.

Sample in accordance with Tex-221-F.

Sample in accordance with Tex-500-C. Binder should arrive on the project pre-approved. If not pre-approved, sample binder before use.

TABLE II – FOOTNOTES	
<b>A</b>	When this project acceptance test fails but the product is accepted, document the reasons for acceptance on the Letter of Certification of Materials Used or in the SiteManager Remarks field.
<b>B</b>	Attach the corresponding QM test report for SiteManager projects to satisfy project sampling and testing requirements.
<b>C</b>	For acceptance testing, especially that which directly determines payment for the Contractor, sampling personnel should provide randomness in sampling by avoiding patterned sampling routines. Examples of such sampling practices are as follows: <ul style="list-style-type: none"> <li>Aggregates: Sample aggregates nearest the point of incorporation into the work. Vary sampling between stockpiling operations, completed stockpile, belt sampling, and if deemed necessary, railroad cars/trucks. Vary the time of day sampling is performed.</li> </ul>
<b>D</b>	Each test performed that is based on a quantity of material is considered "or fraction thereof" for calculating number of tests.



**TABLE III – HYDRAULIC CEMENT CONCRETE – STRUCTURAL (Classes: C, F, H, S, CO, K, LMC, or SS)**

MATERIAL OR PRODUCT		PROJECT TESTS			REMARKS
		TEST FOR	TEST NUMBER	LOCATION OR TIME OF SAMPLING (D)	FREQUENCY OF SAMPLING (E)
COARSE AGGREGATE		Decantation (B)	Tex-406-A	From stockpile at concrete plant	Each 20,000 CY of concrete (each source)
		Sieve Analysis (A) (B)	Tex-401-A		Each 1,000 CY of concrete (each source)
		Deleterious Materials (B)	Tex-413-A		1 per project or as necessary for control
		Los Angeles Abrasion (A) (B)	Tex-410-A		Two, each source
		5-cycle Magnesium Sulfate Soundness (A) (B)	Tex-411-A		Two, each source
FINE AGGREGATE		Sand Equivalent (B)	Tex-203-F	From stockpile at concrete plant	1 per project or as necessary for control
		Organic Impurities (B)	Tex-408-A		1 per project, per source
		Sieve Analysis (A) (B)	Tex-401-A		Each 1,000 CY of concrete (each source)
		Fineness Modulus (B)	Tex-402-A		1 per project or as necessary for control
		Deleterious Material (B)	Tex-413-A		1 per project or as necessary for control
SILICA FUME		Acid Insoluble Residue (A) (B)	Tex-612-J	Railroad car, truck, bags or silos	Two, each source
		Compliance with DMS-4630 (A)			1 per project, per class of concrete (For each type and brand)

This is a guide for minimum sampling and testing.  
Testing frequency may need to be increased for high material variability or when test results approach specification limits.

**TABLE III – HYDRAULIC CEMENT CONCRETE – STRUCTURAL (Classes: C, F, H, S, CO, K, LMC, or SS)**

MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	PROJECT TESTS		REMARKS
			LOCATION OR TIME OF SAMPLING (D)	FREQUENCY OF SAMPLING (E)	
METAKAOLIN	Compliance with DMS-4635 (A)		Railroad car, truck or silos	1 per project, per class of concrete (For each type and brand)	
MIX DESIGN	Compliance with Standard Specification Item 421.4-A		At source (if not approved)	Min. 1 design per class, per source	Verify if cement, fly ash, slag cement, and chemical admixture sources are listed in the Material Producer Lists. If not, sample and submit to ASTM&P for testing. Water testing is contracted by the concrete supplier (commercial lab report to be reviewed by TxDOT). Sample in accordance with Tex-300-D for cement and in accordance with Tex-733-I for fly ash.
JOINT MATERIAL	Compliance with DMS-6300				Sample in accordance with Tex-500-C. Verify the source is listed in the Material Producer List for <b>Joint Sealers</b> . If not, sample and test prior to use in accordance with DMS-6310. (C)
CURING COMPOUND	Compliance with DMS-4650		Sampled at jobsite; tested by CSTM&P. See remarks.	When requested by CST	Only products listed in the Material Producer List for <b>Concrete Curing Compounds</b> will be allowed. When sample is requested by CST, sample in accordance with Tex-718-I. Ensure container has been agitated and mixed prior to sampling. (C)
EVAPORATION RETARDANTS	Compliance with DMS-4650				Only products listed in the Material Producer list for <b>Evaporation Retardants</b> will be allowed. (C)
REINFORCING STEEL	Compliance with the Std. Specifications & Spec. Provisions	As Specified			Only materials from ASTM&P approved sources listed in the Material Producer List for <b>Reinforcing Steel Mills</b> and <b>Seven Wire Steel Strand</b> will be allowed. (C)
MECHANICAL COUPLERS	Compliance with DMS-4510	Tex-743-I	Sampled at jobsite; Tested by CSTM&P	3 couplers per lot (500 couplers) for each type, model, bar size and grade	Only materials from ASTM&P approved sources listed in the Material Producer List for <b>Mechanical Couplers</b> will be allowed. (C)
LATEX	Compliance with DMS-4640 for concrete chemical admixtures		Sampled at jobsite.	Min. of 1 test per project	Sample in accordance with Tex-321-E.
EPOXY	Compliance with DMS-6100, unless otherwise specified		Sampled at jobsite if not pre-approved by CSTM&P.	1 per batch or shipment	Verify the source is listed in the Material Producer List for <b>Epoxies and Adhesives</b> . If not, sample and test prior to use in accordance with DMS-6100. Sample in accordance with Tex-734-I. (C)

TABLE III – HYDRAULIC CEMENT CONCRETE – STRUCTURAL (Classes: C, F, H, S, CO, K, LMC, or SS)					
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	PROJECT TESTS		REMARKS
			LOCATION OR TIME OF SAMPLING (D)	FREQUENCY OF SAMPLING (E)	
CONCRETE	Compressive Strength (A)	Tex-418-A	At point of concrete placement	4 cylinders for each 60 CY per class, per day (For bridge railing and traffic railing, testing may be reduced to 4 cylinders per 180 CY per class regardless of days)	Sampling must be in accordance with Tex-407-A. Two cylinders shall be tested at 7 days and if the average value is below the design strength as defined in Item 421 Table 8, the remaining 2 cylinders shall be tested at 28 days. If the average value of the 2 cylinders tested at 7 days meets the minimum design strength listed in Item 421 Table 8, the two remaining cylinders are not required to be tested.
	Slump	Tex-415-A		See Remarks	When the contract requires the project testing to be by the Engineer, the frequency and job control testing will be in accordance with the item of work.
CONCRETE	Entrained Air (A)	Tex-416-A or Tex-414-A		1 test for every 10 contractor job control tests	<ul style="list-style-type: none"> <li>Sample in accordance with Tex-407-A.</li> <li>Perform slump and temperature tests on the same load from which strength test specimens are made.</li> <li>Perform entrained air test only when entrained air concrete is specified in the plans.</li> </ul>
	Temperature of Concrete (A)	Tex-422-A			Check temperature of every load for bridge slabs and mass concrete placements. Contractor's required testing will be in accordance with specification requirements for the appropriate specification Item #.
	Slab Thickness and Depth of Reinforcement	Tex-423-A Part II	During dry run and during concrete placement (Bridge decks and direct traffic culverts)	1 per span	Min. 6 – Max. 18 locations per span.

TABLE III – FOOTNOTES

<b>A</b>	When this project acceptance test fails but the product is accepted, document the reasons for acceptance on the Letter of Certification of Materials Used or in the SiteManager Remarks field.
<b>B</b>	These Project Tests may be used for one or more projects being furnished concrete from the same plant during the same period.
<b>C</b>	Attach the corresponding QM test report for SiteManager projects to satisfy project sampling and testing requirements.
<b>D</b>	For acceptance testing, especially that which directly determines payment for the Contractor, sampling personnel should provide randomness in sampling by avoiding patterned sampling routines. Examples of such sampling practices are as follows: <ul style="list-style-type: none"> <li>Aggregates: Sample aggregates nearest the point of incorporation into the work. Vary sampling between stockpiling operations, completed stockpile, and if deemed necessary, railroad cars/trucks. Vary the time of day sampling is performed.</li> <li>Concrete (structural): Always sample as near as practicable to the point of placement. For strength testing, vary the time of day or the number of truck from which the concrete is sampled. Tests for slump, air, and temperature should be done often to ensure the consistent control of the concrete production.</li> </ul>
<b>E</b>	Each test performed that is based on a quantity of material is considered "or fraction thereof" for calculating number of tests.

This is a guide for minimum sampling and testing.  
Testing frequency may need to be increased for high material variability or when test results approach specification limits.

TABLE IV – HYDRAULIC CEMENT CONCRETE – NON-STRUCTURAL CONCRETE (Classes: A, B, or E)					
		PROJECT TESTS			
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION OR TIME OF SAMPLING (B)	FREQUENCY OF SAMPLING (C)	REMARKS
CONCRETE	Compressive Strength (A)	Tex-418-A	At point of concrete placement	2 cylinders per 180 CY, per class	Sampling must be in accordance with Tex-407-A. Strength will be determined by 7-day specimens.
MIX DESIGN	Compliance with the Standard Specification		At source if not approved.	Min. 1 design per class, per source	Verify if cement, fly ash, slag cement, and chemical admixture sources are listed in the Material Producer Lists. If not, sample and submit to CSTM&P for testing. Sample in accordance with Tex-300-D for cement and in accordance with Tex-733-I for fly ash. Water testing is contracted by the concrete supplier (commercial lab report to be reviewed by TxDOT).
SILICA FUME	Compliance with DMS-4630		Railroad car, truck, bags or silos	1 test per project, per class (for each type and brand)	Sample in accordance with Tex-320-D.
METAKAOLIN	Compliance with DMS-4635		Railroad car, truck or silos	1 test per project, per class (for each type and brand)	

TABLE IV – FOOTNOTES	
A	When this project acceptance test fails but the product is accepted, document the reasons for acceptance on the Letter of Certification of Materials Used or in the SiteManager Remarks field.
B	For acceptance testing, especially that which directly determines payment for the Contractor, sampling personnel should provide randomness in sampling by avoiding patterned sampling routines. Examples of such sampling practices are as follows: <ul style="list-style-type: none"><li>Concrete (miscellaneous): Always sample as near as practicable to the point of placement. For strength testing, vary the time of day or the number of truck from which the concrete is sampled.</li></ul>
C	Each test performed that is based on a quantity of material is considered “or fraction thereof” for calculating number of tests.

**TABLE V – HYDRAULIC CEMENT CONCRETE PAVEMENT (Classes: P, or HES)**

MATERIAL OR PRODUCT		PROJECT TESTS		REMARKS
		TEST FOR	TEST NUMBER	LOCATION OR TIME OF SAMPLING
MINERAL AGGREGATE	COARSE AGGREGATE	Decantation	Tex-406-A	Each 20,000 CY of concrete (each source)
		Sieve Analysis (A)	Tex-401-A	As necessary for control
		Deleterious Materials	Tex-413-A	Each 20,000 CY of concrete (each source)
		L.A Abrasion (A)	Tex-410-A	Two, each source
		5-Cycle Magnesium Sulfate Soundness (A)	Tex-411-A	Verify the value of the source, as listed in the current CRSQC, meets the project specifications. If not, sample and submit to CSTM&P for testing prior to use in accordance with Tex-499-A. Sample in accordance with Tex-400-A. (C)
MINERAL AGGREGATE	FINE AGGREGATE	Sand Equivalent	Tex-203-F	Each 3,000 CY of concrete (Each source or combination of sources)
		Organic Impurities	Tex-408-A	1 per project, per source
		Sieve Analysis (A)	Tex-401-A	As necessary for control
		Fineness Modulus (B)	Tex-402-A	Each 20,000 CY of concrete (each source)
		Deleterious Material (B)	Tex-413-A	Verify the value of the source, as listed in the current CRSQC, meets the project specifications. If not, sample and submit to CSTM&P for testing prior to use in accordance with Tex-499-A. Sample in accordance with Tex-400-A. (C)
MIX DESIGN		Acid Insoluble (A)	Tex-612-J	1 per project, per source
		Compliance with the Standard Specifications Item 421.4.A		Min. 1 design, per class, per source  At source, if not approved  Verify if cement, fly ash, ground granulated blast furnace slag, and admixture sources are listed in the Material Producer List. If not, sample and submit to CSTM&P for testing. Sample in accordance with Tex-300-D for cement and in accordance with Tex-733-I for fly ash. Water testing is contracted by the concrete supplier (commercial lab report to be reviewed by TxDOT).

TABLE V – HYDRAULIC CEMENT CONCRETE PAVEMENT (Classes: P, or HES)

MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	PROJECT TESTS		REMARKS
			LOCATION OR TIME OF SAMPLING	FREQUENCY OF SAMPLING (D)	
SILICA FUME	Compliance with DMS-4630		Railroad car, truck, bags or silos	1 per project per class of concrete (For each type and brand)	Sample in accordance with Tex-320-D.
METAKAOLIN	Compliance with DMS-4635		Railroad car, truck or silos	1 per project per class of concrete (For each type and brand)	Sample in accordance with Tex-320-D.
JOINT MATERIAL	Compliance with DMS-6310		Sampled at jobsite if not sampled at source by CSTM&P; tested by CSTM&P. See remarks.	1 per batch or shipment	Sample in accordance with Tex-500-C. Sampling may be waived when the source is listed in the Material Producer List for <b>Joint Sealers. (C)</b>
CURING COMPOUND	Compliance with DMS-4650		Sampled at jobsite; tested by CSTM&P. See remarks.	When requested by CST	Only products listed in the Material Producer List for <b>Concrete Curing Compounds</b> will be allowed. When sample is requested by CST, sample in accordance with Tex-718-I. Ensure container has been agitated and mixed prior to sampling. <b>(C)</b>
EVAPORATION RETARDANTS	Compliance with DMS-4650				Only products listed in the Material Producer List for <b>Evaporation Retardants</b> will be allowed. <b>(C)</b>
REINFORCING STEEL	Compliance with the Std. Specifications & Spec. Provisions	As Specified			Only materials from CSTM&P approved sources listed in the Material Producer List for <b>Reinforcing Steel Mills</b> and <b>Seven Wire Steel Strand</b> will be accepted. <b>(C)</b>
MULTIPLE PIECE TIE BARS	Compliance with DMS-4515	Tex-712-I	Sampled at jobsite if not sampled at source by CSTM&P; tested by CSTM&P. See remarks.	Refer to Tex-711-I for sampling rates	Only materials from CSTM&P approved sources listed in the Material Producer List for <b>Multiple Piece Tie-bars for Concrete Pavements</b> will be allowed. Sample in accordance with Tex-734-I.
EPOXY	Compliance with DMS-6100		Sampled at jobsite if not pre-approved by CSTM&P. See remarks.	1 batch per shipment	Verify the source is listed in the Material Producer List for <b>Epoxies and Adhesives</b> . If not, sample and test prior to use in accordance with DMS-6100. Sample in accordance with Tex-734-I. <b>(C)</b>



**TABLE V – HYDRAULIC CEMENT CONCRETE PAVEMENT (Classes: P, or HES)**

PROJECT TESTS				
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	LOCATION OR TIME OF SAMPLING	FREQUENCY OF SAMPLING (D)
CONCRETE	Strength (A) (B)	Tex-448-A or Tex-418-A	At point of concrete placement	2 cylinders for every 10 contractor job control tests
	Slump	Tex-415-A	At time and location strength specimens are made	See Remarks
	Entrained Air (A)	Tex-416-A or Tex-414-A		1 test for every 10 contractor job control tests.
	Temperature	Tex-422-A		
	Thickness	Tex-423-A	Center of paving machine	Every 500 feet
	Ride Quality Surface Test Type B. (A)	Tex-1001-S	Final riding surface of travel lanes	

This is a guide for minimum sampling and testing.  
Testing frequency may need to be increased for high material variability or when test results approach specification limits.

TABLE V – FOOTNOTES	
A	When this project acceptance test fails but the product is accepted, document the reasons for acceptance on the Letter of Certification of Materials Used or in the SiteManager Remarks field.
B	When a project test does not meet the specified strength requirements and a reduced pay factor is assigned, the analysis shall be documented on the Letter of Certification of Materials Used.
C	Attach the corresponding QM test report for SiteManager projects to satisfy project sampling and testing requirements.
D	Each test performed that is based on a quantity of material is considered “or fraction thereof” for calculating number of tests.



**TABLE VI – ASPHALT CONCRETE PAVEMENT (Items 341, 342, 344, 346, 347 and 348)**  
(All testing as noted in Table VI may be waived for exempt production as defined by specification.)

MATERIAL OR PRODUCT		PROJECT TESTS			REMARKS
		TEST FOR	TEST NUMBER	LOCATION (Per Design)	FREQUENCY OF SAMPLING (E)
COARSE AGGREGATE	L. A. Abrasion (A)	Tex-410-A	Stockpile (B)		1 per project, per source
	Magnesium Sulfate Soundness (A)	Tex-411-A			1 per project, per source
	Surface Aggregate Classification (A)	Tex-499-A			1 per project, per aggregate source
	Micro Deval	Tex-461-A			Does not apply to Item 342. Sample in accordance with Tex-221-F. The timing of when the test is performed is at the discretion of the Engineer.
COMBINED AGGREGATE	Sand Equivalent	Tex-203-F	Stockpiles, hot bins or feeder belts		Sample in accordance with Tex-221-F. The timing of when the test is performed is at the discretion of the Engineer.
ASPHALT BINDER	Compliance with Item 300 Binder & Tack Coat (A)		Sampled, tested and pre-approved by CSTM&P. Project test sampled at the Plant for Binder & Road for Tack Coat		Test a minimum of one sample taken from the project. Sample tack coat at the distributor on the roadway in accordance with Tex-500C, Part III. Sample binder at hot mix plant in accordance with Tex-500-C, Part II. Binder should arrive on the project pre- approved. If not pre-approved, sample binder before use.
MIX DESIGN	Compliance with applicable specification	Tex-204-F	At source (if not approved)		Verify that aggregates, recycled asphalt pavement, recycled asphalt shingles, mineral filler, asphalt binder, anti-stripping additives, and warm mix systems are on the Material Producer List where applicable and that they meet project specification requirements. Project sampling and testing may be conducted on individual materials as necessary for control.

TABLE VI – ASPHALT CONCRETE PAVEMENT (Items 341, 342, 344, 346, 347 and 348) (All testing as noted in Table VI may be waived for exempt production as defined by specification.)							
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	PROJECT TESTS		PROJECT INDEPENDENT ASSURANCE TESTS		REMARKS
			LOCATION	FREQUENCY (Per Design)	LOCATION	FREQUENCY	
COMPLETE MIXTURE	Asphalt Content (%) (A)	Tex-236-F	Engineer Truck Sample (D)	Minimum 1 per Lot			Sample in accordance with Tex-222-F. Determine correlation factors for ignition oven using Tex-236-F at a minimum of one per project.
	Voids in Mineral Aggregates (VMA)	Tex-207-F	Truck Sample Plant Produced (D)	1 per Sublot	Truck	1 per 10 Lots only if compactor is shared by Contractor and State	Sample in accordance with Tex-222-F. Does not apply to Item 342, Permeable Friction Course. Contractor's required testing will be in accordance with specification requirements for the appropriate specification Item #.
	Gradation (A)	Tex-236-F	Engineer Truck Sample (D)	Minimum 1 per 12 Sublots (E)			Sample in accordance with Tex-222-F. Determine correlation factors for ignition oven using Tex-236-F at a minimum of one per project.
	Boil Test	Tex-530-C	Truck Sample	1 per project			Sample in accordance with Tex-222-F. Unless waived by the Engineer.
	Indirect Tensile Strength – Dry	Tex-226-F					Sample in accordance with Tex-222-F. Unless waived by the Engineer. Does not apply to Items 342, 346, and 348.
	Moisture Content	Tex-212-F Part II	Engineer Truck Sample				Sample in accordance with Tex-222-F.
	Lab Molded Density (A)	Tex-207-F	Truck Sample (D)	1 per Sublot 1 per Lot for Item 347	Truck	1 per 10 Lots only if compactor is shared by Contractor and State	Sample in accordance with Tex-222-F. Contractor's required testing will be in accordance with specification requirements for the appropriate specification Item #.
	Drain Down Test (A)	Tex-235-F	Engineer Truck Sample	1 per project 1 per Lot for Item 342			Sample in accordance with Tex-222-F. Not required for Item 341 and Item 344.
	Hamburg Wheel Test (A)	Tex-242-F	Engineer Truck Sample	1 per project			Sample in accordance with Tex-222-F. Sample during production. Does not apply to Item 348.
	Overlay Test	Tex-248-F	Engineer Truck Sample	1 per project			Sample in accordance with Tex-222-F. Does not apply to Items 341, 344, and 348.

TABLE VI – ASPHALT CONCRETE PAVEMENT (Items 341, 342, 344, 346, 347, and 348) (All testing as noted in Table VI may be waived for exempt production as defined by specification.)				
MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	PROJECT TESTS	
			LOCATION	FREQUENCY (Per Design)
ROADWAY	In-Place Air Voids (A)	Tex-207-F	Roadway (D)	2 cores per Sublot
	Segregation Profile (A)	Tex-207-F Part V	Roadway	1 per project
	Joint Density (A)	Tex-207-F Part VII	Roadway	1 per project
	Thermal Profile	Tex-244-F	Immediately behind paver	1 per project
ROADWAY	Ride Quality Test Type B (A)	Tex-1001-S	Final riding surface of travel lanes	1 per project
	Permeability	Tex-246-F	Roadway	1 per project
FABRIC UNDERSEAL	Compliance with DMS-6220		Sampled, tested, and approved by CSTM&P	

TABLE VI – FOOTNOTES	
<b>A</b>	When this project acceptance test fails but the product is accepted, document the reasons for acceptance on the Letter of Certification of Materials Used or in the SiteManager Remarks field. This letter is required only for Asphalt Content and/or Gradation when production of complete mixture is suspended as required by QC/QA specifications.
<b>B</b>	Sampling may be performed at the plant, quarry, or both. Aggregate properties may be re-tested at any time during the project. These project tests may be used for one or more projects furnishing hot mix with the same aggregate source.
<b>C</b>	Attach the corresponding QM test report for SiteManager projects to satisfy project sampling and testing requirements.
<b>D</b>	Perform random sampling as specified in Tex-225-F, Random Selection of Bituminous Mixture Samples.
<b>E</b>	Each test performed that is based on a quantity of material is considered “or fraction thereof” for calculating number of tests.

**TABLE VII – ASPHALT CONCRETE PAVEMENT (Items 334)**

(Refer to DMS-9210, Limestone Rock Asphalt (LRA) for testing requirements for Item 330.)

MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	PROJECT TESTS		REMARKS
			LOCATION	FREQUENCY (Per Design) (F)	
COARSE AGGREGATE	L. A. Abrasion (A)	Tex-410-A	Stockpile (B)	1 per project, per source	Verify the published value of the source, as listed in the current Material Producer list for <b>BRSQC</b> , meets the project specifications. If not, sample in accordance with Tex-221-F and submit to CSTM&P for testing prior to use in accordance with Tex-499-A. (D)
	Magnesium Sulfate Soundness (A)	Tex-411-A			
	Micro Deval	Tex-461-A			
	Surface Aggregate Classification (A)	Tex-499-A	Stockpile (B)	1 per project, per source	Verify the published value of the source, as listed in the current Material Producer list for <b>BRSQC</b> , meets the project specifications. If not, sample in accordance with Tex-221-F and submit to CSTM&P for testing prior to use in accordance with Tex-499-A. SiteManager Quality Monitoring test documentation is accomplished by attaching an approved mix design.
COMBINED AGGREGATE	Sand Equivalent	Tex-203-F	Stockpiles, hot bins or feeder belts	1 per project, per source	Sample in accordance with Tex-221-F. The timing of when the test is performed is at the discretion of the Engineer.
ASPHALT BINDER	Compliance with Item 300 Binder & Tack Coat (A) (C)		Sampled, tested and pre-approved by CSTM&P. Project test sampled at the Plant for Binder & Road for Tack Coat	1 each for binder and tack coat per project, per grade, per source	Test a minimum of one sample from production. Sample tack coat at the distributor on the roadway in accordance with Tex-500-C, Part III. Sample binder at hot mix plant in accordance with Tex-500-C, Part II. Binder should arrive on the project pre-approved. If not pre-approved, sample binder before use.
MIX DESIGN	Compliance with applicable specification	Tex-204-F	At source (if not approved)	Min 1 design per Mix Type and Asphalt Grade	Verify that aggregates, recycled asphalt pavement, recycled asphalt shingles, mineral filler, asphalt binder, anti-stripping additives, and warm mix systems are on the Material Producer List where applicable and that they meet project specification requirements. Project sampling and testing may be conducted in individual materials as necessary for control.
COMPLETE MIXTURE	Asphalt Content (%) (A)	Tex-236-F	Engineer Truck Sample (E)	Minimum of 1 per 5,000 tons	Sample in accordance with Tex-222-F. Determine correlation factors for ignition oven using Tex-236-F at a minimum of one per project.
	Voids in Mineral Aggregates (VMA)	Tex-207-F	Truck Sample Plant Produced (E)	1 per 5,000 tons	Sample in accordance with Tex-222-F.
	Gradation (A)	Tex-236-F	Truck Sample	Minimum 1 per 5,000 tons	Sample in accordance with Tex-222-F. Determine correlation factors for ignition oven using Tex-236-F at a minimum of one per project.
	Boil Test	Tex-530-C		1 per project	Sample in accordance with Tex-222-F. The timing of when the test is performed is at the discretion of the Engineer.

TABLE VII – ASPHALT CONCRETE PAVEMENT (Items 334) (Refer to DMS-9210, Limestone Rock Asphalt (LRA) for testing requirements for Item 330.)				
MATERIAL OR PRODUCT	PROJECT TESTS		FREQUENCY (Per Design) (F)	REMARKS
	TEST FOR	TEST NUMBER	LOCATION	
COMPLETE MIXTURE	Moisture Content	Tex-212-F Part II	Truck Sample	Sample in accordance with Tex-222-F. Performed by CSTM&P at the point of production for payment calculations.
	Hydrocarbon-Volatile Content	Tex-213-F		Sample in accordance with Tex-222-F. The timing of when the test is performed is at the discretion of the Engineer.
	Lab Molded Density (A)	Tex-207-F		Sample in accordance with Tex-222-F.
	Hveem Stability (A)	Tex-208-F		Sample in accordance with Tex-222-F. The timing of when the test is performed is at the discretion of the Engineer.
ROADWAY	Ride Quality Test Type B (A)	Tex-1001-S	Final riding surface of travel lanes	Engineer may verify Contractor's results for surface test Type B. For traditional design-bid-build TxDOT projects, CST has contracted with TTI to perform random ride verification at 10% frequency. Results from surface test Type A are not required to be reported.

TABLE VII – FOOTNOTES	
<b>A</b>	When this project acceptance test fails but the product is accepted, document the reasons for acceptance on the Letter of Certification of Materials Used or in the SiteManager Remarks field.
<b>B</b>	Sampling may be performed at the plant, quarry, or both. Aggregate properties may be re-tested at any time during the project.
<b>C</b>	Or as called for in the Specifications.
<b>D</b>	Attach the corresponding QM test report for SiteManager projects to satisfy project sampling and testing requirements.
<b>E</b>	Perform random sampling as specified in Tex-225-F, Random Selection of Bituminous Mixture Samples.
<b>F</b>	Each test performed that is based on a quantity of material is considered "or fraction thereof" for calculating number of tests.

This is a guide for minimum sampling and testing.  
Testing frequency may need to be increased for high material variability or when test results approach specification limits.

**TABLE VIII – ASPHALT CONCRETE PAVEMENT (Item 340)**

MATERIAL OR PRODUCT		PROJECT TESTS			REMARKS
		TEST FOR	TEST NUMBER	LOCATION	FREQUENCY
COARSE AGGREGATE	L. A. Abrasion (A)		Tex-410-A	Stockpile (B)	1 per project, per source
	Magnesium Sulfate Soundness (A)		Tex-411-A		
	Micro Deval		Tex-461-A	Stockpile (B)	1 per project, per source
	Surface Aggregate Classification (A)		Tex-499-A	Stockpile (B)	1 per project, per source
COMBINED AGGREGATE	Sand Equivalent		Tex-203-F	Stockpiles, hot bins or feeder belts	1 per project, per design
ASPHALT BINDER	Compliance with Item 300 Binder & Tack Coat (A)			Sampled, tested and pre-approved by CSTM&P. Plant for Binder & Road for Tack Coat	1 each for binder and tack coat per project, per grade, per source
	Compliance with applicable specification		Tex-204-F	At source (if not approved)	Min. 1 design per Mix Type and Asphalt Grade
MIX DESIGN	Asphalt Content (%)		Tex-236-F	Truck Sample (D)	Minimum of 1 per day
	Voids in Mineral Aggregates (VMA)		Tex-207-F	Truck Sample Plant Produced (D)	1 per day
	Gradation (A)		Tex-236-F	Truck Sample	Minimum 1 per day
	Boil Test		Tex-530-C		1 per project
	Indirect Tensile Strength – Dry		Tex-226-F		1 per project, per design
COMPLETE MIXTURE					



This is a guide for minimum sampling and testing.  
Testing frequency may need to be increased for high material variability or when test results approach specification limits.

**TABLE VIII – ASPHALT CONCRETE PAVEMENT (Item 340)**

MATERIAL OR PRODUCT		PROJECT TESTS			REMARKS
		TEST FOR	TEST NUMBER	LOCATION	
COMPLETE MIXTURE	Lab Molded Density (A)	Tex-207-F	Truck Sample	1 per day	Sample in accordance with Tex-222-F.
	Hamburg Wheel Tracker (A)	Tex-242-F		1 per project	Sample in accordance with Tex-222-F. Sample during production.
ROADWAY	Air Voids (A)	Tex-207-F	Selected by the Engineer (D)	1 per day (2 Cores)	Sample in accordance with Tex-222-F.
	Ride Quality Test Type B (A)	Tex-1001-S	Final riding surface of travel lanes		Engineer may verify Contractor's results for surface test Type B. For traditional design-bid-build TxDOT projects, CST has contracted with TTI to perform random ride verification at 10% frequency. Results from surface test Type A are not required to be reported.
	Compliance with DMS-6220		Sampled, tested, and approved by CSTM&P		Sample in accordance with Tex-735-I. Verify the source is listed in the current Material Producer List for <b>Silt Fence</b> , <b>Filter Fabric</b> and <b>Fabric Underseals</b> . If not sample and submit to CSTM&P for testing prior to use in accordance with DMS-6220.
FABRIC UNDERSEAL					

**TABLE VIII – FOOTNOTES**

<b>A</b>	When this project acceptance test fails but the product is accepted, document the reasons for acceptance on the Letter of Certification of Materials Used or in the SiteManager Remarks field. This letter is required only for Asphalt Content and/or Gradation when production of complete mixture is suspended as required by QC/QA specifications.
<b>B</b>	Sampling may be performed at the plant, quarry, or both. Aggregate properties may be re-tested at any time during the project. These project tests may be used for one or more projects furnishing hot mix with the same aggregate source.
<b>C</b>	Attach the corresponding QM test report for SiteManager projects to satisfy project sampling and testing requirements.
<b>D</b>	Perform random sampling as specified in Tex-225-F, Random Selection of Bituminous Mixture Samples.

TABLE IX – MICROSURFACING (Item 350)

MATERIAL OR PRODUCT	TEST FOR	TEST NUMBER	PROJECT TESTS		REMARKS
			LOCATION OF SAMPLING	FREQUENCY (Per Design)	
AGGREGATE	5-Cycle Magnesium Sulfate Soundness (A)	Tex-411-A	Stockpile (B)	1 per project, per source	Verify the published value of the source, as listed in the current Material Producer list for <b>BRSQC</b> meets the project specifications. If not, sample in accordance with Tex-221-F and submit to CSTM&P for testing at 1 per project, per source. (C)
	Gradation	Tex-200-F Part II		1 per project, per source	Sample in accordance with Tex-221-F.
	Crushed Face Count	Tex-460-A		1 per project, per source	Sample in accordance with Tex-221-F.
	Acid Insoluble (A)	Tex-612-J		1 per project, per source	Verify the value of the source, as listed in the current <b>BRSQC</b> , meets the project specifications. If not, sample and submit to CSTM&P for testing prior to use in accordance with Tex-499-A. Sample in accordance with Tex-221-F. (C)
	Surface Aggregate Classification	Tex-499-A	Stockpile, or BRSQC (B)	1 per project, per source	Verify the published value of the source, as listed in the current Material Producer list for <b>BRSQC</b> meets the project specifications. If not, sample in accordance with Tex-221-F and submit to CSTM&P for testing at 1 per project, per source. (C)
COMBINED BLEND	Sand Equivalent	Tex-203-F	Stockpile (B)	1 per project, per source	Sample in accordance with Tex-221-F.
ASPHALT BINDER	Compliance with Item 300 Binder & Tack Coat (A)		Sampled, tested, and pre-approved by CSTM&P. Project test sampled at the Plant for Binder & Road for Tack Coat	1 each for binder and tack coat per project, per grade, per source	Test a minimum of one sample during production. Sample tack coat at the distributor on the roadway in accordance with Tex-500-C, Part III. Sample binder at microsurfacing machine in accordance with Tex-500-C, Part III. Binder should arrive on the project pre-approved. If not pre-approved, sample binder before use.
CEMENT	Compliance with DMS-4600				Verify the source is listed in the current Material Producer List for <b>Cement</b> . If not, sample and submit to CSTM&P for testing prior to use in accordance with DMS-4600.
COMPLETE MIX	Asphalt Content	Tex-236-F	During production	1 per day	Sample in accordance with Tex-222-F. Determine correlation factors for ignition oven using Tex-236-F at a minimum of one per project.
	Gradation	Tex-200-F Part II Tex-236-F			Sample in accordance with Tex-222-F. Determine correlation factors for ignition oven use at a minimum of one per project.



This is a guide for minimum sampling and testing.  
Testing frequency may need to be increased for high material variability or when test results approach specification limits.

TABLE IX – FOOTNOTES	
A	When this project acceptance test fails but the product is accepted, document the reasons for acceptance on the Letter of Certification of Materials Used or in the SiteManager Remarks field. This letter is required only for Asphalt Content and/or Gradation when production of complete mixture is suspended as required by QC/QA specifications.
B	Sampling may be performed at the plant, quarry, or both. Aggregate properties may be re-tested at any time during the project. These project tests may be used for one or more projects furnishing hot mix with the same aggregate source.
C	Attach the corresponding QM test report for SiteManager projects to satisfy project sampling and testing requirements.
D	Each test performed that is based on a quantity of material is considered “or fraction thereof” for calculating number of tests.

## **APPENDIX C**

### **AASHTO ACCREDITED LABORATORIES**

## **AASHTO Accredited CMT Laboratories in Texas**

\* Directory of accredited laboratories and scope of testing is maintained on the AASHTO Materials Reference Laboratory website at: <http://www.amrl.net>. Laboratory must be accredited for each specific test performed.