

# CONTRACT DOCUMENTS

FOR

## **SAN PATRICIO STREET (B Street to E Street) RECONSTRUCTION PROJECT**

FOR THE

**CITY OF ROBSTOWN  
ROBSTOWN, TEXAS 78380**

**April 2023**

Prepared by:

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Approved By:



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CITY OF ROBSTOWN, TEXAS



## **FORMS AND CONDITIONS FOR BID DOCUMENTS/CONSTRUCTION CONTRACTS**

1. Advertisement and Invitation for Bids
2. Instruction to Bidders for Construction
3. Bid Forms
4. Statement of Bidder's Qualifications
5. Non-Collusion Affidavit of Prime Bidder
6. Certification of Bidder Regarding Civil Rights Laws and Regulations
7. Bid Bond
8. Conflicts of Interest – Compliance with Copeland “Anti-Kickback” Act
9. Debarment Certification
10. Certification Regarding Lobbying
11. Disclosure of Lobbying Activities and Instructions
12. Equal Opportunity Guidelines for Construction Contractors
13. Standard Form of Agreement (Construction Contract Agreement Form)
14. General Contract Conditions with Minority/Female Goals
15. Proposed Contract Breakdown (expected subcontractors and labor classifications)
16. Payment Bond
17. Performance Bond
18. Drug Free Workplace Certification
19. Child Support Statement
20. Environmental Conditions
21. Certificate of Liability Insurance
22. Section 504 Certification
23. Davis-Bacon Guidelines
24. Certificate of Completion (COC)
25. Final Payment Affidavit
26. Non-Debarment Search Results
27. Notice of Awarding Agency Requirements & Regulations Pertaining to Reporting
28. Certificate of Interested Parties - 1295 Form

\*Items 3-12 are to be provided to and/or completed by all bidders.

## Invitation for Bids

The City of Robstown, City Secretary's office will receive bids for **San Patricio Street (B Street to F Street) Reconstruction Project – CITY OF ROBSTOWN** until 2:00PM on Wednesday, May 11th, 2023, at Robstown City Hall, 101 E Main Ave, Robstown, TX 78380. The bids will be publicly opened and read aloud at 2:30PM on Wednesday, May 11th, 2021, at Robstown City Hall, 101 E Main Ave, Robstown, TX 78380.

Bids are invited for items and quantities of work as follows: a **Base Bid and Additive Alternative No. 1**. The Base Bid includes reconstruction of the existing 2-lane Hot-Mix-Asphalt-Pavement (HMAC) with new 2" HMAC surface over an 8" limestone base compacted subgrade and geotechnical grid with associated site improvements for driveways, curb & gutter, and landscaping. **Additive Alternative No. 1** includes cleaning and flushing storm water curb inlets and lines.

The work is to be substantially complete within **90** calendar days from the notice to proceed.

The Instructions for Bidders, Bid Form, Specifications, and other Contract Documents may be examined at the Office of the City Secretary at 101 E Main Ave, Robstown, TX 78380, or obtained from by emailing the project engineer at [jshoemaker1962@yahoo.com](mailto:jshoemaker1962@yahoo.com). There is no charge to view or download the documents. Addendums and other announcements will be posted on the City of Robstown website for all plan holders.

A bid bond in the amount of 5 percent of the bid issued by an acceptable surety shall be submitted with each bid. A certified check or bank draft payable to the City of Robstown or negotiable U.S. Government Bonds (aspar value) may be submitted in lieu of the Bid Bond.

The successful bidder must ensure that employees and applicants for employment are not discriminated against because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The City of Robstown encourages bids from small, minority, and female owned businesses (HUBs/Historically Underutilized Business).

All contractors and subcontractors must be cleared (not suspended, debarred, or otherwise excluded from or ineligible for participation on federal assistance programs) prior to any formal action authorizing the award of a contract to the contractor. Lump sum bids will be rejected. A firm fixed price contract may be awarded to the lowest responsible bidder.

The City of Robstown reserves the right to reject any or all bids, to waive irregularities in the bids and bidding, and reject non-conforming, non-responsive, or conditional bids. The City of Robstown is an equal opportunity employer without regard to race, color, sex, age, religion, national origin, persons with disabilities, or limited English proficiency.

### INSTRUCTIONS TO BIDDERS:

1. **Scope of Work:** The project includes a **Base Bid** for the reconstruction of the existing 2-lane Hot-Mix-Asphalt-Pavement (HMAC) with new 2" HMAC surface over an 8" limestone base compacted subgrade and geotechnical grid with associated site improvements for driveways, curb & gutter, manhole & valve box adjustments, and site restoral. **Additive Alternative No. 1** includes cleaning and flushing storm water curb inlets and lines.

The work shall be performed as described in the specifications and plans. Regular working hours are between sun-up and sun-down unless other times are specifically authorized in writing by the City.

2. The contractor is responsible for providing all supervision, labor, equipment, materials, and incidentals necessary to perform all operations required to complete the work as described in the project construction documents (drawings and specifications) and subject to the terms and conditions of the contract.
3. The Project is located at: **San Patricio Street from B Street to F Street, Robstown, TX 78380**
4. A Pre-Bid meeting is scheduled at **11:00am, May 4, 2022, at the City Hall.**
5. Construction duration is **90 calendar days** from the written Notice to Proceed.
6. Liquidated Damages will be assessed in the amount of **\$350** per calendar day that the contractor fails to substantially complete before the Contract Completion Date. Substantial completion is defined as all major components properly constructed/installed and fully functional. All minor deficiencies will be provided in a punch list from the City. All punch list items must be corrected within 14 calendar days or separate Liquidated Damages will be assessed in the amount of **\$50** per calendar day.
7. Bidders are invited to submit proposals for a Construction Contract including but not limited to the attached Bid Schedule. Bidders must indicate unit prices for all items in the Base Bid and for the Alternate Bid items.
8. The city will receive bids until **2:00pm** on **Wednesday May 11, 2023.** Bids after this time will not be accepted. Bids shall be submitted in hard copy to the City at: **City Hall, 101 E Main Ave, Robstown, TX 78380.** No faxed bids will be accepted. The contractor is solely responsible for confirming the bids are received by the date and time indicated.
9. The City expects to accept winning bid(s) or reject all bids within 5 workdays of Bid Due Date. No proposal may be withdrawn for a period 5 days after the Bid due date without consent of the City. The City reserves the right to waive irregularities and to reject any or all bids. The City is not obligated to go with the lowest Bidder.
10. Performance and Payment Bonds will be required of the successful bidder(s).
11. Insurance: Contractor(s) shall submit current certificates of insurance with the bid.
12. Indemnification. The Contractor(s) shall be solely liable for and expressly agrees to indemnify the City and its representatives with respect to any liability producing acts or omissions by it or by its employees or agents.
13. Requests for Clarifications must be submitted to the City Secretary, Beatriz Charo, at [bcharo@cityofrobstown.com](mailto:bcharo@cityofrobstown.com).
14. **Use of Separate Bid Forms**  
These contract documents include a complete set of bid and contract forms which are for the convenience of the bidders and are not to be detached from the contract document, completed, or executed. Separate bid

forms are provided for your use.

15. Interpretations or Addenda

No oral interpretations will be made to any bidder. Each request for clarification shall be made in writing to the City or engineer, Jerry J. Shoemaker, P.E. at [jshoemaker1962@yahoo.com](mailto:jshoemaker1962@yahoo.com) no less than seven (7) days prior to the bid opening. Each interpretation made within 3 business days and will be in the form of an Addendum to the contract documents and will be distributed to all parties holding contract documents no less than seven (7) days prior to the bid opening. It is, however, the bidder's responsibility to make inquiry as to any addenda issued. All such addenda shall become part of the contract documents and all bidders shall be bound by such addenda, whether or not received by the bidders.

If an addendum to the bid package is necessary, it must be distributed to each potential bidder. The distribution of an addendum shall be verified either by statements of receipt or registered/certified mail receipts, which shall be included in the public works construction file. The addendum shall allow adequate time for consideration in bid preparation (usually at least one week). If adequate time is not available, the bid opening date must be extended, and the City must republish the invitation for bids containing the place, time, and date for the new bid opening. Note that any change to the original bid opening date will require republication of the invitation for bids at least once in a locally published newspaper. The republished notice will include the place, time and date for the new bid opening and must be published at least seven days prior to the new bid opening date.

16. Inspection of Site

Each bidder should visit the site of the proposed work and should become acquainted with the existing conditions and facilities, the difficulties and restrictions pertaining to the performance of the contract. The bidder should thoroughly examine and become familiar with the drawings, technical specifications, and all other contract documents. The contractor by the execution of the contract shall in no way be relieved of any obligation under it due to failure to receive or examine any form or legal document or to visit the site or the conditions existing at the site. The City will be justified in rejecting any claim based on lack of inspection of the site prior to the bid.

17. Alternate bid items

Alternate bids or bid items are included and must be priced by all bidders.

18. Bids

A. All bids must be submitted on the forms provided and are subject to all requirements of the Contract Documents, including the Drawings.

B. All bids must be regular in every respect and no interlineation, excisions or special conditions may be made or included by the bidder.

C. Bid documents, including but not limited to the bid, the bid bond(s), the contractor's certifications, Certification of Bidder Regarding Civil Rights Laws and Regulations, Conflict of Interest Questionnaire, Non-collusion Affidavit of Prime Bidder, Certification Regarding Lobbying, Debarment Certifications, and the Statement of the Bidder's Qualifications, shall be sealed in an envelope and clearly labeled with the words "Bid Documents", the project number, name of bidder and the date and time of bid opening.

D. The City may consider as irregular any bid on which there is an alteration of or departure from the bid form and, at its option, may reject any irregular bid.

E. If a contract is awarded, it will be awarded to a responsible bidder based on the lowest/best bid and the selected alternate bid items, if any. The contract will require the completion of the work in accordance with the contract documents.

19. Bid Modifications Prior to Bid Opening

Any bidder may modify its bid by submitting a modification or supplemental bid at any time prior to the scheduled closing time for receipt of bids, provided such modification or supplemental bid is received by the locality prior to the closing time. The modification or supplemental bid should not reveal the original bid price but should provide only the addition, subtractions, or other modifications to the original bid so that the final prices or terms will not be known by the locality until the sealed bid is open.

20. Bid Requirements:

A. The Bidder must have operated continuously for a minimum of 5 years as an established firm in providing construction in all areas associated with street reconstruction and widening; including planning (milling), overlay, full pavement reconstruction, concrete work and underground utility improvements including wastewater, stormwater, and water. This experience must be outlined in the Statement of Experience Form provided in this IFB.

B. The Bidder must not have any outstanding lawsuits nor have been involved in any lawsuits during the last five years that may materially affect its ability to provide the work described herein. Provide information on any lawsuits that would materially affect your ability to provide the work with your bid on the Statement of Experience form.

C. The Bidder must not have any outstanding regulatory issues nor had any regulatory issues during the last five years that may materially affect its ability to provide the work described herein. This includes payment of all required taxes. Provide information on any outstanding regulatory issues that would materially affect your ability to provide the work with your bid on the Statement of Experience form.

D. The following are requirements for bidding:

1. Fully executed Bid Form.

2. Statement of Experience – Bidder agrees to provide a Statement of Experience with its bid to demonstrate the Bidder's responsibility and ability to meet the minimum requirements to complete the Work. **Failure to submit the required information in the Statement of Experience may result in the Bid being considered non-responsive.**

3. Bid Security Requirements –

a. Bidders must submit an acceptable Bid Security with their Bid as a guarantee that the Bidder will enter into a contract for the Project with the City within 10 days of Notice of Award of the Contract. The security must be payable to the City of Robstown, Texas in the amount of 5 percent (5%) of the greatest amount bid.

b. Bid Security may be in the form of a Bid Bond or a cashier's check, certified check, money order, or bank draft from a chartered financial institution authorized to operate in the State of Texas. Bidders submitting bids electronically shall scan and upload a copy of the Bid Security as an attachment to their bid. The original Bid Bond, cashier's check, certified check, money order or bank draft must be enclosed in a sealed envelope, plainly identified on the outside as containing bid documents, the bidder's name and the job name and number and delivered as required in this Section.

c. Bid Bond Requirements: A Bid Bond must guarantee, without qualification or condition, that the City will be paid a sum equal to 5 percent (5%) of the greatest amount bid if, within 10 calendar days of Notice of Award of the Contract, the Bidder/Principal:

1) fails to enter into a contract for the Project with the City; or

2) fails to provide the required Performance and Payment Bonds.

d. A Bid Bond may not limit the sum payable to the City to be the difference between the Bidder/Principal's bid and the next lowest bidder.

e. The Bid Bond must reference the Project by name.

f. Bidders may provide their surety's standard bid bond form if revised to meet these Bid Bond Requirements.

g. Failure to provide an acceptable Bid Security will constitute a non-responsive Bid which will not be considered.



2. membership on the board of directors or other governing body of a business entity of which the board or other governing body is composed of not more than 10 members; or
3. service as an officer of a business entity that has four or fewer officers, or service as one of the four officers most highly compensated by a business entity that has more than four officers; or
4. a person who acts as an intermediary and who actively participates in facilitating a contract or negotiating the contract with a governmental entity or state agency, including a broker, adviser, attorney, or representative of or agent for the business entity who has a controlling interest or intermediary for the business entity.

Form 1295 must be electronically filed with the Texas Ethics Commission at <https://www.ethics.state.tx.us/whatsnew/elfinfoform1295.htm>. The Form must then be printed, signed, and filed with the City. For more information, please review the Texas Ethics Commission Rules at <https://www.ethics.state.tx.us/legal/ch46.html>. A sample copy of Form 1295 has been provided for reference only.

- B. Insurance/Payment and Performance Bonds – After award of the contract insurance certificates along with applicable Payment and Performance bonds will be required to be submitted for approval before work can begin on the project. Insurance must comply with the Insurance Requirements outlined in this IFB. Bonds must comply with Texas Government Code 2253 and be in the form approved by the City Attorney.

22. Evaluation Factors:

The City will award a contract to the Lowest Responsive, Responsible Bidder. In determining the Lowest Responsive, Responsible Bidder, the City may take into consideration the quality of the product, the adaptability to the particular use required, and the ability, capacity, experience, efficiency, and integrity of the bidders as well as their financial responsibility in accordance with the Statement of Experience.

Bidders shall comply with the additional detailed instructions regarding submission of bids found in this IFB.

23. Bid Acknowledgements.

A. By submitting a Bid, Bidder makes the following acknowledgements:

- 1) Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with City on the form included in the Contract Documents, to perform all Work specified or indicated in Contract Documents for the Contract Price indicated in this Bid or as modified by Contract Amendment. Bidder agrees to complete the Work within the Contract Times established in the Agreement or as modified by Contract Amendment and comply with all other terms and conditions of the Contract Documents.
- 2) Bidder accepts all the terms and conditions of the bid documents, including those dealing with required Bonds. The Bid will remain subject to acceptance for the period of time listed in the bid documents.
- 3) Bidder acknowledges that City, at its discretion, will correct mathematical errors contained in the Bid and will conform bid items in accordance with contract terms and conditions.
- 4) Bidder accepts the provisions of the Agreement as to liquidated damages in the event of its failure to complete Work in accordance with the schedule set forth in the Agreement.
- 5) Bidder acknowledges receipt of all addenda.
- 6) Bidder acknowledges that the Bidder selected for award of the Contract will be the Lowest Responsible Bidder that submits a responsive Bid. City will, at its discretion, award the contract to the lowest responsible Bidder for the Base Bid, plus any combination of Add or Deduct Alternates.
- 7) Bidder acknowledges that the estimated quantities are not guaranteed, and final payment for all Unit Price items will be based on actual quantities provided, measured as provided in the Contract Documents.
- 8) The Bidder has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
- 9) The Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.



- 10) The Bidder is familiar with Laws and Regulations that may affect cost, progress, and performance of the Work.
  - 11) The Bidder has carefully studied the following Site-related reports and drawings as identified in the Supplementary Conditions:
    - a. Geotechnical Data Reports regarding subsurface conditions at or adjacent to the Site;
    - b. Drawings of physical conditions relating to existing surface or subsurface structures at the Site;
    - c. Underground Facilities referenced in reports and drawings;
    - d. Reports and drawings relating to the Site; and Technical Data related to each of these reports and drawings.
  - 12) The Bidder has considered the:
    - a. Information known to Bidder;
    - a. Information commonly known to contractors doing business in the locality of the Site;
    - b. Information and observations obtained from visits to the Site; and
    - c. The Contract Documents.
  - 13) Based on the information and observations referred to in the preceding paragraphs, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
  - 14) The Bidder is aware of the general nature of Work to be performed by City and others at the Site that relates to the Work as indicated in the Contract Documents.
  - 15) The Bidder has correlated the information known to the Bidder, 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 with respect to the effect of such information, observations, and documents on:
    - a. The cost, progress, and performance of the Work;
    - b. The means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and
    - c. Bidder's safety precautions and programs.
  - 16) The Bidder has given the City Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that the Bidder has discovered in the Contract Documents, and the written resolution provided by the City or its representatives is acceptable to the Bidder.
  - 17) The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
  - 18) Bidder's entry into this Contract constitutes an incontrovertible representation by Bidder that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.
  - 19) Bidder will complete the Work in accordance with the Contract Documents at the prices shown in the BID FORM. Unit Price and figures column will be used to compute the actual Bid price,
  - 20) Bidder will complete the Work required to be substantially completed within the time period provided in the Construction Contract. Bidder will complete the Work required for final payment in accordance with the time period provided in the Construction Contract.
24. Disqualification or Rejection of Bids. Bidders may be disqualified and or have their bid rejected for any of the following reasons:
- A. There is reason to believe that collusion exists among the Bidders;
  - B. The Bidder is involved in any litigation against the City;
  - C. The Bidder is in arrears on an existing contract or has defaulted on previous contracts with the City;
  - D. The Bidder lacks financial stability;
  - E. The Bidder has failed to perform under previous or existing contracts with the City;
  - F. The Bidder has failed to use the City's approved forms;
  - G. The Bidder has failed to adhere to one or more of the provisions established in this IFB;
  - H. The Bidder has failed to submit its bid in the format specified herein;
  - I. The Bidder has failed to submit its bid before the deadline established herein;

- J. The Bidder has failed to adhere to generally accepted ethical and professional principles during the bid process;
- K. The Bidder has failed to provide a detailed cost summary in the bid if required;
- L. The Bid Form is not included or not signed by an individual empowered to bind the Bidder;
- M. Failure to provide adequate Bid Security;
- N. More than one Bid for the same Work form an individual, firm, partnership, or corporation;
- O. Failure to have an authorized agent of the Bidder attend the mandatory Pre-Bid Conference, if applicable;
- P. Bids received from a Bidder who has been debarred or suspended by the City;
- Q. Bids received from a Bidder when Bidder or principals are currently debarred or suspended by Federal, State or City governmental agencies;
- R. Bids received from a Bidder identified on a list prepared and maintained by the Texas Comptroller under Chapter 2252 of the Texas Government Code;
- S. Failure to submit the Statement of Experience;
- T. Failure to acknowledge receipt of Addenda;
- U. Bidder's Safety Experience; or
- V. Evidence of Bidder's lack of capacity to perform the Work.

25. Statement of Qualifications.

- A. To be considered responsive, the Bidder must complete and submit the Statement of Experience to demonstrate the Bidders' responsibility and ability to meet the minimum requirements to complete the Work. Failure to submit the required information in the Statement of Experience may result in the Owner considering the Bid non-responsive and result in rejection of the Bid by the Owner. The Bid Security of the Bidder will be forfeited if Bidder fails to deliver the Statement of Experience in an attempt to be released from its Bid. Bidders may be required to provide supplemental information if requested by the Owner to clarify, enhance, or supplement the information provided in the Statement of Experience.
- B. Bidders must provide the information requested in this Statement of Experience using the forms attached to this Section. Information in these forms must be provided completely and in detail. Information that cannot be totally incorporated in the form may be included in an attachment to the form. This attachment must be clearly referenced by attachment number in the form, and the attached material must include the attachment number on every sheet of the attachment. The attachment must include only the information that responds to the question or item number to which the attachment information applies.
- C. The Bidder may also be required to supply a financial statement, prepared no earlier than 90 days prior to the City Engineer's request, signed and dated by the Bidder's owner, president, or other authorized party, specifying all current assets and liabilities.

26. Experience Requirements.

- A. The Bidder agrees that, in addition to determining the apparent low Bid, the City will consider the responsiveness of the Bids and the responsibility of the Bidders in awarding a Contract for this Project. Information that indicates the Bidder or a Subcontractor is not responsible or that might negatively impact a Bidder's ability to complete the Work within the Contract Time and for the Contract Price may result in the Owner rejecting the Bid.
- B. If none of the three apparent low Bidders are deemed responsible, the City may notify the next apparent low Bidders in order, who will then be required to submit the Statement of Experience for review, until a Contract is awarded, or all Bids have been rejected.
- C. The Bidder is responsible for the accuracy and completeness of all of the information provided by the Bidder or a proposed Subcontractor in response to this Statement of Experience.

D. Provide general information about the organization as required in Table 1. Describe the organizational structure of the Bidder's organization as it relates to this Project in Table 2.

E. Provide resumes for the key personnel that will be actively working on this Project.

- 1) Key personnel include the Project Manager, Project Superintendent, Safety Manager and Quality Control Manager. If key personnel are to fulfill more than one of the roles listed above, provide a written narrative describing how much time will be devoted to each function, their qualifications to fulfill each role, and the percentage of their time that will be devoted to each role. If the individual is not to be devoted solely to this Project, indicate how that individual's time is to be divided between this Project and other assignments.
- 2) The Bidder may provide resumes for an alternate individual if the Bidder is not able to commit to one individual for the Project at the time the Bid is submitted. Qualifications of these individuals will be considered in determining whether the experience of the Bidder meets the minimum requirements. The Bidder must provide the services of the proposed key personnel for the life of the Project as a condition of qualification. Failure to provide the proposed Key Personnel may result in the disqualification of the Bidder and may void the award of the Contract.
- 3) Provide information for each primary and alternate candidate that includes technical experience, managerial experience, education and formal training and a work history which describes project experience, including the roles and responsibilities for each assignment. Additional information demonstrating experience that meets the minimum requirements should also be included.
- 4) The Project Manager and Project Superintendent must have at least 5 years of recent experience in the management and oversight of projects of a similar size and complexity to this Project. This experience must include scheduling of manpower and materials, safety, coordination of Subcontractors, experience with the submittal process, Federal and State wage rate requirements, and contract close-out procedures. The Project Superintendent is to be present at the Site at all times that Work is being performed. Foremen must have at least 5 years of recent experience in similar work and be subordinate to the Project Superintendent. Foremen cannot act as a superintendent without prior written approval from the Owner.

F. Provide information on the project experience and past performance of the organization.

- 1) Provide information on projects that have been awarded to the Organization in the last 5 years in Table 3. Attach additional pages if necessary. Experience must include the satisfactory completion of at least five similar projects within the last 5 years for the Bidder's organization that are equal to or greater in size and magnitude than the current Project.
- 2) In determining the responsibility of the Bidder, the Owner will consider the Bidder's past projects and any substandard quality of workmanship on completed projects. The Owner will consider whether the Bidder's past project experience shows substandard quality of workmanship, issues related to a substandard appearance of the completed work, the amount of warranty or rework required, problems with durability and maintainability of the completed project, and problems with the lack of quality of documentation provided. In addition to the work produced, the Owner may consider issues related to the quality of construction practices, responsiveness to the owner's needs during construction, an inability to work in the spirit of partnering and any non-responsiveness of the Bidder to make warranty corrections. Information to make this determination will come from Owner's interviews with references provided for this project. By listing reference contact information in this Statement of Experience, Bidder indicates its approval for OPT to contact the individuals listed as a reference.

G. Use of Subcontractors.

The Bidder may use subcontractors in connection with the work performed if awarded a Contract. When using subcontractors, however, the Bidder must comply with the terms of the Construction Contract and submit experience statements. In using subcontractors, the Bidder is responsible for all their acts and omissions to the same extent as if the subcontractor and its employees were employees of the Bidder. All requirements set forth as part of the Contract are applicable to all subcontractors and their employees to the same extent as if the Bidder and its employees had performed the services.

27. Wages and Salaries.

Davis-Bacon Related Acts (DBRA) is applicable. Attention is called to the requirement of paying not less than the prevailing DBRA wage rates specified in the Contract Documents. Refer to <https://sam.gov/wage-determination/TX20210288/0>. These rates are minimums to be paid during the life of the contract. Additionally, contractors must pay wages not less than once a week. It is therefore the responsibility of the Bidder to inform themselves as to local labor conditions. This requirement must be included for all subcontractors for construction services in excess of \$2,000.

28. Contract Work Hours.

Contracts in excess of \$100,000 that involve the employment of mechanics or laborers require the Contractor to comply with all applicable standards, orders, or regulations issued pursuant to 40 U.S.C. 3702 and 3704, as supplemented by the Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. of the Act, Contractors are required to compute the wages of every mechanic and laborer on the basis of standard work week of 40 hours. Work in excess of the standard work week is permissible provided the worker is compensated at a rate not less than 1.5 times the basic rate of pay for all hours worked in excess of the 40 hour in the work week.

29. Protest Procedures.

A. These procurement protest procedures are applicable to procurement of goods or services by the City of Robstown including where federal funds are used in whole or in part. These protest procedures are also made applicable to recipients awarded a grant of federal funds through the city of Robstown who intend to provide such funds to sub recipients pursuant to an approved plan, project, or activity. This protest process does not create any due process rights, but is intended to allow bidders/proposers to raise concerns regarding actions taken pertaining to a bid or other form of competitive solicitation.

B. The City's Contracts and Procurement Department has the authority to settle or resolve any claim of an alleged deficiency or protest. The procedures for notifying the City of Robstown of an alleged deficiency or filing a protest are listed below. If you fail to comply with any of these requirements, the Procurement Officer may dismiss your complaint or protest.

**C. Grounds for Protest.**

Only protests alleging an issue concerning the following subjects will be considered:

- 1) Violation of local, state, or federal regulation;
- 2) Issues with the solicitation document that creates an unfair advantage or unlevelled playing field;
- 3) Errors in computing the tabulation or evaluation of a bid or proposal;
- 4) Discrepancies with material differences or quality of items or service.

**D. Protest Process.**

- 1) Prior to Bid/Proposal Due Date: If you are a prospective Bidder/Proposer and you become aware of the facts regarding what you believe is a deficiency in the solicitation or solicitation process before the Due Date for receipt of bids/proposals, you must notify the City in writing of the alleged deficiency no later than five days before the Due Date for bids/proposals, giving the City an opportunity to resolve the situation prior to the bid/proposal Due Date.
- 2) After Bid/Proposal Due Date: If you submit a bid/proposal to the City and you believe that there has been a deficiency in the solicitation process or the award, you have the opportunity to protest the solicitation process, or the recommended award as follows:
  - a. You must file written notice of your intent to protest within five calendar days of the date that you know or should have known of the facts relating to the protest. If you do not file a written notice of intent within this time, you have waived all rights to protest the solicitation process or the award.
  - b. You must file your written protest within seven calendar days of the date that you notified the City of your intent to protest;
  - c. You must submit your protest in writing and must include the following information:

1. your name, address, telephone, and fax number; and
  2. the solicitation number; and
  3. a detailed statement of the factual grounds for the protest, including copies of any relevant documents; and
  4. signature of the protestor and its representative and evidence of authority to sign; and
  5. the form of relief requested.
- d. Your protest must be concise and presented logically and factually to help with the City's review.
  - e. When the City receives a timely written protest, the Procurement Officer will determine whether the grounds for your protest are sufficient. If the Procurement Officer decides that the grounds are sufficient, the Contracts and Procurement Office will schedule a protest hearing, usually within five (5) working days. If the Procurement Officer determines that your grounds are insufficient, the City will notify you of that decision in writing.
- 3) **Informal Protest Hearing** - The protest hearing is informal and is not subject to the Open Meetings Act. The purpose of the hearing is to give you a chance to present your case, it is not an adversarial proceeding. Those who may attend from the City include representatives from the department that requested the purchase, Legal, Engineer, Administration, and other appropriate City staff. You may bring a representative or anyone else that will present information to support the factual grounds for your protest with you to the hearing.
  - 4) **Protest Decision** – A written decision will usually be made within 15 calendar days after the hearing. The City will send you a copy of the hearing decision after the appropriate City staff has reviewed the decision. City staff will inform the Bidder of the date on which the Construction Contract is set to go to City Council for award.
  - 5) **Exceptions; Restrictions** – When a protest is filed, the City usually will not make an award until a decision on the protest is made. However, the City will not delay an award if the City Secretary or the Procurement Officer determines that:
    - a. the City urgently requires the supplies or services to be purchased, or
    - b. failure to make an award promptly will unduly delay delivery or performance.

In those instances, the City will notify you and make every effort to resolve your protest before the award.

30. Equal Employment Opportunity.  
Attention is called to the requirements for ensuring that employees and applicants for employment are not discriminated against because of race, color, religion, sex, sexual identity, gender identity, or national origin, and other civil rights requirements.
31. Clean Air Act  
Contracts in excess of \$150,000 require the Contractor to comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1387). Violations must be reported to the Regional Office of the Environmental Agency (EPA) and TCEQ.

## **Bid Forms**

The Bid must consist of the following items that are to be returned by the due date specified:

1. Acknowledgements of Addendums and Contract Documents
2. Bid Form - Bidder is to provide on the attached Bid Form a cost per unit for each construction line item
3. Bid Security
4. Statement of Experience with Certificate
5. Debarment Certification
6. Certificate of Bidder Regarding Civil Rights and Regulations
7. Certificate Regarding Lobbying
8. Disclosure of Interest Form
9. Non collusion Affidavit of Prime Bidder
10. Conflict of Interest Questionnaire

Please refer to the “Instructions to Bidders” for more specific requirements for putting your bid together.

Please note that all forms must be completed and signed. Any erasures or other changes must be initialed by the person signing the bid.

In the case of a discrepancy between the unit price and total price, the unit price will be presumed to be correct, and totals recalculated accordingly.

Only one bid will be allowed per firm/company. Bidders should either submit a bid electronically through the online system or submit a bid in a sealed envelope as outlined in this RFB, but not both. In the event that both an electronically submitted bid and a bid in a sealed envelope are received from the same company, the City will reject the bid submitted in a sealed envelope.

Additional documents will be requested from the three apparent low bidders:

1. Table 1 – Organizational Chart
2. Table 2 – Project Information
3. Table 3 – Past Project Awarded in the last 5 years.
4. Certificate of Interested Parties – Form 1295

Post Award documents include:

1. Standard Form of Agreement For Materials Contract
2. Child Support Statement for Negotiated Contracts and Grants
3. Closeout Guarantees and Warranties.
4. Redline markups of Construction Drawings.

## BIDDER ACKNOWLEDGEMENTS

The City of Robstown is reconstructing San Patricio Street (B Street to F Street) with new 2” HMAC over 8” crushed limestone with geotechnical mat, 12” compacted subgrade and with associated items and site restoration. The work also includes minor adjustments to existing manholes, and valve boxes.

The BIDDER, in compliance with the invitation for bids for San Patricio Street (B Street to F Street) Reconstruction Project.

\_\_\_\_\_ (name), having examined the plans and specifications with related documents and the site of the proposed work, and being familiar with all the conditions surrounding the construction of the proposed project, including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies in accordance with the contract documents, within the time set forth herein. These price(s) are to cover all expenses incurred in performing the work required under the contract documents, of which this proposal is a part. These price(s) are firm and shall not be subject to adjustment provided this Proposal is accepted within ninety (90) days after the time set for receipt of proposals.

BIDDER hereby agrees to commence work under this contract on or before a date to be specified in a written "Notice to Proceed" to be issued by the City and to substantially complete within **90** consecutive calendar days as stipulated in the specifications. BIDDER further agrees to pay as liquidated damages, the sum of **\$350.00** for each consecutive calendar day beyond the approved contract completion date.

I hereby acknowledge the receipt of the following addenda:

1. \_\_\_\_\_
2. \_\_\_\_\_

SUBCONTRACTORS. The undersigned BIDDER proposes that he will be responsible to perform major portions of the work at the project site with his own forces and that specific portions of the work not performed by the undersigned will be subcontracted and performed by the following subcontractors.

Type of Work Subcontracted	Name of Subcontractor

The undersigned hereby declares that they have visited the site and has carefully examined the contract documents relative to the work covered by the above bid.

Bidder Name:	
Address:	
Phone:	
EIN or Tax ID No.:	
Typed Name & Title:	
Signature:	

**BID FORM**

DESCRIPTIONS	UNIT	ESTIMATED QUANTITY	UNIT PRICE	EXTENDED AMOUNT
<b>PART A - GENERAL (BASE BID)</b>				
Mobilization (includes Bonds & Insurance)	LS	1		
Clear Right of Way	AC	1.8		
Ozone Day	EA	1		
TCP Plan and Prep	LS	1		
TCP Mobilization/Adjustments	LS	1		
TCP items (Barrels, Cones, etc.)	MONTH	3		
SWPPP	LS	1		
Block sodding	SY	866.7		
		<b>Part A - Subtotal</b>		
<b>PART B - STREET IMPROVEMENTS (BASE BID)</b>				
Street Excavation & asphalt removal	SY	2100		
Type D HMAC 2" (includes tack coat)	SY	2100		
Prime Coat	GAL	415		
8" Crushed Limestone Base (Ty A, GR. 1-2)	SY	2100		
Baselok Geogrid Bx3030 w/ 12" subgrade compaction	SY	2100		
Concrete Driveway replacements	SY	250		
Unanticipated Concrete Driveway Removal	SY	250		
<b>Allowance for unanticipated street improvements (Mandatory Bid)</b>	ALL	1	<b>\$ 5,000.00</b>	<b>\$ 5,000.00</b>
		<b>Part B - Subtotal</b>		
<b>PART C - UTILITY ADJUSTMENTS (BASE BID)</b>				
Underground utility line pre-exploratory	LS	1		
Water Valve Box Adjustments	EA	3		
Wastewater MH Adjustments	EA	3		
		<b>Part C - Subtotal</b>		
<b>PART D - STORM WATER IMPROVEMENTS (ADD. ALT. NO. 1)</b>				
Curb inlet debris and trash removal	EA	6		
Storm Water line cleaning and flushing	LF	1300		
		<b>Part D - Subtotal</b>		
		<b>Base Bid (Part A+B+C)</b>		
		<b>Add. Alt No. 1</b>		
		<b>GRAND TOTAL</b>		



**BID BOND**

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned, \_\_\_\_\_ as PRINCIPAL, and \_\_\_\_\_, as SURETY are held and firmly bound unto \_\_\_\_\_ hereinafter called the "Owner", in the penal sum of \_\_\_\_\_ Dollars, (\$ \_\_\_\_\_), lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal has submitted the Accompanying bid, dated \_\_\_\_\_, for \_\_\_\_\_ (project).

NOW, THEREFOR, if the Principal shall not withdraw said Bid within the period specified therein after the opening of the same, or, if no period be specified, within thirty (30) days after the said opening, and shall within the period specified therefore, or if no period be specified, within ten (10) days after the prescribed forms are presented to him for signature, enter into a written contract with the Owner in accordance with the Bid as accepted, and give bond with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of such contract; or in the event of the withdrawal of said Bid within the period specified, or the failure to enter into such Contract and give such bond within the time specified, if the Principal shall pay the Owner the difference between the amount specified in said Bid and the amount for which the local Public Agency may procure the required work or supplies or both, if the latter be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS THEREOF, the above-bounded parties have executed this instrument under their several seals this \_\_\_\_\_ day of \_\_\_\_\_, the name and corporate seal of each corporate party being hereto affixed and these present signed by its undersigned representative, pursuant to authority of its governing body.

\_\_\_\_\_ (SEAL)

Attest:

By: \_\_\_\_\_  
Affix  
Corporate  
Seal

Attest:

By: \_\_\_\_\_  
Affix  
Corporate  
Seal

Attest:

By: \_\_\_\_\_  
Affix  
Corporate  
Seal

Countersigned

By \_\_\_\_\_

\* Attorney-in-Fact, State of \_\_\_\_\_

**CERTIFICATE AS TO CORPORATE PRINCIPAL**

I, \_\_\_\_\_, certify that I am the \_\_\_\_\_, Secretary of the Corporation named as Principal in the within bond; that \_\_\_\_\_, who signed the said bond on behalf of the principal was then \_\_\_\_\_ of said corporation; that I know his signature, and his signature thereto is genuine; and that said bond was duly signed, sealed, and attested to, for and in behalf of said corporation by authority of this governing body.

Corporate  
Seal

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

\* Power-of-attorney for person signing for Surety Company must be attached to bond.

<b>CERTIFICATION OF BIDDER REGARDING CIVIL RIGHTS LAWS AND REGULATIONS</b>	
INSTRUCTIONS	
CERTIFICATION OF BIDDER REGARDING Executive Order 11246 and Federal Laws Requiring Federal Contractor to adopt and abide by equal employment opportunity and affirmative action in their hiring, firing, and promotion practices. This includes practices related to race, color, gender, religion, national origin, disability, and veterans' rights.	
NAME AND ADDRESS OF BIDDER (include ZIP Code)	
CERTIFICATION BY BIDDER	
Bidder has participated in a previous contract or subcontract subject to Civil Rights Laws and Regulations.	
<input type="checkbox"/> Yes <input type="checkbox"/> No	
<p>The undersigned hereby certifies that:</p> <input type="checkbox"/> The <u>Non-Segregated Facilities</u> clause (Section 109 provision) is included in the Contract. No segregated facilities will be maintained as required by Title VI of the Civil Rights Act of 1964. <input type="checkbox"/> The <u>Equal Employment Opportunity</u> clause is included in the Contract (if bid equals or exceeds \$10,000). <input type="checkbox"/> The <u>Affirmative Action for Handicapped Workers</u> clause is included in the contract. <input type="checkbox"/> The Exhibit B – Assurances for Construction Programs is included in the Contract. <input type="checkbox"/> The Exhibit D – State of Texas Assurance is included in the Contract.	
Have you ever been or are you being considered for sanction due to violation of Executive Order 11246 Equal Employment Opportunity, as amended?	
<input type="checkbox"/> Yes <input type="checkbox"/> No	
NAME AND TITLE OF SIGNER (Please type)	
SIGNATURE	DATE

**DEBARMENT CERTIFICATION**

1. The **CONTRACTOR** certifies to the best of its knowledge and belief that it and its principals:
  - a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any federal department or agency.
  - b. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state, or local) transaction or contract under a public transaction, violation of federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statement, or receiving stolen property.
  - c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (federal, state, or local) with commission or any of the offenses enumerated in Paragraph 1.b. of this certification.
  - d. Have not within a three-year period preceding this application/proposal had one or more public transactions (federal, state, or local) terminated for cause or default; and
  
2. Where the **CONTRACTOR** is unable to certify to any of the statements in this certification, such **CONTRACTOR** shall attach an explanation to this certification.

\_\_\_\_\_  
Signature – Company Official

\_\_\_\_\_  
Printed/Typed Firm Name

\_\_\_\_\_  
Printed/Typed Name and Title

\_\_\_\_\_  
Date

**NONCOLLUSION AFFIDAVIT OF PRIME BIDDER**

State of \_\_\_\_\_)

County of \_\_\_\_\_)

\_\_\_\_\_, being first duly sworn, deposes and says that:

- (1) He is \_\_\_\_\_ of \_\_\_\_\_, the Bidder that has submitted the attached Bid.
- (2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid.
- (3) Such Bid is genuine and is not a collusive or sham Bid.
- (4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with another Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix an overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the \_\_\_\_\_ (Local Public Agency) or any person interested in the proposed Contract; and
- (5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed) \_\_\_\_\_

\_\_\_\_\_  
Title

Subscribed and sworn to me this \_\_\_\_ day of \_\_\_\_.

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

Notary Public

My commission expires \_\_\_\_\_

## CONTRACTOR CERTIFICATIONS

CERTIFICATION OF BIDDER REGARDING CIVIL RIGHTS LAWS AND REGULATIONS	
INSTRUCTIONS	
CERTIFICATION OF BIDDER REGARDING Executive Order 11246 and Federal Laws Requiring Federal Contractor to adopt and abide by equal employment opportunity and affirmative action in their hiring, firing, and promotion practices. This includes practices related to race, color, gender, religion, national origin, disability, and veterans' rights.	
NAME AND ADDRESS OF BIDDER (include ZIP Code)	
CERTIFICATION BY BIDDER	
Bidder has participated in a previous contract or subcontract subject to Civil Rights Laws and Regulations. <input type="checkbox"/> Yes <input type="checkbox"/> No	
The undersigned hereby certifies that: <input type="checkbox"/> The <u>Non-Segregated Facilities</u> clause (Section 109 provision) is included in the Contract. No segregated facilities will be maintained as required by Title VI of the Civil Rights Act of 1964. <input type="checkbox"/> The <u>Equal Employment Opportunity</u> clause is included in the Contract (if bid equals or exceeds \$10,000). <input type="checkbox"/> The <u>Affirmative Action for Handicapped Workers</u> clause is included in the contract. <input type="checkbox"/> The Exhibit B – Assurances for Construction Programs is included in the Contract. <input type="checkbox"/> The Exhibit D – State of Texas Assurance is included in the Contract.	
Have you ever been or are you being considered for sanction due to violation of Executive Order 11246 Equal Employment Opportunity, as amended? <input type="checkbox"/> Yes <input type="checkbox"/> No	
NAME AND TITLE OF SIGNER (Please type)	
SIGNATURE	DATE

## **CERTIFICATE OF INTERESTED PARTIES – FORM 1295**

### **DISCLOSURE OF INTERESTED PARTY FORM:**

Effective January 1, 2016, pursuant to Texas Government Code, Section 2252.908 (the Interested Party Disclosure Act), the City may not award a contract to a contractor unless the contractor submits a Certificate of Interested Parties Form 1295 (the Disclosure Form) to the City as prescribed by the Texas Ethics Commission (TEC). In the event that the contractor's quote for the City is the best bid received, the City or its consultant, will promptly notify the contractor. That notification will serve as the conditional verbal acceptance of the bid. Upon this acceptance, the winning contractor must promptly, not later than 5:00 p.m. (CST) on January 19, 2018, file the materials described below.

### **PROCESS FOR COMPLETING THE DISCLOSURE FORM**

The Disclosure Form can be found at <https://www.ethics.state.tx.us/forms/1295.pdf>, and reference should be made to the following information in order to complete it:

- (a) item 2 – Name of City
- (b) item 3 – the identification number (HMGP DR-NO.), and
- (c) item 3 – description of the goods or services assigned to this contract by the City City/

You must:

- 1) complete the Disclosure Form electronically at the TEC's electronic portal, and
- 2) print, sign and deliver a copy (scanned and emailed is fine) of the DisclosureForm and Certification of Filing that is generated by the TEC's electronic portal.

The following link will take you to the electronic portal for filing:  
<https://www.ethics.state.tx.us/TECCertInt/pages/login/certLogin.jsf>

Also, a detailed instruction video may be found here:  
[https://www.ethics.state.tx.us/whatsnew/elf\\_info\\_form1295.htm](https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm)

Neither the City nor its consultants have the ability to verify the information included in a Disclosure Form, and neither have an obligation nor undertake responsibility for advising any business entity with respect to the proper completion of the Disclosure Form.

**CERTIFICATE OF INTERESTED PARTIES**

**FORM 1295**

Complete Nos. 1 - 4 and 6 if there are interested parties. Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.	<b>OFFICE USE ONLY</b>
1 Name of business entity filing form, and the city, state and country of the business entity's place of business.	
2 Name of governmental entity or state agency that is a party to the contract for which the form is being filed.	

3 Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the services, goods, or other property to be provided under the contract.

4 Name of Interested Party	City, State, Country (place of business)	Nature of Interest (check applicable)	
		Controlling	Intermediary

5 Check only if there is no Interested Party.

6 UNSWORN DECLARATION

My name is \_\_\_\_\_, and my date of birth is \_\_\_\_\_.

My address is \_\_\_\_\_ (street) \_\_\_\_\_ (city) \_\_\_\_\_ (state) \_\_\_\_\_ (zip code) \_\_\_\_\_ (country).

I declare under penalty of perjury that the foregoing is true and correct.

Executed in \_\_\_\_\_ County, State of \_\_\_\_\_, on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
(month) (year)  
Signature of authorized agent of contracting business entity  
(Declarant)

**ADD ADDITIONAL PAGES AS NECESSARY**



**Table 1 – ORGANIZATION INFORMATION**

Organization doing business as:								
Business Address of Principal Office								
Telephone					Website			
Form of Business (check one)	Corporation		Partnership		Individual			
If a Corporation								
State of incorporation					Date			
Chief Exec. Officer's Name					President's Name			
Vice President's Name					Treasurer's Name			
					Secretary's Name			
If a Partnership								
Date of Organization	Form of Partnership	General		Limited				
If an Individual								
Name:								
Ownership of Organization. List of companies, firms, or organization that own any part of the organization								
Names of Companies, Firms, or Organizations:						Percent Ownership		
Organization History. List of names this organization currently, has, or anticipates operating under including names of related companies presently doing business.								
Names of Organizations				From Date		To Date		
Indicators of Organization Size								
Average number of current full-time employees								
Average estimate of revenue for the current year								
Organization doing business as								
Previous History with Municipalities								
List the 5 most recent projects completed with municipalities.								
Project Name						Year		

**Table 1 – ORGANIZATION INFORMATION (CONTINUED)**

Construction Site Safety Experience											
Provide Bidder's Experience Modification Ratio (EMR) History for the last 3 years. Provide supporting documentation of the EMR.											
Year		EMR		Year		EMR		Year		EMR	
Previous Bidding and Construction Experience – Answer all questions Yes or No.											
Has Bidder or a predecessor organization been debarred within the last 10 years? Check yes/no, and provide a list debarring entities below and provide full details in a separate attachment if yes.										YES	NO
Has Bidder or a predecessor organization been disqualified as a bidder within the last 10 years? List projects below and provide full details in a separate attachment if yes.										YES	NO
Has Bidder or a predecessor organization been released from a bid or proposal in the last 10 years?										YES	NO
Has Bidder or a predecessor organization defaulted on a project or failed to complete any work awarded to it? List projects below and provide full details in a separate attachment if yes.										YES	NO
Has Bidder or a predecessor organization been involved in claims or litigation involving project owners within the last 10 years? List projects below and provide full details in a separate attachment if yes.										YES	NO
Have liens or claims for outstanding unpaid invoices been filed against the Bidder for services or materials on any projects within the last 3 years? Specify the name and address of the party holding the lien or making the claim, and an explanation of why the lien has not been released or that the claim has not been paid, if yes.										YES	NO

**Table 2 – PROJECT INFORMATION**

Organization doing business as:											
Proposed Project Organization											
Provide a brief description of the organizational structure proposed for this project indicating the names and functional roles of proposed key personnel and alternates. Provide resumes for Project Manager, Superintendent, Safety Manager and Quality Control Manager.											
Position			Primary						Alternate		
Project Manager											
Superintendent											
Safety Manager											
Quality Control Manager											
Division of work between Bidder and Proposed Subcontractor and Suppliers											
Provide a list of Work to be self-performed by the Bidder and the Work contracted to Subcontractors and Suppliers for more than 10 percent of the Work (based on estimated subcontract or purchase order amounts and the Contract Price).											
Subcontractor Construction Site Safety Experience											
Provide Experience Modification Ratio (EMR) History for the last 3 years for Subcontractors that will provide Work valued at 25% or more of the Contract Price. Provide documentation of the EMR.											
Subcontractor:											
Year		EMR		Year		EMR		Year		EMR	
Subcontractor:											
Year		EMR		Year		EMR		Year		EMR	

**Table 3 – Projects Awarded during the last 5 years.**

Organization doing business as:							
Project Information							
Project Name:					Description:		
Reference Contact Information							
Project Owner:							
Name/Title:							
Telephone:					Email:		
Project Designer:							
Project Budget and Performance							
Original Contract Price		Final Contract Price		Contract Days (#)		Days Late (#)	
Issues/Claims/Litigation:							
Organization doing business as:							
Project Information							
Project Name:					Description:		
Reference Contact Information							
Project Owner:							
Name/Title:							
Telephone:					Email:		
Project Designer:							
Project Budget and Performance							
Original Contract Price		Final Contract Price		Contract Days (#)		Days Late (#)	
Issues/Claims/Litigation:							
Organization doing business as:							
Project Information							
Project Name:					Description:		
Reference Contact Information							
Project Owner:							
Name/Title:							
Telephone:					Email:		
Project Designer:							
Project Budget and Performance							
Original Contract Price		Final Contract Price		Contract Days (#)		Days Late (#)	
Issues/Claims/Litigation:							



**CERTIFICATION**

By submitting this Statement of Experience and related information, Bidder certifies that it has read this Statement of Experience and that Bidder's responses are true and correct and contain no material misrepresentations and that the individual signing below is authorized to make this certification on behalf of the Bidder's organization. The individual signing this certification shall attach evidence of individual's authority to bind the organization to an agreement.

Bidder:			
	(Typed or printed)		
By:			
	(Typed or printed)		
Title:			
	(Typed or printed)		
Designated Representative:			
Name:			
Title:			
Address:			
Telephone:		Email:	

## **CERTIFICATE OF INTERESTED PARTIES – FORM 1295**

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- (d) item 2 – Name of City
- (e) item 3 – the identification number (HMGP DR-NO.), and
- (f) item 3 – description of the goods or services assigned to this contract by the City City/

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Neither the City nor its consultants have the ability to verify the information included in a Disclosure Form, and neither have an obligation nor undertake responsibility for advising any business entity with respect to the proper completion of the Disclosure Form.

**CHILD SUPPORT STATEMENT FOR NEGOTIATED CONTRACTS AND GRANTS**

Under Section 231.006, Family Code, the vendor, or applicant certifies that the individual or business entity named in this contract, bid, or application is eligible to receive the specified grant, loan, or payment and acknowledges that this contract may be terminated, and payment may be withheld if this certification is inaccurate.

List below the name and social security number of the individual or sole proprietor and each partner, shareholder, or owner with an ownership interest of at least 25% of the business entity submitting the bid or application.

NAME	ID NUMBER

Section 231.006, Family Code, specifies that a child support obligor who is more than 30 days delinquent in paying child support and a business entity in which the obligor is a sole proprietor, partner, shareholder, or owner with an ownership interest of at least 25% is not eligible to receive payments from state funds under a contract to provide property, materials, or services; or receive a state-funded grant or loan.

A child support obligor or business entity ineligible to receive payments described above remains ineligible until all arrearages have been paid or the obligor is in compliance with a written repayment agreement or court order as to any existing delinquency.

Except as provided by Section 231.302(d), Family Code, a social security number is confidential and may be disclosed only for the purposes of responding to a request for information from an agency operating under the provision of Parts A and D of Title IV of the federal Social Security Act (42 USC Section 601417 and 651-669).

---

Signature – Company Official

---

Printed/Type Firm Name

---

Printed/Typed Name and Title

---

Date

Certificate of Completion

**CONTRACTOR'S FINAL PAYMENT AFFIDAVIT**

**Locality:** \_\_\_\_\_ **TX CDBG No:** \_\_\_\_\_

**Contractor:** \_\_\_\_\_ **Date:** \_\_\_\_\_

BEFORE ME, THE UNDERSIGNED AUTHORITY, on this day personally appeared \_\_\_\_\_, who being duly sworn, on oath, says that he is a duly authorized representative of \_\_\_\_\_; Contractor, and that all terms of the Contract for the completion of certain public works described as \_\_\_\_\_; City of Robstown, Texas have been satisfactorily completed and that ALL sums of money for payrolls, bills for material and equipment, and other indebtedness connected with the Work for the Owner, or its property might in any way be responsible to the best of my knowledge and belief, have been paid or will be paid or otherwise satisfied within thirty days after receipt of final payment from the Owner, or within the period of time required by Article 601f, Vernon's Civil Statutes. Payments not made in full at the time of this affidavit are listed below.

**FINAL PAYMENTS pending as of this date hereof are:** \_\_\_\_\_ **None Pending** \_\_\_\_\_ **As Listed Below**

Individual/Company Owed	Mailing Address	Amount Owed (\$)

<b>Signature</b>	
<b>Title</b>	

Affidavit must be signed by an individual owner or partner in partnership, or by a person authorized by by-laws or Board of Directors to sign for a corporation. If Contractor is a joint venture or partnership of individuals, either may sign, but if a jointventure in which a corporation is a party, separate affidavits must be executed by each corporation and by each individualowner or partnership. In the event subcontractors, laborers, or material suppliers have not been paid in full, the Contractors shall list here on the amount owed and the name and address of each subcontractor, laborer, or material supplier to whom such payment is owed.

-----  
Sworn and Subscribed before me this, the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

(SEAL)

Notary Public in and for

\_\_\_\_\_  
County, Texas

\_\_\_\_\_  
Date



## GENERAL CONDITIONS:

- A. Site Conditions. The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) the availability of labor, water, electric power, and roads; (3) uncertainties of weather; (4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by the City, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the City.
- B. Differing conditions. The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the City for any subsurface or latent physical conditions at the site which differ materially from those indicated in this contract; or unknown physical conditions at the site, of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as interfering in work of the character provided for in the contract. The City shall investigate the site conditions promptly after receiving the notice. If the conditions do materially differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this contract, whether or not changed as a result of the conditions, an equitable adjustment shall be made and change order authorized.
- C. Superintendence by the Contractor. At all times during performance of this contract and until the work is completed and accepted, the Contractor shall directly superintend the work or assign and have on the worksite a competent superintendent who is satisfactory to the City and has authority to act for the Contractor.
- D. Other contracts. The City may undertake or award other contracts for additional work at or near the site of the work under this contract. The Contractor shall fully cooperate with the other contractors and with City representative and shall carefully adapt scheduling and performing the work. The Contractor shall not commit or permit any act that will interfere with the performance of work by any other contractor.
- E. Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements. The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed and which do not unreasonably interfere with the work required under this contract. The Contractor shall repair any damage to those facilities, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.
- F. Site cleanup. The Contractor shall keep the work area, including storage areas, free from accumulations of waste materials. Before completing the work, the Contractor shall remove from the work and premises any rubbish, tools, scaffolding, equipment, and materials that are not the property of the City. Upon completing the work, the Contractor shall leave the work area in a clean, neat, and orderly condition satisfactory to the City.
- G. Safety. The contractor is solely responsible for safety of its personnel and equipment. This includes protection of all work, materials and equipment from theft or vandalism. Contractor shall also provide appropriate safety barricades, signs, and signal lights.

- H. Schedules. The Contractor shall prepare and submit to the City for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring materials, plant, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. Updates are required with each monthly invoice. If the Contractor fails to submit a schedule or required updates, the City may withhold approval of progress payments until the Contractor submits the required schedule updates. The initial schedule is required within 5 days from the notice of award and before the pre-construction meeting.
- I. Preconstruction meeting. The City will conduct a preconstruction meeting after award and will issue a formal Notice to Proceed. The contractor(s) will be notified and will be required to attend. The City's notification will include specific details regarding the date, time, and location of the conference, any need for attendance by subcontractors, and information regarding the items to be discussed.
- J. Material and Workmanship. All equipment, material, and articles incorporated into the work covered by this contract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. References in the specifications to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality. The Contractor shall furnish to City the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the machinery and mechanical and other equipment. All work under this contract shall be performed in a skillful and workmanlike manner. The City may require, in writing, that the Contractor remove from the work any employee the City deems incompetent, careless, or otherwise objectionable.
- K. Warranty. The contractor is required to Warrant All Work Conforms and Free of Defect for 1-year from final acceptance. The contractor is also required to provide all extended warranties from subcontractors and suppliers. The contractor shall submit all Operations and Maintenance manuals from subcontractors and suppliers.
- L. Change Orders and time extensions. All request for change orders must be submitted in writing with detailed breakdown of materials, labor, and equipment, including subcontractor prices and markups. The City will evaluate and negotiate the request for change orders and provide written authorization for the change is scope, time, and price, see Time Extensions for additional information.
- M. Time extensions. All request for time extensions shall be submitted in writing for written approval from the City. All such request must include detailed impacts to the Critical Path Activities that establish the longest path for project completion. Time extensions for weather, Acts of God, and delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and the subcontractors or supplier; such approved extensions will be for time only without any additional compensation. Time extensions for Acts of another Contractor in the performance of a contract with the City may include additional time and consideration for compensation.
- N. Progress payments. Contractor may submit monthly progress payments with adequate breakdown. A template will be provided to the contractor with the Notice to Proceed. Payment shall be issued to the contractor within 14 days from the approved invoice. The invoice shall be reviewed with the Project Manager, Jerry Shoemaker, P.E, before submission and approval. Payment for materials is authorized provided such materials are onsite and/or in an approved warehouse or location. The City may hold up to 5% for retainage until satisfactory completion of the contract.
- O. Default. If the Contractor refuses or fails to prosecute the work with the diligence that will ensure its completion within the time specified in this contract including any extensions, or fails to complete the work within this time, the City may, by written notice to the Contractor, terminate the right to proceed with the work (or the separable part of the work) that has been delayed. In this event, the City may take over the

work and complete it by contract or otherwise, and may take possession of and use any materials, appliances, and plant on the work site necessary for completing the work. The Contractor shall be liable for any damage to the City resulting from the Contractor's refusal or failure to complete the work within the specified time. This liability includes any increased costs incurred by the City in completing the work.

- P. The Contractor's right to proceed shall not be terminated nor the Contractor charged with damages under this clause, if the delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Including Acts of God, Acts of another Contractor in the performance of a contract with the Government, Fires, Floods, Epidemics, Strikes, Freight embargoes, Unusually severe weather, or delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and the subcontractors or suppliers. The contractor must notify the City within 10 days from the beginning of any delay. The City shall ascertain the facts and the extent of delay and if warranted, the time for completing the work shall be extended.

TECHNICAL SPECIFICATIONS  
FOR  
**SAN PATRICIO STREET (B STREET TO E STREET)  
RECONSTRUCTION PROJECT**  
  
**FOR THE**  
  
**CITY OF ROBSTOWN  
ROBSTOWN, TEXAS 78380**  
  
**APRIL 2023**

Prepared by:

R.H. SHACKELFORD, INC. (RHSI)

8918 Tesoro Dr STE 501  
San Antonio, Texas 78410  
(361) 400-2929

Approved By:



Jerry J. Shoemaker, P.E.  
R.H. SHACKELFORD, INC. (RHSI)  
Texas Serial No. 97045  
Texas Registered Engineering Firm F-9797  
Project No. 9797

**DIVISION 1 - GENERAL REQUIREMENTS**

**SECTION 01025 - APPLICATION FOR PAYMENT REQUIREMENTS**

**SECTION 01340 - SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

**SECTION 01410 - INSPECTION TESTING AND GUARANTEE**

**SECTION 01500 - TEMPORARY FACILITIES**

**SECTION 01700 - CONTRACT CLOSEOUT REQUIREMENTS**

**DIVISION 2 - SITE WORK**

**SECTION 02050 - DEMOLITION**

**SECTION 02111 - CLEARING, ROUGH GRADING, COMPACTION AND FINISH GRADING**

**SECTION 021040 - SITE GRADING**

**SECTION 021080 - REMOVING ABANDONED STRUCTURES**

**SECTION 022020 - EXCAVATION AND BACKFILL FOR UTILITIES**

**SECTION 022040 - STREET EXCAVATION**

**SECTION 022100 - SELECT MATERIAL**

**SECTION 02500 - CONCRETE PAVEMENT**

**SECTION 025210 - LIME STABILIZATION**

**SECTION 02830 - FENCING**

**SECTION 028020 - SEEDING**

**DIVISION 3 - CONCRETE**

**SECTION 03100 - CONCRETE FORMWORK**

**SECTION 03200 - CONCRETE REINFORCEMENT**

**SECTION 03300 - CAST-IN-PLACE CONCRETE**

**SECTION 03342 - FINISHING, QUALITY CONTROL, AND TOLERANCES**

## **DIVISION 1 - GENERAL REQUIREMENTS**

### **SECTION 01025 - APPLICATION FOR PAYMENT REQUIREMENTS**

For the CONTRACTOR to receive Progress Payments under the Contract, the following items shall be submitted to ENGINEER for review.

1. An Application for Payment, certified and sworn as correct by CONTRACTOR, in accordance with Article 14.02.A.1 of the General Conditions, unless otherwise amended by the Supplementary Conditions,
2. A sworn certification of no claims and appropriate waivers of liens in accordance with Article 14.02.A.2 of the General Conditions, unless otherwise amended by the Supplementary Conditions.

**END OF SECTION**

01025

**DIVISION 1 - GENERAL REQUIREMENTS**  
**SECTION 01340 - SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

**1. GENERAL:**

- a. Submit shop drawings, product data and samples required by specification sections.
- b. Shop drawings, product data and samples are not considered a part of Contract Documents.
- c. Schedule submissions at least 10 days before reviewed submittals will be needed.

**2. CONTRACTOR RESPONSIBILITIES:**

- a. Review shop drawings, project data and samples prior to submission.
- b. Verify:
  - 1) Field measurements.
  - 2) Field construction criteria.
  - 3) Catalog numbers and other data.
  - 4) Conformance with submission requirements.
- c. Coordinate each submittal with Contract Documents and the work requirements to prevent any delay in the work.
- d. CONTRACTOR's responsibility for errors and omissions is not relieved by ENGINEER's review of submittals.
- e. At time of submission and in writing, notify ENGINEER of submittal deviations from Contract Documents.
- f. CONTRACTOR's responsibility for deviations from Contract Documents is not relieved by ENGINEER's review of submittals unless ENGINEER gives written acceptance of specific deviations.
- g. Begin no Work related to submittals until return of submittals with ENGINEER's stamp and initials or signature indicating review.
- h. Distribute copies after ENGINEER's review.

**3. ENGINEER'S DUTIES:**

- a. Review submittals with reasonable promptness to prevent any delay in the Work.
- b. Review for conformance with:
  - 1) Design concept of project.
  - 2) Contract Documents.
- c. Review of a separate item does not constitute review of an assembly in which the item functions.
- d. Return to CONTRACTOR those submittals which do not meet the requirements and require correction and resubmission.
- e. Affix stamp and initials or signature certifying review of submittal.
- f. Return reviewed submittals to CONTRACTOR for distribution.

**4. PREPARATION REQUIREMENTS:**

- a. Shop Drawings:

- 1) Preparation by a qualified detailer.
  - 2) Sheet size same as Contract Drawings.
  - 3) Identify details by reference to sheet and detail numbers on Contract Drawings.
  - 4) Include on the drawing all information required for submission or prepare a transmittal letter.
  - 5) Prepare one reproducible transparency and one opaque print of each shop drawing.
- b. Product Data:
- 1) Modify manufacturer's standard schematic drawings to delete or supplement information as applicable.
  - 2) For manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other descriptive data:
    - a) Clearly mark each copy to identify pertinent materials, products, or models.
    - b) Show dimensions and clearances required.
    - c) Show performance characteristics and capacities.
    - d) Show wiring diagrams and controls.
  - 3) Include on the data all information required for submission or prepare a transmittal letter.
    - i. Prepare number of copies which the CONTRACTOR requires for distribution plus two copies to be retained by ENGINEER.
- c. Samples:
- 1) Obtain office samples of sufficient size and quantity to clearly illustrate:
    - a) Functional characteristics of products or materials with integrally related parts and attachment devices.
    - b) Full range of color samples.
  - 2) Erect field samples and mock-ups at the project site in an acceptable location. Construct each sample complete, including work of all trades required in finished work.
  - 3) Include on transmittal letter all information required for submission.
  - 4) Prepare the number of samples specified in specification sections.

**5. SUBMISSION REQUIREMENTS:**

- a. Submit shop drawings, product data and samples in the form and quantity specified.
- b. Accompany submittals with a transmittal letter in duplicate, as required.
- c. Include the following information for each submittal:
  - 1) Date and revision dates.
  - 2) Project title and number.
  - 3) The names of:
    - a) ENGINEER
    - b) CONTRACTOR
    - c) Subcontractor
    - d) Supplier



- e) Manufacturer
- f) Separate detailer when pertinent.
- 4) Identification of product or material.
- 5) Relation to adjacent structure of materials.
- 6) Field dimensions clearly identified as such.
- 7) Specification section number.
- 8) Applicable standards, such as ASTM number or Federal Specification.
- 9) A blank space, 4" x 4", for ENGINEER's review stamp.
- 10) Identification of deviations from Contract Documents.
- 11) CONTRACTOR's stamp, initialed or signed, certifying review of submittal, verification of field measurements and compliance with Contract Documents.

**6. RESUBMISSION REQUIREMENTS:**

- a. Shop Drawings:
  - 1) Revise initial drawings as required and resubmit as specified for initial submittal.
  - 2) Indicate on drawings any changes which have been made other than those requested by ENGINEER.
- b. Product Data and Samples:

Submit new data and samples as required for initial submission.

**7. DISTRIBUTION AFTER REVIEW:**

- a. Distribute copies of shop drawings and product data which carry ENGINEER's stamp to:
  - 1) CONTRACTOR's file
  - 2) Job site file
  - 3) Record document file
  - 4) Other prime CONTRACTORS
  - 5) Subcontractors
  - 6) Supplier
  - 7) Fabricator
- b. Distribute samples as directed. After review, samples may be used in construction.

**END OF SECTION**

## **DIVISION 1 - GENERAL REQUIREMENTS**

### **SECTION 01410 - INSPECTION TESTING AND GUARANTEE**

#### 1. GENERAL:

These requirements supplement those provided under Article 13 of the General Conditions.

#### 2. INSPECTION:

- a. Inspector: A representative of ENGINEER or OWNER will be assigned authority to observe and inspect the Work.
- b. Working Days: Inspectors are not required to work on Saturdays, Sundays, or legal holidays. If CONTRACTOR plans work on a Saturday, Sunday or legal holiday, prior arrangements should be made for an inspector not later than 2:00 p.m. on the working day before the Saturday, Sunday, or legal holiday.
- c. Uninspected Work: Any Work performed on Saturday, Sunday, or a legal holiday without benefit of any inspection may require removal and replacement if directed by ENGINEER. Removal and replacement will be completed at no additional cost.

#### 3. TESTING:

- a. The cost of preparing and testing, and the cost of other laboratory services required for establishing the concrete mix, and redesigning the mix, if necessary, shall be borne by CONTRACTOR.
- b. CONTRACTOR shall furnish at his own expense, suitable evidence that all the materials he proposes to incorporate into the Work are in accordance with the Specifications. Mill tests for reinforcing steel and cement will be acceptable if it is definite that the test sheets apply to the material being furnished. Manufacturer's or supplier's test results will be acceptable for such items as pipe and fittings, when it is definite that the materials being furnished is that to which the test results apply. Should CONTRACTOR fail to provide the above information, ENGINEER shall have the right to require tests to be made by OWNER's laboratory to obtain the information and the cost therefore shall be borne by CONTRACTOR.
- c. In any event, ENGINEER may have further tests made by commercial laboratory, or may make tests himself, to ensure that the Specifications are complied with by CONTRACTOR. Costs of these tests will be borne by OWNER.

#### 4. GUARANTEE:

- a. CONTRACTOR shall deliver to ENGINEER upon completion of all Work under the Contract his written guarantee, in the form of SECTION 01700 CONTRACT CLOSEOUT REQUIREMENTS, made out to OWNER, guaranteeing all of the Work under the Contract to be free from faulty materials in every particular and free from improper workmanship; and against injury from proper and usual wear; and agreeing to replace or to re-execute without cost to OWNER such Work as may be found to be improper or imperfect; and to make good all damage caused to other Work or materials, due to such required replacement or re-execution. This guarantee shall be made to cover a period of one (1) year from the date of completion of all Work under this Contract, as evidenced by ENGINEER's final certificate. This guarantee must be furnished to ENGINEER and approved by him before acceptance and final payment is made.
- b. CONTRACTOR shall provide OWNER with copies of all guarantees or warranties which have been made to CONTRACTOR by suppliers or subcontractors as required hereunder, together with an assignment of such warranties and guarantees to OWNER; however, such assignment shall not relieve CONTRACTOR of the responsibility (stated in subparagraph a. above) in case of failure of subcontractors or suppliers to fulfill the provisions of such warranties or guarantees.
- c. Neither the final certificate, nor payment, nor any provision in the Contract Documents shall relieve CONTRACTOR of responsibility for neglect of faulty materials or workmanship during the period covered by the guarantee.

**END OF SECTION**

## **DIVISION 1 - GENERAL REQUIREMENTS**

### **SECTION 01500 - TEMPORARY FACILITIES**

1. FIELD OFFICE: (n/a)

~~If CONTRACTOR is required to provide a Temporary Field Office, said office shall be placed, unless otherwise approved in writing, at a site selected by CONTRACTOR and approved by ENGINEER. The building shall be weatherproof and be provided with doors and locks, electric illumination and adequate ventilation. The floor of the building shall be raised above the ground. A complete set of Contract Drawings and Specifications shall be kept in the temporary office throughout the construction period and shall be accessible for use by OWNER and ENGINEER. The building shall be maintained in a clean condition throughout the Contract period and shall be removed from the site upon completion of all Work.~~

2. SANITARY FACILITIES:

CONTRACTOR shall make all arrangements and furnish all materials required to obtain any needed sanitary facilities and to satisfy the requirements of local or state health authorities, ordinances, and laws.

3. STORAGE OF MATERIALS:

- a. No materials shall be stored, nor shall any equipment be parked on adjacent property without the expressed consent of owner of the property concerned.
- b. Secure and watertight storage facilities of suitable size with floors raised above the ground shall be provided for materials liable to damage from exposure to the weather. Other materials shall be stored on blocks off the ground. Materials shall be so placed as to permit easy access for inspection and identification. Any material which has deteriorated, become damaged, or otherwise unfit for use, shall not be used in the Work, and shall be immediately removed from the site by CONTRACTOR. Upon completion of all Work or when directed, CONTRACTOR shall remove storage facilities from the site.

4. TEMPORARY UTILITIES:

CONTRACTOR shall arrange for and secure all temporary connections for water, electricity, gas, and other services needed by him for the proper execution of his operations. Costs for these services shall be paid for by CONTRACTOR.

5. BARRICADES AND WARNINGS:

- a. The safety of the public shall of primary importance during construction. In all respects provisions for public safety shall be CONTRACTOR's responsibility.
- b. Should conditions be such that the public safety is involved, the Contractor shall provide warning lights which shall be kept burning between the hours of sunset and sunrise. Barricades and warnings shall be in accordance with Item 502, "Barricades, Signs and Traffic Handling" of the Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges, as adopted by the Texas Department of Transportation (June 2004 edition).

**END OF SECTION**

## **DIVISION 1 - GENERAL REQUIREMENTS**

### **SECTION 01700 - CONTRACT CLOSEOUT REQUIREMENTS**

Before final acceptance by OWNER, the following items must be submitted and accepted by ENGINEER:

- a. Final Inspection completed.
- b. Bound manuals of servicing or operating instructions with recommended lubricants for all equipment.
- c. One (1) set of construction plans, with variations from originals and as-built conditions noted.
- d. CONTRACTOR's Guarantee.

CONTRACTOR shall deliver to OWNER, upon completion of all Work, his written guarantee, found herein as "CONTRACTOR'S GUARANTEE".

This guarantee shall be made to cover a period of one (1) year from the date of completion of all Work, and must be furnished to and approved by OWNER before acceptance and final payment is made.

Neither the final payment, nor any provision stated above, shall relieve CONTRACTOR of responsibility for neglect of faulty materials or workmanship during the period covered by the guarantee.

- e. All other guarantees and warranties properly assigned to OWNER

CONTRACTOR shall provide OWNER with copies of all guarantees or warranties which have been made to CONTRACTOR by suppliers or subcontractors, together with an assignment of such warranties and guarantees to OWNER; however, such assignment shall not relieve CONTRACTOR of the responsibility (stated in his guarantee) in case of failure of subcontractors or suppliers to fulfill the provisions of such warranties or guarantees.

Neither the final payment, nor any provision stated above, shall relieve CONTRACTOR of responsibility for neglect of faulty materials or workmanship during the period covered by the guarantee.

- f. CONTRACTOR's Final Affidavit and Waiver of Lien

CONTRACTOR shall deliver to OWNER, upon completion of all Work, a final sworn certification of no claims and waiver of liens in accordance with Article 14.07 of the General Conditions, unless otherwise amended by the Supplementary Conditions.

Such certification and waiver shall be found herein as the "CONTRACTOR'S FINAL AFFIDAVIT AND WAIVER OF LIEN", and if applicable, the "SUBCONTRACTOR'S FINAL AFFIDAVIT AND WAIVER OF LIEN".

- g. Final Application for Payment.

**CONTRACTOR'S GAURANTEE**

I, \_\_\_\_\_, being \_\_\_\_\_ of \_\_\_\_\_ (Hereinafter called "CONTRACTOR"), do hereby make the following statements to the \_\_\_\_\_ (Hereinafter called "OWNER") in relation to the completed project known as \_\_\_\_\_.

I guarantee...

That all completed Work is free from faulty materials in every particular,

That all completed Work is free from improper workmanship,

That no injury will occur from proper and usual wear, and

That OWNER has been assigned all guarantees and/or warranties originally made to CONTRACTOR by suppliers and subcontractors, if any. (Such assignment does not relieve CONTRACTOR of the responsibility stated in each guarantee and/or warranty in case of failure of suppliers or subcontractors to fulfill the provisions of such guarantees and/or warranties.)

I agree...

That the execution of the final certificate or the receipt of the final payment does not relieve CONTRACTOR of the responsibility for neglect of faulty materials or workmanship during the period covered by this Guarantee,

To replace or to re-execute without cost to OWNER such Work as may be found to be improper or imperfect, and

To make good all damage caused to other Work or materials, due to such required replacement or re-execution.

This Guarantee is in effect as of the \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_, and shall cover a period of ONE (1) Calendar Year from said effective date.

\_\_\_\_\_  
(CONTRACTOR)

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

Print Name/Title: \_\_\_\_\_

Date: \_\_\_\_\_



EXECUTED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
(CONTRACTOR)

Signed By: \_\_\_\_\_  
Print Name: \_\_\_\_\_  
Title: \_\_\_\_\_

SWORN TO AND SUBSCRIBED by \_\_\_\_\_, \_\_\_\_\_ of \_\_\_\_\_, before me  
this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_, to certify which witness my hand and seal of office.

\_\_\_\_\_  
NOTARY PUBLIC, STATE OF TEXAS

seal

**SUBCONTRACTOR'S FINAL AFFIDAVIT AND WAIVER OF LIENS**

THE STATE OF \_\_\_\_\_ §

COUNTY OF \_\_\_\_\_ §

BEFORE ME, the undersigned authority, on this day personally appeared \_\_\_\_\_ acting for and on behalf of \_\_\_\_\_ ("Subcontractor"), who, being first duly sworn by me, upon oath deposed and said that:

1. Affiant is duly authorized to make this affidavit and agreement on behalf of Subcontractor and is fully and personally cognizant of all facts and matters herein stated.
2. Subcontractor contracted with \_\_\_\_\_ ("CONTRACTOR") (which contract between Subcontractor and CONTRACTOR is hereinafter referred to as the "Subcontract") to complete certain work in connection with the Project known as \_\_\_\_\_.
3. All bills, debts, claims or accounts now due which Subcontractor has incurred to any person, firm or corporation for work or labor performed, for equipment rental, or for materials, specially fabricated materials, services or supplies furnished in connection with work under such Subcontract have been paid, settled or discharged in full or are included in the amount requested in Subcontractor's "final" payment application, and no basis exists for affixation of any lien against the above-described Project and improvements thereon by virtue of any work performed under such Subcontract to and including the payment date. Subcontractor has not received any notice or communication that any subcontractor, materialman, laborer, or other party has not been fully paid for all labor performed or materials heretofore furnished in connection with work performed under such Subcontract.
4. This agreement constitutes a release and waiver of all liens to which Subcontractor may be entitled against \_\_\_\_\_ ("OWNER"), CONTRACTOR, the above-described Project, all improvements thereon and any fixtures, chattels, or other property of OWNER thereon on account of all work performed and all materials furnished under such Subcontract.
5. Affiant understands that this affidavit is made for the purpose of inducing OWNER to make Final Payment to CONTRACTOR for the final payment to Subcontractor and that, in making any such payment, OWNER will rely upon the accuracy of the matters stated in this affidavit. Subcontractor therefore agrees to indemnify, defend, and hold OWNER and OWNER's successors and assigns, harmless from any loss, cost or expense incurred by virtue of any claims made against them on account of any unpaid bills for labor heretofore performed or for materials, specially fabricated materials, services, or other supplies furnished under such Subcontract to and including the payment date.

EXECUTED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

\_\_\_\_\_  
(Subcontractor)

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

Print Name: \_\_\_\_\_

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

SWORN TO AND SUBSCRIBED by \_\_\_\_\_, \_\_\_\_\_ of \_\_\_\_\_, before me this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_, to certify which witness my hand and seal of office.

\_\_\_\_\_  
NOTARY PUBLIC, STATE OF TEXAS  
seal

**END OF SECTION  
END OF DIVISION**



## **DIVISION 2 - SITE WORK**

### **SECTION 02050 - DEMOLITION**

#### 1. GENERAL:

The Work covered under this Section shall be as indicated on the Drawings and as specified herein. Demolition required for this Work includes, but is not limited to:

- a. Constructing temporary barriers around objects designated to remain.
- b. Demolition and removal of structures.
- c. Disconnecting and removing existing utility lines on the site except those designated to remain.
- d. Removal of debris.

#### 2. JOB CONDITIONS:

##### a. Burning:

On-site burning will not be permitted.

##### b. Protection:

Use all means necessary to protect existing objects designed to remain and, in the event of damage, immediately make all repairs and replacements necessary to the approval of ENGINEER at no additional cost to OWNER.

#### 3. MATERIALS:

All materials, required for proper completion of the Work of this Section, shall be selected by CONTRACTOR subject to the approval of ENGINEER.

#### 4. PREPARATION:

##### a. Notification:

Notify ENGINEER at least two full working days prior to commencing the Work of this Section.

##### b. Site Inspection:

1. Prior to all Work of this Section, carefully inspect the entire site and all objects designated to be removed and to be preserved.
2. Locate all existing utility lines and determine requirements for disconnecting and capping.
3. Locate existing active utility lines traversing the site and determine the requirements for their protection.

##### c. Clarification:

1. The Drawings do not purport to show all objects existing on the site.
2. Before commencing the Work of this Section, verify with ENGINEER all objects to be removed and all objects to be preserved.

##### d. Scheduling:

1. Schedule all Work in a careful manner with all necessary consideration for neighbors and the public.
2. Avoid interference with the use of, and passage to and from, adjacent buildings and facilities.

##### e. Disconnection of Utilities:

Before starting site operations, disconnect or arrange for the disconnection of all utility services designated to be removed; performing all such Work in accordance with the requirements of the utility

company or agency involved.

f. Protection of Utilities:

Preserve in operating condition all active utilities traversing the site and designated to remain.

5. DEMOLITION OF STRUCTURES:

Demolish all buildings designated for demolition, pulling out all foundations and concrete slabs; remove all existing pavement designated to be removed.

6. OTHER DEMOLITION:

Pull out all existing utility lines designated for abandonment, and all other objects to be removed.

7. CONSTRUCTION OF BARRICADES:

a. Materials:

Unless otherwise specifically approved by ENGINEER, use only new and solid lumber of Utility grade (or better) to construct temporary barricades around the objects designated to remain.

b. Layout:

1. At all objects designated to be preserved, construct a temporary barricade.
2. Make barricades at least three (3) feet high, consisting of 2" x 4" (or larger) posts, set at least 18 inches into the ground at not more than six (6) feet on centers, joined at the top by 1" x 6" (or larger) boards firmly nailed to the posts.

c. Protection:

1. Take special care, in setting posts, to not damage tree roots.
2. Do not permit stockpiling of materials or debris within the barricaded area, nor permit the earth's surface to be changed in any way except as specifically approved by ENGINEER.

8. REMOVAL OF DEBRIS:

CONTRACTOR shall be responsible for removal and disposal of all debris from the site, and return the site to the original or better condition. The Contractor shall leave the site in a neat and orderly condition to the approval of ENGINEER.

**END OF SECTION**

**SECTION 021020**  
**SITE CLEARING AND STRIPPING**

**1. DESCRIPTION**

This specification shall govern all work necessary for clearing, grubbing, and stripping of objectionable matter as required to complete the project, and shall include removing and disposing of trees, stumps, brush, roots, vegetation, rubbish, and other objectionable matter from the project site.

**2. CONSTRUCTION METHODS**

The site shall be cleared of all trees, stumps, brush, roots, vegetation, rubbish, and other objectionable matter as indicated on the drawings and/or as directed by the Engineer or his designated representative. Tree stumps and roots shall be grubbed to a minimum depth of 2 feet below natural ground, or 2 feet below base of subgrade, whichever is lower. Areas that underlie compacted backfill shall be stripped of all vegetation, humus and other objectionable matter encountered within the top six (6) inches of the soil. All material removed from the site under this operation shall become the Contractor's responsibility. The material shall be disposed of either at a disposal site indicated on the drawings or at a disposal site obtained by the Contractor.

**3. MEASUREMENT AND PAYMENT**

Unless otherwise specified on the Bid Form, site clearing and stripping, or clear right-of-way shall be measured by the acre.

Payment shall be full compensation for all labor, equipment, tools, and incidentals necessary for removing, handling, and disposing of objectionable matter from the site as indicated above.

**END OF SECTION**

**SECTION 021040  
SITE GRADING**

1. DESCRIPTION

This specification shall govern all work necessary for backfill and grading of the site to complete the project.

2. CONSTRUCTION METHODS

Prior to site grading, the site shall be cleared in accordance with City Standard Specification Section 021020 "Site Clearing and Stripping". Unless specified otherwise on the drawings, the existing surface shall be loosened by scarifying or plowing to a depth of not less than six (6) inches. The loosened material shall be recompacted with fill required to bring the site to the required grades and elevations indicated on the plans.

Fill shall be uniform as to material, density, and moisture content. Fill shall be free of large clods, large rocks, organic matter, and other objectionable material. No fill that is placed by dumping in a pile or windrow shall be incorporated into a layer in that position; all such piles and windrows shall be moved by blading or similar method. All fill shall be placed in layers approximately parallel to the finish grade in layers not to exceed six (6) inches of uncompacted depth, unless indicated otherwise on drawings.

The fill shall be compacted to a density which approximates that of natural ground unless indicated otherwise on drawings.

The Engineer may order proof rolling to test the uniformity of compaction. All irregularities, depressions and soft spots that develop shall be corrected by the Contractor.

Excess material from excavation, which is not incorporated into the site as fill, shall become property of the Contractor and disposed of away from the job site, unless indicated otherwise on the drawings.

3. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, site grading shall not be measured for pay, but shall be considered subsidiary to other work.

**END OF SECTION**

**SECTION 021080**  
**REMOVING ABANDONED STRUCTURES**

1. DESCRIPTION

This specification shall provide for the demolition, removal and disposal of abandoned structures or portions of abandoned structures, as noted on the drawings, and shall include all excavation and backfilling necessary to complete the removal. The work shall be done in accordance with the provisions of these specifications.

2. METHOD OF REMOVAL

**Culverts or Sewers.** Pipe shall be removed by careful excavation of all dirt on top and the sides in such manner that the pipe will not be damaged. Removal of sewer appurtenances shall be included for removal with the pipe. Those pipes which are deemed unsatisfactory for reuse by the Engineer may be removed in any manner the Contractor may select.

**Concrete Structures.** Unwanted concrete structures or concrete portions of structures shall be removed to the lines and dimensions shown on the drawings, and these materials shall be disposed of as shown on the drawings or as directed by the Engineer. Any portion of the existing structure outside of the limits designated for removal which is damaged by the Contractor's operations shall be restored to its original condition at the Contractor's entire expense. Explosives shall not be used in the removal of portions of the existing structure unless approved by the Engineer, in writing.

Portions of the abandoned structure shall be removed to the lines and dimensions shown on the plans, and these materials shall be disposed of as shown on the drawings or as directed by the Engineer. Any portion of the existing structure, outside of the limits designated for removal, damaged during the operations of the Contractor, shall be restored to its original condition entirely at the Contractor's expense. Explosives shall not be used in the removal of portions of the existing structure unless approved by the Engineer, in writing.

Concrete portions of structures below the permanent ground line, which will not interfere in any manner with the proposed construction, may be left in place, but removal shall be carried at least five (5) feet below the permanent ground line and neatly squared off. Reinforcement shall be cut off close to the concrete.

**Steel Structures.** Steel structures or steel portions of structures shall be dismantled in sections as determined by the Engineer. The sections shall be stored if the members are to be salvaged and reused. Rivets and bolts connecting steel railing members, steel beams of beam spans and steel stringers of truss spans, shall be removed by butting the heads with a "cold cut" and punching or drilling from the hole, or by such other method that will not injure the members for re-use and will meet the approval of the Engineer. The removal of rivets and bolts from connections of truss members, bracing members, and other similar members in the structure will not be required unless specifically called for on the plans or special provisions, and the Contractor shall have the option of dismantling these members by flame-cutting the members immediately adjacent to the connections.

Flame-cutting will not be permitted, however, when the plans or special provisions call for the structure unit to be salvaged in such manner as to permit re-erection. In such case, all members shall be carefully matchmarked with paint in accordance with diagrams furnished by the Engineer prior to dismantling, and all rivets and bolts shall be removed from the connections in the manner specified in the first portion of this paragraph.

**Timber Structures.** Timber structures or timber portions of structures to be reused shall be removed in such manner as to damage the timber for further use as little as possible. All bolts and nails shall

be removed from such lumber as deemed salvable by the Engineer.

Unless otherwise specified on the drawings, timber piles shall be either pulled or cut off at the point not less than five (5) feet below ground line, with the choice between these two methods resting with the Contractor, unless otherwise specified.

Brick or Stone Structures. Unwanted brick or stone structures or stone portions of structures shall be removed. Portions of such structures below the permanent ground line, which will not in any manner interfere with the proposed construction, may be left in place, but removal shall be carried at least five (5) feet below the permanent ground line and neatly squared off.

Salvage. All material such as pipe, timbers, railings, etc., which the Engineer deems as salvable for reuse, and all salvaged structural steel, shall be delivered to a designated storage area.

Materials, other than structural steel, which are not deemed salvable by the Engineer, shall become the property of the Contractor, and shall be removed to suitable disposal sites off of the right-of-way arranged for by the Contractor, or otherwise disposed of in a manner satisfactory to the Engineer.

Where temporary structures are necessary for a detour adjacent to the present structure, the Contractor will be permitted to use the material in the old structure for the detour structure, but he shall dismantle and stack or dispose of the material as required above as soon as the new structure is opened for traffic.

Backfill. All excavations made in connection with this specification and all openings below the natural ground line caused by the removal of abandoned structures or portions thereof shall be backfilled to the level of the original ground line, unless otherwise provided on the drawings.

Backfill in accordance with applicable requirements of Sections 022020 "Excavation and Backfill for Utilities" and 022080 "Embankment". All open ends of abandoned pipe or other structures shall be filled or plugged as specified.

That portion of the backfill which will support any portion of the roadbed, embankment, levee, or other structural feature shall be placed in layers of the same depth as those required for placing embankment, maximum 10" loose lifts unless otherwise specified. Material in each layer shall be wetted uniformly, if required, and shall be compacted to a minimum of 95% Standard Proctor density, unless otherwise specified. In places inaccessible to blading and rolling equipment, mechanical or hand tamps, or rammers shall be used to obtain the required compaction.

That portion of the backfill which will not support any portion of the roadbed, embankment, or other structural feature shall be placed as directed by the Engineer in such manner and to such state of compaction as will preclude objectionable amount of settlement, maximum 10" loose lifts to minimum 95% Standard Proctor density unless otherwise specified.

### 3. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, the work governed by this specification shall not be measured for pay, but shall be subsidiary to the project.

**END OF SECTION**

## DIVISION 2 - SITE WORK

### SECTION 02111 – CLEARING, ROUGH GRADING, COMPACTION AND FINISH GRADING

#### 1. GENERAL:

The Work covered under this section of the Specifications shall include furnishing all labor, materials and equipment and performing all operations necessary to complete all clearing and grubbing, disposal of surplus materials, rough grading, compaction of embankments, finish grading, and the performance of all other miscellaneous sitework operations required to complete the project as shown on the drawings and specified herein.

#### 2. SITE CLEARING:

- a. Clearing: All areas of new construction shall be cleared of all brush, weeds, rubbish, wire, debris and all other objectional matter to a line five (5) feet outside the proposed Work.
- b. Stripping: Remove all topsoil and organic materials within areas to be excavated and/or areas to receive embankment, for a depth of at least six (6) inches, or until bottom of existing topsoil layer is reached. Topsoil material shall be stockpiled separately and spread at locations and finished to grade.
- c. Grubbing: Remove all stumps, roots, etc., within the areas to be excavated to a depth of at least one (1) foot below the existing ground surface. In areas to receive embankment, remove all stumps, roots, etc., to a depth of at least one (1) foot below the existing ground surface. All holes remaining after clearing and grubbing shall be backfilled, and the entire area bladed to prevent ponding of water and to provide drainage, unless otherwise directed.

#### 3. PROCESSING OF CLEARED, STRIPPED AND GRUBBED MATERIAL:

- a. Stockpiling: Excavated material which is to be used for backfilling and grading may be deposited in storage piles at points convenient for rehandling. Location of storage piles shall not endanger the Work, obstruct roads and driveways, or restrict drainage channels, and will be acceptable to ENGINEER. Topsoil to be used for finish grading shall be stockpiled separately from other materials.
- b. Disposal of Excess and Unsuitable Materials: All suitable excavated materials in excess of that needed in the formation of embankments shall be disposed of at designated spoil disposal areas within the limits of the project. Material shall be placed in a uniform layer not to exceed twelve (12) inches thick over the entire designated area, graded and shaped to drain. Unsuitable unclassified excavation shall be known as "waste" and shall be disposed of by CONTRACTOR. The waste shall be disposed of in such manner as to not create a public nuisance, and disposal shall conform to State laws. CONTRACTOR may not utilize any public rights-of-way or public lands for waste disposal.

#### 4. ROUGH GRADING AND COMPACTION:

##### 1. Material

Furnish approved material capable of forming stable fill from required excavation within the agreed mitigation ponding area.

##### 2. Construction

Backfill tree-stump holes or other minor excavations with approved material and tamp. Restore the ground surface, including any material disked loose or washed out, to its original slope. Compact the ground surface by sprinkling in accordance with the current TxDOT Item 204, "Sprinkling," and by rolling using equipment complying with the current TxDOT Item 210, "Rolling" when directed.

Scarify and loosen the unpaved surface areas, except rock, to a depth of at least 6 inches, unless otherwise shown on the plans. Bench slopes before placing material. Begin placement of material at the toe of slopes. Do not place trees, stumps, roots, vegetation, or other objectionable material in the

embankment. Simultaneously re-compact scarified material with the placed embankment material. Do not exceed the layer depth specified in "Compaction" herein.

Earth fill is mainly composed of material other than rock. Construct fill in successive layers, evenly distributing materials in lengths suited for sprinkling and rolling. Construct the fill in layers approximately parallel to the finished grade for the full width of the area, unless otherwise shown on the plans. Construct the fill to the grades shown on the plans. Ensure that each section of the fill conforms to the detailed sections or slopes, if any.

Move the material dumped in piles or windrows by blading or by similar methods and incorporate it into uniform layers. Featheredge or mix abutting layers of dissimilar material for at least 100 ft. to ensure there are no abrupt changes in the material. Break down clods or lumps of material and mix embankment until a uniform material is attained. Apply water free of industrial wastes and other objectionable matter to achieve the uniform moisture content specified for compaction. Roll and sprinkle each layer in accordance with "Compaction" herein.

### 3. Compaction

Compaction of the material shall be provided by sheep-foot rollers or other approved method. Begin rolling longitudinally at the sides and proceed toward the center, overlapping on successive trips by at least 1/2 the width of the roller. Alternate roller trips to attain slightly different lengths. Do not allow the loose depth of any layer to exceed 8 inches, unless otherwise approved.

Provide a uniform compaction of 95% modified density in accordance with ASTM Standard 1557 at a moisture content between optimum moisture and five (5) percent above optimum moisture.

### 5. FINISH GRADING:

- a. Grade all areas indicated on drawings or as required to suit construction operations.
- b. Grading shall be carefully finished at elevations shown against building and other structures.
- c. In ungraded areas, backfill shall be placed around outside of structures to approximate level of adjacent ground but modified to assure positive drainage away from structures.
- d. A qualified engineer shall set lines, and grades.
- e. Grading changes shall be even between indicated finish elevations and contours, without sharp breaks, low spots, etc., to provide positive drainage.

### 6. UNDERGROUND UTILITIES:

Determine location of underground utilities before doing any excavation work. If a live utility line is damaged, the proper utility shall be notified immediately for required action. CONTRACTOR is responsible for repair to the line, at no cost to OWNER.

### 7. CLEANUP:

Prior to final acceptance of the complete project, CONTRACTOR shall remove all tools, scaffolding, temporary structures and debris from the site and areas of the Work. Any washes, ruts or other depressions that have occurred shall be leveled to give all areas where the Work was accomplished a smooth finish and neat appearance.

**END OF SECTION**



**SECTION 022020  
EXCAVATION AND BACKFILL FOR UTILITIES**

**1. DESCRIPTION**

This specification shall govern all work for excavation and backfill for utilities required to complete the project.

**2. CONSTRUCTION**

- 1) Unless otherwise specified on the drawings or permitted by the Engineer, all pipe and conduit shall be constructed in open cut trenches with vertical sides. Trenches shall be sheathed and braced as necessary throughout the construction period. Sheathing and bracing shall be the responsibility of the Contractor (refer to Section 022022 "Trench Safety for Excavations" of the City Standard Specifications).

Trenches shall have a maximum width of one foot beyond the horizontal projection of the outside surfaces of the pipe and parallel thereto on each side unless otherwise specified.

The Contractor shall not have more than 200 feet of open trench left behind the trenching operation and no more than 500 feet of ditch behind the ditching machine that is not compacted as required by the plans and specifications. No trench or excavation shall remain open after working hours.

For all utility conduit and sewer pipe to be constructed in fill above natural ground, the embankment shall first be constructed to an elevation not less than one foot above the top of the pipe or conduit, after which excavation for the pipe or conduit shall be made.

If quicksand, muck, or similar unstable material is encountered during the excavation, the following procedure shall be used unless other methods are called for on the drawings. If the unstable condition is a result of ground water, the Contractor, prior to additional excavation, shall control it. After stable conditions have been achieved, unstable soil shall be removed or stabilized to a depth of 2 feet below the bottom of pipe for pipes 2 feet or more in height; and to a depth equal to the height of pipe, 6 inches minimum, for pipes less than 2 feet in height. Such excavation shall be carried at least one foot beyond the horizontal limits of the structure on all sides. All unstable soil so removed shall be replaced with suitable stable material, placed in uniform layers of suitable depth as directed by the Engineer, and each layer shall be wetted, if necessary, and compacted by mechanical tamping as required to provide a stable condition. For unstable trench conditions requiring outside forms, seals, sheathing and bracing, any additional excavation and backfill required shall be done at the Contractor's expense.

- 2) Shaping of Trench Bottom. The trench bottom shall be undercut a minimum depth sufficient to accommodate the class of bedding indicated on the plans and specifications.
- 3) Dewatering Trench. Pipe or conduit shall not be constructed or laid in a trench in the presence of water. All water shall be removed from the trench sufficiently prior to the pipe or conduit planing operation to insure a relatively dry (no standing water), firm bed. The trench shall be maintained in such dewatered condition until the trench has been backfilled to a height at least one foot above the top of pipe. Removal of water may be accomplished by bailing, pumping, or by installation of well-points, as conditions warrant. Removal of well points shall be at rate of 1/3 per 24 hours (every third well-point). The Contractor shall prevent groundwater from trench or excavation dewatering operations from discharging directly into the storm water system. Groundwater from dewatering operations shall be sampled and tested, if applicable, and disposed of, in accordance with City Standard Specification Section 022021 "Control of Ground Water".

- 4) Excavation in Streets. Excavation in streets, together with the maintenance of traffic where specified, and the restoration of the pavement riding surface, shall be in accordance with drawing detail or as required by other applicable specifications.
- 5) Removing Abandoned Structures. When abandoned masonry structures or foundations are encountered in the excavation, such obstructions shall be removed for the full width of the trench and to a depth one foot below the bottom of the trench. When abandoned inlets or manholes are encountered and no plan provision is made for adjustment or connection to the new utility, such manholes and inlets shall be removed completely to a depth one foot below the bottom of the trench. In each instance, the bottom to the trench shall be restored to grade by backfilling and compacting by the methods provided hereinafter for backfill. Where the trench cuts through utility lines which are known to be abandoned, these lines shall be cut flush with the sides of the trench and blocked with a concrete plug in a manner satisfactory to the Engineer.
- 6) Protection of Utilities. The Contractor shall conduct his work such that a reasonable minimum of disturbance to existing utilities will result. Particular care shall be exercised to avoid the cutting or breakage of water and gas lines. Such lines, if broken, shall be restored promptly by the Contractor. When active wastewater lines are cut in the trenching operations, temporary flumes shall be provided across the trench while open, and the lines shall be restored when the backfilling has progressed to the original bedding line of the sewer so cut.

The Contractor shall inform utility owners sufficiently in advance of the Contractor's operations to enable such utility owners to reroute, provide temporary detours, or to make other adjustments to utility lines in order that the Contractor may proceed with his work with a minimum of delay. The Contractor shall not hold the City liable for any expense due to delay or additional work because of utility adjustments or conflicts.

- 7) Excess Excavated Material. All materials from excavation not required for backfilling the trench shall be removed by the Contractor from the job site promptly following the completion of work involved.
- 8) Backfill.

- a. Backfill Procedure Around Pipe (Initial Backfill).

All trenches and excavation shall be backfilled as soon as is practical after the pipes or conduits are properly laid. In addition to the specified pipe bedding material, the backfill around the pipe as applicable shall be granular material as shown on the standard details or as described in the applicable specification section, and shall be free of large hard lumps or other debris. If indicated on the plans, pipe shall be encased with cement-stabilized sand backfill as described below. The backfill shall be deposited in the trench simultaneously on both sides of the pipe for the full width of the trench, in layers not to exceed ten (10) inches (loose measurement), wetted if required to obtain proper compaction, and thoroughly compacted by use of mechanical tampers to a density comparable to the adjacent undisturbed soil or as otherwise specified on the plans, but not less than 95% Standard Proctor density. A thoroughly compacted material shall be in place between the external wall of the pipe and the undisturbed sides of the trench and to a level twelve (12) inches above the top of the pipe.

- b. Backfill Over One Foot Above Pipe (Final Backfill).

UNPAVED AREAS: The backfill for that portion of trench over one (1) foot above the pipe or conduit not located under pavements (including waterlines, gravity wastewater lines, wastewater force mains and reinforced concrete storm water pipe) shall be imported select material or clean, excess material from the excavation meeting the following requirements:

Free of hard lumps, rock fragments, or other debris,

No clay lumps greater than 2" diameter,  
Moisture Content: +/-3%

Backfill material shall be placed in layers not more than ten (10) inches in depth (loose measurement), wetted if required to obtain proper compaction, and thoroughly compacted by use of mechanical tampers to the natural bank density but not less than 95% Standard Proctor density, unless otherwise indicated. Flooding of backfill is not allowed. Jetting of backfill may only be allowed in sandy soils and in soils otherwise approved by the Engineer. Regardless of backfill method, no lift shall exceed 10 inches and density shall not be less than 95% Standard Proctor density. A period of not less than twenty-four (24) hours shall elapse between the time of jetting and the placing of the top four (4) feet of backfill. If jetting is used, the top four (4) feet of backfill shall be placed in layers not more than 10 inches in depth (loose measurement), wetted if required to obtain proper compaction, and thoroughly compacted by use of mechanical tampers to the natural bank density but not less than 95% Standard Proctor density (ASTM D698).

PAVED AREAS: At utility line crossings under pavements (including waterlines, gravity wastewater lines, wastewater force mains, and reinforced concrete storm water pipe), and where otherwise indicated on the drawings, trenches shall be backfilled as shown below:

From top of initial backfill (typically twelve (12) inches above top of the pipe) to three (3) feet below bottom of road base course, backfill shall be select material meeting the requirements of 022100 "Select Material".

#### Asphalt Roadways

The upper three (3) feet of trench below the road base course shall be backfilled to the bottom of the road base course with cement-stabilized sand containing a minimum of 2 sacks of Standard Type I Portland cement per cubic yard of sand and compacted to not less than 95% Standard Proctor density.

#### Concrete Roadways

The Contractor may elect to backfill the upper three (3) feet of trench below the road base course with cement stabilized sand as noted above, or in the case of storm water pipe or box installation the Contractor may backfill and compact select material to 98% Standard Proctor density (ASTM D698) following City Standard Specification Section 022100.

### 9) MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, excavation and backfill for utilities, including select material or cement-stabilized sand backfill, shall not be measured, and paid for separately. It shall be considered subsidiary to the items for which the excavation and backfill is required.

**END OF SECTION**

SECTION 022040  
STREET EXCAVATION

1. DESCRIPTION

This specification shall govern all work for Street Excavation required to complete the project.

2. CONSTRUCTION METHODS

(A) Stripping and Excavation

Strip the top 6 inches in all areas to underlay compacted fill, curbs, base or pavement, by removing all humus, vegetation and other unsuitable materials. Unless otherwise noted, remove existing trees, shrubs, fences, curb, gutter, sidewalk, drives, paving, pipe and structures and other items within the graded area which interfere with new construction of finished grading.

All suitable excavated materials shall be utilized, insofar as practicable, in constructing the required roadway sections or in uniformly widening embankments, flattening slopes, etc., as directed by the Engineer, provided that the material meets the requirements for roadway embankment as specified in Article 3 below. Unwanted or unsuitable roadway excavation and roadway excavation in excess of that needed for construction shall become the property of the Contractor to be disposed of by him outside the limits of the right-of-way at a location suitable to the Engineer. "Unsuitable" material encountered below subgrade elevation in roadway cuts, when declared unwanted by the Engineer, shall be replaced as directed by the Engineer with suitable material from the roadway excavation or with other suitable material.

Maintain moisture and density until covered and protected by the subbase or base course. Remove soft or wet areas found at any time, replace with suitable material, and recompact (especially utility trenches).

(B) Subgrade Preparation

That area shown on the drawings for street construction shall be cut to grade, scarified to a depth not less than 6 inches, or as otherwise indicated on the drawings, and compacted to 95% Standard Proctor density (ASTM D698) to within 0 to +3% of optimum moisture. The section may be accepted if no more than 1 in 5 of the most recent moisture or density tests is beyond  $\pm 1\%$  deviation from the required moisture or density requirement. Irregularities exceeding  $\frac{1}{2}$  inch in 16 feet shall be corrected. Soft areas found at anytime shall be removed, replaced with suitable material and compacted (especially at utility trenches). The correct moisture density relationship shall be maintained until the subgrade is protected. Excessive loss of moisture shall be prevented by sprinkling, sealing, or covering with a subsequent layer. Should the subgrade, due to any reason or cause, lose the required stability, density, or moisture before it is protected by placement of the next layer, it shall be re-compacted and refinished and retested at the expense of the Contractor until acceptable to the City.

(C) Curb Backfill and Topsoil (Sidewalks, Parkways, Islands, etc.)

Fill and compact areas behind curbs and adjacent to sidewalks and driveways within 48 hours after completion of concrete work. The top 6 inches (where disturbed by construction or where unsatisfactory material is exposed by excavation) of finish earth grade shall be clean excavated material or topsoil capable of supporting a good growth of grass when fertilized and seeded or sodded. It shall be free of concrete, asphalt, shell, caliche, debris and any other material that detracts from its appearance or hampers the growth of grass. Topsoil shall meet the requirements specified in City Standard Specification Section 028020 "Seeding".

(D) Matching Grades at Right-of-Way Line

Finish grade at the property line shall be as shown on the drawings. The Engineer may require a reasonable amount of filling on private property where the sidewalk grade is above the property elevation. Use suitable material from the excavation. Unless otherwise directed, cuts at right-of-way lines shall be made at a slope of three horizontal to one vertical (3:1) or flatter.

(E) Drainage

During construction, the roadbed and ditches shall be maintained in such condition as to insure proper drainage at all times, and ditches and channels shall be so constructed and maintained as to avoid damage to the roadway section.

All slopes which, in the judgment of the Engineer, require variation, shall be accurately shaped, and care shall be taken that no material is loosened below the required slopes. All breakage and slides shall be removed and disposed of as directed.

3. SELECTION OF ROADBED MATERIALS

Where shown on the plans, Select Material shall be utilized to improve the roadbed, in which case the work shall be performed in such manner and sequence that suitable materials may be selected, removed separately, and deposited in the roadway within limits and at elevations required. Material used for roadway embankment shall meet the requirements of City Standard Specification Section 022100 Select Material.

4. GEOGRID

If indicated on the drawings, geogrid shall be placed in the base layer according to the pavement details to provide a mechanically-stabilized aggregate base layer within the pavement structure. Geogrid shall be "Tensar TX5 Triaxial Geogrid", or pre-approved equivalent. Use (and approval) of a different product must be supported by documentation showing that the alternate pavement section will meet or exceed the required number of 18-kip equivalent single axle loads (ESAL) and structural number (SN) over the stated pavement design life, and the pavement design must be sealed and signed by a Texas professional engineer. Documentation must also include the structural design value used for the geogrid structural contribution, based on and supported by

validated test data. Alternate pavement designs shall utilize the same structural design values for other pavement structural components (HMAC, base, sub-base) as used in the original pavement design, and the pavement designs must be approved by the Engineer and the geotechnical consultant.

Contractor shall take care to protect geogrid from damage. Overlap edges of geogrid in accordance with the manufacturer's recommendations, but not less than 12 inches. Do not drive tracked equipment directly on the geogrid. Provide at least 6 inches of compacted aggregate base material over the geogrid before driving any tracked equipment over the geogrid area. Standard highway-legal rubber-tired trucks may drive over the geogrid at very slow speeds (less than 5 mph). Avoid turns and sudden starts and stops when driving on the geogrid. Any damaged geogrid shall be replaced by the Contractor at no additional cost to the City. Proper replacement shall consist of replacing the affected area adding 3 feet of geogrid in each direction beyond the limits of the affected area.

## 5. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, street excavation shall be measured and paid for by the square yard to the limits shown on the drawings including excavation for street transitions. Payment shall be full compensation for furnishing all labor, materials, tools, equipment, borrow material and incidentals necessary to complete the work.

Unless otherwise specified on the Bid Form, compacted subgrade shall be measured and paid for by the square yard to the limits shown on the drawings. Payment shall be full compensation for furnishing all labor, materials, tools, equipment, borrow material and incidentals necessary to complete the work.

Unless otherwise specified on the Bid Form, geogrid shall be measured and paid for by the square yard to the limits shown on the drawings, excluding overlaps. Payment shall be full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the work.

All work required for disposing of waste, including hauling will not be paid for directly but shall be considered subsidiary to the various contract items.

**SECTION 022100**  
**SELECT MATERIAL**

1. DESCRIPTION

This specification shall govern the use of Select Material to be used to treat designated sections of roadways, embankments, trenches, etc. Select material shall be non-expansive sandy clay (CL) or clayey sand (SC), in accordance with the Unified Soil Classification System (ASTM D2487). Select Material shall meet the following requirements:

Free of vegetation, hard lumps, rock fragments, or other debris  
No clay lumps greater than 2" diameter  
Liquid Limit (L.L.): < 35  
Plasticity Index (P.I.) Range: 8 to 20  
Moisture Content: as specified in the drawings

2. CONSTRUCTION METHODS

Select material shall be mixed uniformly and placed in layers as indicated, not to exceed 10 inches loose depth (or 12 inches maximum for sanitary sewer trench backfill per City Standard Details for Sanitary Sewers). Unless otherwise specified, the material shall be compacted to a minimum of 95% Standard Proctor density. Each layer shall be complete before the succeeding layer is placed. The finished surface of the select material shall conform to the grade and section shown on the drawings.

3. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, select material shall not be measured for pay, but shall be subsidiary to the appropriate bid item.

**END OF SECTION**

**SECTION 025608  
INLETS**

1. DESCRIPTION.

This specification shall govern for the construction of inlets complete in place and the materials used therein, including the installation, and the furnishing of frames, grates, rings, and covers.

2. TYPES.

The various types of inlets are designated on the drawings by letters or by numbers indicating the particular design of each. Each type shall be constructed in accordance with the details shown on the drawings and to the depth required by the profiles and schedules given.

3. MATERIALS.

- a. Concrete. Concrete for curb inlets shall be Class "A" concrete conforming to the requirements of City Standard Specification Section 038000 "Concrete Structures", and City Standard Specification Section 030020 "Portland Cement Concrete", except as otherwise provided on the drawings. Concrete for grate inlets, drop inlets and post inlets shall be Class "C" concrete in accordance with City Standard Specification Section 030020 "Portland Cement Concrete".
- b. Mortar. Mortar shall be composed of one part Portland cement and two parts clean, sharp mortar sand suitably graded for the purpose by conforming in other respects to the provisions of City Standard Specification Section 030020 "Portland Cement Concrete" for fine aggregate. Hydrated lime or lime putty may be added to the mix but in no case shall it exceed 10 percent by weight of the total dry mix.
- c. Reinforcing Steel. Reinforcing Steel shall conform to the requirements of City Standard Specification Section 032020 "Reinforcing Steel".
- d. Concrete Blocks. Concrete blocks, when shown on the drawings, shall conform to the requirements of ASTM C 139.
- e. Frames, Grates, Rings and Covers. Frames, grates, rings and covers shall conform to the requirements of City Standard Specification Section 055420 "Frames, Grates, Rings and Covers".
- f. Cast Iron. Cast iron for supports and inlet units shall conform to the shape and dimensions shown on the plans. The castings shall be clean and perfect, free from sand or blow holes or other defects. Cast iron castings shall conform to the requirements of "Gray Iron Castings" ASTM A 48, Class 30.

4. CONSTRUCTION METHODS

- a. General. All concrete work shall be performed in accordance with the requirements of City Standard Specification Section 038000 "Concrete Structures", unless otherwise specified. Forms will be required for all concrete walls, except where the nature of the surrounding material is such that it can be trimmed to a smooth vertical face.
- b. Inlets for Precast Concrete Pipe Sewers. The construction of inlets for precast concrete pipe sewers shall be done as soon as is practicable after sewer lines into or through inlet locations are completed. All sewers shall be cut neatly at the inside face of the walls of inlet and pointed up with mortar. Subgrade under cast-in-place and precast inlets shall be compacted to not less than 95% Standard Proctor density.
- c. Inverts. The inverts passing out or through the inlet shall be shaped and routed across the floor of inlet as shown on the plans. This shaping may be accomplished by adding and shaping mortar or concrete after the base is cast or by placing the required additional material with the base.



- d. Finishing Complete Inlets. Inlets shall be completed in accordance with the drawings. Backfilling to finish grade elevation with native material, free of debris and compacted to over 95% Standard Proctor density. Backfilling shall be in accordance with the provisions of City Standard Specification Section 022020 "Excavation and Backfill for Utilities".

## 5. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, inlets shall be measured as individual units by each inlet, complete in place. Extension to inlets will be measured by each extension separately from the inlet. Excavation, backfill, frames, grates, rings and covers will be considered subsidiary to the construction of the inlets.

Payments shall be full compensation for furnishing all concrete, reinforcing steel, mortar, castings, frames, grates, rings and covers, and for all other materials, labor, tools, equipment and incidentals required to perform the work prescribed above.

**END OF SECTION**

**SECTION 025610  
CONCRETE CURB AND GUTTER**

1. DESCRIPTION.

This specification shall consist of Portland cement concrete combined concrete curb and gutter or separate concrete curb with or without reinforcing steel as required, constructed on an approved subgrade or foundation material in accordance with these specifications, in conformity with the lines and grades established by the Engineer and details shown on the drawings.

2. MATERIALS.

Unless otherwise specified on the drawings, materials and proportions for concrete used in construction under this specification shall conform to the requirements as specified for Class "A" Concrete under City Standard Specification Section 030020 "Portland Cement Concrete". Reinforcing steel shall conform to the requirements as specified in City Standard Specification Section 032020 "Reinforcing Steel". Expansion joint filler shall be redwood material meeting the requirements specified in City Standard Specification Section 038000 "Concrete Structures".

3. CONSTRUCTION METHODS.

The foundation shall be excavated and shaped to line, grade and cross-section, and hand tamped and sprinkled. If dry, the subgrade or foundation material shall be sprinkled lightly with water and compacted to not less than 98% Standard Proctor density, or as required on the drawings. Flexible base shall be compacted to specified density and moisture immediately before concrete is deposited thereon.

Outside forms shall be of wood or metal, of a section satisfactory to the Engineer, straight, free of warp, and of a depth equal to the depth of the curb and gutter. They shall be securely staked to line and grade, and maintained in a true position during the depositing of concrete. Inside forms for the curb shall be approved material, shall be of such design as to provide the curb required, and shall be rigidly attached to the outside forms. For reinforced concrete roadways, all jointing must be reflected through the curb, including redwood expansion joints and construction joints. Driveway gutter shall be placed integrally with the driveway as shown on the City Standard Details. The reinforcing steel shall be placed in position as shown on the typical details. Care shall be exercised to keep all reinforcing steel in its proper location.

Concrete for curb and gutter shall be mixed in a manner satisfactory to the Engineer. The curb and gutter shall be placed in sections of the length indicated on the plans, and each section shall be separated by a premolded insert or board joint of cross-section specified for the curb and gutter, and of the thickness indicated on the drawings.

After the concrete has been struck off and after it has become sufficiently set, the exposed surfaces shall be thoroughly worked with a wooden float. The exposed edges shall be rounded by the use of an edging tool to the radius indicated on the drawings. All exposed surfaces of curb and gutter, or curb, shall be brushed to a smooth and uniform surface.

The completed curb and gutter shall be cured with Type 2, white pigmented curing compound unless shown otherwise on the drawings. Other methods of curing as outlined in City Standard Specification Section 038000 "Concrete Structures" will be acceptable with a required curing period of 72 hours.

The area behind the curb shall be backfilled, tamped, and sloped as directed as soon as possible and no later than 48 hours after the removal of forms. Backfill shall be placed to the full height of the curb, or as otherwise specified.

4. MEASUREMENT AND PAYMENT.

Unless otherwise specified on the Bid Form, concrete curb and gutter or concrete curb will be measured by the linear foot for each type of curb, complete in place. Payment shall be full compensation for preparing the subgrade; for furnishing and placing all materials including reinforcing steel and expansion joint material; for furnishing, placing, shaping, and tamping backfill; and for all manipulation, labor, tools, equipment, and incidentals necessary to complete the work.

**END OF SECTION**

**SECTION 025612  
CONCRETE SIDEWALKS AND DRIVEWAYS**

1. DESCRIPTION.

This specification shall consist of sidewalks and driveways, with or without reinforcing steel, composed of Portland cement concrete, constructed as herein specified on an approved subgrade, in conformity with the lines and grades established by the Engineer and the details shown on the drawings.

2. MATERIALS.

Materials and proportions used in construction under this item shall conform to the requirements as specified for Class "A" concrete under City Standard Specification Section 030020 "Portland Cement Concrete". Reinforcing steel shall conform to the requirements as specified in City Standard Specification Section 032020 "Reinforcing Steel". Expansion joint filler shall be redwood meeting the requirements specified in City Standard Specification Section 038000 "Concrete Structures". Cap seal shall be "Greenstreak" or approved equal.

3. CONSTRUCTION METHODS.

The subgrade shall be excavated, compacted, and shaped to line, grade and cross-section and hand tamped and sprinkled with water. Subgrade under concrete sidewalks and driveways shall be compacted to not less than 95% Standard Proctor density. The subgrade shall be within 0-3% of optimum moisture content at the time the concrete is placed.

Forms shall be of wood or metal, of a section satisfactory to the Engineer, straight, free from warp, and of a depth equal to the thickness of the finished work. They shall be securely staked to line and grade and maintained in a true position during the depositing of concrete.

The reinforcing steel shall be placed in position as shown on the drawings. Care shall be exercised to keep all reinforcing steel in its proper location.

Driveways shall incorporate the gutter in a unified concrete placement as shown in the City Standard Detail for driveways.

Sidewalks shall be constructed in sections of the lengths shown on drawings. Unless otherwise provided by the drawings, no section shall be of a length less than 8 feet, and any section less than 8 feet shall be removed by the Contractor at his own expense.

The different sections shall be separated by a premolded insert or board joint of the thickness shown on the drawings, placed vertically and at right angles to the longitudinal axis of the sidewalks. Where the sidewalk or driveways abut a curb or retaining wall, approved expansion joint material shall be placed along their entire length. Similar expansion joint material shall be placed around all obstructions protruding through sidewalks or driveways.

Concrete shall be mixed in a manner satisfactory to the Engineer, placed in the forms to the depth specified and spaded and tamped until thoroughly compacted and mortar entirely covers the surface.

The top surface shall be floated with a wooden float to a gritty texture. The outer edges and joints shall then be rounded with approved tools to the radii shown on drawings. 5-foot-wide sidewalks shall be marked into separate sections, each 5 feet in length, by the use of approved jointing tools. For other widths of sidewalk, joints to be spaced longitudinally to match the transverse width.

When completed, the sidewalks and driveways shall be cured with Type 2, white pigmented

curing compound. Other methods of curing as outlined in City Standard Specification Section 038000 "Concrete Structures" will be acceptable with a required curing period of 72 hours.

4. MEASUREMENT AND PAYMENT.

Unless otherwise specified on the Bid Form, concrete sidewalks and driveways shall be measured by the square foot of surface area of completed sidewalks, driveways, or sidewalks and driveways, as indicated on the drawings.

Payment shall be full compensation for preparing and compacting the subgrade; for furnishing and placing all materials including concrete, reinforcing steel and expansion joint material; and for all manipulation, labor, tools, equipment, and incidentals necessary to complete the work.

**END OF SECTION**

**SECTION 025802**  
**TEMPORARY TRAFFIC CONTROLS DURING CONSTRUCTION**

1. DESCRIPTION.

This specification shall govern all work required for Temporary Traffic Controls during construction. The work shall include furnishing, installing, moving, replacing, and maintaining all temporary traffic controls including, but not limited to, barricades, signs, barriers, cones, lights, signals, temporary detours, temporary striping and markers, flagger, temporary drainage pipes and structures, blue business signs, and such temporary devices as necessary to safely complete the project.

2. MATERIALS.

Traffic control devices shall conform to the latest edition of the "Texas Manual on Uniform Traffic Control Devices", unless indicated otherwise on the Traffic Control Plan.

3. METHODS.

Sufficient traffic control measures shall be used to assure a safe condition and to provide a minimum of inconvenience to motorists and pedestrians.

If the Traffic Control Plan (TCP) is included in the drawings, any changes to the TCP by the Contractor shall be prepared by a Texas licensed professional engineer and submitted to the City Traffic Engineer for approval, prior to construction. If the TCP is not included in the drawings, the Contractor shall provide the TCP prepared by a Texas licensed professional engineer and submit the TCP to the City Traffic Engineer for approval, prior to construction.

The Contractor is responsible for implementing and maintaining the traffic control plan and will be responsible for furnishing all traffic control devices, temporary signage and ATSSA certified flaggers. The construction methods shall be conducted to provide the least possible interference to traffic so as to permit the continuous movement of traffic in all allowable directions at all times. The Contractor shall cleanup and remove from the work area all loose material resulting from construction operations at the end of each workday.

All signs, barricades, and pavement markings shall conform to the BC standard sheets, TCP sheets and the latest version of the "Texas Manual on Uniform Traffic Control Devices".

The Contractor may be required to furnish additional barricades, signs, and warning lights to maintain traffic and promote motorists' safety. Any such additional signs and barricades will be considered subsidiary to the pay item for traffic control. All signs, barricades, and posts will be either new or freshly painted.

The contractor and any traffic control subcontractor must be ATSSA certified for Traffic Control.

A competent person, responsible for implementation of the TCP and for traffic safety, shall be designated by the Contractor.

The name and off-hours phone number of the competent person shall be provided in writing at the Pre-Construction Conference.

The competent person shall be on site, during working hours and on call at all times in the event of off-hour emergency.

The contractor must provide temporary blue sign boards that direct traffic to businesses and driveways during each phase of construction – see example below. The sign boards may be

either skid mounted, or barrel mounted. The City will assist the contractor in determining which businesses and driveways will receive signage during various construction phases. The provision, installation, and removal of signage will be considered to be subsidiary to the contract items provided for "Traffic Control."

Example Blue Sign



#### 4. MEASUREMENT AND PAYMENT.

Unless otherwise specified on the Bid Form, temporary traffic controls during construction shall be measured as a lump sum. Payment shall include, but not be limited to, furnishing, installing, moving, replacing, and maintaining all temporary traffic controls including, but not limited to, barricades, signs, barriers, cones, lights, signals, temporary striping and markers, flaggers, removable and non-removable work zone pavements markings and signage, channelizing devices, temporary detours, temporary flexible-reflective roadway marker tabs, temporary traffic markers, temporary drainage pipes and structures, blue business signs, and such temporary devices and relocation of existing signs and devices.

Payment shall be full compensation for all labor, equipment, materials, personnel, and incidentals necessary to provide a safe condition during construction of all phases and elements of the project and to complete the work. Payment will be made on the following basis: The initial monthly estimate will include 50% of the lump sum bid amount minus retention (typically 5%). The balance will be paid with the final estimate, upon completion of the project.

**END OF SECTION**

**SECTION 027402  
REINFORCED CONCRETE PIPE CULVERTS**

1. DESCRIPTION.

This specification shall govern the furnishing and placing of reinforced concrete pipe culverts and the material and incidental construction requirements for reinforced concrete pipe sewers. The culvert pipe shall be installed in accordance with the requirements of these specifications to the lines and grades shown on the plans, and shall be of the classes, sizes and dimensions shown thereon. The installation of pipe shall include all joints or connections to new or existing pipe, headwalls, etc., as may be required to complete the work.

2. MATERIALS.

- a. General. Except as modified herein, materials, manufacture and design of pipe shall conform to ASTM C-76 for Circular Pipe. All pipe shall be machine made or cast by a process which will provide for uniform placement of the concrete in the form and compaction by mechanical devices which will assure a dense concrete. Concrete shall be mixed in a central batch plant or other approved batching facility from which the quality and uniformity of the concrete can be assured. Transit mixed concrete will not be acceptable for use in precast concrete pipe.
- b. Design. All pipe shall be Class III (Wall "B") unless otherwise specified on the plans. The shell thickness, the amount of circumferential reinforcement and the strength of the pipe shall conform to the specified class as summarized in ASTM C-76 for Circular Pipe.
- c. Sizes and Permissible Variations.
  - 1) Variations in diameter, size, shape, wall thickness, reinforcement, placement of reinforcement, laying length and the permissible underrun of length shall be in accordance with the applicable ASTM Specification for each type of pipe as referred to previously.
  - 2) Where rubber gasket pipe joints are to be used, the design of the Joints and Permissible Variations in Dimensions shall be in accordance with ASTM C-443.
- d. Workmanship and Finish. Pipe shall be substantially free from fractures, large or deep cracks and surface roughness. The ends of the pipe shall be normal to the walls and centerline of the pipe within the limits of variations allowed under the applicable ASTM specification.
- e. Curing. Pipe shall be cured in accordance with the applicable ASTM Specification for each type of pipe as referred to above.
- f. Marking. The following information shall be clearly marked on each section of pipe:
  - 1) The class of pipe.
  - 2) The date of manufacture.
  - 3) The name or trademark of the manufacturer.
  - 4) Marking shall be indented on the pipe section or painted thereon with waterproof paint.
- g. Minimum Age for Shipment. Pipe shall be considered ready for shipment when it conforms to the requirements of the tests specified herein.



- h. Inspection. The quality of materials, the process of manufacture, and the finished pipe shall be subject to inspection and approval by the Engineer at the pipe manufacturing plant. In addition, the finished pipe shall be subject to further inspection by the Engineer at the project site prior to and during installation.
- i. Causes for Rejection. Pipe shall be subject to rejection on account of failure to conform to any of the specification requirements. Individual sections of pipe may be rejected because of any of the following:
  - 1) Fractures or cracks passing through the shell, except for a single end crack that does not exceed the depth of the joint.
  - 2) Defects that indicate imperfect proportioning, mixing, and molding.
  - 3) Surface defects indicating honeycombed or open texture.
  - 4) Damaged ends, where such damage would prevent making a satisfactory joint.
- j. Repairs. Pipe may be repaired, if necessary, because of occasional imperfections in manufacture or accidental injury during the handling, and will be acceptable if, in the opinion of the Engineer, the repairs are sound and properly finished and cured and the repaired pipe conforms to the requirements of the specifications.
- k. Rejections. All rejected pipe shall be plainly marked by the Engineer and shall be replaced by the Contractor with pipe that meets the requirements of these specifications. Such rejected pipe shall be removed immediately from the worksite.
- l. Jointing Materials. Unless otherwise specified on the plans, the Contractor shall have the option of making the joints by any of the following methods:
  - 1) Ram-Nek, a pre-formed plastic base joint material manufactured by K. T. Knyder Company, Houston, Texas, or an approved equal. Use of Talcote as joint material will not be permitted. Ram-Nek joint material and primer shall be supplied for use on pipe in the following sizes, which is the minimum that will be required. Additional Ram-Nek may be required if, in the opinion of the Engineer, a proper joint is not secured.

Pipe Size	Primer Per 100 Jts.	Cut Lengths Per Joint
12"	1.5 gals.	1½ pcs 1" x 2'-5"
15"	1.9 gals.	2 pcs 1" x 2'-5"
18"	2.7 gals.	1½ pcs 1½ " x 3'-5"
21"	3.8 gals.	2 pcs 1½ " x 3'-5"
24"	6.2 gals.	2 pcs 1½ " x 3'-5"
30"	8.5 gals.	2½ pcs 1½ " x 3'-5"
36"	9.5 gals.	3 pcs 1¾" x 3'-5"
42"	12.0 gals.	3½ pcs 1¾" x 3'-5"
48"	15.0 gals.	4 pcs 1¾" x 3'-5"
54"	20.0 gals.	4½ pcs 1¾" x 3'-5"
60"	25.0 gals.	5 pcs 1¾" x 3'-5"
66"	30.0 gals.	5½ pcs 1¾" x 3'-5"
72"	32.0 gals.	6 pcs 2" x 3'-5"
84"	35.0 gals.	7 pcs 2" x 3'-5"

- 2) TYLOX Types "C", "C-P" or "CR" rubber gaskets, as applicable, as manufactured by Hamilton Kent Manufacturing Company, Kent, Ohio, or approved equal. All gaskets, lubricants, adhesives, etc., shall be manufactured, constructed, installed, etc., as recommended by the manufacturer of the rubber gasket material and

conform to ASTM Designation: C-443. In addition, the Contractor shall furnish to the City, for approval, manufacturer's brochures detailing the complete use, installation, and specifications of concrete pipe and rubber gaskets before any rubber gasket material is used on the project. All rubber gaskets shall be fabricated from synthetic rubber.

- 3) Cement Mortar is prohibited from jointing pipe except at manholes, pipe junctions, etc., or where specifically approved by the Engineer.
- 4) Geotextile for wrapping pipe joints shall be Class "A" subsurface drainage type in accordance with AASHTO M288.

## 5. CONSTRUCTION METHODS.

Reinforced concrete pipe culverts shall be constructed from the specified materials in accordance with the following methods and procedures:

- a. Excavation. All excavation shall be in accordance with the requirements of City Standard Specification Section 022020 "Excavation and Backfill for Utilities," except where tunneling or jacking methods are shown on the plans or permitted by the Engineer. When pipe is laid in a trench, the trench, when completed and shaped to receive the pipe, shall be of sufficient width to provide free working space for satisfactory bedding and jointing and thorough tamping of the backfill and bedding material under and around the pipe. The Contractor shall make such temporary provisions as may be necessary to insure adequate drainage of the trench and bedding during the construction operation. Pipe shall be placed such that the identification markings are visible at the top prior to backfill.
- b. Bedding. The pipe shall be bedded in accordance with the bedding details shown on the drawings. Bedding shall not be measured for pay, but shall be subsidiary to other work. If the subgrade of the trench is unstable, even if this condition occurs at relatively shallow depths, full encasement of the pipe with crushed stone shall be required.
- c. Laying Pipe. Unless otherwise authorized by the Engineer, the laying of pipe on the prepared foundation shall be started at the outlet (downstream) end with the spigot or tongue end pointing downstream, and shall proceed toward the inlet (upstream) end with the abutting sections properly matched, true to the established lines and grades. Where bell and spigot pipe are used, cross trenches shall be cut in the foundation to allow the barrel of the pipe to rest firmly upon the prepared bed. These cross trenches shall be not more than two inches larger than the bell ends of the pipe. Proper facilities shall be provided for hoisting and lowering the sections of pipe into the trench without disturbing the prepared foundation and the sides of the trench. The ends of the pipe shall be carefully cleaned before the pipe is placed. As each length of pipe is laid, the mouth of the pipe shall be protected to prevent the entrance of earth or bedding material. The pipe shall be fitted and matched so that when laid in the bed, it shall form a smooth, uniform conduit. When elliptical pipe with circular reinforcing or circular pipe with elliptical reinforcing is used, the pipe shall be laid in the trench in such position that the markings "TOP" or "BOTTOM" shall not be more than 5 degrees from the vertical plane through the longitudinal axis of the pipe.

For pipe over 42 inches in diameter, the Contractor may drill two holes not larger than 2 inches in diameter, in the top of each section of the pipe, to aid in lifting and placing.

The holes shall be neatly drilled, without spalling of the concrete, and shall be done without the cutting of any reinforcement. After the pipe is laid, the holes shall be filled with

mortar and properly cured, and placed such that they are visible from the top for inspection prior to backfill.

Multiple installations of reinforced concrete pipe shall be laid with the center lines of individual barrels parallel. When not otherwise indicated on plans, the following clear distances between outer surfaces of adjacent pipe shall be used.

Diameter of Pipe	18"	24"	30"	36"	42"	48"	54"	60" to 84"
Clear Distance Between Pipes	0'-9"	0'-11"	1'-1"	1'-3"	1'-5"	1'-7"	1'-11"	2'-0"

d. Jointing.

- 1) If the use of Portland cement mortar joints is allowed, all pipe shall be jointed tight and sealed with stiff mortar, composed of one part Portland cement and two parts sand, so placed as to form a durable water-tight joint. The installation shall be as required by the Engineer.
- 2) Joints using Rubber Gaskets: Where rubber gasket pipe joints are required by the plans, the joint assembly shall be made according to the recommendations of the gasket manufacturer. Water-tight joints will be required when using rubber gaskets.
- 3) Joints using Cold-Applied Preformed Plastic Gaskets shall be made as follows:

A suitable primer of the type recommended by the manufacturer of the gasket joint sealer shall be brush-applied to the tongue and groove joint surfaces and the end surfaces and allowed to dry and harden. No primer shall be applied over mud, sand or dirt or sharp cement protrusions. The surface to be primed must be clean and dry when primer is applied.

Before laying the pipe in the trench, the plastic gasket sealer shall be attached around the tapered tongue or tapered groove near the shoulder or hub of each pipe joint. The paper wrapper shall be removed from one side only of the two-piece wrapper on the gasket and pressed firmly to the clean, dry pipe joint surface. The outside wrapper shall not be removed until immediately before pushing the pipe into its final position.

When the tongue is correctly aligned with the flare of the groove, the outside wrapper on the gasket shall be removed and the pipe shall be pulled or pushed home with sufficient force and power (backhoe shovel, chain hoist, ratchet hoist or winch) to cause the evidence of squeeze-out of the gasket material on the inside or outside around the complete pipe joint circumference. The extruded gasket material shall be smoothed out over the joint on the exterior and interior of the pipe. Any joint material pushed out into the interior of the pipe that would tend to obstruct the flow shall be removed. (Pipe shall be pulled home in a straight line with all parts of the pipe online and grade at all times.) Backfilling of pipe laid with plastic gasket joints may proceed as soon as the joint has been inspected and approved by the Engineer. Special precautions shall be taken in placing and compacting backfill to avoid damage to the joints.

When the atmospheric temperature is below 60 degrees F, plastic joint seal gaskets shall either be stored in an area warmed to above 70 degrees F, or artificially warmed to this temperature in a manner satisfactory to the Engineer. Gaskets shall then be applied to pipe joints immediately prior to placing pipe in the trench, followed

by connection to previously laid pipe.

- 4) Pipe Joints for storm sewers shall be wrapped with geotextile material. The geotextile wrap shall be at least 2 feet wide and shall be centered on each joint.
- 5) After the pipe has been placed, bedded, and jointed as specified, filling and/or backfilling shall be done in accordance with the applicable requirements of City Standard Specification Section 022020 "Excavation and Backfill for Utilities." If unstable conditions are encountered, fully encase the pipe with crushed stone as described above. When mortar joints are allowed, no fill or backfill shall be placed until the jointing material has been cured for at least six (6) hours.

Special precautions shall be taken in placing and compacting the backfill to avoid any movement of the pipe or damage to the joints. For side drain culverts and all other culverts where joints consist of materials other than mortar, immediate backfilling will be permitted.

- 6) Unless otherwise shown on the plans or permitted in writing by the Engineer, no heavy earth moving equipment will be permitted to haul over the structure until a minimum of 4 feet of permanent or temporary compacted fill has been placed thereon. Pipe damaged by the Contractor's equipment shall be removed and replaced by the Contractor at no additional cost.
- 7) Cleaning and Television Inspection. All enclosed reinforced concrete pipe and manholes installed on this project shall be cleaned and televised in accordance with City Standard Specification Section 027611 "Cleaning and Televised Inspection of Conduits."

#### 4. MEASUREMENT.

Unless otherwise specified on the Bid Form, reinforced concrete pipe will be measured by the linear foot. Such measurement will be made between the ends of the pipe barrel along its central axis. Where spurs or branches, or connections to existing pipelines are involved, measurement of the spur or new connecting pipe will be made from the intersection of its center axis with the outside surfaces of the pipe into which it connects. Where inlets, headwalls, catch basins, manholes, junction chambers, or other structures are included in lines of pipe, that length of pipe tying into the structure wall will be included for measurement, but no other portion of the structure length or width will be so included.

For multiple pipes, the measured length will be the sum of the lengths of the barrels measured as prescribed above.

#### 5. PAYMENT.

Payment for reinforced concrete pipe measured as prescribed above will be made at the contract unit price bid per linear foot for the various sizes of "Reinforced Concrete Pipe" of the class specified. Payment shall be full compensation for furnishing and transporting the pipe; hauling and placing of earth cushion material where required for bedding pipe; for the preparation and shaping of beds; for hauling, placing, and jointing of pipes; for furnishing and installing geotextile pipe joint wrapping; for end finish; for all connections to existing and new structures; for cleaning and television inspection; and for all other items of materials, labor, equipment, tools, excavation, backfill and incidentals necessary to complete the culvert or storm sewer in accordance with the plans and these specifications.

**END OF SECTION**

**SECTION 027404  
CONCRETE BOX CULVERTS**

1. DESCRIPTION.

This specification shall govern all work required for constructing, furnishing, and installing reinforced concrete box culverts required to complete the project.

All reinforced concrete boxes for this project shall be precast concrete in accordance with TxDOT Standards for precast box culverts and the details shown on the drawings for the appropriate height of fill, and design shall conform to ASTM C1577.

Alternate designs of precast boxes will be considered for approval upon submission of shop drawings detailing the box and certifications that the box, as designed, is structurally comparable to or better than the box shown in the contract drawings and is designed to support HS20 loading per ASSHTO M273. The shop drawings and certifications shall be signed and sealed by a Texas registered professional engineer.

2. MATERIALS.

- a. Concrete. Unless otherwise shown on the plans, Class "C" concrete shall be used for cast-in-place boxes, conforming to the requirements of City Standard Specification Section 030020 "Portland Cement Concrete" and City Standard Specification Section 038000 "Concrete Structures", except that Class "S" concrete will be required for top slabs of direct traffic cast-in-place boxes.

Concrete for precast (machine-made) boxes shall meet the requirements of ASTM C76 Sections: "Cement", "Aggregates" and "Mixture", and shall have a minimum 28-day compressive strength of 5,000 psi.

- b. Reinforcement. Reinforcing steel shall conform to the requirements of City Standard Specification Section 032020 "Reinforcing Steel" and the details shown on the plans.
- c. Jointing. Materials for jointing shall conform to the requirements of City Standard Specification Section 027402 "Reinforced Concrete Pipe Culverts".
- d. Membrane Curing. Materials for membrane curing shall conform to City Standard Specification Section 038000 "Concrete Structures".
- e. Geotextile. Geotextile fabric for wrapping joints shall be Class 1 geotextile for subsurface drainage with an average opening size (AOS) of 0.22mm and in accordance with AASHTO M288.

3. FABRICATION.

The requirement of City Standard Specification Section 030020 "Portland Cement Concrete" and City Standard Specification Section 038000 "Concrete for Structures" shall govern for cast-in-place concrete box culverts and for precast (formed) boxes except where otherwise specified herein. Forms for precast (machine-made) boxes shall be made of steel. Forms for cast-in-place boxes and precast (formed) boxes may be either wood or steel.

Forms shall be mortar-tight and of sufficient strength to prevent excessive bulging or misalignment of adjacent boxes. They shall be constructed to permit their removal without damage to the concrete. Offsets at form joints shall not exceed one-eighth inch (1/8"). Forms

shall be clean and free of extraneous matter when concrete is placed.

Positive means of supporting steel cages in place throughout forming and concrete placement shall be required and subject to the approval of the Engineer. Welding of reinforcing steel will be permitted only where shown on the plans. Welding shall be done by a qualified welder and shall conform to industry standards.

Precast (machine-made) boxes shall be cast by a process which will provide for uniform placement of the concrete in the forms and compaction by mechanical devices which will assure dense concrete. Concrete shall be mixed in a central batch plant or other approved batching facility from which the quality and uniformity of the concrete can be assured. Transit mixed concrete shall not be acceptable for use in precast (machine-made) boxes.

#### 4. TESTING AND CERTIFICATION.

- a. Physical Requirements. Precast boxes shall meet the requirement of ASTM C1577. Testing shall be done by a materials engineering testing laboratory which meets the requirements for membership in the American Council of Independent Laboratories.
- b. Fabrication Tolerances. Precast boxes shall conform to the following tolerances: When two box sections are fitted together on a flat surface, in proper alignment and in the position, they will be installed, the longitudinal opening at any point shall not exceed one inch (1").

Not more than four lifting holes may be provided in each box to facilitate handling. They may be cast-in, cut into the fresh concrete after form removal or drilled, and shall not be more than 2 inches in diameter or 2 inches square. Cutting or displacement of the reinforcement will not be permitted. Spalled areas around the holes shall be repaired. Concrete boxes shall be given an "Ordinary Surface Finish" in accordance with Section 038000 "Concrete Structures".

- c. Certification. Certification of quality shall be provided with each delivery of materials to the job site by the manufacturer. Certification shall be a written report by the materials engineering testing laboratory.

#### 5. DEFECTS AND REPAIRS.

Fine cracks or checks on the surface of the member which do not extend to the plane of the nearest reinforcement will not be cause for rejection unless they are numerous and extensive. Cracks which extend into the plane of the reinforcing steel but are acceptable otherwise, shall be repaired in an approved manner.

Small damaged or honeycombed areas which are purely surficial in nature may be repaired. Excessive damage, honeycombing or cracking will be subject to structural review. Repairs shall be sound, properly finished, and cured in conformance with the pertinent specifications. When fine cracks or hairline cracks on the surface indicate poor curing practices, further production of precast boxes shall be discontinued until corrections are made and proper curing provided.

#### 6. CONSTRUCTION METHODS.

Excavation and backfill shall be in accordance with City Standard Specification Section 022020 "Excavation and Backfill for Utilities" and City Standard Details for Stormwater. Bedding for precast concrete box culverts located under pavements shall consist of 6 inches of

cement-stabilized sand containing a minimum of 1½ sacks of Standard Type I or Type II Portland cement per cubic yard of sand and compacted to not less than 95% Standard Proctor density.

Unless otherwise shown on the plans, the Contractor may use any of the jointing materials, except rubber gaskets, and shall comply with the jointing requirements specified in the City Standard Specification Section 027402 "Reinforced Concrete Pipe Culverts".

All box joints shall be wrapped with geotextile fabric. The wrap shall be at least two (2) feet wide and centered on the joints.

Lifting holes shall be filled with mortar or concrete and cured to the satisfaction of the Engineer.

#### 7. MEASUREMENT AND PAYMENT.

Unless otherwise specified on the Bid Form, concrete box culverts shall be measured by the linear foot for each size of box installed. The measurement will be made between the ends of the box along the centerline. For boxes used in the multiple barrel structures, the measured length will be the sum of the lengths of all barrels.

Payment shall be made at the contract bid price and shall fully compensate the Contractor for furnishing, transporting and installing the box culverts; for bedding materials and bed preparation including compaction; for excavation and backfill of trenches; for all connections to existing and new structures; and for all labor, materials, tools, equipment and incidentals required to complete the work as shown on the contract drawings and as specified herein.

**END OF SECTION**

**DIVISION 2 - SITE WORK**  
**SECTION 02830 - FENCING**

1. GENERAL:

This Work includes furnishing all plant, labor, equipment, and materials and performing all operations to complete chain link fencing. Fencing and all parts thereto shall be Cyclone Invincible Chain Link Fence as manufactured by American Steel and Wire Division of United States Steel Corporation, or approved equal. Chain link fabric height shall be as indicated on Drawings, surmounted by vertical extension arms carrying three (3) strands of barbed wire, the topmost of which shall be one foot (1') above the top of the fabric.

2. MATERIALS:

a. Fabric

Fabric shall be No. 9 gauge chain-link wire woven in a 2" mesh to form fabric height as indicated on Drawings. Top and bottom selvages shall have twisted, and barbed finish accomplished by cutting wire on a bias, thus creating sharp points.

b. Line Posts

Line posts shall be tubular steel 1-5/8-inch O.D. galvanized pipe posts weighing 2.27 pounds per foot. Post equipped with 6-gauge galvanized clips on 14" centers.

c. End, Corner, Angle, and Pull Posts

End, corner, angle, and pull posts shall be tubular steel 3" O.D. galvanized pipe post weighing 5.79 pounds per linear foot.

d. Gates

Fabricate gate frames of 2" O.D. galvanized pipe with pressed steel or malleable iron corner ells, securely riveted with 4 rivets per corner, or welded corners hot dipped galvanized after fabrication. Provide internal bracing with 1-5/8" O.D. pipe and 3/8" adjustable truss rods. Provide ball and socket type bottom hinge made of malleable iron and 180° wrap-a-round type top hinge to allow gate to swing 90° or 180°. Provide padlocking device, center rests and semi-automatic catch to secure gates in open position.

e. Top Rails

Top rails shall be tubular steel 1-5/8" O.D. galvanized top rails weighing 2.27 pounds per linear foot. Provide one coupling in every 5 with a heavy spring to take up expansion and contraction of rail. Tie fabric to top rail every 24" with 9-gauge aluminum tie wires.

f. Gate Posts

Gate posts shall be tubular steel 4" O.D. galvanized pipe post weighing 9.1 pounds per linear foot.

g. Bottom Tension Wire

Bottom tension wire shall be 7 gauge "Amersfield" Aluminum Coated Steel, or 7-gauge galvanized coil tension wire, fastened to chain link fabric with all gauges galvanized hog rings on 24" centers.

h. Braces

Suitably brace end, gate, and corner posts with galvanized tubular steel braces 1- 5/8" outside diameter, weighing 2.27 pounds per linear foot, spaced midway between top rail and ground extending to first line post. Securely fasten braces to posts by malleable iron or pressed steel connections and provide truss of 3/8" galvanized rod with turnbuckle from intersection of brace and line post back to bottom of end, gate or corner post.

i. Fittings



Fittings shall be cast iron, wrought iron or pressed steel fittings.

j. Fabric Bands

Fasten fabric to line posts with fabric bands spaced approximately 14" apart. Space the tie wires to attach fabric top rail approximately 24" apart.

k. Extension Arms

Fabricate line, end, corner and pull posts extension arms of pressed steel or malleable iron base with pressed steel extension riveted and galvanized after assembly.

l. Barbed Wire

Provide 3 lines of 4-point pattern barbed wire, each composed of 2 strands of 12- 1/2 gauge, galvanized after weave, steel strand wire with 4-point barbs spaced on 5" centers.

m. Gate Hinges, Latches, Stops and Keepers

Furnish as specified in Federal Specifications No. RR-F-183.

n. Locking

Provide approved latch equipped for padlocking.

o. Miscellaneous Items

Provide miscellaneous metal items necessary for complete fence installation, including round center stop, stretcher bars, truss rods, hook bolt, clips, fittings, and bottom reinforcing. Provide one stretcher bar for each gate, pull and end post, and 2 for each corner post.

3. FABRIC COATING:

4. Fabric shall be heavily zinc coated (galvanized) by hot-dip process after weaving sufficient to withstand 6 one-minute dips of the Preece Test. Furnish copies of results of Preece Test to ENGINEER.

5. GALVANIZING:

6. Hot dip galvanize all other parts of fencing after fabrication of each separate part. Galvanizing shall be tested and shall be sufficient to withstand 12 one-minute dips of Preece Test. Furnish copies of results of Preece Test to ENGINEER.

7. POST SPACING:

8. Space posts in line of fence not farther apart than 10 feet center to center.

9. POST SETTING:

10. Set all line posts in a minimum of 24" deep in concrete, corner posts a minimum 36" deep in concrete, and gate posts a minimum 48" deep in concrete of minimum 12" diameter. Round top of footings to drain properly. Concrete for footings shall be as specified in DIVISION 3 - CONCRETE, except 2000 psi may be used.

11. FABRIC CLEARANCE:

12. Bottom edge of fabric shall clear top of ground at all locations, but shall not exceed a clearance of 2".

**END OF SECTION**

SECTION 028020  
SEEDING

1. DESCRIPTION

This specification shall govern all work necessary for tilling, fertilizing, planting seeds, mulching, watering and maintaining vegetation required to complete the project.

2. MATERIALS

2.1 FERTILIZER: All fertilizer shall be delivered in bags or clearly marked containers showing the analysis, name, trademark and warranty. The fertilizer is subject to testing by the State Chemist in accordance with the Texas fertilizer law. Fertilizer shall have an analysis of 12-12-12 (percent of nitrogen, phosphoric acid and potash) as determined by the Association of Official Agricultural Chemists. Fertilizer shall be free flowing and uniform in composition.

2.2 SEED: Seed shall be labeled and meet the requirements of the Texas Seed Law. Labels shall indicate purity, germination, name and type of seed. Seed furnished shall be of the previous season's crop, and the date of analysis shown on each bag shall be within twelve months of delivery to the project.

The quantity of "Commercial Seed" required to equal the quantity of "Pure Live Seed" shall be computed by the following formula:

$$\text{Commercial Seed} = \text{Pure Live Seed} \times \frac{10,000}{\% \text{ Purity} \times \% \text{ Germination}}$$

The quantity of pure live seed and type required are indicated below. Mixture A or C shall be used for this project, depending on the time of the year planting is performed.

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>	<u>LB/ACRE OF PURE LIVE SEED</u>		
		<u>A</u>	<u>B</u>	<u>C</u>
Green Sprangletop	Leptochloa Dubia	1.4	1.4	-
Sideoats Grama (premier)	Bouteloua Curtipendula	0.6	-	0.6
Bermudagrass (Hulled)	Cynodon Dactylon	7.0	7.4	-
Bermudagrass (Unhulled)	Cynodon Dactylon	-	-	30.0
K-R Bluestem	Andropogon Ischaemum	1.2	1.2	1.5
Buffalograss	Buchloe Dactyloides	-	4.2	-
Annual Ryegrass	Lolium Multiflorum	5.0	5.0	20.0

Mixture - A: Recommended for clay or tight soil planted between December 1 thru May 1.

Mixture - B: Recommended for sandy soil planted between December 1 thru May 1.

Mixture - C: Recommended for all soils planted between May 2 thru November 30.

2.3 MULCH: Mulch shall be either the straw type or wood cellulose fiber type.

Straw Type mulch shall be of straw from stalks of domestic grain, Bermudagrass or cotton hulls, or other approved by the Engineer.

Wood Cellulose Fiber Type mulch shall have no growth inhibiting ingredients and shall be dried with a moisture content less than 10% by weight. Fibers shall be dyed an appropriate color to facilitate visual metering and application of mulch. The cellulose fiber shall be manufactured so that after addition and agitation in slurry tank with fertilizers, seeds and other approved additives, the fibers in the material will become uniformly suspended to form a homogeneous slurry; when sprayed on the ground, the material shall form a uniform cover impregnated with seeds; the cover shall allow added water to percolate to the underlying soil. The fiber material shall be supplied in packages of not more than 100 lb. gross weight and shall be marked by the manufacturer to indicate the dry weight content.

2.4 EQUIPMENT: The fertilizing, seeding and/or mulching operations shall be accomplished with equipment suitable to the required function. It shall be of current design and in good operating condition. Special seeding and mulching equipment must also meet the following requirements:

Seeder - Equipment for applying a seed-fertilizer mix shall be a hydraulic seeder designed to pump and discharge a waterborne, homogeneous slurry of seed and fertilizer. The seeder shall be equipped with a power driven agitator and capable of pressure discharge.

Straw Mulch Spreader - Equipment used for straw mulch application shall be trailer mounted, equipped with a blower capable of 2000 r.p.m. operation, and that will discharge straw mulch material through a discharge boom with spout at speeds up to 220 feet per second. The mulch spreader shall be equipped with an asphalt supply and application system near the discharge end of the boom spout. The system shall apply asphalt adhesive in atomize form to the straw at a predetermined rate. The spreader shall be capable of blowing the asphalt-coated mulch, with a high velocity airstream, over the surface at a uniform rate, forming a porous, stable erosion-resistant cover.

Wood Cellulose Fiber Mulch Spreader - Equipment used for this application of fertilizer, seeds, wood pulp, water and other additives shall have a built-in agitation system with sufficient capacity to agitate, suspend and homogeneously mix a slurry containing up to 40 lbs. of fiber plus the required fertilizer solids for each 100 gallons of water. It shall have sufficient agitation and pump capacity to spray a slurry in a uniform coat over the area to be mulched.

### 3. CONSTRUCTION METHODS

3.1 PREPARATION OF SEEDBED: The area to be treated along with requirements for seed, fertilizer and other treatments, shall be done as indicated on the drawings and as specified below.

Clearing – Refer to City Standard Specification Section 021020, "Site Clearing and Stripping".

Grading - Refer to City Standard Specification Section 021040, "Site Grading".

Tilling - The area to be seeded shall be tilled to a depth of 4 to 6 inches by disking, plowing, or other approved methods until soil condition is acceptable.

Topsoiling – If the native soils are not conducive to the establishment and maintenance of grass growth, or if called for on the drawings, topsoil shall be placed over the area to be seeded to a depth of 5 inches after tilling. Topsoil shall have a pH range of 5.5 to 7; shall contain between 2 and 20 percent organic material content in accordance with ASTM D5268; and shall be free of stones larger than one inch, debris, and extraneous materials harmful to plant growth.

3.2 FERTILIZING: Fertilizer shall be uniformly applied at a rate of 400 lb/acre, after tilling. Fertilizing and seeding shall be done concurrently. If seeds and fertilizer are distributed in a water slurry, the mixture shall be applied to the area to be seeded within 30 minutes after all the components have come into contact.

3.3 SEEDING: The seed mixture shall be uniformly distributed at the rate specified above.

Broadcast Seeding - Seed shall be placed with fertilizer, after tilling. After planting, the area shall be rolled on contour with a corrugated roller.

Straw Mulch Seeding - Seed shall be placed with fertilizer, after tilling. After placement of the seed and fertilizer mixture, straw mulch shall be uniformly placed at a rate of 2 tons per acre. As soon as the mulch has been spread, it shall be anchored to the soil a minimum depth of 3 inches by use of a heavy, dulled disk harrow, set nearly straight. Disks shall be set approximately 9 inches apart.

Straw Mulch With Asphalt Seeding - Seed, fertilizer and straw mulch shall be placed as described in "Straw Mulch Seeding" with the following two exceptions: 1) An asphalt-water emulsion shall be applied to the mulch near the discharge end of the boom spout at a rate of 300 to 600 gallons per acre. 2) Mechanical anchoring by disking will not be required.

Asphalt Mulch Seeding - The seed and fertilizer shall be placed as described for "Broadcast Seeding". After the area has been rolled, the area shall be watered sufficiently to assure a uniform moisture to a minimum depth of 4 inches. An asphalt-water emulsion shall be applied at a rate of 1500 to 1800 gallons per acre, immediately after watering. Asphalt shall be applied to the area in such a manner that a complete film is obtained and the finished surface shall be

comparatively smooth.

Wood Cellulose Fiber Mulch Seeding - After tilling, mulch shall be applied. Wood cellulose fibers shall be added to the hydraulic seeder after the proportionate amounts of seed, fertilizer, water and other approved materials are added. Application shall be 1500 lb./acre on flats, 2000 lb./acre on slopes up to 3:1, and 2500 lb./acre on slopes steeper than 3:1. One hundred (100) pounds of fiber per acre shall be used when asphalt is to be applied over cellulose mulch. The mulch shall provide a uniform cover over the soil surface.

Asphalt Over Wood Cellulose Fiber Mulch Seeding - "Wood Cellulose Fiber Mulch Seeding" shall be done as described above. After mulch has been placed, an asphalt-water emulsion shall be uniformly spread over the mulch at a rate of 1200 gallons per acre.

3.4 MAINTENANCE: The Contractor shall water, repair and reseed areas as required for a period of 45 days or until growth has been established, whichever is longer. This includes erosion damage. Maintenance does not include mowing or weed control, unless indicated on the plans. If at any time the seeded area becomes gullied or otherwise damaged, or the seeds have been damaged or destroyed, the affected portion shall be re-established to the specified condition prior to acceptance of the work.

3.5 GUARANTEE: The Contractor shall assure 95% of the seeded area has established grass growth at 45 calendar days after seeding, unless indicated otherwise on the drawings. Where established, grass growth is defined as at least one plant per square foot with no bare spots larger than three (3) square feet. The Contractor shall re-establish grass growth as directed by the Engineer during the one-year warranty period.

#### 4. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, seeding will be measured by the horizontal square yard of area seeded within the areas designated on the drawings. Areas disturbed by the Contractor that are outside of the designated areas (such as field office, laydown/ storage area, stockpile areas, etc.) shall be seeded by the Contractor for erosion control per the stormwater pollution prevention plan but will not be measured for payment.

Payment shall be full compensation for all labor, materials, tools, equipment and incidentals necessary to complete the work, and shall include, but not be limited to, tilling soil, topsoiling, fertilizing, planting, mulching, watering and maintaining vegetation. Payment shall be due and payable only after grass growth has been established as described above.

**END OF SECTION  
END OF DIVISION**

## DIVISION 3 – CONCRETE

### SECTION 03100 - CONCRETE FORMWORK

#### 1. GENERAL:

##### a. Description

This section shall govern all formwork for cast-in-place concrete with shoring, bracing and anchorage, openings for other work, form accessories and form stripping.

##### b. References

1. ACI 347, Recommended Practice for Concrete Formwork
2. ACI 301, Specifications for Structural Concrete for Buildings, Chapter 4
3. ACI 318, Building Code Requirements for Reinforced Concrete
4. PS-I, Construction, and Industrial Plywood

##### c. Design Requirements

Design, engineer, and construct formwork, shoring and bracing to conform to code requirements listed in references; resultant concrete to conform to required shape, line, and dimension.

##### d. Submittals

1. Submit under provisions of Section 01340, Shop Drawings, Product Data, and Samples.
2. Indicate pertinent dimensions, materials, bracing, and arrangement of joints and ties on Shop Drawings.

##### e. Quality Assurance

1. Perform Work in accordance with ACI 301,318, and 347.
2. Maintain one copy of each document on site.

##### f. Regulatory Requirements

Conform to applicable code for design, fabrication, erection, and removal of formwork.

#### 2. PRODUCTS:

##### a. Wood Form Materials

###### 1. Plywood

Douglas Fir species: APA high density overlaid or APA B-B Plyform Class I Panels; sound, undamaged sheets with clean, true edges.

###### 2. Lumber

Southern Pine species; No. 2 grade; with grade stamp clearly visible.

##### b. Prefabricated Forms - Preformed Steel Forms

Minimum gage matched, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished surfaces.

##### c. Formwork Accessories

###### 1. Form Ties

Snap-off type, galvanized metal, adjustable length, cone type, with waterproofing washer, 1 in. back break dimension, free of defects that could leave holes larger than 1/4 in. in the concrete surface; Penta-Tie manufactured by Burke or approved equal.

###### 2. Form Release Agent

Colorless mineral oil which will not stain concrete, absorb moisture, or leave a film which will inhibit subsequent finish work; Burke Release manufactured by Burke or approved equal.

###### 3. Corners

Chamfered, wood strip type; 3/4 x 3/4 in. maximum possible lengths.

###### 4. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages

Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.

#### 3. EXECUTION:

##### a. Examination

Verify lines, levels, and centers before proceeding with formwork. Ensure that dimensions agree

with Drawings.

b. Erection - Formwork

1. Erect formwork, shoring, and bracing to achieve design requirements in accordance with requirements of ACI 301 and 347.
2. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to over-stressing by construction loads.
3. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. permit removal of remaining principal shores.
4. Align joints and make watertight. Keep form joints to a minimum.
5. Obtain approval before framing openings in structural members which are not indicated on Drawings.
6. Provide chamfer strips on external corners of pile caps, retaining walls and other exposed corners.

c. Application - Form Release Agent

1. Apply form release agent on formwork in accordance with manufacturer's recommendations.
2. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
3. Do not apply form release agent where concrete surfaces will receive applied coverings which are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

d. Inserts, Embedded Parts, And Openings

1. Provide form openings where required for items to be embedded in or passing through concrete work.
2. Locate and set in place items which will be cast directly into concrete.
3. Coordinate Work of other sections in forming and placing openings, slots, reglets, recesses, chases, sleeves, bolts, anchors, and other inserts.
4. Install accessories in accordance with manufacturer's instruction, straight, level, and plumb. Ensure items are not disturbed during concrete placement.
5. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain.
6. Close temporary openings with tight fitting panels, flush with inside face of forms, and neatly fitted so joints will not be apparent in exposed concrete surfaces.

e. Form Cleaning

1. Clean and remove foreign matter within forms as erection proceeds.
2. Clean formed cavities of debris prior to placing concrete.
3. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.

f. Formwork Tolerances

Construct formwork to maintain tolerances required by ACI 301 and Section 03342, Finishing, Quality Control, Tolerances

g. Field Quality Control

1. Inspect erected formwork, shoring, and bracing to ensure that supports, fastenings, wedges, ties, and items are secure.
2. Do not reuse wood formwork more than three times for concrete surfaces to be exposed to view without written approval from OWNER. Do not patch formwork.

h. Form Removal

1. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.
2. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
3. Store removed forms in such manner that surfaces to be in contact with fresh concrete will not be damaged. Discard damaged forms.
4. Forms and supports shall remain in place under pile caps for at least seven days and on the sides of pile caps, rail pads and walls for at least three days.

**END OF SECTION**



## **DIVISION 3 - CONCRETE**

### **SECTION 03200 - CONCRETE REINFORCEMENT**

#### **1. GENERAL:**

##### a. Description

This section shall govern the furnishing and placing of all reinforcing steel bars, wire fabric and accessories for concrete incorporated in the Work.

##### b. References

1. ACE 301, Structural Concrete for Buildings.
2. ACI 318, Building Code Requirements for Reinforced Concrete.
3. ACI SP-66, American Concrete Institute, Detailing Manual.
4. ANSI/ASTM A 82, Cold Drawn Steel Wire for Concrete Reinforcement.
5. ANSI/ASTM A 185, Welded Steel Wire Fabric for Concrete Reinforcement.
6. ANSI/AWS D1.4, Structural Welding Code for Reinforcing Steel.
7. ASTM A 615, Deformed and Plain Billet Steel Bars for Concrete Reinforcement.
8. ASTM A 706, Low-Alloy Steel Deformed Bars for Concrete Reinforcement.
9. ASTM A 775, Epoxy-Coated Reinforcing Steel Bars.
10. CRSI Concrete Reinforcing Steel Institute Manual of Practice.
11. CRSI 63, Recommended Practice for Placing Reinforcing Bars.
12. CRSI 65, Recommended Practice for Placing Bar Supports, Specifications, and Nomenclature.

##### c. Submittals

1. Submit under provisions of Section 01340, Shop Drawings, Product Data, and Samples.
2. Shop Drawings  
Indicate bar sizes, spacings, locations, and quantities of reinforcing steel and wire fabric; bending and cutting schedules; and supporting and spacing devices.
3. Submit mill certificates for each heat of steel to be furnished indicating strength and chemistry.
4. Submit qualified welding procedure for welding of reinforcing steel. Include in submittal all items contained in Appendix A of AWS D1.4.
5. Submit copies of manufacturer's data for bar chairs, bolsters, spacers, etc.

##### d. Quality Assurance

1. Perform work in accordance with CRSI 63, 65, and Manual of Practice, ACI 301, ACI SP-66, and ACI 318.
2. All welding procedures and welders shall be qualified in accordance with AWS D1.4 by an AWS-certified welding inspector approved by OWNER. Full section tension and macro-etch tests shall be conducted in accordance with AWS D1.4, Chapter 6.
3. Production welding shall not commence until a qualified welding procedure has been established and approved by OWNER.

## 2. PRODUCTS:

### a. Reinforcement

#### 1. Typical Reinforcing Steel

ASTM A 615, 60 ksi, yield grade, deformed steel bars, plain finish.

#### 2. Reinforcing Steel for Welding

ASTM A 706, 60 ksi, yield grade, deformed low-alloy steel bars, plain finish.

#### 3. Epoxy Coating

Scotchkote Brand Fusion Bonded Epoxy Coating 213, manufactured by 3M, St. Paul, Minnesota, applied by electrostatic spray method in strict accordance with ASTM A 775, except that the thickness of the coating shall be not less than 6 mils (150 microns) nor greater than 11 mils (275 microns).

### b. Accessory Materials

#### 1. Tie Wire

Minimum 16-gauge, annealed type. Use plastic coated wire with epoxy coated reinforcing.

#### 2. Chairs, Bolsters, Bar Supports, Spacers

Sized and shaped for strength and support of reinforcement during concrete placement conditions.

#### 3. Special Chairs, Bolsters, Bar Supports, and Spacers

Adjacent to Epoxy-Coated Reinforcement or Weather Exposed Concrete Surfaces, use plastic coated, steel type or plastic type; size and shape as required.

### a. Fabrication

1. Fabricate concrete reinforcing in accordance with ACI 318.

2. Weld reinforcement in accordance with ANSI/AWS D1.4.

3. No splices in reinforcing, except where specially called for on the drawings, will be permitted without prior written approval from OWNER.

4. Sheared ends of epoxy coated reinforcing and/or epoxy coating that is damaged shall be repaired with a compatible epoxy coating conforming to ASTM A 775 in accordance with the manufacturer's recommendations prior to installation.

### b. Delivery

1. Bundles of reinforcing bars shall be delivered to the site with tags showing quantity, grade, size, and suitable identification to allow checking, sorting, and placing.

2. Store all reinforcing steel off ground on protective cribbing and protect from oil, grease, dirt, or other deleterious materials.

3. Epoxy coated reinforcing shall be covered after delivery to prevent exposure to sunlight until needed for use.

## 3. EXECUTION:

### a. Placement

1. Place, support, and secure reinforcement against displacement. Do not deviate from required position.

2. Accommodate placement of formed openings.

3. Where epoxy-coated reinforcing is required by the drawings, all handling and hoisting shall be done by nylon lifting slings or padded wire rope slings; bundles of bars shall be lifted to prevent bar-to-bar abrasion; spreader bars shall be used for lifting bundles, or the bundles shall be lifted at the third points with nylon or padded slings. Bundling bands shall be padded or made of nylon. Coated bars shall be padded or made of nylon. Coated bars shall be stored on padded or wooden cribbing bars or bundles of bars shall not be dragged over the ground or over other bars.
  4. Plastic coated tie wire shall be used for tying epoxy coated rebar.
  5. Vertical stirrups shall always pass around the main reinforcement and be attached securely thereto.
  6. Reinforcing steel shall be spaced its required distance from the form surface by means of approved hot dip galvanized metal spacers with plastic coated tips or plastic spacers.
  7. All reinforcing steel shall be tied at all intersections; except that where spacing is less than 1 ft. in each direction, alternate intersections only need be tied.
  8. Reinforcement shall be supported and tied in such a manner that a sufficiently rigid cage of steel is provided. If the cage is not adequately supported to resist settlement or floating upward of the steel, overturning of truss bars or movement in any direction during concrete placement, permission to continue concrete placement will be withheld until corrective measure are taken. Sufficient measurements shall be made during concrete placement to ensure that the reinforcement remains in the proper position.
  9. Mats of wire fabric shall overlap each other sufficiently to maintain a uniform strength and shall be fastened securely at the ends and edges. Lap ends and edges a minimum of one square.
- b. Tolerances
1. Unless otherwise shown on Drawings, dimensions shown for reinforcement are to the centers of the bars.
  2. In the plane of the steel parallel to the nearest surface of concrete, bars shall not vary from plan placement by more than 1/12 of the spacing between bars.
  3. In the plane of the steel perpendicular to the nearest surface of concrete, bars shall not vary from plan placement by more than 1/4 in.
  4. Cover of concrete to the nearest surface of steel shall meet the above requirement but shall never be less than 3 in. unless otherwise shown on Drawings.
- c. Welding
1. All welding of reinforcing steel shall be performed in accordance with AWS D1.4.
  2. Welding process used to place welds shall be either shielded metal arc (SMAW) or flux cored arc (FCAW) welding.
- d. Cleaning Reinforcement
1. Reinforcement shall be cleaned of all rust, mill scale, oil, paint or other deleterious materials prior to placing concrete.
  2. All damaged epoxy coating shall be repaired with a compatible epoxy coating conforming to ASTM A775 prior to pouring concrete.
- e. Field Quality Control
1. Testing
    - a) CONTRACTOR shall provide, at no cost to OWNER, one welded connection sample

for full section tension tests in accordance with AWS D1.4 for every 200 production connections. OWNER will pay for all tests which pass. Failure of production weld samples to meet tension test requirement shall be cause for automatic rejection.

- b) All rebar welds shall be inspected and tested by OWNER before acceptance. CONTRACTOR shall remove all slag from each weld at no cost to OWNER. Any rebar weld which, in the opinion of OWNER, appears faulty shall be removed and the bar rewelded at no cost to OWNER. CONTRACTOR, at his option, may choose to have such rejected welds examined by a certified testing agency. If examination indicates acceptable quality, the defective welds shall be removed and replaced by CONTRACTOR at no additional cost to OWNER.
2. Reinforcement shall be inspected by City Engineer prior to placing concrete. Provide a minimum of 24 hours advance notice of completion of reinforcement placement for scheduling of field inspection.

**END OF SECTION**

## **DIVISION 3 - CONCRETE**

### **SECTION 03300 - CAST-IN-PLACE CONCRETE**

#### **1. GENERAL:**

##### **a. Description**

This Section shall govern all work necessary for providing materials, mixing, proportioning, testing, placing, finishing, and curing of all plain and reinforced cast-in-place normal weight concrete.

##### **b. Quality Assurance**

Material and Work shall conform to the requirements of standards, codes, and recommended practices required in this Section. In conflicts between industry standards, required standards and this specification or this specification and the local building code, the more stringent requirement shall govern.

##### **c. Applicable Standards and Test Methods**

The following documents are referred to in this Section and shall be available at the project site:

1. ACI 301-84(R-88), Specifications for Structural Concrete for Buildings
2. ACI 304 R-85, Guide for Measuring, Mixing, Transporting, And Placing Concrete
3. ACI 305 R-77 (82), Placing Concrete in Hot Weather
4. ACI 306 R-88, Placing Concrete in Cold Weather
5. ACI 309 R-89, Guide for Consolidation of Concrete
6. ACI 318-89 (R-89), Building Code Requirement for Reinforced Concrete
7. ASTM C 31-84, Making and Curing Concrete Test Specimens in TheField
8. ASTM C 33-86, Standard Specifications for Concrete Aggregates
9. ASTM C 39-86, Standard Test Method for Comprehensive Strength of Cylindrical Specimens
10. ASTM C 94-86, Standard Specifications for Ready-Mixed Concrete
11. ASTM C 138-81, Standard Test Method for Unit Weight, Yield, And AirContent (Gravimetric) of Concrete
12. ASTM C 143-78, Standard Test Method for Slump of PortlandCement Concrete
13. ASTM C 150-85, Standard Specification for Portland Cement
14. ASTM C 171-69e1, (Reapproved 1980) Standard Specifications for Sheet Materials for Curing Concrete
15. ASTM C 173-78, Standard Test Method for Air Content of Freshly Mixed Concrete by The Volumetric Method
16. ASTM C 231-81e1, Standard Test Method for Air Content of Freshly Mixed Concrete by The Pressure Method
17. ASTM C 260-86, Standard Specification for Air-Entraining Admixtures for Concrete
18. ASTM C 309-81, Liquid Membrane-Forming Compounds for Curing Concrete
19. ASTM C 494-86, Standard Specification for Chemical Admixtures for Concrete

##### **d. Submittals**

###### **1. Concrete Mixing Design**

- (a) CONTRACTOR shall submit, at least ten working days in advance of placing concrete, a mix

design for each type and strength of concrete specified which is prepared by a reputable testing laboratory.

- (b) Include copies of test reports showing that the mix has been successfully tested to produce concrete with the properties specified and will be suitable for the job conditions.
2. Submit name and location of sources of cement, aggregates, chemical admixtures, and fly ash propose for use on this project.
3. Submit independent laboratory reports or manufacturer's certification that all other concrete materials proposed for used on this project meet the requirements of Article 2 of this Section.

## 2. PRODUCTS:

### a. Concrete Materials

#### 1) Portland Cement

- (a) Portland cement Type I or Type II conforming to ASTM C 150, including the low alkali provisions of Table IA of that specification. In addition, the tricalcium aluminate content of Type I cement shall not exceed 12 percent.
- (b) Type I or Type II cement, at CONTRACTOR's option, may be used for nonhydraulic above grade structures.
- (c) For all hydraulic and below grade structures and sewers, use Type II cement. At CONTRACTOR's option, fly ash may be used in combination with any cement as long as all requirements of these Specifications are met. The fly ash may be combined at the batch plant or during the production of the cement (Type IP cement). For the combination fly ash and cement, the cement and fly ash shall comply with these Specifications.

#### 2) Fly Ash

- (a) The pozzolan to be used in combination with cement, as previously specified for use in all hydraulic and below grade structures and sewers, or in combination with cement or other structures, shall be Class F fly ash conforming to ASTM C 618-87.
- (b) Pozzolan shall be tested in conformance with ASTM C 311. The analysis shall show those items pertinent to this Specification. Source acceptance shall be at the discretion of ENGINEER based on data submitted. Continuing quality analysis shall be submitted throughout the life of the project from the source approved. Under no circumstances shall the pozzolan source be changed without the retesting and providing of new submittals for ENGINEER's review. The Supplier shall certify that all shipments meet the conditions of this Specification.

#### 3) Aggregates

Aggregates shall conform to ASTM C 33-86, "Standard Specification for Concrete Aggregates".

#### 4) Water shall be clean and free from deleterious materials, drinkable.

#### 5) Air-Entraining Admixtures

- (a) Conforming to the requirement of ASTM C 260-86,
- (b) "Standard Specification for Air-Entraining Admixtures for Concrete", "Micro Air" or "MB-VR", manufactured by Master Builders shall be used.
- (c) The air-entraining admixture shall provide a total air content as specified in Article .02 of this Section.

b. Selection Of Proportions

Concrete shall be composed of Portland cement; fly ash fine aggregate, coarse aggregate, water and, as specified, Master Builders' Micro-Air or MB-VR air- entraining admixture. Proportions of ingredients shall produce concrete that will work readily into comers and angles of forms, bond to reinforcement, without segregation or excessive bleed water forming on the surface. Proportioning of materials shall be in accordance with ACI 211.1-89, "Recommended Practice for Selecting Proportions for Normal and Heavyweight Concrete", except as modified herein.

c. Concrete Qualities Required

- 1) All concrete incorporated in the Work shall have the minimum 28-day compressive strength of 3000 pounds per square inch (PSI). Unless otherwise noted on the drawings.
- 2) Minimum cement or combined cement plus fly ash content when fly ash is used for performance and durability, regardless of design strength, shall be 517 pounds per cubic yard for concrete with 1-1/2-inch maximum size aggregate, 540 pounds per cubic yard for 1-inch maximum size aggregate. CONTRACTOR shall increase cement content or the combined cement plus fly ash content, when fly ash is used, as required to meet strength requirements.
- 3) The amount of fly ash used shall not exceed 25 percent or be less than 15 percent of the total weight of fly ash plus cement.
- 4) Minimum cementitious material requirements shall be as follows:
  - (a) For 4000 PSI ( $f_c$ ) at 28 days
    - (1) Maximum water/cementitious ratio= .48
    - (2) Minimum cementitious – 517#
  - (b) For 5000 PSI ( $f_c$ ) at 28 days
    - (1) Maximum water/cementitious ratio= .40
    - (2) Minimum cementitious - 611#
  - (c) For 6000 PSI ( $f_c$ ) at 28 days
    - (1) Maximum water/cementitious ratio= .40
    - (2) Minimum cementitious – 658#
- 5) Proportions of ingredients shall be selected by past field experience or in lieu of past performance, laboratory trial mixes to produce placability, slump, specified strength and properties specified.
- 6) Determinations of required average strength ( $f_{cr}$ ) shall be in accordance with ACI 318-89, "Building Code Requirements for Reinforced Concrete", and evaluations of compressive strength results of field concrete shall be in accordance with ACI 214-77 (Reaffirmed 1989), "Recommended Practice for Evaluation of Strength Test Results of Concrete".
- 7) Average strength shall exceed specified compressive strength as required in accordance with ACI 318-89.
- 8) Concrete shall be air entrained, and the total air content required (air entrained and entrapped air) shall be:

Nominal Max.	
Size Coarse Aggregate	Total Air Content
1-1/2"	4-1/2% +/- 1%

NOTE: Air-entrainment shall not be required when Class "F" fly ash is used in the concrete mix design on projects south of IH-20, Texas Department of Transportation Standard Specifications, Item 420.

- 9) The Concrete shall be proportioned and produced to yield the following slumps when placed:

<u>Type of Construction</u>	<u>Slump</u>	<u>Tolerance</u>
Reinforced Foundation		
Walls & Footings	3 in.	± 1 in.
Columns, Beams, Walls,	2 in.	± 1 in.
Structural Slabs	2 in.	± 1 in.
Slabs-On-Grade Roadways	1½ in.	± ½in.
Heavy Mass Construction	6 in.	± 1 in.
Drilled Piers		

### 3. EXECUTION:

#### a. Production Of Concrete

- 1) Concrete shall be ready-mixed, batched, mixed, and transported in accordance with ASTM C 94-86, "Specification for Ready-Mixed Concrete".
- 2) Plant equipment and facilities shall conform to the "Checklist for Certification of Ready-Mixed Concrete Production Facilities" of the National Ready Mixed Concrete Association.

#### b. Placing

##### 3) Preparation

CONTRACTOR shall provide access for delivery provide sufficient equipment and manpower to rapidly place all concrete.

- (a) Work shall be in accordance with ACI 304R-89 "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete".
- (b) Formwork shall be completed, and snow, ice, water, and debris removed from within forms.
- (c) Expansion joint material, anchors, and all embedded items shall have been positioned.
- (d) Subgrades shall be sprinkled sufficiently to eliminate water loss from concrete.
- (e) Concrete shall not be placed on frozen ground.

##### 4) Conveying

Concrete shall be placed rapidly by methods to prevent segregation or loss of quality.

##### 5) Placement

- (a) Concrete shall be deposited continuously or when continuous placement is not possible, construction joints shall be located as approved by OWNER. Concrete shall be placed as nearly as possible to its final position. Avoid rehandling.
- (b) Concrete shall be consolidated by vibration, spading, rodding, or tamping, as stated in ACI 309R-87, "Guide for Consolidation of Concrete". Work concrete around reinforcement, embedded items and into comers; eliminate air or stone pockets and other causes of honeycombing, pitting, or planes of weakness.



c. Weather Conditions

1) Cold Weather

Concrete shall conform to ACI 306R-88 "Standard Specifications for Cold Weather Concreting". A non-chloride accelerator may be used with ENGINEER's approval. Non-chloride accelerator shall be Pozzotec 20, manufactured by Master Builders.

2) Hot Weather

Concrete shall conform with ACI 305R-89 on "Hot Weather Concreting". A maximum concrete temperature of 95 degrees F for normal concrete is specified.

(a) Provisions shall be made for windbreaks, shading, fog spraying, sprinkling or wet cover when necessary.

(b) Use an evaporation retardant and finishing aid, "Confilm", by Master Builders.

(c) Maximum concrete placing temperature when used in a bridge slab or in top slab of a direct traffic culvert shall be 85 degrees F and the maximum concrete placing temperature when used in other applications shall be 95 degrees F, Texas Department of Transportation Standard Specifications, Item 420.

d. Finishing

1) Finish concrete materials as specified in Section 03342, Finishing, Quality Control, Tolerances.

2) For curing methods, field quality control, and tolerances, refer to Section 03342, Finishing, Quality Control, Tolerances.

**END OF SECTION**

## **DIVISION 3 - CONCRETE**

### **SECTION 03342 - FINISHING, QUALITY CONTROL, AND TOLERANCES**

#### **1. GENERAL:**

##### **a. Description**

This Section shall govern all work with respect to finishing, quality control, and tolerances for all concrete surfaces of the type and grade of concrete being placed.

##### **b. Applicable Standards and Test Methods**

The following documents are referred to in this Section and shall be available at the project site:

1. ACI 301-84(R-88), Specifications for Structural Concrete for Buildings
2. ACI 318-83 (R-86), Building Code Requirement for Reinforced Concrete
3. ASTM C 31-84, Making and Curing Concrete Test Specimens in The Field
4. ASTM C 39-86, Standard Test Method for Compressive Strength of Cylindrical Specimens
5. ASTM C 138-81, Standard Test Method for Unit Weight, Yield, And Air Content (Gravimetric) Of Concrete
6. ASTM C 143-78, Standard Test Method for Slump of Portland Cement Concrete
7. ASTM C 171-69e1, (Reapproved 1980) Standard Specifications for Sheet Materials for Curing Concrete
8. ASTM C 173-78, Standard Test Method for Air Content of Freshly Mixed Concrete by The Volumetric Method
9. ASTM C 231-81e1, Standard Test Method for Air Content of Freshly Mixed Concrete by The Pressure Method
10. ASTM C 260-86, Standard Specification for Air-Entraining Admixtures for Concrete
11. ASTM C 309-81, Liquid Membrane-Forming Compounds for Curing Compound

#### **2. EXECUTION:**

##### **a. General Finish Requirements**

1. Unless otherwise specified, the finish of all exposed concrete surfaces shall be what is generally termed a plywood finish, which means a finish which will normally be obtained when well-designed, mortar-tight plywood forms are used. Repairing of surface defects and hand rubbing will be required on all exposed surfaces only where patching of honeycomb is necessary or where form design or construction or general workmanship produce gradual surface defects exceeding 1/4 in. in a 10-ft. straightedge or abrupt defects exceeding 1/8 in. Offsets caused by displaced or misplaced form sheathing or form sections, by loose knots in forms, or by otherwise defective form lumber will be considered as abrupt surface defects.
2. Concrete surfaces, both above and below the backfill, shall have all metal form ties removed not less than 3/4 in. back from the faces of the concrete. The holes shall be cleaned, and wire brushed to remove laitance, form oil, and other foreign material; and then shall be filled with non-shrink grout.
3. Slabs-on-grade shall have a broom finish, unless otherwise specified, and formed sides. This finish shall be applied immediately behind the bull float operation. Curing shall begin immediately after texturing.
4. Dusting freshly placed concrete surfaces with cement or a mixture of sand and cement before or during the finishing operations is strictly prohibited.

b. Pier, Foundation, and Wall Top Finishes

1. Unless otherwise specified, the tops of column piers, small equipment foundations and similar foundations are to be grouted, scored, and all laitance, grease, dirt, or other deleterious materials removed.
2. The surface elevation shall be checked, and additional concrete removed, if necessary, to allow for the specified thickness of grout.
3. The tops of all concrete walls shall be given a wood float finish.
4. In areas where a greater degree of finish is specified; it will be necessary to allow the concrete to begin to set before finishing.

c. Concrete Curing and Protection

1. General

The freshly placed concrete shall be protected from premature drying and excessive cold or hot temperatures. Curing shall start immediately after placing and finishing, and shall continue for not less than 28 days.

2. Curing Methods

- (a) Perform curing of concrete by use of curing compound, by moist curing, by moisture-retaining cover, or by combinations thereof. Material and method of curing shall be approved by ENGINEER.
- (b) Apply curing compound as soon as finish is completed.
- (c) On formed surfaces a curing method shall begin immediately upon form removal.
- (d) Approved methods for Rheoplastic Concrete include ponding or continuous sprinkling, continuous wet mats, sand kept continuously wet and liquid membrane-forming compounds.
  - (1) Application of waterproof sheet material shall conform to ASTM C 171-69 (Reapproved 1986), "Standard Specification for Sheet Materials for Curing Concrete".
  - (2) Applications of membrane-forming compounds shall conform to ASTM C 309-St "Standard Specification for Liquid Membrane-Forming Compounds Curing Concrete".
- (e) The type of curing and procedure utilized shall be verified in the Preconstruction Meeting.

d. Field Quality Control

1. Materials and operations shall be tested and inspected by CONTRACTOR as work progresses. Failure to detect defective work shall not prevent rejection when defect is discovered, nor shall it obligate OWNER for final acceptance.
2. The following testing services shall be performed by a testing service selected by OWNER: All costs associated with these testing services shall be borne by CONTRACTOR unless otherwise noted.
  - (a) Secure composite samples in accordance with "Standard Method of Sampling Fresh Concrete", ASTM C 172-82.
  - (b) Mold and cure four specimens from each test required in accordance with standard "Method of Making and Curing Concrete Test Specimens in the Field", ASTM C 31-85.
  - (c) Test specimens in accordance with "Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens," ASTM C 39-86. Two specimens shall be tested at 28 days for acceptance and two shall be tested at 7 days for information.
  - (d) Make one strength test for each 50-cu.yd. or fraction thereof, and for each mix design of concrete placed in any one day.
  - (e) Determine slump of normal-weight concrete sample for each strength test in accordance with

"Standard Test Method for Slump of Portland Cement Concrete", ASTM C 143-76.

- (f) Determine total air content of normal-weight concrete sample for each strength test in accordance with "Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method", ASTM C 231-82 or "Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method\ ASTM C 173-78.
3. CONTRACTOR shall provide an area of protection for the test specimens free from damage or vibration at the jobsite for the first 24 hours.
  4. CONTRACTOR shall provide an enclosed, insulated box for immediate test cylinder storage after manufacture at the job site.
  5. The manufacturer of (3) 6" X 12" test cylinder may be required by ENGINEER. Utilize procedure for manufacture according to ASTM C 31-84. The time of test and frequency shall be dictated by ENGINEER. These specimens shall be used to perform AASHTO T-277-83, "Standard Method of Test for Rapid Determination of the Chloride Permeability of Concrete".
- e. Tolerances  
Formwork shall be constructed in such a manner as to produce concrete surfaces that conform to the established dimensions, grades, and lines within the limits specified in Table below:

<b>TOLERANCE FOR FORMED SURFACES</b>			
Variation from the plumb:			
1.	In the lines and surface of columns, walls and in equipment foundations.	In 10 ft. In any story of 20 ft. max Max. for entire height	1/4 in. 3/8 in. 1 in.
2.	For exposed comer columns, control joint grooves, and other conspicuous lines	In 10 ft. In any bay of 20 ft. max.	1/4 in. 1/2 in.
	Variation from the level or from grades shown on Drawings, except for grout caps and slabs	In 10 ft. In any bay of 20 ft. max. Max. for entire height	1/4 in. 3/8 in. 3/4 in.
	Variation from the level or from grades shown on Drawings for grout caps.		1/16 in.
	Variation of the linear building lines, or equipment foundations, from established position in plan and related position of columns, walls, and partitions.	In any bay of 20 ft. max. Max. for entire height	1/2 in. 1 in.
	Variation in cross-sectional dimensions of columns and beams, equipment foundations, and in the thickness of slabs and walls.		-1/4 in. +1/2 in.
<b>Footings:</b>			
1.	Variation of plan dimensions	Concrete only. (Does not apply to anchor bolts, dowels, or reinforcing.)	
2.	Misplacement or eccentricity	2% of footing width in the direction of misplacement but not more than 2 in. max. (concrete only). Does not apply to anchor bolts, dowels, or reinforcing.	
3.	Reduction in thickness	Portion of specified -5% thickness.	
	Variation in the sizes and locations of floor openings and wall openings.		+/- 1/4 in.

	Variation in location of sleeves, water stops, expansion joints, and other inserts.		+/- 1/4 in.
	Variation in steps:		
	b. In a flight of stairs	Riser	+/- 1/8 in.
		Tread	+/- 1/4 in.
	c. In consecutive steps	Riser	+/- 1/16 in.
		Tread	+/- 1/8 in.

Unless otherwise specified, anchor bolt centers may vary up to 1/8 in. from the locations shown on Drawings; however, the variation in the dimension measured from center to center of any two bolts in an anchor bolt group may not vary more than 1/8 in. An anchor bolt group is defined as the set of anchor bolts which receive a complete equipment base assembly or a single fabricated steel shipping piece.

The location of inserts, such as water stops, and expansion joints, may deviate from that shown on the drawing by 1/4 inch.

Tolerances shown on Drawings shall take precedence over the tolerances specified in this Section.

Permissible surface defects of exposed concrete surfaces are specified in Article 2 this Section and are to be distinguished from the tolerances described above.

**END OF SECTION  
END OF DIVISION**