



CAMERON COUNTY Bid Proposal, Contract, & Specifications Documents

2022

**PROJECT: PRECINCT No. 4 – VARIOUS ROADWAYS
PHASE II, PROJECT 1**

Bid No. 220205

The packet includes all required County forms.

For questions & answers, please contact:

PROJECT ENGINEER: BENJAMIN L. WORSHAM, P.E., P.T.O.E.
COUNTY ENGINEER
1390 W. EXPRESSWAY 83
SAN BENITO, TEXAS 78586
(956) 247-3500

BID PROPOSAL, CONTRACT & SPECIFICATIONS

Cameron County Commissioners' Court

Hon. Eddie Trevino, Jr.	County Judge
Ms. Sofia C. Benavides	County Commissioner, Pct. 1
Mr. Joey Lopez	County Commissioner, Pct. 2
Mr. David A. Garza	County Commissioner, Pct. 3
Mr. Gustavo Ruiz	County Commissioner, Pct. 4

Cameron County Department of Transportation

Pete Sepulveda, Jr.	County Administrator
Benjamin L. Worsham, P.E.	County Engineer

TABLE OF CONTENTS

Pages

SECTION 1: BID PROPOSAL DOCUMENTS

Note: Section 1 – A & B are to be submitted as part of the Bid Proposal documents.

A. BID PROPOSAL 1-36

- Invitation to Bid and Advertisement
- Instruction for Submitting Bids
- Instruction to Bidders (Special Provisions)
- Technical Special Instruction to Bidders
- Bid Proposal
- List of Sub-Contractors
- Addendum Acknowledgement
- Bid Bond
- Statement of Bidder's Qualifications
- Certificate as to Corporate Principle

B. CAMERON COUNTY PURCHASING DEPT. FORMS 1-15
(These forms must be submitted with the bid proposal)

- Attachment A: Vendor References
- Attachment B: Non-Collusion Affidavit of Prime Bidder
- Attachment C: Residence Certification
- Attachment D: Non-Lobbying Certification
- Attachment E: Order Adopting Contracting Rules for
Persons Indebted to County
- Attachment F: Regarding Debarment, Suspension, Ineligibility
- Attachment G: Conflict of Interest Questionnaire
- Attachment H: Disclosure of Interest
- Attachment I: House Bill 89 Verification (Revised)

TABLE OF CONTENTS

	Pages
SECTION 2: CONTRACT DOCUMENTS	1-10
Standard Form of Agreement	
Performance Bond	
Payment Bond	
Attorney’s Review Certifications	
Notice of Award Letter	
SECTION 3: GENERAL CONDITIONS	1-33
Terms and Conditions	
General Conditions of the Agreement	
Prevailing Wage Requirements	
Special Provisions	
SECTION 4: TECHNICAL SPECIFICATIONS LIST	1-125
Standard specifications	
Special Provisions	
Special Specifications	
General	

SECTION 1-A

BID PROPOSAL
DOCUMENTS



**CAMERON COUNTY
PURCHASING DEPARTMENT**

INVITATION TO BID

BID NUMBER: 220205
(to be issued by purchasing dept.)

BID TITLE: Precinct No. 4 – Various Roadways Phase II, Project I

DATE DUE: 3/08/2022

DUE NO LATER THAN 11:00 AM

Bids will be opened at the Cameron County Courthouse, 1100 East Monroe Street, Brownsville, Texas in the Purchasing Department – 3rd Floor – Room # 345 at 11:01 a.m. (as per Purchasing Dept. time clock) on deadline due date. Bids received later than the date and time above will not be considered. **Please return bid ORIGINAL ONE (1) in sealed envelope.** Be sure that return envelope shows the **Bid Number, Description** and is marked “SEALED BID”.

RETURN BID TO: by U.S. mail or delivered to the
Cameron County Purchasing Department
County Courthouse
1100 E. Monroe St, 3rd Floor, Room 345
Brownsville, Texas 78520.

For additional information or to request addendum email: Mike Forbes or Dalia Loera at mforbes@co.cameron.tx.us or dalia.loera@co.cameron.tx.us

YOU MUST SIGN BELOW IN INK; FAILURE TO SIGN WILL DISQUALIFY THE OFFER.

All prices must be typewritten or written in ink.

Company Name: _____

Company Address: _____

City, State, Zip Code: _____

Historically Underutilized Business (State of Texas) Certification VID Number: _____

Telephone No. _____ Fax No. _____ e-mail _____

SIGNATURE: _____ **Print Name:** _____

How did you find out about this Bid? _____ (ex: Newspaper, Web, Mail)

Is Bidder’s principal place of Business within Cameron County? Yes - No (circle one)

Note: (Your signature attests to your offer to provide the goods and/or services in this bid according to the published provision of this bid. When an award letter is issued, this Bid becomes the contract. If a Bid required specific Contract is to be utilized in addition to this Bid, this signed Bid will become part of that contract. When an additional Contract is required a Bid award does not constitute a contract award and Bid / Contract is not valid until contract is awarded by Commissioners Court (when applicable) signed by County Judge) and Purchase Order is issued.

Advertisement to be published in the following newspaper(s) classified ads section:

Newspaper(s)

BROWNSVILLE HERALD, BROWNSVILLE TX

Advertisement to be published on the following dates:

1ST Sunday: 2/20/2022

2ND Sunday: 2/27/2022

NOTE: Cameron County will place the AD in the newspaper(s).

Cameron County Purchasing Department Instruction for Submitting Bids

These General Instructions apply to all offers made to Cameron County, Texas (herein after referred to as "County") by all prospective vendors (herein after referred to as "Bidders") on behalf of Solicitations including, but not limited to, Invitations to Bid and Requests for Quotes.

Carefully read all instructions, requirements and specifications. Fill out all forms properly and completely. Submit your bid with all appropriate supplements and/or samples. Prior to returning your sealed bid response / submittal, all Addendums - if issued - should be reviewed and downloaded by entering the County Purchasing web [http://www.co.cameron.tx.us/administration/purchasing_department/bids_rfp\(q\)_and_addms_and_tabs.php](http://www.co.cameron.tx.us/administration/purchasing_department/bids_rfp(q)_and_addms_and_tabs.php) Addendums Column (updated Addendums). These Addendums must be signed and returned with your bid in order to avoid disqualification. All Tabulations can also be viewed and downloaded at this site. Annual Bid award information can be accessed at: [http://www.co.cameron.tx.us/administration/purchasing_department/bids_rfp\(q\)_and_addms_and_tabs.php](http://www.co.cameron.tx.us/administration/purchasing_department/bids_rfp(q)_and_addms_and_tabs.php). Review this document in its entirety. Be sure your Bid is complete, and double check your Bid for accuracy.

Cameron County is an Equal Employment Opportunity Employer.

Review this document in its entirety. Be sure your bid is complete, and double check your bid for accuracy.

GOVERNING FORMS: In the event of any conflict between the terms and provisions of these requirements and the specifications, the specifications shall govern. In the event of any conflict of interpretation of any part of this overall document, Cameron County's interpretation shall govern. Where substitutions are used, they must be of equivalent value or service, and specified by the bidder as such, in the columns to the right on the "Minimum Specifications' Forms". The County's specifications may be exceeded and should be noted by the Vendor as such. Any bid NOT MEETING the Minimum Requirements specified will be rejected.

GOVERNING LAW: This invitation to bid is governed by the competitive bidding requirements of the County Purchasing Act, Texas Local Government Code, §262.021 et seq., as amended. Bidders shall comply with all applicable federal, state and local laws and regulations. Bidder is further advised that these requirements shall be fully governed by the laws of the State of Texas and that Cameron County may request and rely on advice, decisions and opinions of the Attorney General of Texas and the County Attorney concerning any portion of these requirements.

Questions requiring only clarification of instructions or specifications will be handled verbally. If any questions results in a change or addition to this Bid, the Change(s) and addition(s) will be forwarded to all vendors involved (as quickly as possible) in the form of a written addendum only.

Verbal changes to Bids/RFP's/RFQ's must be backed-up by written addendum or written Q/A clarifications which would be posted on County Purchasing Web site. Without written Addendum or written Q / A clarification, verbal changes to Bids / RFP / RFQ will not apply.

Note: Sign the Vendor's Affidavit Notice. Complete Attachments A, B, C, D, E, F, G, H, I return all with your bid

CONFLICT OF INTEREST QUESTIONNAIRE:

For vendor or other person doing business with local governmental entity

This questionnaire must be filed in accordance with chapter 176 of the Local Government Code by a person doing business with the governmental entity.

By law this questionnaire must be filed with the records administrator (County Clerk's Office) of the local government not later than the 7th business day after the date the person becomes aware of facts that require the statement to be filed. See Section 176.006, Local Government Code. A person commits an offense if the person violates Section 176.006, Local Government Code. An offense under this section is a Class C misdemeanor.

The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than September 1 of the year for which an activity described in Section 176.006(a), Local Government Code, is pending and not later than the 7th business day after the date the originally filed questionnaire becomes incomplete or inaccurate.

Please review this entire document, if for any reason there is any information to disclose, relative to any questions in this Conflict of Interest form, you must file with County Clerk's Office subject to above instructions can be downloaded at the following web site:

<http://www.co.cameron.tx.us/purchasing/Forms/conflictofinterest.pdf>

DISCLOSURE OF INTERESTS:

This questionnaire must be filed with the records administrator (County Clerk's Office) of the local government and no later than the 7th business day after the person becomes aware of facts that require this statement to be filed. Cameron County, Texas requires all persons or firms seeking to do business with the County to **provide the following information if the person becomes aware of facts that require this statement to be filed.**

Every question must be answered. If the question is not applicable, answer with "N/A."

Please review this entire document, if for any reason there is any information to disclose, relative to any questions in this disclosure of interest form, you must file with County Clerk's Office subject to above instructions.

can be downloaded at the following web site:

<http://www.co.cameron.tx.us/Purchasing/Disclosure%20of%20Interest.pdf>

TEXAS ETHICS COMMISSION FORM 1295

All Bids prior to award or award of Contract by Commissioner's Court will require that the Texas Ethics Commission (TEC) Form 1295 Electronic (on line) Vendor filing procedure be completed by Vendor.

All Vendors being recommended to Commissioners Court for award or renewal of award on Agenda must register and obtain a TEC Certification for the specific award. This Certification Form 1295 must be electronically submitted, printed and notarized. Notarized form must be emailed or delivered to County Purchasing Department making the request for form. This process must be completed prior to Commissioners Court Agenda for approval consideration of Bid award. There is no charge for this TEC online process.

Texas Ethics Commission (TEC) Form 1295 must be completed (by firm - on line "New Form 1295 Certificate of Interested Parties Electronic Filing Application" Site at:

https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm)

If any Vendors have questions as to TEC Form 1295 visit the County Purchasing Web site left column tab "Vendor – TEC Form 1295" for more information. TEC Web site links can be found at this location including Question / Answers and Video instructions.

tab Link:

http://www.co.cameron.tx.us/administration/purchasing_department/index.php

BIDDER SHALL SUBMIT BID ON THE FORM PROVIDED, SIGN THE VENDOR AFFIDAVIT, AND RETURN ENTIRE BID PACKET. In the event of inclement weather and County Offices are officially closed on a bid deadline day, bids will be received until 2:00 p.m. of the next business day. Bids will be opened at the Cameron County Courthouse, 1100 East Monroe Street, Brownsville, Texas in the Purchasing Department – 3rd Floor – Room # 345 (as per Purchasing Dept. time clock).

BIDS SUBMITTED AFTER THE SUBMISSION DEADLINE SHALL BE RETURNED UNOPENED AND WILL BE CONSIDERED VOID AND UNACCEPTABLE.

BIDDERS MAY ATTEND PUBLICLY HELD COMM COURT MEETING FOR AWARD OF THIS SOLICITATION. All responding bidders are welcome to attend the publicly held Commissioners Court meeting relative to the outcome / award of this solicitation. Court Meeting agenda date and times may be obtained at the following web site: <http://www.co.cameron.tx.us/judge/agenda.htm>

SUCCESSFUL VENDOR WILL BE NOTIFIED BY MAIL. All responding vendors will receive written notification regarding the outcome of the award.

OPEN RECORDS ACCESS TO ALL INFORMATION SUBMITTED. All information included will be open to the public, other bidders, media as per the Open Records Act and not be confidential in nature. If you deem any information as confidential, it should not be made part of your bid package.

PLEASE NOTE CAREFULLY

THIS IS THE ONLY APPROVED INSTRUCTION FOR USE ON YOUR BID. ITEMS BELOW APPLY TO AND BECOME A PART OF TERMS AND CONDITIONS OF BID. ANY EXCEPTIONS THERETO MUST BE IN WRITING.

1. Each bid shall be placed in a separate envelope completely and properly identified with the name and number of the bid. Bids must be in the Purchasing Department BEFORE the hour and date specified.
2. Bids **MUST** give full firm name and address of the bidder. Failure to manually sign bid will disqualify it. Person signing bid should show TITLE or AUTHORITY TO BIND THE FIRM IN A CONTRACT.
3. Bids **CANNOT** be altered or amended after deadline time. Any alterations made before deadline time must be initiated by bidder or his authorized agent. No bid can be withdrawn after opening time without approval by the Commissioners Court based on a written acceptable reason.
4. The County is exempt from State Sales Tax and Federal Excise Tax. **DO NOT INCLUDE TAX IN BID.** Cameron County claims exemption from all sales and/or use taxes under Texas Tax Code §151.309, as amended. Texas Limited Sales Tax Exemption Certificates will be furnished upon written request to the Cameron County Purchasing Agent.
5. Any Catalog, brand name or manufacturer's reference used in a bid invitation is descriptive-NOT restrictive-it is to indicate type and quality desired. Bids on brand of like nature and quality will be considered. If bid is based on other than reference specifications, proposal must show manufacturer, brand or trade name, lot number, etc., of article offered. If other than brand(s) specified is offered, illustrations and complete descriptions should be made part of the bid. If bidder takes no exception to specifications or reference data, he will be required to furnish brand names, numbers, etc. as specified.
6. Samples, when requested, must be furnished free of expense to the County. If not destroyed in examination, they will be returned to the bidder on request, at his expense. Each sample should be marked

with bidder's name, address, and County bid number. DO NOT ENCLOSE OR ATTACH SAMPLE TO BID.

7. Written and verbal inquiries pertaining to bids must give Bid Number and Company.
8. NO substitutions or cancellations permitted without written approval of Director of Purchasing.
9. The County reserves the right to accept or reject all or any part of any bid, waiver minor technicalities. The County of Cameron reserves the right to award by item category or by total bid. Prices should be itemized. County also reserves the right to award either with or without trade-in, if applicable. Cameron County reserves the right to award if only one (1) Bid was received. Cameron County reserves the right to hold all Bids for 60 days from the due date of receipt without actions.
10. Bid unit price on quantity specified – extend and show total. In case of errors in extension, UNIT prices shall govern. If both alphabetic and numeric (unit prices) are required and a discrepancy is found between both on the same line item whichever unit price confirms the line total will govern. If neither confirms then the alphabetic price will govern. If there is no line total requested then the alphabetic unit price shall govern. If combined / sum of line totals do not match the Bid total then the Bid total will be corrected to reflect the sum of the line totals. If there is a discrepancy between the alphabetic and numeric Base Bid Total / Total Bid amount, the alphabetic Base Bid Total / Total Bid will take precedence. Bids subject to unlimited price increase will not be considered, but limited to Preventive Maintenance Annual Local Labor Union Wage Rate adjustments. ALL PRICING WILL REMAIN FIRM UNLESS THIS BID ALLOWS FOR OPEN MARKET PRICE INCREASES (AS SO SPECIFIED WITHIN). When inserting number of days or percentage % in Bid (ex: number of days to deliver or install or complete work, etc. or percentage over vendor's cost or percentage discount off list price) avoid using a range (ex: 30-90 days or 15% to 20 % cost plus) but use only one number for number of days or percentage. If a range is used the County will consider the higher number or worst-case scenario from the County's standpoint in making bid comparisons / tabulations.
11. This is a bid inquiry only and implies no obligation on the part of Cameron County.
12. Acceptance of and final payment for the item will be contingent upon satisfactory performance of the product received by Cameron County.
13. Partial bids will not be accepted unless awarded by complete category or line item.
To be awarded by total bid.
14. It is expected that the bidder will meet all state and federal safety standards and laws in effect on the date of the bid for the item(s) being specified, and the particular use for which they are meant.
15. It is the responsibility of the bidder or proposer to ask any and all questions the bidder or proposer feels to be pertinent to the bid or proposal. Cameron County shall not be required to attempt to anticipate such questions for bidders or proposers. Cameron County will endeavor to respond promptly to all questions asked.

Cameron County Engineering Instructions to Bidders (Special Provisions)

- 1. It shall be the bidder's responsibility to ensure delivery of his proposal to the proper place and at the proper time.**

- 2. Bids shall be addressed as follows:**
Attn: Cameron County Purchasing Dept.
Bid Date: 3/08/2022
Time: 11:00 am

- 3. Use of Separate Bid Forms:**

These Contract Documents include a complete set of bidding and Contract forms which are for the convenience of bidders and may be detached from the Contract Document, filled out, and executed.

- 4. Interpretations of Addenda:**

No oral interpretation will be made to any Bidder as to the meaning of the Contract Documents or any part thereof. Every request for such an interpretation shall be made in writing to the County Engineer. Any inquiry received seven or more days prior to the date fixed for opening of Bids will be given consideration. Every interpretation made to a Bidder will be in the form of an Addendum to the Contract Documents, and when issued, will be on file in the office of the Engineer at least three days before Bids are opened. In addition, all Addenda will be mailed or telecopy to each person holding contract Documents, but it shall be the Bidder's responsibility to inquire as to the Addenda issued. All such Addenda shall become part of the Contract and all Bidders shall be bound by such Addenda, whether or not received by the Bidders.

- 5. Inspection of Site:**

Each Bidder should visit the site of the proposed work and fully acquaint himself with the existing conditions there, relating to construction and labor, and should fully inform himself as to the facilities involved, the difficulties and restrictions attending the performance of the Contract. The Bidder should thoroughly examine and familiarize himself 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 his failure to receive or examine any form or legal instrument or to visit the site and acquaint himself with the conditions there existing, and the Owner will be justified in rejecting any claim based on facts regarding which the Contractor should have been on notice as a result thereof.

- 6. Alternative Bids:** No alternative bids will be considered unless alternative bids are specifically requested by the technical specifications, or bid proposal package. Base bids must be provided for each item, even though an alternative bid item is also specified.

7. Bids:

- A. All Bids must be submitted on forms supplied by the Owner and shall be subject to all requirements of the Contract Documents including the Drawings, and these **INSTRUCTIONS TO BIDDERS**. All Bids must be regular in every respect and no interlineations, excisions or special conditions shall be made or included in the Bid Form by the Bidder.
- B. Bid Documents including the Bid, the Bid Guaranty, the Non-Collusion Affidavit and the Statement of Bidder's Qualifications (If required) shall be enclosed in an envelope, which shall be sealed and clearly labeled with the words "Bid Documents", name of Bidder, date and time of the Bid opening in order to guard against premature opening of the Bid.
- C. The Owner may consider as irregular any Bid on which there is an alteration to or departure from the Bid Form hereto attached and at its option may reject the same.
- D. If the contract is awarded, it will be awarded by the Owner to a responsible Bidder on the basis of the lowest Bid and the selected Alternative Bid items, if any. The Contract will require the completion of the work according to the Contract Documents.
- E. Each Bidder shall include in his Bid the following information:

Principals

Names

Social Security Number

Home addresses, including City, State & Zip Code

Firm

Name

Treasury Number

Address

City, State & Zip Code

8. Bid Guaranty:

- A. The Bid must be accompanied by a Bid Guaranty which shall not be less than 5 percent (5%) of the amount of the Bid. At the option of the Bidder, the guaranty
- B. may be a certified check, bank draft, negotiable U.S. Government Bonds (at par value), or a bid bond in the form attached. The Bid bond shall be secured by a guaranty or a surety company Licensed to do business in the State of Texas. The amount of such Bid bond shall be within the maximum amount specified for such Company. No Bid will be considered unless it is accompanied by the required guaranty. Certified check or bank draft must be made payable to the order of County of Cameron. Cash deposits will not be accepted. The Bid guaranty shall insure the execution of the Agreement and the furnishing of the surety bond or bonds by the successful Bidder, all as required by the Contract documents.

- C. Revised Bids submitted before the opening of Bids, whether forwarded by mail or telegram, if representing an increase in excess of ten percent (10%) of the original Bid, the Bid will not be considered.
- D. Certified checks or bank drafts, or the amount thereof, Bid Bonds and negotiable U.S. Government bonds of unsuccessful Bidders will be returned as soon as practical after the opening of the Bids.

9. Collusive Agreement:

- A. Each Bidder submitting a Bid to the Owner for any portion of the work contemplated by the documents on which bidding is based shall execute and attach thereto, an affidavit substantially in the form herein provided, to the effect that he has not entered into a collusive agreement with any other person, firm, or corporation in regard to any Bid submitted.
- B. Before executing any subcontract the successful Bidder shall submit the name of any proposed subcontractor for prior approval and an affidavit substantially in the form to be provided by the Owner. Copies are available upon request.

10. Statement of Bidder's Qualifications:

Each Bidder shall submit on the form furnished for that purpose a statement of the Bidder's qualifications, his experience record in organization and equipment available in the contract, his organization and equipment available for the work contemplated and, when specifically requested by the Owner, a detailed financial statement. The Owner shall have the right to take such steps as it deems necessary to determine the ability of the Bidder to perform his obligations under the Contract and the Bidder shall furnish the owner all such information and data for this purpose as it may request. The right is reserved to reject any Bid where an investigation of the available evidence or information does not satisfy the Owner that the Bidder is qualified to carry out properly the terms of the contract.

11. Sub-Contractors:

All Sub-Contractors must be approved by the Owner. A list of all proposed Sub-Contractors must be furnished to the Owner, prior to the start of construction.

12. Interpretation of Quoted Prices:

In case of difference in written words and figures in a Proposal, the amount stated in written words shall govern.

13. Unit Prices:

The unit price for each of the several items in the proposal of each Bidder shall include its pro rata share of overhead for both labor and materials so that the sum of the products obtained by multiplying the quantity shown for each item by the unit price Bid represents the total Bid. Any Bid not conforming to this requirement may be rejected as informal. The special attention of all Bidders is called to this provision, for should conditions make it necessary to revise the quantities, no limit will be fixed for such increased or decreased quantities nor extra compensation

allowed, provided the net monetary value of all such additive and subtractive changes in quantities of such items of work (i.e., difference in cost shall not increase or decrease the original contract award price by more than twenty-five percent (25%), except for work not covered in the Drawings and Technical Specifications.

14. Rejection of Bids:

Bids may be rejected if they show any alteration of works or figures, additions not called for, conditional or uncalled for alternate bids, incomplete bids, any alteration or words or figures, or erasures not initialed by the person or persons signing the proposal, or irregularities of any kind.

- 15. Time for Receiving Bids:** Bids received prior to the advertised hour of opening shall be kept securely sealed. The officer appointed to open the bids shall decide when the specified time has arrived and no bid received thereafter will be considered; except that when a bid arrives by mail after the time fixed for opening, but before the reading of all other bids is completed, and it is shown to the satisfaction of the County that the late arrival of the bid was solely due to delay in the mails for which the bidder was not responsible, such bid will be received and considered.

16. Opening of Bids:

The County shall, at the time and place fixed for the opening of bids, cause each bid to be publicly opened and read aloud, irrespective of any irregularities therein. Bidders and other interested individuals may be present.

17. Withdrawal of Bids:

Bids may be withdrawn on written **or telegraphic request** dispatched by the Bidder in time for delivery in the normal course of business to the time fixed for opening; provided, that written confirmation of any telegraphic withdrawal over the signature of the Bidder is placed in the mail and postmarked prior to the time set for Bid opening. The bid guaranty of any Bidder withdrawing his Bid in accordance with the foregoing conditions will be returned promptly.

18. Award of Contract: Rejection of Bids

- A. The Contract will be awarded to the responsible Bidder submitting the lowest responsive Bid complying with the conditions of the Invitation for Bids. The Bidder to whom the award is made will be notified at the earliest possible date. The Owner, however, reserves the right to reject any and all Bids and to waive any informality in Bids received whenever such rejection or waiver is in its interest.
- B. The Owner reserves the right to consider as unqualified to do work of general construction any Bidder who does not habitually perform with his own forces the major portions of the work involved in construction of the improvements embraced in this Contract.
- C. Time is of the essence in this Contract and the Owner may weigh the calendar days or working days bid in award of the Contract. The calendar days or working days will be valued equal to the liquidated damages charged per day of delay.

19. Execution of Agreement: Performance and Payment Bond

- A. Subsequent to the award and within ten (10) days after the prescribed forms are presented for signature, the successful Bidder shall execute and deliver the Owner an Agreement in the form included in the Contract Documents **in** such number of copies as the Owner may require (not to exceed four (4) copies).

- B. Having satisfied all conditions of award as set forth elsewhere in these documents, the successful Bidder shall, within the period specified in paragraph "a" above, furnish a surety bond in a penal sum not less than the amount of the Contract as awarded, as security for the faithful performance of the Contract, and for the payment of all persons, firms or corporations to whom the Contractor may become legally indebted for labor, materials, tools, equipment, or services of any nature including utility and transportation services, employed or used by him, in performing the work. Such bond shall be in the same form as that included in the Contract Documents and shall bear the same date as, or a date sub-sequent to that of the Agreement.

The current **Power of Attorney** for the person who signs for any surety company and issued be attached to such bond. This bond shall be signed by a guaranty or surety company authorized to do business in the State of Texas.

- C. The failure of the successful Bidder to execute such Agreement and to supply the required bond or bonds within ten (10) days after the prescribed forms are presented for signature, or within such extended period as the Owner may grant, based upon reasons determined sufficient by the Owner, shall constitute a default, and the Owner may either award the Contract to the next lowest responsible Bidder or re-advertise for Bids, and may charge against the Bidder the difference between the amount of the Bid and the amount of which a Contract for the work is subsequently executed, irrespective of whether the amount thus due exceeds the amount of the Bid Bond. If a more favorable Bid is received by re-advertising, the defaulting bidder shall have no claim against the Local **Public** Agency for a refund.

- D. Full (100%) performance and payment bonds are required on all contracts in excess of \$25,000.00. The only exception is that if the contract is less than \$50,000.00, the entity may hold all payment, with no interim payments made, until final completion and presentation of lien releases from all subcontractors and suppliers, in lieu of the performance bond. Such bonds **must be issued** by a corporate surety authorized to do business in the State of Texas.

20. This project will be awarded for construction in accordance with these specifications and upon approval by the Owner.

21. Insurance: The Contractor and his sureties shall indemnify and hold harmless the Owner and all its officials, agents, and employees from all suits, action or claims of any character, name and description brought for, or on account of any injuries or damages received or sustained by any person or persons or property, by or from said Contractor or his employee or by or in consequence

of any negligence in safeguarding the work or by or on account of any claims or amounts recovered under the Workmen's Compensation Laws or any other law, ordinance, order or decree.

As further and additional evidence of such indemnifications the contractor shall furnish Certificates of Insurance providing that his interests are adequately covered by the following minimum requirements:

A. **Workmen's Compensation:** Statutory Requirements

B. **General Liability:**

1. Bodily Injury	\$ 300,000	\$300,000
2. Property Damage	\$ 100,000	\$ 100,000
3. Personal Injury		\$ 300,000

C. **Vehicular Liability:**

1. Bodily Injury	\$ 250,000	\$500,000
2. Property Damage		\$100,000

This coverage is to include all cars and trucks, equipment owned, rented, hired or leased and others of non-ownership nature used by employees in and around or in connection with this Contract.

D. Public Liability - Contractor's Protective:

1. Bodily injury	\$ 100,000. - \$ 300,000.
2. Property damages	\$ 100,000. - \$ 100,000.

22. **Certificate of Insurance:**

The successful bidder will furnish a completed Certificate of Insurance with the executed contract. This Certificate of Insurance shall include all applicable policies and their numbers. These policies will cover all sub-contractors and the sub-contractors Certificate of Insurance will also be submitted covering the same amount stated above for the Contractor.

23. In case of discrepancies or conflicts between the specifications, bid documents or contract documents, the following order of priority shall govern:

1. Bid Documents
2. Instructions to Bidders
3. Special Instructions to Bidders
4. Supplemental General Conditions
5. Technical specifications
6. Standard Form of Agreement
7. Special Conditions of the Agreement
8. Other Contract Documents

24. **The award of the low bid does not constitute award of a contract. A contract will be binding on both parties when executed by both parties and a purchase order is issued.**

County Engineering Technical Special Instructions to Bidders

1. DRAWINGS/PLANS

The Contractor shall review the drawings for this particular project and plan his work to be compatible with conditions shown on the drawings.

Discrepancies between drawings and specifications shall promptly be brought to the attention of the County Engineer.

2. PROVISIONS FOR TRAFFIC

The Contractor shall be required to accommodate traffic circulation at all times. The traveling public shall be protected from hazards through the construction site area.

The Contractor shall provide for barricades, signs, cones, lights, signals and other such type devices for protection of the Public and for handling traffic within the project area, and such will be provided in accordance with the Texas Manual on Uniform Traffic Control Devices, (TMUTCD). (The Engineer may direct that additional control devices or flagmen be placed if in his opinion they are warranted.)

The above shall be provided at no additional cost to the Owner.

3. UNDERGROUND UTILITIES

The drawings show as much information as can be reasonably obtained by an Engineering survey party and from City, County and Utility Company records regarding the location and nature of pipelines, storm sewers, water lines, sanitary sewer, telephone conduits, etc. However, the accuracy or completeness of such information is not guaranteed. It shall be the Contractor's responsibility to locate such underground features sufficiently in advance to preclude damage to same, by contacting owners of same or any other means required to complete construction. The Contractor shall be responsible to remove and relocate all drainage culverts, fencing, mail boxes and etc. at no additional cost to the Owner.

In the event of damage to underground facilities whether shown or not in the drawings, the Contractor shall make the necessary repairs to place the facilities back in service at no increase in the Contractor's price and all such repairs shall conform to the requirements of the company or agency servicing the facility. Payment will be made only on those utility adjustments for which a bid item has been proposed on this contract. All other utility adjustments damaged or disturbed by the Contractor will be returned to satisfactory service at no additional cost to the owner.

4. WORK ON PRIVATE PROPERTY

The Contractor will contact all property owners and make arrangements for accessing these properties to perform this work. The Contractor shall then inspect each site to determine all particulars involved in performing this work. The Contractor shall then review the proposed work with the property owner and the Engineer or their designated representatives.

The Contractor shall specifically note that all yard areas, landscaping, or other improvements shall be replaced to their original or better condition unless otherwise approved in writing by the property owner. It is strongly recommended that the Contractor obtain adequate photographic or video documentation of all existing property conditions and/or improvements prior to beginning any work on private property and upon completion of the work and site restoration. Any disputes arising between the property owner and the Contractor on properties that have not been properly documented will typically be ruled in favor of the property owner. All work done on private property shall carry the same one year warranty as provided for in the contract documents.

5. TESTING OF MATERIALS

Testing shall be done by an independent laboratory and paid for directly by the owner. The cost of any failure shall be reimbursed to the owner by the Contractor. Testing results shall be submitted to the Engineer for review and approval.

6. SURPLUS EXCAVATION

Soil taken from the excavation may be spread on the adjacent areas with permission from the property owners. Written approval must be provided to the Engineer prior to placement. If no adjacent areas can be found it shall be the Contractor's responsibility to complete legal disposal.

Old concrete, objectionable material and all obstructions are to be removed off the project regardless whether or not they are shown **on** the plans. Separate payment will be made for this work. Material must be disposed of in a legal manner.

7. FINAL GRADING CLEAN-UP

It is the intent of these specifications that the entire project site be uniformly graded and dressed to provide a smooth pleasing appearance of all disturbed areas.

8. DEMOLITION/CONSTRUCTION NOTICE REQUIREMENT

Contractor shall notify the Cameron County Engineering Department at least 72 hours prior to commencing demolition/construction.

Contractor shall notify other Entities and Utility Companies affected by this project at least 48 hours prior to commencing demolition/construction.

9. ADDITIONAL PROJECT REQUIREMENTS

N/A

To: Cameron County

Ladies/Gentlemen:

The undersigned hereby proposes to furnish all labor and materials, tools, and necessary equipment, and to perform the work required for:

PRECINCT NO. 4 – VARIOUS ROADWAYS PHASE II, PROJECT I

at the locations set out by the plans and specifications and in strict accordance with the contract documents for the following prices, to-wit:

BASE BID: _____ (\$ _____)

ADD. ALT BID #1: _____ (\$ _____)

ADD. ALT BID #2: _____ (\$ _____)

ADD. ALT BID #3: _____ (\$ _____)

PROJECT TIMELINE: 200 WORKING DAYS

BID ITEMS:

The undersigned hereby declares that they have visited the site and has carefully examined the plans, specifications and contract documents relating to the work covered by their bid or bids, that they agree to do the work, and that no representations made by the County are in any sense a warranty, but are mere estimates for the guidance of the Contractor.

Upon notification of award of contract, we will within ten (10) calendar days execute the formal contract and will deliver a Performance Bond (as required) for the faithful performance of this contract and a Payment Bond (as required) to insure payment for all labor and materials, The bid bond attached to this proposal, in the amount of 5% of the highest amount bid is to become the property of Cameron County in the event the contract and bonds are not executed within the time above set forth as liquidated damages for the delay and additional work caused thereby.

The undersigned further declares that they will provide all necessary tools and apparatus, do all the work and furnish all materials and do everything required to carry out the above-mentioned work covered by this proposal, in strict accordance with the contract documents and the requirements pertaining thereto, for the sum or sums above set forth.

BID PROPOSAL

The undersigned, having examined the Plans, Specifications, Instructions to Bidders, and other proposed Contract Documents, and having visited the site and examined the conditions affecting the work, hereby proposed to do all the work and to furnish all necessary superintendence, labor, machinery, equipment, tools, materials and complete all the work upon which he binds, all as required by said Contract Documents, and binds himself, upon acceptance to the form prescribed by the Owner, for performing and completing the said work within the time stated, and maintaining the same during construction, or as otherwise required by the detailed specifications, for the following stated amount, to wit:

CAMERON COUNTY

PRECINCT NO. 4 – VARIOUS ROADWAYS PHASE II, PROJECT I

PROJECT NAME

Place: **Cameron County Purchasing Department, Purchasing Department, 1100 E. Monroe St. 3rd Floor,
Rm. 345, Brownsville, Texas 78520**

Date: **3/08/2022; 11:00 AM**

Proposal of _____,
a corporation organized and existing under the laws of the State of _____.
or a Partnership or Individual doing business as _____.

ITEMIZED BID

(See Following Sheet for Itemized Bid)

PCT. 4 PHASE 2 PROJECT 1 VARIOUS ROADS PROJECT							
Item	Code	ALT	UNIT BID PRICE ONLY, WRITTEN IN WORDS	Unit	Approx. Quantities	UNIT BID PRICE ONLY, WRITTEN IN FIGURES	ITEM COST WRITTEN IN FIGURES
104	6017		REMOVING CONC (DRIVEWAYS) _____ DOLLARS and _____ CENTS	SY	404.00		
247	6041		FLEX. BASE (CMP IN PLACE)(TY A GR 1-2)(FINAL POS) _____ DOLLARS and _____ CENTS	CY	4,115.00		
251	6036		REWORK BS MTL (TY C)(8") (DENS CONT) _____ DOLLARS and _____ CENTS	SY	37,035.00		
310	6027		PRIME COAT (MC-30 OR AE-P) _____ DOLLARS and _____ CENTS	GAL	6,467.00		
316	6508		ASPH (SPG 79-13) _____ DOLLARS and _____ CENTS	GAL	10,346.00		
316	6462		AGGR (TY-PD GR-4P SAC-B) _____ DOLLARS and _____ CENTS	GAL	270.00		
340	6104		D-GR HMA (SQ) TY-D SAC-B PG64-22 _____ DOLLARS and _____ CENTS	TON	3,686.00		
464	6003		RC PIPE (CL III) (18 IN) _____ DOLLARS and _____ CENTS	LF	726.00		
467	6357		SET (TY 2) (18") (RCP) (3:1) (P) _____ DOLLARS and _____ CENTS	EA	36.00		
480	6001		CLEAN EXIST CULVERTS (DRVWY PIPES) _____ DOLLARS and _____ CENTS	EA	116.00		
500	6001		MOBILIZATION _____ DOLLARS and _____ CENTS	LS	1.00		
502	6001		BARRICADES, SIGNS AND TRAFFIC HANDLING _____ DOLLARS and _____ CENTS	MO	10.00		
506	6001		ROCK FILTER DAM (INSTALL) (TY 1) _____ DOLLARS and _____ CENTS	LF	15.00		
506	6011		ROCK FILTER DAM (REMOVE) _____ DOLLARS and _____ CENTS	LF	15.00		
506	6020		CONSTRUCTION EXIT (INSTALL) (TY I) _____ DOLLARS and _____ CENTS	SY	1,014.00		

PCT. 4 PHASE 2 PROJECT 1 VARIOUS ROADS PROJECT							
Item	Code	ALT	UNIT BID PRICE ONLY, WRITTEN IN WORDS	Unit	Approx. Quantities	UNIT BID PRICE ONLY, WRITTEN IN FIGURES	ITEM COST WRITTEN IN FIGURES
506	6024		CONSTRUCTION EXIT (REMOVE) _____ DOLLARS and _____ CENTS	SY	1,014.00		
506	6038		TEMP SEDMT CONT FENCE (INSTALL) _____ DOLLARS and _____ CENTS	LF	578.00		
506	6039		TEMP SEDMT CONT FENCE (REMOVE) _____ DOLLARS and _____ CENTS	LF	578.00		
530	6901		DRIVEWAYS _____ DOLLARS and _____ CENTS	SY	572.00		
540	6001		MTL W-BEAM GD FEN (TIM POST) _____ DOLLARS and _____ CENTS	LF	162.50		
540	6005		TERMINAL ANCHOR SECTION _____ DOLLARS and _____ CENTS	EA	8.00		
540	6014		SHORT RADIUS _____ DOLLARS and _____ CENTS	LF	200.00		
560	6011		MAILBOX INSTALL-S (TWW-POST) TY 4 _____ DOLLARS and _____ CENTS	EA	103.00		
644	6027		INS SM RD SN SUP&AM TY S80 (1) SA (P) _____ DOLLARS and _____ CENTS	EA	27.00		
644	6076		REMOVE SM RD SN SUP&AM _____ DOLLARS and _____ CENTS	EA	26.00		
666	6042		REFL PAV MRK TY I (W) 12" (SLD) (100MIL) _____ DOLLARS and _____ CENTS	LF	320.00		
666	6048		REFL PAV MRK TY I (W) 24" (SLD) (100MIL) _____ DOLLARS and _____ CENTS	LF	133.00		
666	6120		RE PM (Y) 4" (BRK) (100MIL) _____ DOLLARS and _____ CENTS	LF	2,730.00		
666	6126		RE PM (Y) 4" (SLD) (100MIL) _____ DOLLARS and _____ CENTS	LF	8,800.00		
672	6009		REFL PAV MRKR TY II-A-A _____ DOLLARS and _____ CENTS	EA	134.00		

PCT. 4 PHASE 2 PROJECT 1 VARIOUS ROADS PROJECT							
Item	Code	ALT	UNIT BID PRICE ONLY, WRITTEN IN WORDS	Unit	Approx. Quantities	UNIT BID PRICE ONLY, WRITTEN IN FIGURES	ITEM COST WRITTEN IN FIGURES
5901	6003		ACP SPEED HUMP (INSTALL)	EA	4.00		
			_____ DOLLARS				
			and _____ CENTS				

TOTAL BID \$

TOTAL IN WORDS

(Amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will prevail.)
The above unit prices shall include all labor, materials, baling, shoring, removal, overhead, profit, insurance, etc.,
to cover the finished work of the several kinds called for.

Bidder understands that the Owner reserves the right to reject any or all bids to waive any minor informalities in the bidding.

Materials Note: Cameron County shall provide the flexbase (Item 247), Prime Coat Oil (Item 310), Seal Coat Oil and Aggregate (Item 316), and ACP (Item 340) materials to the project site. Bids shall include all costs associated with the complete installation and construction of these materials as specified in the plans, general notes, and specifications.

SUBSTITUTION ALTERNATIVE NO. 1							
247	6041		FLEX. BASE (CMP IN PLACE)(TY A GR 1-2)(FINAL POS)	CY	4,115.00		
			_____ DOLLARS				
			and _____ CENTS				
310	6027		PRIME COAT (MC-30 OR AE-P)	GAL	6,467.00		
			_____ DOLLARS				
			and _____ CENTS				
316	6508		ASPH (SPG 79-13)	GAL	10,346.00		
			_____ DOLLARS				
			and _____ CENTS				
316	6462		AGGR (TY-PD GR-4P SAC-B)	GAL	270.00		
			_____ DOLLARS				
			and _____ CENTS				
340	6104		D-GR HMA (SQ) TY-D SAC-B PG64-22	TON	3,686.00		
			_____ DOLLARS				
			and _____ CENTS				

SUBSTITUTION ALTERNATIVE NO. 1 TOTAL BID \$

TOTAL IN WORDS

(Amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will prevail.)
The above unit prices shall include all labor, materials, baling, shoring, removal, overhead, profit, insurance, etc.,
to cover the finished work of the several kinds called for.

Bidder understands that the Owner reserves the right to reject any or all bids to waive any minor informalities in the bidding.

Materials Note: Cameron County will not provide any materials for this alternative. Bids shall include all costs associated with providing the materials and completing the installation and construction of these items as specified in the plans, general notes, and specifications.

ADDITIVE ALTERNATIVE NO. 1							
104	6017		REMOVING CONC (DRIVEWAYS)	SY	69.00		
			_____ DOLLARS				
			and _____ CENTS				
247	6041		FLEX. BASE (CMP IN PLACE)(TY A GR 1-2)(FINAL POS)	CY	2,104.00		
			_____ DOLLARS				
			and _____ CENTS				
251	6036		REWORK BS MTL (TY C)(8") (DENS CONT)	SY	18,937.00		
			_____ DOLLARS				
			and _____ CENTS				
310	6027		PRIME COAT (MC-30 OR AE-P)	GAL	3,312.00		
			_____ DOLLARS				
			and _____ CENTS				

PCT. 4 PHASE 2 PROJECT 1 VARIOUS ROADS PROJECT							
Item	Code	ALT	UNIT BID PRICE ONLY, WRITTEN IN WORDS	Unit	Approx. Quantities	UNIT BID PRICE ONLY, WRITTEN IN FIGURES	ITEM COST WRITTEN IN FIGURES
316	6508		ASPH (SPG 79-13) _____ DOLLARS and _____ CENTS	GAL	5,299.00		
316	6462		AGGR (TY-PD GR-4P SAC-B) _____ DOLLARS and _____ CENTS	GAL	138.00		
340	6104		D-GR HMA (SQ) TY-D SAC-B PG64-22 _____ DOLLARS and _____ CENTS	TON	1,888.00		
400	6006		CUT & RESTORING PAV _____ DOLLARS and _____ CENTS	SY	8.00		
464	6003		RC PIPE (CL III) (18 IN) _____ DOLLARS and _____ CENTS	LF	64.00		
467	6356		SET (TY 2) (18") (RCP) (3:1) (C) _____ DOLLARS and _____ CENTS	EA	2.00		
467	6357		SET (TY 2) (18") (RCP) (3:1) (P) _____ DOLLARS and _____ CENTS	EA	1.00		
480	6001		CLEAN EXIST CULVERTS (DRVWY PIPES) _____ DOLLARS and _____ CENTS	EA	56.00		
500	6001		MOBILIZATION _____ DOLLARS and _____ CENTS	LS	1.00		
502	6001		BARRICADES, SIGNS AND TRAFFIC HANDLING _____ DOLLARS and _____ CENTS	MO	4.50		
506	6020		CONSTRUCTION EXIT (INSTALL) (TY I) _____ DOLLARS and _____ CENTS	SY	234.00		
506	6024		CONSTRUCTION EXIT (REMOVE) _____ DOLLARS and _____ CENTS	SY	234.00		
506	6038		TEMP SEDMT CONT FENCE (INSTALL) _____ DOLLARS and _____ CENTS	LF	372.00		
506	6039		TEMP SEDMT CONT FENCE (REMOVE) _____ DOLLARS and _____ CENTS	LF	372.00		
530	6901		DRIVEWAYS _____ DOLLARS and _____ CENTS	SY	34.00		

PCT. 4 PHASE 2 PROJECT 1 VARIOUS ROADS PROJECT							
Item	Code	ALT	UNIT BID PRICE ONLY, WRITTEN IN WORDS	Unit	Approx. Quantities	UNIT BID PRICE ONLY, WRITTEN IN FIGURES	ITEM COST WRITTEN IN FIGURES
560	6011		MAILBOX INSTALL-S (TWW-POST) TY 4 _____ DOLLARS and _____ CENTS	EA	45.00		
644	6027		INS SM RD SN SUP&AM TY S80 (1) SA (P) _____ DOLLARS and _____ CENTS	EA	10.00		
644	6070		RELOCATE SM RD SN SUP&AM TY S80 _____ DOLLARS and _____ CENTS	EA	1.00		
644	6076		REMOVE SM RD SN SUP&AM _____ DOLLARS and _____ CENTS	EA	9.00		
666	6048		REFL PAV MRK TY I (W) 24" (SLD) (100MIL) _____ DOLLARS and _____ CENTS	LF	40.00		
666	6120		RE PM (Y) 4" (BRK) (100MIL) _____ DOLLARS and _____ CENTS	LF	1,482.00		
666	6126		RE PM (Y) 4" (SLD) (100MIL) _____ DOLLARS and _____ CENTS	LF	2,400.00		
672	6009		REFL PAV MRKR TY II-A-A _____ DOLLARS and _____ CENTS	EA	76.00		

ADDITIVE ALTERNATIVE NO. 1 TOTAL BID \$

TOTAL IN WORDS

(Amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will prevail.)
The above unit prices shall include all labor, materials, baling, shoring, removal, overhead, profit, insurance, etc.,
to cover the finished work of the several kinds called for.

Bidder understands that the Owner reserves the right to reject any or all bids to waive any minor informalities in the bidding.

Materials Note: Cameron County will not provide any materials for this additive. Bids shall include all costs associated with providing the materials and completing the installation and construction of these items as specified in the plans, general notes, and specifications.

ADDITIVE ALTERNATIVE NO. 2							
104	6001		REMOVING CONC (PAV) _____ DOLLARS and _____ CENTS	SY	7,061.00		
104	6017		REMOVING CONC (DRIVEWAYS) _____ DOLLARS and _____ CENTS	SY	22.00		
247	6041		FLEX. BASE (CMP IN PLACE)(TY A GR 1-2)(FINAL POS) _____ DOLLARS and _____ CENTS	CY	2,496.00		
251	6036		REWORK BS MTL (TY C)(8") (DENS CONT) _____ DOLLARS and _____ CENTS	SY	11,232.00		
310	6027		PRIME COAT (MC-30 OR AE-P) _____ DOLLARS and _____ CENTS	GAL	1,927.00		

PCT. 4 PHASE 2 PROJECT 1 VARIOUS ROADS PROJECT							
Item	Code	ALT	UNIT BID PRICE ONLY, WRITTEN IN WORDS	Unit	Approx. Quantities	UNIT BID PRICE ONLY, WRITTEN IN FIGURES	ITEM COST WRITTEN IN FIGURES
316	6508		ASPH (SPG 79-13) _____ DOLLARS and _____ CENTS	GAL	3,084.00		
316	6462		AGGR (TY-PD GR-4P SAC-B) _____ DOLLARS and _____ CENTS	GAL	80.00		
340	6104		D-GR HMA (SQ) TY-D SAC-B PG64-22 _____ DOLLARS and _____ CENTS	TON	1,099.00		
400	6006		CUT & RESTORING PAV _____ DOLLARS and _____ CENTS	SY	10.00		
464	6003		RC PIPE (CL III) (18 IN) _____ DOLLARS and _____ CENTS	LF	208.00		
467	6356		SET (TY 2) (18") (RCP) (3:1) (C) _____ DOLLARS and _____ CENTS	EA	2.00		
467	6357		SET (TY 2) (18") (RCP) (3:1) (P) _____ DOLLARS and _____ CENTS	EA	8.00		
480	6001		CLEAN EXIST CULVERTS (DRVWY PIPES) _____ DOLLARS and _____ CENTS	EA	33.00		
500	6001		MOBILIZATION _____ DOLLARS and _____ CENTS	LS	1.00		
502	6001		BARRICADES, SIGNS AND TRAFFIC HANDLING _____ DOLLARS and _____ CENTS	MO	4.00		
506	6020		CONSTRUCTION EXIT (INSTALL) (TY I) _____ DOLLARS and _____ CENTS	SY	78.00		
506	6024		CONSTRUCTION EXIT (REMOVE) _____ DOLLARS and _____ CENTS	SY	78.00		
506	6038		TEMP SEDMT CONT FENCE (INSTALL) _____ DOLLARS and _____ CENTS	LF	160.00		
506	6039		TEMP SEDMT CONT FENCE (REMOVE) _____ DOLLARS and _____ CENTS	LF	160.00		
530	6901		DRIVEWAYS _____ DOLLARS and _____ CENTS	SY	213.00		

PCT. 4 PHASE 2 PROJECT 1 VARIOUS ROADS PROJECT							
Item	Code	ALT	UNIT BID PRICE ONLY, WRITTEN IN WORDS	Unit	Approx. Quantities	UNIT BID PRICE ONLY, WRITTEN IN FIGURES	ITEM COST WRITTEN IN FIGURES
560	6011		MAILBOX INSTALL-S (TWW-POST) TY 4 _____ DOLLARS and _____ CENTS	EA	17.00		
644	6027		INS SM RD SN SUP&AM TY S80 (1) SA (P) _____ DOLLARS and _____ CENTS	EA	11.00		
644	6076		REMOVE SM RD SN SUP&AM _____ DOLLARS and _____ CENTS	EA	9.00		
666	6030		REFL PAV MRK TY I (W) 8" (DOT) (100 ML) _____ DOLLARS and _____ CENTS	LF	180.00		
666	6036		REFL PAV MRK TY I (W) 8" (SLD) (100 ML) _____ DOLLARS and _____ CENTS	LF	470.00		
666	6048		REFL PAV MRK TY I (W) 24" (SLD) (100MIL) _____ DOLLARS and _____ CENTS	LF	11.00		
666	6120		RE PM (Y) 4" (BRK) (100MIL) _____ DOLLARS and _____ CENTS	LF	860.00		
666	6126		RE PM (Y) 4" (SLD) (100MIL) _____ DOLLARS and _____ CENTS	LF	1,036.00		
668	6019		PREFAB PAV MRK TY B (W) (ARROW) _____ DOLLARS and _____ CENTS	EA	3.00		
668	6027		PREFAB PAV MRK TY B (W) (WORD) _____ DOLLARS and _____ CENTS	EA	2.00		
672	6009		REFL PAV MRKR TY II-A-A _____ DOLLARS and _____ CENTS	EA	50.00		
5001	6002		GEOGRID BASE REINFORCEMENT (TY II) _____ DOLLARS and _____ CENTS	SY	11,232.00		
5901	6003		ACP SPEED HUMP (INSTALL) _____ DOLLARS and _____ CENTS	EA	1.00		

ADDITIVE ALTERNATIVE NO. 2 TOTAL BID \$

TOTAL IN WORDS

(Amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will prevail.)
 The above unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc.,
 to cover the finished work of the several kinds called for.
 Bidder understands that the Owner reserves the right to reject any or all bids to waive any minor informalities in the bidding.
Materials Note: Cameron County will not provide any materials for this additive. Bids shall include all costs associated with providing the materials and completing the installation and construction of these items as specified in the plans, general notes, and specifications.

ADDITIVE ALTERNATIVE NO. 3 (SEE ADDITIVE ALTERNATIVE NO. 3 BID PROPOSAL SHEETS FOR ITEMS AND DETAILS)

Materials Note: Cameron County will not provide any materials for this additive. Bids shall include all costs associated with providing the materials and completing the installation and construction of these items as specified in the plans, general notes, and specifications.

****** BID PROPOSAL SHEETS ******

ADDITIVE ALTERNATIVE NO. 3

The bid security accompanying this proposal shall be returned to the bidder, unless in case of the acceptance of the proposal, the bidder shall fail to execute a Contract and file a performance and payment bond within ten (10) days after its acceptance, in which case the bid security shall become the property of City of La Feria and shall be considered as payment for damages due to delay and other inconveniences suffered by the OWNER on account of such failure of the bidder.

BID PROPOSAL

Bidder agrees to perform all work described in the specifications and shown on the plans, for the following price or prices:

TASK NO.	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL
PROJECT 1 – MEMORIAL STREET (1,550’ X 18’)					
1	MANHOLES	EA	0		
2	WATER VALVE	EA	0		
3	PAVEMENT REPAIR (*)	SY	3100		
4	MILLING	SY	0		
5	SEAL COAT AGGREGATE (120 SY/CY)	CY	26		
6	SEAL COAT ASPHALT (0.35 GAS/SY)	GAL	1085		
7	PRIME COAT (MC-30) (0.3 GAL/SY)	GAL	930		
8	HMAC (TYPE D) (171 #/SY)	TON	265		
	PROJECT 1 - SUB-TOTAL				
PROJECT 2 – CANAL ST. FROM 1ST ST TO 4TH ST (880’ X 37’)					
1	MANHOLES	EA	6		
2	WATER VALVE	EA	1		
3	PAVEMENT REPAIR (*)	SY	549		
4	MILLING	SY	392		
5	SEAL COAT AGGREGATE (120 SY/CY)	CY	30		
6	SEAL COAT ASPHALT (0.35 GAS/SY)	GAL	1266		
7	PRIME COAT (MC-30) (0.3 GAL/SY)	GAL	165		
8	HMAC (TYPE D) (171 #/SY)	TON	310		
	PROJECT 2 - SUB-TOTAL				

ADDITIVE ALTERNATIVE NO. 3 CONTINUED

TASK NO.	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL
PROJECT 3 – CANAL ST. FROM 6TH ST TO FRONTAGE RD (1,050' X 37')					
1	MANHOLES	EA	1		
2	WATER VALVE	EA	8		
3	PAVEMENT REPAIR (*)	SY	683		
4	MILLING	SY	467		
5	SEAL COAT AGGREGATE (120 SY/CY)	CY	36		
6	SEAL COAT ASPHALT (0.35 GAS/SY)	GAL	1511		
7	PRIME COAT (MC-30) (0.3 GAL/SY)	GAL	205		
8	HMAC (TYPE D) (171 #/SY)	TON	369		
	PROJECT 3 – SUB-TOTAL				
PROJECT 4 - WEST ST- BUSINESS 83 TO 1ST ST (250' X 38')					
1	MANHOLES	EA	1		
2	WATER VALVE	EA	2		
3	PAVEMENT REPAIR (*)	SY	70		
4	MILLING	SY	111		
5	SEAL COAT AGGREGATE (120 SY/CY)	CY	9		
6	SEAL COAT ASPHALT (0.35 GAS/SY)	GAL	374		
7	PRIME COAT (MC-30) (0.3 GAL/SY)	GAL	21		
8	HMAC (TYPE D) (171 #/SY)	TON	91		
	PROJECT 4 – SUB-TOTAL				
PROJECT 5 - N PARKER RD- BUSINESS 83 TO N PROPERTY LINE OF S TX HAVEN SUBD (550' X 37')					
1	MANHOLES	EA	4		
2	WATER VALVE	EA	7		
3	PAVEMENT REPAIR (*)	SY	213		
4	MILLING	SY	245		
5	SEAL COAT AGGREGATE (120 SY/CY)	CY	19		
6	SEAL COAT ASPHALT (0.35 GAS/SY)	GAL	791		
7	PRIME COAT (MC-30) (0.3 GAL/SY)	GAL	64		
8	HMAC (TYPE D) (171 #/SY)	TON	193		
	PROJECT 5 – SUB-TOTAL				

ADDITIVE ALTERNATIVE NO. 3 CONTINUED

TASK NO.	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL
PROJECT 6 – COMMERCIAL AVE- MAIN TO EAST ST (620’X48’)					
1	MANHOLES	EA	2		
2	WATER VALVE	EA	8		
3	PAVEMENT REPAIR (*)	SY	276		
4	MILLING	SY	413		
5	SEAL COAT AGGREGATE (120 SY/CY)	CY	28		
6	SEAL COAT ASPHALT (0.35 GAS/SY)	GAL	1157		
7	PRIME COAT (MC-30) (0.3 GAL/SY)	GAL	83		
8	HMAC (TYPE D) (171 #/SY)	TON	223		
9	CONCRETE PAVEMENT (8’’)	CY	166		
	PROJECT 6 SUB-TOTAL				
PROJECT 7 – CHELO DR- MAIN TO PANCHO MAPLES ST (1,730’ X 27’)					
1	MANHOLES	EA	0		
2	WATER VALVE	EA	0		
3	PAVEMENT REPAIR (*)	SY	1252		
4	MILLING	SY	769		
5	SEAL COAT AGGREGATE (120 SY/CY)	CY	43		
6	SEAL COAT ASPHALT (0.35 GAS/SY)	GAL	1817		
7	PRIME COAT (MC-30) (0.3 GAL/SY)	GAL	376		
8	HMAC (TYPE D) (150 #/SY)	TON	389		
	PROJECT 7 – SUB-TOTAL				
PROJECT 8 – ANGELITA DR- CHELO DR (WEST) TO MAIN ST (1,180 X 27’)					
1	MANHOLES	EA	0		
2	WATER VALVE	EA	0		
3	PAVEMENT REPAIR (*)	SY	511		
4	MILLING	SY	525		
5	SEAL COAT AGGREGATE (120 SY/CY)	CY	30		
6	SEAL COAT ASPHALT (0.35 GAS/SY)	GAL	1239		
7	PRIME COAT (MC-30) (0.3 GAL/SY)	GAL	153		
8	HMAC (TYPE D) (150 #/SY)	TON	266		
	PROJECT 8 – SUB-TOTAL				

BID PROPOSAL FORM

00300

ADDITIVE ALTERNATIVE NO. 3 CONTINUED

TASK NO.	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL
PROJECT 9 – SPRUCE AVE.- WEST TO CANAL ST (575' X 35')					
1	MANHOLES	EA	1		
2	WATER VALVE	EA	0		
3	PAVEMENT REPAIR (*)	SY	329		
4	MILLING	SY	256		
5	SEAL COAT AGGREGATE (120 SY/CY)	CY	19		
6	SEAL COAT ASPHALT (0.35 GAS/SY)	GAL	783		
7	PRIME COAT (MC-30) (0.3 GAL/SY)	GAL	99		
8	HMAC (TYPE D) (150 #/SY)	TON	168		
	PROJECT 9 – SUB-TOTAL				
PROJECT 10 – MAGNOLIA AVE- EAST TO WEST FROM MAGNOLIA HEIGHTS (1,010 X 27')					
1	MANHOLES	EA	0		
2	WATER VALVE	EA	0		
3	PAVEMENT REPAIR (*)	SY	139		
4	MILLING	SY	449		
5	SEAL COAT AGGREGATE (120 SY/CY)	CY	25		
6	SEAL COAT ASPHALT (0.35 GAS/SY)	GAL	1061		
7	PRIME COAT (MC-30) (0.3 GAL/SY)	GAL	42		
8	HMAC (TYPE D) (150 #/SY)	TON	227		
	PROJECT 10 – SUB-TOTAL				
PROJECT 11 – MAGNOLIA AVE- MAGNOLIA AVE TO CUL-DE-SAC (430 X 27')					
1	MANHOLES	EA	0		
2	WATER VALVE	EA	0		
3	PAVEMENT REPAIR (*)	SY	179		
4	MILLING	SY	191		
5	SEAL COAT AGGREGATE (120 SY/CY)	CY	11		
6	SEAL COAT ASPHALT (0.35 GAS/SY)	GAL	452		
7	PRIME COAT (MC-30) (0.3 GAL/SY)	GAL	54		
8	HMAC (TYPE D) (150 #/SY)	TON	97		
	PROJECT 11 – SUB-TOTAL				

ADDITIVE ALTERNATIVE NO. 3 CONTINUED

TASK NO.	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL
PROJECT 12 – MAGNOLIA HEIGHTS AVE- MAGNOLIA AVE TO CUL-DE-SAC (430' X 27')					
1	MANHOLES	EA	0		
2	WATER VALVE	EA	0		
3	PAVEMENT REPAIR (*)	SY	14		
4	MILLING	SY	191		
5	SEAL COAT AGGREGATE (120 SY/CY)	CY	11		
6	SEAL COAT ASPHALT (0.35 GAS/SY)	GAL	452		
7	PRIME COAT (MC-30) (0.3 GAL/SY)	GAL	4		
8	HMAC (TYPE D) (150 #/SY)	TON	97		
	PROJECT 12 – SUB-TOTAL				
PROJECT 13 – WEST ST- ANGELITA DR TO PANCHO MAPLES ST (255' X 27')					
1	MANHOLES	EA	0		
2	WATER VALVE	EA	0		
3	PAVEMENT REPAIR (*)	SY	123		
4	MILLING	SY	114		
5	SEAL COAT AGGREGATE	CY	6		
6	SEAL COAT ASPHALT (0.35 GAS/SY)	GAL	268		
7	PRIME COAT (MC-30) (0.3 GAL/SY)	GAL	37		
8	HMAC (TYPE D) (150 #/SY)	TON	57		
	PROJECT 13 – SUB-TOTAL				
PROJECT 14 – S PARKER RD- MAGNOLIA TO LILAC AVE (1,675' X 37')					
1	MANHOLES	EA	5		
2	WATER VALVE	EA	0		
3	PAVEMENT REPAIR (*)	SY	404		
4	MILLING	SY	745		
5	SEAL COAT AGGREGATE (120 SY/CY)	CY	57		
6	SEAL COAT ASPHALT (0.35 GAS/SY)	GAL	2410		
7	PRIME COAT (MC-30) (0.3 GAL/SY)	GAL	121		
8	HMAC (TYPE D) (171 #/SY)	TON	589		
	PROJECT 14 – SUB-TOTAL				

BID PROPOSAL FORM

00300

ADDITIVE ALTERNATIVE NO. 3 CONTINUED

TASK NO.	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL
PROJECT 15 – EAST ST- EBONY TO JESSAMINE AVE (400’ X 18’)					
1	MANHOLES	EA	0		
2	WATER VALVE	EA	0		
3	PAVEMENT REPAIR (*)	SY	136		
4	MILLING	SY	178		
5	SEAL COAT AGGREGATE (120 SY/CY)	CY	7		
6	SEAL COAT ASPHALT (0.35 GAS/SY)	GAL	280		
7	PRIME COAT (MC-30) (0.3 GAL/SY)	GAL	41		
8	HMAC (TYPE D) (171 #/SY)	TON	68		
	PROJECT 15 - SUB-TOTAL				

	PROJECTS 1 - 15 TOTAL				
--	------------------------------	--	--	--	--

() Note: Quantities shown are approximate and are for bidding purposes only. Payment will be based on actual quantities as measured in the field.*

TOTAL AMOUNT OF BID: \$ _____

TOTAL AMOUNT BID (Words): _____

In the event of the award of a Contract to the undersigned, the undersigned will furnish a performance and payment bond for the full amount of the Contract, to secure proper compliance with the terms and provisions of the Contract, to insure and guarantee payment of all lawful claims for labor performed and materials furnished in the fulfillment of the Contract.

LIST OF SUBCONTRACTORS

To be submitted in a separate envelope with the Bid Proposal

Project: **PRECINCT NO. 4 – VARIOUS ROADWAYS PHASE II, PROJECT I**

To: Cameron County

The undersigned submit the following names of subcontractors to be used in performing the Contract. Each subcontractor is required to submit a standard Qualification Statement clearly indicating prior project experience and references.

SUBCONTRACTORS TYPE/OTHER	NAME
1. Site Work and Paving	_____
2. Concrete	_____
3. Masonry	_____
4. Finish Carpentry	_____
5. Plaster	_____
6. Wood Flooring	_____
7. Painting	_____
8. Elevator	_____
9. HVAC	_____
10. Plumbing	_____
11. Electrical	_____
12. Environmental	_____
13. Other	_____

All Qualification Statements will be reviewed by the Project Engineer or the Project Architect, who will make appropriate recommendations to Cameron County.

ADDENDUM ACKNOWLEDGEMENT

Receipt of the following addenda is acknowledged (addenda number):

Respectfully Submitted:

Name: _____

By: _____
(Signature)

Address: _____
(P.O. Box) (Street)

(City) (State) (Zip)

Telephone: _____
(Area Code)

NOTE: Do not detach bid from other papers. Fill in with ink and submit complete with attached papers.

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned, _____ as PRINCIPAL, AND _____, as SURETY are held and firmly bound unto **Cameron County** hereinafter called the OWNER in the penal sum of _____ percent not to exceed _____ 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, which whereas the Principal has submitted the accompanying Bid, dated _____, 2022, for _____.

NOW, THEREFORE, 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 Local Public Agency 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 in such Contract and give such bond within the time specified, the Principal shall pay the Owner the difference between the amount specified in said Bid and the amount for which the Owner may procure the required work of 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 WHEREOF, the above-bounded parties have executed this instrument under their several seals this _____ day of _____, 2022 the name and corporate seal of each corporate party being here to affixed and these presents signed by its undersigned representative, pursuant to authority of its governing body.

ATTEST: _____ Affix Corporate Seal
BY: _____

ATTEST: _____ Affix Corporate Seal
BY: _____

ATTEST: _____ Affix Corporate Seal
BY: _____

Countersigned
BY: _____ Attorney-in Fact, State of _____

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The bidder may submit any additional information he desires.

Name of Bidder: _____ Date Organized _____
Address: _____ Date Incorporated _____
Number of years in contracting business under present name _____.

CONTRACTS ON HAND:

Contract	Amount \$	Completion Date
_____	_____	_____
_____	_____	_____
_____	_____	_____

Type of work performed by your company:

Have you ever failed to complete any work awarded to you? _____
Have you ever defaulted on a contract? _____

List the projects most recently completed by your firm (include projects of similar importance):

Project	Amount \$	Mo/Yr. completed
_____	_____	_____
_____	_____	_____
_____	_____	_____

Major equipment available for this contract:

Attach a resume(s) for the principal member(s) of your organization, including the officers as well as the proposed superintendent for the project.

Credit available: \$ _____ Bank reference: _____
The undersigned hereby authorizes and requests any person, firm, or corporations to furnish any information requested by the _____ in verification of the recitals comprising this Statement of Bidder's Qualifications.

Executed this _____ day of _____, 2022
By: (signature) _____ Title: _____
(Print Name) _____

CERTIFICATE AS TO CORPORATE PRINCIPLE

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 their signature, and their signature there to in genuine; and that Said bond was duly signed, 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.

SECTION 1-B

CAMERON COUNTY
PURCHASING DEPT.
FORMS
ATTACHMENTS A – I

ATTACHEMENT A
THIS FORM MUST BE ATTACHED TO THE BID PROPOSAL

VENDOR REFERENCES

Please list three (3) references of current customers who can verify the quality of service your company provides. The County prefers customers of similar size and scope of work to this bid.
THIS FORM MUST BE RETURNED WITH YOUR BID.

REFERENCE ONE

Government/Company/Name:

Address: _____

Contact/Person/and Title:

Phone/_____ e-mail address: _____

Contract Period: _____ Scope of Work _____

REFERENCE TWO

Government/Company/Name:

Address: _____

Contact/Person/and Title:

Phone/_____ e-mail address: _____

Contract Period: _____ Scope of Work _____

REFERENCE THREE

Government/Company/Name:

Address: _____

Contact/Person/and Title:

Phone/_____ e-mail address: _____

Contract Period: _____ Scope of Work _____

ATTACHMENT B
THIS FORM MUST BE ATTACHED TO THE BID PROPOSAL

STATE OF TEXAS
COUNTY OF CAMERON

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

The undersigned certifies that the bid prices contained in this bid have been carefully checked and are submitted as correct and final and if bid is accepted (within 90 days unless otherwise noted by vendor), agrees to furnish any and/or all items upon which prices are offered, at the price(s) and upon the conditions contained in the Specifications.

BEFORE ME, the undersigned authority, A Notary Public in and for the State of _____, on this day personally appeared _____ who, after having first been duly sworn, upon oath did depose and say;

That the foregoing Bid submitted by _____ hereinafter called "Bidder" is the duly authorized agent of said company and that the person signing said Bid has been duly authorized to execute the same. Bidder affirms that they are duly authorized to execute this contract, that this company, corporation, firm, partnership or individual has not prepared this Bid in collusion with any other Bidder. The Bidder is not a member of any trust, pool, or combination to control the price of products or services Bid on, or to influence any person to Bid or not to Bid thereon. I further affirm that the Bidder has not given, offered to give, nor intends to give, at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discounts, trip, favor, or service to a public servant in connection with the submitted Bid. The contents of this Bid as to prices, terms or conditions of said Bid have not been communicated by the undersigned nor by any employee or agent to any other person engaged in this type of business prior to the official opening of this Bid.

Name and Address of Bidder:

Telephone number _____ Fax number _____

Signature

Name: _____ Title: _____

SWORN AND SUBSCRIBE BEFORE ME, this _____ day of _____, _____.

Notary Public in and for County _____ State _____

ATTACHMENT C
THIS FORM MUST BE ATTACHED WITH THE BID PROPOSAL

RESIDENCE CERTIFICATION

Pursuant to Texas Government Code §2252.001 *et seq.*, as amended, Cameron County requests Residence Certification. §2252.001 *et seq.* of the Government Code provides some restrictions on the awarding of governmental contracts; pertinent provisions of §2252.001 are stated below:

“Nonresident bidder” refers to a person who is not a resident.

“Resident bidder” refers to a person whose principal place of business is in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

I certify that _____ is a Resident
(Company Name)
Bidder of Texas as defined in Government Code §2252.001.

I certify that _____ is a Nonresident
(Company Name)

Bidder as defined in Government Code §2252.001 and our principal place of business is

(City and State)

ATTACHMENT D
THIS FORM MUST BE ATTACHED TO THE BID PROPOSAL

NON - LOBBYING CERTIFICATION

CAMERON COUNTY EXPRESSLY REQUESTS THAT BIDDERS / PROPOSERS NOT DISCUSS THIS ENGAGEMENT OR THIS BIDDER'S / PROPOSER'S PLANS, EXPERIENCE OR CREDENTIALS WITH OTHER BIDDERS / PROPOSERS OR ANY MEMBER OF COMMISSIONERS' COURT, ANY COUNTY OFFICIAL, OR ANY EVALUATION COMMITTEE MEMBER APPOINTED BY COMMISSIONERS COURT. EXCLUDED ARE PRE-BID OR PRE-PROPOSAL CONFERENCES, EVALUATION COMMITTEE SCHEDULED VENDOR PRESENTATIONS OR VENDOR INTERVIEWS, OR EVALUATION COMMITTEE SCHEDULED EQUIPMENT OR SERVICES DEMONSTRATIONS. YOU MAY CONTACT THE PURCHASING AGENT /PURCHASING DEPARTMENT AT ANY TIME.

01. Has any individual with the firm submitting this Proposal/Bid/Response made any contact with any member of Commissioners Court, any County Official, or an Evaluation Committee member concerning this Invitation to Bid/RFP/RFQ, other than questions to the Assistant County Auditor/Purchasing Officer?

02. Has any individual with the firm submitting this Proposal/Bid/Response made any contact with any other Bidder or Proposer concerning this Invitation to Bid/RFP/RFQ?

(Signature of person submitting this Bid)

Date

ATTACHMENT E
THIS FORM MUST BE ATTACHED TO THE BID PROPOSAL

ORDER NO. 2007O2005

THE STATE OF TEXAS §
 §
COUNTY OF CAMERON §

ORDER ADOPTING CONTRACTING RULES FOR PERSONS INDEBTED TO COUNTY

WHEREAS, pursuant to V.T.C.A., Local Government Code, Section 262.0276, a commissioners court is authorized to adopt rules permitting a county to refuse to enter into a contract or other transaction with a person indebted to the county;

WHEREAS, the Commissioners Court of Cameron County finds it is in the best interest of Cameron County to adopt such rules;

NOW THEREFORE, BE IT ORDERED by the Commissioners Court of Cameron County, that the following rules be adopted regarding Cameron County and persons interested in doing business with Cameron County:

1. Cameron County may refuse to enter into a contract or other transaction with a person with a past due debt to Cameron County, including delinquent ad valorem taxes, even if the person is the lowest bidder or successful proposer; and
2. **For purposes of this Order, a debt is past due if it is not received in the County Treasurer's Office by the due date in a written agreement or notice, and ad valorem taxes are past due if not received in the County Tax Assessor/Collector's Office by February 1st following the January 1st on which the ad valorem taxes are due.**
3. For purposes of this Order, a person includes an individual, sole proprietorship, corporation, nonprofit corporation, partnership, joint venture, limited liability company, and any other entity that proposes or otherwise seeks to enter into a contract or other transaction with Cameron County requiring approval by the Commissioners Court.

ADOPTED this 13 day of March, 2007.

Taxpayer Identification Number (T.I.N.): _____

Cameron County Acct #'s: Real Estate _____ Personal Property _____

01. Is the person or the firm submitting this Bid current with all local and State taxes?

Signature of person submitting this Bid

Date

ATTACHMENT F
THIS FORM MUST BE ATTACHED TO THE BID PROPOSAL

CERTIFICATION
Regarding Debarment, Suspension Ineligibility

As is required by the Federal Regulations Implementing Executive Order 12549, Debarment and Suspension, 45 CFR Part 76, Government-wide Debarment and Suspension, in the applicant certifies, to the best of his or her knowledge and belief, that both it and its principals:

- a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency;
- b. Have not within a three-year period preceding this bid/proposal and/or application 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, theory, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- c. Are not presently indicted for or otherwise criminally or civilly charged by a government entity with commission of any of the offenses enumerated herein; and
- d. Have not within a three-year period preceding this bid/proposal and/or application had one or more public transactions terminated of cause or default.

Signature: _____

Print Name: _____

Title: _____

Telephone Number: _____

Date: _____

If the Bidder / Proposer is unable to certify to all of the statements in this Certification, such Bidder / Proposer should attach an explanation to this Bid / Proposal.

Architects, Engineers, Construction

The applicant certifies, to the best of his or her knowledge and belief, that the information noted below for it and its principals are accurate:

- a. List all previous law suits with Public entities and the results of such suits over the past 7 years.

- b. List all projects that have exceeded Budget, what % over budget and why – over the past 5 years.

- c. List all projects that have exceeded the project completion due date, how many days over and why – over the past 5 years.

Company's Name: _____

Signature: _____

Print Name: _____

Title: _____

Telephone Number: _____

Date: _____

If the Bidder / Proposer is unable to certify to all of the statements in this Certification, such Bidder / Proposer should attach an explanation to this Bid / Proposal.

THIS FORM MUST BE RETURNED WITH YOUR BID

(attach pages if necessary due to space limitations)

ATTACHMENT G
THIS FORM MUST BE ATTACHED TO THE BID PROPOSAL

CONFLICT OF INTEREST QUESTIONNAIRE

NOTE: MUST BE FILLED OUT AND SUBMITTED WITH THE BID/RFP/RFQ. IF DISCLOSING: BIDDER / PROPOSER MUST ALSO FILE WITH THE COUNTY CLERK'S OFFICE. THE PURCHASING DEPT. WILL NOT BE FILING ON THE BIDDER'S BEHALF.

For vendor or other person doing business with local governmental entity

This questionnaire is being filed in accordance with chapter 176 of the Local Government Code by a person doing business with the governmental entity.

By law this questionnaire must be filed with the records administrator (County Clerk's Office) of the local government not later than the 7th business day after the date the person becomes aware of facts that require the statement to be filed. *See* Section 176.006, Local Government Code.

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

1. Name of person doing business with local governmental entity.

OFFICE USE ONLY Date Received:

2. Check this box if you are filing an update to a previously filed questionnaire.

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than September 1 of the year for which an activity described in Section 176.006(a), Local Government Code, is pending and not later than the 7th business day after the date the originally filed questionnaire becomes incomplete or inaccurate.)

3. Describe each affiliation or business relationship with an employee or contractor of the local governmental entity who makes recommendations to a local government officer of the local governmental entity with respect to expenditure of money .

4. Describe each affiliation or business relationship with a person who is a local government officer and who appoints or employs a local government officer of the local governmental entity that is the subject of this questionnaire.

CONFLICT OF INTEREST QUESTIONNAIRE (CON'T)

For vendor or other person doing business with local governmental entity

**5. Name of local government officer with whom filer has affiliation or business relationship.
(Complete this section only if the answer to A, B, or C is YES.)**

This section, item 5 including subparts A, B, C & D, must be completed for each officer with whom the filer has affiliation or business relationship. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income from the filer of the questionnaire?

Yes No

B. Is the filer of the questionnaire receiving or likely to receive taxable income from or at the direction of the local government officer named in this section AND the taxable income is not from the local governmental entity?

Yes No

C. Is the filer of this questionnaire affiliated with a corporation or other business entity that the local government officer serves as an officer or director, or holds an ownership of 10 percent or more?

Yes No

D. Describe each affiliation or business relationship.

6. Describe any other affiliation or business relationship that might cause a conflict of interest.

7. Does any individual with the firm submitting BID, RFP, RFQ have any business relationship with any County Official or County employee within the third degree of Consanguinity kinship or the second degree of Affinity kinship? (see attached Nepotism Chart)

Signature of person doing business with the governmental entity

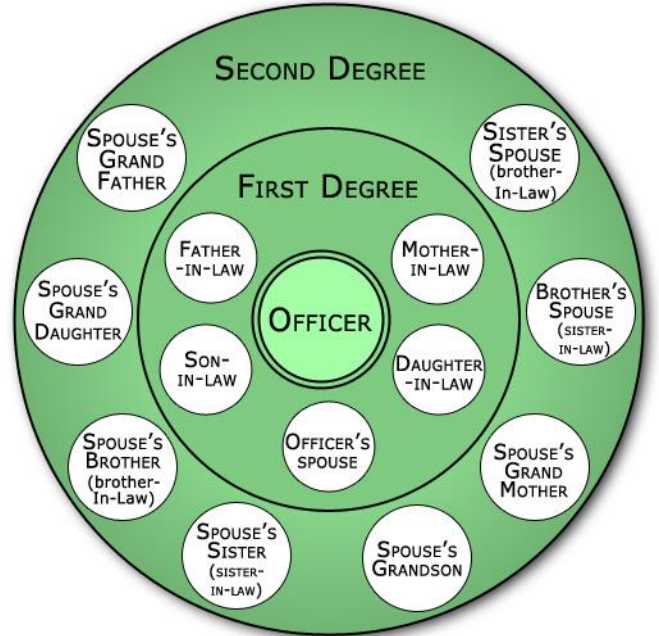
Date

NEPOTISM CHART

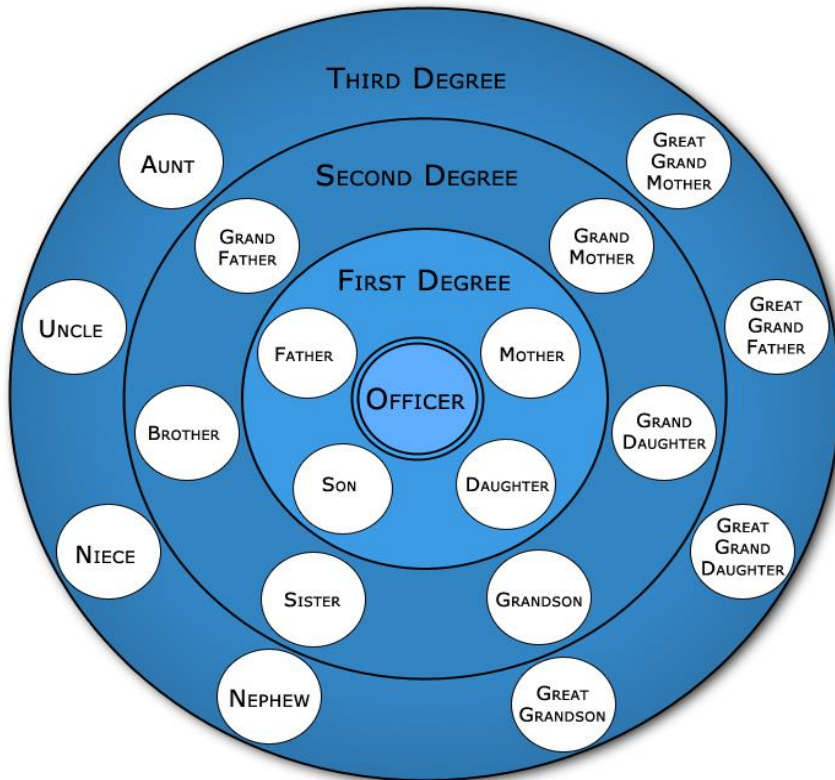
The chart below shows

- **Affinity Kinship** (relationship by marriage)
 - **Consanguinity Kinship** (relationship by blood)
- for purposes of interpreting nepotism as defined in VTCA Government Code, Chapter 573, §§573.021 - .025

AFFINITY KINSHIP Relationship by Marriage



CONSANGUINITY KINSHIP Relationship by Blood



ATTACHMENT H
THIS FORM MUST BE ATTACHED TO THE BID PROPOSAL

DISCLOSURE OF INTERESTS

MUST BE FILLED OUT AND SUBMITTED WITH THE BID/RFP/RFQ. IF DISCLOSING: BIDDER / PROPOSER MUST ALSO FILE WITH THE COUNTY CLERK'S OFFICE.

THE PURCHASING DEPT. WILL NOT BE FILING ON THE BIDDER'S BEHALF

Cameron County, Texas requires all persons or firms seeking to do business with the County to provide the following information. Every question must be answered. If the question is not applicable, answer with "N/A." By law this questionnaire must be filed with the records administrator (County Clerk's Office) of the local government.

Date _____

FIRM NAME: _____

ADDRESS: _____

City & State: _____

FIRM is:

1. Corporation	()
2. Partnership	()
3. Sole Owner	()
4. Association	()
5. Other	() _____

- a) For purpose of this chapter, a person has a substantial interest in a business entity if :
- (1) the person owns 10 percent or more of the voting stock or shares of the business entity or owns either 10 percent or more or \$15,000 or more of the fair market value of the business entity; or
 - (2) funds received by the person from the business entity exceeds 10 percent of the person's gross income for the previous year.
- b) A person has a substantial interest in real property if the interest is an equitable or legal ownership with a fair market value of \$2,500 or more.

DISCLOSURE OF INTERESTS (CONTINUED)

- c) A local public official is considered to have a substantial interest under this section if a person related to the official in the first degree by consanguinity or affinity, as determined under Chapter 573, Government Code, has a substantial interest under this section.

Name	Title	Department

CERTIFICATE

I certify that all information provided is true and correct as of the date of this statement, that I have not knowingly withheld disclosure of any information requested; and that supplemental statements will be promptly submitted to the Cameron County as changes occur.

Certifying Person: _____ Title: _____
 (Type or Print)

Signature of Certifying Person: _____ Date: _____



HOUSE BILL 89 VERIFICATION (REVISED)

I, _____, *[Person Name]*
the undersigned representative of _____
[Company or Business Name]

(hereafter referred to as Company) being an adult over the age of eighteen (18) years of age, does hereby depose and verify that the Company named above, under the provisions of Subtitle F, Title 10, Texas Government Code Chapter 2270:

- 1. Does not currently boycott the country of Israel; and
- 2. Will not boycott the country of Israel during the term of the contract with Cameron County, Texas.

Signature: _____ **Date:** _____

Pursuant to Section 2270.001, Texas Government Code:

- 1. *“Boycott Israel” means refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made for ordinary business purposes; and*
- 2. *“Company” means a for-profit sole proprietorship, organization, association, corporation, partnership, joint venture, limited partnership, limited liability partnership, or any limited liability company, including a wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate of those entities or business associations that exist to make a profit.*
- 3. *Pursuant to Section 2270.002 of the Texas Government Code, Respondent certifies that either (i) it meets an exemption criteria under Section 2270.002; or (ii) it does not boycott Israel and will not boycott Israel during the term of the contract resulting from this solicitation. Respondent shall state any facts that make it exempt from the boycott certification in its Response. (HB 793 – exemptions).*

EXEMPTIONS APPLY TO THE FOLLOWING:

- between a governmental entity and a company with less than 10 full-time employees*
- has a value of less than \$100,000 paid wholly or partly from public funds of the governmental entity*

THIS FORM MUST BE RETURNED WITH YOUR BID

DISCLOSURE QUESTIONS

If additional space is necessary, please use the reverse side of this page or attach separate sheet.

1. State the names of each “employee, elected official, or member of Commissioners Court” of Cameron County having Substantial Interest in Business Entity **Local Govt. Code 171.002**



SECTION 2

CONTRACT
DOCUMENTS

STANDARD FORM OF AGREEMENT

STATE OF TEXAS §

COUNTY OF CAMERON §

THIS AGREEMENT, made and entered into this _____ day of _____, A.D. 2022, by and between the COUNTY OF CAMERON in the STATE OF TEXAS, hereafter called County, and _____ of the City of _____ Cameron county, Texas, hereinafter termed Contractor.

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the County, and under the conditions expressed in the bond bearing every date herewith, the Contractor, hereby agrees with the County, to commence and complete the construction of certain improvements described as follows:

PRECINCT NO. 4 – VARIOUS ROADWAYS PHASE II, PROJECT I

and all extra work in connection therewith, under the terms as stated in the General Conditions of the Agreement, special Conditions of the Agreement, Technical Specifications and Plans and at his (or their)own proper cost and expense to furnish all the materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and other accessories, with the conditions and prices stated in the Proposal attached hereto, in accordance with all General Conditions of the Agreement, Special Conditions of the Agreement, Technical Specifications and Plans and in accordance with the Plans, which include all maps, plats, blueprints and other drawings and printed or written explanatory matter thereof, and the specifications therefore, together with the Contractor’s written approval, and the General Conditions of the Agreement, Special Conditions of the Agreement, Technical specifications and Plans and the Construction Bonds hereto attached, all of which are made a part thereof and collectively evidence and constitute the entire contract.

The CONTRACTOR hereby agrees to commence work within ten (10) days after the date written notice to do so shall have been given to him, and to substantially complete same within **200 working** days, after the date of the written notice to commence work.

The **County** agrees to pay the **Contractor** in current funds the sum of \$ _____ for the performance of the Contract in accordance with the proposal submitted therefore, subject to additions and deductions as provided in the General Conditions of the Agreement, and to make payment on account thereof as provided therein.

Contractor further agrees not to do any work unless he has received a valid Purchase Order issued by Cameron County for payment of the work to be accomplished.

This instrument contains the entire agreement between the parties relating to the rights herein granted and Obligations herein assumed. Any oral representations or modifications concerning this instrument shall be of no force or effect, expecting a subsequent modification in writing, signed by the party to be charged. This Agreement may be amended, provided that no amendment, modification, or alternation of terms of this Agreement shall be binding unless the same is in writing and duly executed by the parties hereto.

All notices to Cameron County shall be sent by certified or registered mail, addressed to:

Eddie Trevino Jr., Cameron County Judge, Cameron County Courthouse, 1100 E. Monroe St., Brownsville, Texas 78520, or at such other address as the County may otherwise designate. All notices to the Contractor shall be sent certified or registered mail, addressed to:

Attn: _____, or at such other address as said Contractor may otherwise designate in writing.

This Agreement shall be governed by the laws of the State of Texas and venue shall be in Cameron County.

IN WITNESS WHEREOF, the parties of these presents have executed this Agreement in quadruplicate in the year and day first above written.

Eddie Trevino Jr., County Judge

Contractor

ATTEST: _____
Sylvia Garza-Perez, County Clerk
(Seal)

ATTEST: _____
Notary Public
(Seal)

PERFORMANCE BOND

THE STATE OF TEXAS

COUNTY OF CAMERON

KNOW ALL MEN BY THESE PRESENT: that

(Name of Contractor or Company)

(Address)

a _____ hereinafter called Principal, and _____
(Corporation/Partnership) (Name of Surety Company)

(Address)

, hereinafter called Surety, are held and firmly bound unto **CAMERON COUNTY** hereinafter called OWNER, in the penal sum of \$ _____ dollars and _____ cents in lawful money of the United States, for the payment of which sum well and truly to be made we bind ourselves, successors, and assigns, jointly and severally, firmly in these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal entered into a certain contract with the OWNER dated the ___ day of _____, 2022, a copy of which is hereto attached and made a part hereof for the construction of:

PRECINCT NO. 4 – VARIOUS ROADWAYS PHASE II, PROJECT I

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if Contractor shall promptly and faithfully perform said Contract, then this obligation shall be null and void; otherwise, it shall remain in full force and effect.

PROVIDED FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or the WORK to be performed there under or the SPECIFICATIONS accompanying the same in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or the WORK or to the SPECIFICATIONS.

PROVIDED FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS THEREOFF, this instrument is executed in four (4) counterparts, each one of which shall be deemed an original, this the _____ day of _____, 2022.

ATTEST: _____
Principle

ATTEST:

(Principle Secretary)
(SEAL) By _____ (s)

(Witness to Principle) _____
(Print / Type Name)

(Address) _____
(Address)

ATTEST:

(Surety Secretary)
(SEAL) By _____ (s)

(Witness to Surety) _____
(Attorney in Fact)

(Address) _____
(Address)

NOTE: Date of the BOND must not be prior to date of contract. If CONTRACTOR is Partnership, all partners should execute the BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 550 as amended) and must be authorized to transact business in the state where the PROJECT is located.

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENT: that

(Name of Contractor or Company)

(Address)

a _____
hereinafter called Principal, and (Corporation/Partnership)

(Name of Surety Company)

(Address)

hereinafter called Surety, are held and firmly bound unto **CAMERON COUNTY** hereinafter called OWNER, in the penal sum of \$ _____ dollars and ____ cents in lawful money of the United States, for the payment of which sum well and truly to be made we bind ourselves, successors, and assigns, jointly and severally, firmly in these presents.

THE CONDITION OF THE OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER dated the _____ day of _____, 2022, a copy of which is hereto attached and made a part hereof for the construction of:

PRECINCT NO. 4 – VARIOUS ROADWAYS PHASE II, PROJECT I

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION IS SUCH, that the said Principal shall faithfully repair or replace any defective material installed and workmanship performed by said Principal and embraced by the above mentioned contract, the Engineer's Specifications and Drawings in every particular and according to the true intent and meaning of said Contract,

Specifications and Drawings hereinafter considered annexed. The Principal also agrees to commence work within 5 working days after notification is received from the Owner and proceed with said defective work (8) eight hours per day continuously until completed. If emergency work notification is given by the Owner, which may result in damages, the Contractor shall execute the emergency repairs immediately until such defective work is finished to the Owner's approval. Damages resulting from said defective materials and work that was originally installed by the said Principal shall be made good by the Principal.

The Principal agrees to indemnify and to hold the Owner and the Engineer harmless from and against any and all damages, claims, demands, suits, judgments and costs including attorney's fees and expenses for

or on account of damage to property of any person, firm, corporation, or Government agency, or death of or injury to any person or persons (including property and employees of the Owner, the Contractor, and employees of the Contractor) directly or indirectly arising out of, or caused by or in connection with the performance of or failure to perform any work covered by this Bond by the Principal Contractor, his sub-contractors, or their or the Contractor's agents, servants, or employees of the project.

The contractor will be held accountable for all insurance coverage including those of sub-contractors, and provide that all the above mentioned work will be covered with insurance.

Now, therefore, the condition of this obligation is such that the said material and work is guaranteed against defective workmanship and materials for a period of one year from date of completion.

Any suit under this bond must be instituted before the expiration of two (2) years from the date on which final payment under the contract falls due.

IN WITNESS WHEREOF, this instrument is executed in 4 parts, one of which shall be deemed an original, this _____ day of _____, 2022.

ATTEST: _____
(Principal)

ATTEST: _____
(Principal Secretary)
(SEAL) BY _____(s)

(Witness as to Principal) (Print/Type Name)

(Address) (Address)

ATTEST: _____
(Surety) Attorney in Fact (Signature)
(Seal)

(Witness as to Surety) (Print/Type Name)

(Address) (Address)

NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the PROJECT is located.

NOTE: An executed Power-Of-Authority for person signing for surety must be attached to bond.

ATTORNEY'S REVIEW CERTIFICATION

I, the undersigned, _____ the duly authorized and acting legal representative of the _____, do hereby certify as follows:

I have examined the attached contract(s) and surety bonds and I am of the opinion that each of the agreements may be duly executed by the proper parties, acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties; and that the agreements shall constitute valid and legally binding obligations upon the parties executing the same in accordance with terms, conditions and provisions thereof.

Attorney's signature: _____ Date: _____

Print Attorney's Name: _____

NOTICE OF AWARD

TO:

ATTN:

PROJECT DESCRIPTION: **PRECINCT NO. 4 – VARIOUS ROADWAYS PHASE II, PROJECT I**

The OWNER has considered the BID submitted by you for the above-described WORK in response to its Advertisement and Invitation to Bid dated _____ [Day, Date, Year].

You are hereby notified that your BID has been accepted in the amount of \$ _____.

You are required by the Instruction to Bidders to execute the Agreement and furnish the required CONTRACTOR’S, certificates of insurance within ten (10) calendar days from the date of this Notice to you. If you fail to execute said Agreement and to furnish said Bonds within ten (10) days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER’S acceptance of your BID as abandoned and as forfeiture of your BID SECURITY. The OWNER will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of the NOTICE OF AWARD to the OWNER.

Dated on the _____ day of _____, 2022.

OWNER: **CAMERON COUNTY**

BY:

TITLE: COUNTY ENGINEER

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged by _____, this the _____ day of _____, 2022.

BY:

TITLE: CONTRACTOR/BIDDER

SECTION 3

GENERAL
CONDITIONS

TERMS AND CONDITIONS

ADDENDA: When specifications are revised, the Cameron County Purchasing Department will issues an addendum addressing the nature of the change. Offerors must **sign and include it in the returned bid package.**

ADVERTISING: Seller shall not advertise or publish, without Buyer's Prior consent, the fact that Buyer has entered into this contract, except to the extent necessary to comply with proper request for information from an authorized representative of the federal, state or local government.

AWARD: Cameron County may hold all bids for a period of Sixty (60) days. Cameron County reserves the right to delete any item it considers too expensive. Bid prices are to be F.O.B. Cameron County. All discounts will be considered in determining the lowest, responsible bidder. Cameron County reserves the right to award this contract on the basis of **LOWEST AND BEST BID** in accordance with the laws of the State of Texas, to waive any formality or irregularity, to make awards to more than one offeror, to reject any or all bids. In the event the lowest dollar offeror meeting specifications is not awarded a contract, the offeror may appear before the Commissioners Court and present evidence concerning bidders responsibility after officially notifying the office of the Purchasing Agent of his intent to appear. A written purchase order or notice of award mailed or otherwise furnished to the successful bidder within the time of acceptance specified in this package results in a binding contract without further action by either party.

BONDS: If this bid requires submission of bid guarantee and performance bond - there will be a separate page explaining those requirements. Bids submitted without the required bid bond or cashier's check is not acceptable.

CANCELLATION AND TERMINATION: Buyer shall have the right to cancel for default all or any part of the undelivered portion of this order if Seller breaches any of the terms hereof, including warranties of Seller or if the Seller becomes insolvent or commits acts of bankruptcy. Such right of cancellation is in addition to, and not in lieu of, any other remedies, which Buyer may have in law or equity.

TERMINATION: The performance of work under this order may be terminated in whole, or in part, by the Buyer in accordance with this provision. Termination of work hereunder shall be effected by the delivery to the Seller of a "Notice of Termination" specifying the extent to which performance of work under the order is terminated and the date upon which such termination becomes effective. Such right of termination is in addition to, and not in lieu of, rights of Buyer set forth.

Cameron County reserves the right to terminate the contract for default if offeror breaches any of the terms therein, including warranties of offeror or if the offeror becomes insolvent or commits acts of bankruptcy. Such right of termination is in addition to and not in lieu of any other remedies, which Cameron County may have in law or equity. Default may be construed as, but not limited to, failure to deliver the proper goods and/or services within the proper

amount of time, and/or to properly perform any and all services required to Cameron County's satisfaction and/or to meet all other obligations and requirements. Cameron County may terminate the contract without cause upon thirty (30) days written notice.

COLOR SELECTION: Determination of colors of materials is a right reserved by using department unless otherwise specified in bid. Unspecified colors shall be quoted as standard colors, NOT colors, which require up-charges or special handling. Unspecified fabrics or vinyl should be construed as medium grade. If offeror fails to get color/material approvals prior to delivery of merchandise, the using department may refuse to accept items and demand correct shipment without penalty, subject to other legal remedies.

CONTRACT RENEWALS: Renewals may be made ONLY by Commissioners Court approval and agreement between Cameron County and the offeror. **To determine Annual / Anniversary renewal status - if renewed by Commissioners Court or terminated - please contact Letty Roberts at 956-574-8135 e-mail: LRoberts@co.cameron.tx.us or Mike Forbes at 956-550-1360 e-mail: mforbes@co.cameron.tx.us or Dalia Loera at 956-982-5478 dalia.loera@co.cameron.tx.us in the County Purchasing Dept. or Dylbia Jeffries 956-550-1340 djefferies@co.cameron.tx.us of Bruce Hodge at 956-550-7229 at bhodge@co.cameron.tx.us at County Legal Dept..** Any price escalations are limited to those stated by the original RFP/RFQ. Annual RFP/RFQ renewal – Price Increases: All Annual RFP/RFQ's with a one (1) year renewal option requires that the awarded Proposer must notify Cameron County of any anticipated price increases to the current Annual RFP/RFQ (in writing) at least two months prior to the annual renewal award date unless otherwise specified within the specific provisions of the RFP. This allows the County sufficient time to plan for re-advertising for Proposals due to a vendor required price increase. If Vendor fails to notify the County within time noted it shall be assumed that there will be no price increase for the following year's award period if renewed. This procedure does not apply to any Annual RFP/RFQ's which allow for Open Market Price increases or Cost allowance increases during the RFP/RFQ award period (as so specified in the RFP/RFQ documents).

DISCRIMINATION: In order to comply with the provisions of fair employment practices, the contractor agrees as follows: 1.) the contractor will not discriminate against any employee or applicant for employment because of race, sex, color, age, religion, handicap, or national origin; 2) in all solicitations or advertisements for employees, the contractor will state that all qualified applicants will receive consideration without regard to race, color, sex, age, religion, handicap or national origin; 3) the contractor will furnish such relevant information and reports as requested by the County for the purpose of determining compliance with these regulations; and 4) failure of the contractor to comply with these laws will be deemed a breach of contract and it may be cancelled, terminated or suspended in whole or in part.

DISQUALIFICATION OF OFFEROR: Upon signing this bid document, an offeror offering to sell supplies, materials, services, or equipment to Cameron County certifies that the offeror has not violated the antitrust laws of this state codified in Texas Business and Commerce Code §15.01, et seq., as amended, or the federal antitrust laws, and has not communicated directly or indirectly the bid made to any competitor or any other person engaged in such line of business.

Any or all bids may be rejected if the County believes that collusion exists among the offerors. Bids in which the prices are obviously unbalanced may be rejected. If multiple bids are submitted by an offeror and after the bids are opened, one of the bids is withdrawn, the result will be that all of the bids submitted by that offeror will be withdrawn; however, nothing herein prohibits a vendor from submitting multiple bids for different products or services.

EVALUATION: Evaluation shall be used as a determinant as to which bid items or services are the most efficient and/or most economical for the County. It shall be based on all factors, which have a bearing on price and performance of the items in the user environment. All bids are subject to tabulation by the Cameron County Purchasing Department and recommendation to Cameron County Commissioners Court. Compliance with all bid requirements, delivery and needs of the using department are considerations in evaluating bids. **Pricing is NOT the only criteria for making a recommendation.** The Cameron County Purchasing Department reserves the right to contact any offeror, at any time, to clarify, verify or request information with regard to any bid.

PROTEST PROCEDURES: Procedure - This protest procedure is available to vendors responding to this Bid requesting a debriefing conference. Debriefing Conference — A debriefing conference must be requested in writing to the Purchasing Department within five (5) business days from the date of the Bid award by the Cameron County Commissioners' Court.

Protests are made - 1. To the Purchasing Department after the debriefing conference, Vendor protests shall be received, in writing, by the Purchasing Department within five (5) business days after the vendor debriefing conference. 2. To County Auditor only after protesting first to the Purchasing Department and its resolution is not satisfactory to the protesting party. Protests to County Auditor shall be received, in writing, within five (5) business days after the vendor has received notification of a decision on the protest from Use Purchasing Department. 3. To the Commissioners Court, only after the protest to the County Auditor and Purchasing Department was not resolved satisfactory to the protestor. Protests to the Commissioners Court shall be made within five (5) business days after the vendor has received notification of the County Auditor's decision.

Grounds for protest — 1. Errors were made in computing the score. 2. The County failed to follow procedures established in the Bid, the Purchasing policy: Acquisition or applicable state or federal laws or regulations. 3. Bias, discrimination or conflict of interest on the part of an evaluator Protests not based on these criteria shall not be considered.

Format and Content - Protesting vendors shall include in their written protest to the Cameron County Purchasing Department, all facts and arguments upon which they rely. Vendors shall, at a minimum, provide: 1. Information about the protesting vendor; name of firm, mailing address, phone number and name of individual responsible for submission of the protest. 2. Information about it the acquisition and the acquisition method. 3. Specific and complete statement of the County's action(s) protested. 4. Specific reference to the grounds for the protest. 5. Description of the relief or corrective action requested. 6. For protests to County Auditor or the Commissioners Court, a copy of the Purchasing Department's written decision on the protest.

Review Process: 1 upon receipt of a vendor protest, the Purchasing Department shall postpone further steps in the acquisition process until the vendor protest has been resolved. 2. The Department's internal protest review procedures

consist of the following: a) The Purchasing Department shall perform an objective review of the protest by individuals not involved in the acquisition protested. The review shall be based on the written protest material submitted by the vendor. b) A written decision will be delivered to the vendor within five business days after receipt of the protest, unless more time is needed. The protesting vendor shall be notified if additional time is necessary.

County Auditor Review Process: 1. The vendor may protest to County Auditor in writing within five business days after the vendor has received notification of the agency decision. 2. County Auditor shall consider all the available facts and issue a decision in writing within five business days after receipt of the protest, unless more it is needed. The protesting vendor shall be notified if additional time is necessary. The County Auditor's decision constitutes the final step of the protest process, except protests which may be reviewed by the Commissioner's Court. County Auditor may choose to convene a Protest Review Board (Board). The Board shall be advisory to the County Auditor and its scope of review shall be limited to procedural issues raised by the protesting vendor.

Final Determination - The final determination shall. 1. Find the protest lacking in merit and uphold the agency's action; or 2. Find only technical or harmless errors in the agency's acquisition process conduct, determine the agency to be in substantial compliance, and reject the protest; or 3. Find merit in the protest and provide the agency options which may include a) Correct its errors and reevaluate all proposals, and/or b) Reissue the vendor solicitation document; or c) Make other findings and determine other courses of action as appropriate.

Commissioners Court Review Process - Protests to the Commissioners Court may be made only for Commissioners Court approved acquisitions, and only after review by County Auditor. Protests of the decisions of County Auditor shall be made by letter to the County Judge, Commissioners Court, who may establish procedures to resolve the protest. Protests shall be received by the County Judge, Commissioners Court, within five business days after the decision of County Auditor in order to be considered. The resulting decision is final, with no further administrative appeal available.

FISCAL FUNDING: A multi-year lease or lease/purchase arrangement (if requested by the Special Requirements/Instructions), or any contract continuing as a result of an extension option, must include fiscal funding out. If, for any reason, funds are not appropriated to continue the lease or contract, said lease or contract shall become null and void on the last day of the current appropriation of funds. After expiration of the lease, leased equipment shall be removed by the offeror from the using department without penalty of any kind or form to Cameron County. All charges and physical activity related to delivery, installation, removal and redelivery should be the responsibility of the offeror.

GRATUITIES AND PROHIBITION AGAINST PERSONAL INTEREST IN CONTRACTS: Any elected or appointed official who has any substantial interest, either direct or indirect, in any business entity seeking to contract with the County, shall, before any vote or decision on any matter involving the business entity, file an affidavit stating the nature and extent of interest and shall abstain from any participation in the matter. This is not required if the vote or decision will not have any special effect on the entity other than its effect on the public. However, if a majority of the governing body is also required to file, and do file similar affidavits, than the member is not required to abstain from further participation. Attached and included is a disclosure of all of this Company's business or pecuniary financial relationships with officers or employees of Cameron County or County entities (if any such relationships exists) must be

attached and included with Bid submitted. The Buyer may, by written notice to the Seller, cancel this contract without liability to Seller if it is determined by Buyer that gratuities, in the form of entertainment, gifts, or otherwise, were offered or given by the Seller, or any agent, or representative of the Seller, to any officer or employee of Cameron County with a view toward securing a contract or securing favorable treatment with respect to the awarding or amending or the making or any determinations with respect to the performing of such a contract. In the event this contract is cancelled by Buyer pursuant to this provision, Buyer shall be entitled, in addition to any other rights and remedies, to recover or withhold the amount of the cost incurred by Seller in providing such gratuities. Consistent and continued tie bidding could cause rejection of bids by the County and/or investigation for Anti-Trust violations. Bidder guarantees that he has not retained a person to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, except for retention of bona fide employees or bona fide established commercial selling agencies maintained by the contractor for the purpose of securing business.

HISTORICALLY UNDERUTILIZED BUSINESS (HUB) CERTIFICATION: If Bidder is a Certified Historically Underutilized Business (HUB), please include a copy of your HUB Certificate with your Bid. This information will assist Cameron County in the percentage tracking of HUB utilization.

LOCAL BIDDER'S PRINCIPAL PLACE OF BUSINESS - 3% PREFERENCE: (consideration of location) The County Commissioner's Court may award to the lowest bidder or the bidder whose principal place of business is within Cameron County if the Commissioner's Court determines, in writing, that the local bidder offers the County the best combination of contract price and additional economic development opportunities for Cameron County created by the contract award, including the employment of residents of Cameron County and increased tax revenues to Cameron County. This option exists only within 3% pricing of the lowest bid price. In order to provide the County Commissioner's Court adequate information for assisting in considering this option, the bidder should submit with each bid the following information for Commissioner's Court review with all information requested to be detailed and \$\$\$ current quantifiable numeric data. 1. Where is your principal place of business (i.e.: Corporate Headquarters) City, County, State, Signature of Bidder, Title, and Date? Along with this information, submit information with responses to the following questions. 2. Why and how bidder believes that the local bidder offers the County additional economic development opportunities for Cameron County created by the contract award? 3. How will award to local bidder benefit the employment of residents of Cameron County? 4. How many employees does bidder employ within Cameron County and how many employees are affected financially by award/purchase? 5. How will award to local bidder increased tax revenues to Cameron County? This information should be provided and updated with each bid submitted to the County. If bidder is local and within 3% of the lowest bid, this information will be submitted to Commissioner's Court along with tabulation sheet. . There has been no mandatory requirement or Policy established by Commissioners Court which requires submitting answers to these questions or attending Commissioners Court meetings for the awarding of bids relative to 3% local preference. however individual Commissioners may or may not have preferences (relative to these issues) when making their decision. This paragraph will be revised upon policy change made by Commissioners Court.

MAINTENANCE: Maintenance required for equipment bid should be available in Cameron County by a manufacturer authorized maintenance facility. Costs for this service shall be shown on the Pricing/Delivery Information form. If Cameron County opts to include maintenance, it shall be so stated in the purchase order and said cost will be included. Service will commence only upon expiration of applicable warranties and should be priced accordingly.

MATERIAL SAFETY DATA SHEETS: Under the “Hazardous Communication Act”, commonly known as the “Texas Right To Know Act”, an offeror must provide to the County with each delivery, material safety data sheets which are applicable to hazardous substances defined in the Act. Failure of the offeror to furnish this documentation will be cause to reject any bid applying thereto.

NAME BRANDS: Specifications may reference name brands and model numbers. It is not the intent of Cameron County to restrict these bids in such cases, but to establish a desired quality level of merchandise or to meet a pre-established standard due to like existing items. Offerors may offer items of equal stature and the burden of proof of such stature rests with offerors. Cameron County shall act as sole judge in determining equality and acceptability of products offered.

PRICING: Prices for all goods and/or services shall be firm for the duration of this contract and shall be stated on the Pricing/Delivery Information form. **Prices shall be all inclusive: No price changes, additions, or subsequent qualifications will be honored during the course of the contract.** All prices must be written in ink or typewritten. Pricing on all transportation, freight, drayage and other charges are to be prepaid by the contractor and included in the bid prices. If there is any additional charges of any kind, other than those mentioned above, specified or unspecified, offeror **MUST** indicate the items required and attendant costs or forfeit the right to payment for such items. Where unit pricing and extended pricing differ, unit pricing prevails.

PROTESTS: All protests should be coordinated through the Purchasing Office prior to award recommendation to Commissioners Court.

RECYCLED MATERIALS: Cameron County encourages the use of products made of recycled materials and shall give preference in purchasing to products made of recycled materials if the products meet applicable specifications as to quantity and quality. County will be the sole judge in determining product preference application.

SCANNED RE-TYPED RESPONSE – FLOPPY DISK: If in its bid response, offeror either electronically scans, re-types, or in some way reproduces the County’s published bid package, then in event of any conflict between the terms and provisions of the County’s published bid specifications, or any portion thereof, and the terms and provisions of the bid response made by offeror, the County’s bid specifications **as published** shall control. Furthermore, if an alteration of any kind to the County’s published bid specifications is only discovered after the contract is executed and is or is not being performed, the contract is subject to immediate cancellation.

FLOPPY DISK: If offeror obtained the bid specifications on a floppy disk in order to prepare a response, **the bid must be submitted in hard copy** according to the instructions contained in this bid package. If, in its bid response, offeror makes any changes whatsoever to the County's published bid specifications, the County's bid specifications **as published** shall control. Furthermore, if an alteration of any kind to the County's published bid specifications is only discovered after the contract is executed and is or is not being performed, the contract is subject to immediate cancellation.

SILENCE OF SPECIFICATIONS: The apparent silence of specifications as to any detail, or the apparent omission from it of a detailed description concerning any point, shall be regarded as meaning that only the best commercial practice is to prevail and that only material and workmanship of the finest quality are to be used. All interpretations of specifications shall be made on the basis of this statement. The items furnished under this contract shall be new, unused of the latest product in production to commercial trade and shall be of the highest quality as to materials used and workmanship. Manufacturer furnishing these items shall be experienced in design and construction of such items and shall be an established supplier of the item bid. **Substitute items will not be accepted unless approved (in advance) .**

SUPPLEMENTAL MATERIALS: Offerors are responsible for including all pertinent product data in the returned bid package. Literature, brochures, data sheets, specification information, completed forms requested as part of the bid package and any other facts which may affect the evaluation and subsequent contract award should be included. Materials such as legal documents and contractual agreements, which the offeror wishes to include as a condition of the bid, must also be in the returned bid package. Failure to include all necessary and proper supplemental materials may be cause to reject the entire bid.

TITLE TRANSFER: Title and Risk of Loss of goods shall not pass to Cameron Count until Cameron County actually receives and takes possession of the goods at the point or points of delivery. Receiving times may vary with the using department. Generally, deliveries may be made between 8:30 a.m. and 4:00 p.m., Monday through Friday. Offerors are advised to consult the using department for instructions. The place of delivery shall be shown under the "Special Requirements/Instructions" section of this bid package and/or on the Purchase Order as a "Deliver To:" address.

USAGE REPORTS: Cameron County reserves the right to request, and receive at no additional cost, up to two (2) times during the contract period, a usage report detailing the products and/or services furnished to date under a contract resulting from this ITB. The reports must be furnished no later than five (5) working days after written request and itemize all purchases to date by Cameron County department, description of each item purchased, including manufacturer, quantity of each item purchased, per unit and extended price of each item purchased, and total amount and price of all items purchased.

WARRANTY PRICE: (a) The price to be paid by the Buyer shall be that contained in Seller's bid which Seller warrants to be no higher than Seller's current prices on orders by others for products of the kind and specification covered by this agreement for similar quantities under similar or like conditions and methods of purchase. In the event Seller breaches

this warranty, the prices of the items shall be reduced to the Seller's current prices on orders by others, or in the alternative, Buyer may cancel this contract without liability to Seller for breach or Seller's actual expense. (b) The Seller warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for commission, percentage, brokerage, or contingent fee excepting bona fide employees of bona fide established commercial or selling agencies maintained by the Seller for the purpose of securing business. For breach or violation of this warranty, the Buyer shall have the right in addition to any other right or rights to cancel this contract without liability and to deduct from the contract price, or otherwise recover the full amount of such commission, percentage, brokerage or contingent fee. Offerors shall furnish all data pertinent to warranties or guarantees which may apply to items in the bid. Offerors may not limit or exclude any implied warranties. Offeror warrants that product sold and services provided to the County shall conform to the standards and laws established by the U.S. Department of Labor, U.S. Department of Homeland Security, Occupational Safety and Health Administration and O.S.H.A. Act of 1970. In the event product does not conform to OSHA Standards, where applicable, Cameron County may return the product for correction or replacement at the offeror's expense. If offeror fails to make the appropriate correction within a reasonable time, Cameron County may correct at the offeror's expense.

Offeror warrants that product sold and services provided to the County shall conform to the standards and laws established by the U.S. Department of Homeland Security, Occupational Safety and Health Administration and O.S.H.A. Act of 1970.

WARRANTY PRODUCTS: Seller shall not limit or exclude any implied warranties and any attempt to do so shall render this contract voidable at the option of the Buyer. Seller warrants that the goods furnished will conform to the specifications, drawings and descriptions listed in the bid invitation and to the sample(s) furnished by Seller, if any. In the event of a conflict between the specifications, drawings and descriptions, the specifications shall govern.

SAFETY WARRANTY: Seller warrants that the product sold to Buyer shall conform to the standards promulgated by the U.S. Department of Labor under the Occupational Safety and Health Act of 1970. In the event the product does not conform to OSHA standards, Buyer may return the product for correction or replacement at the Seller's expense. In the event Seller fails to make the appropriate correction within a reasonable time, correction made by Buyer will be at Seller's expense. Have you attached the required warranty information to the bid (if applicable)? Yes, No.

APPLICABLE LAW: This agreement shall be governed by the Uniform Commercial Code. Wherever the term "Uniform Commercial Code" is used, it shall be construed as meaning "the Uniform Commercial Code" as adopted in the State of Texas as effective and in force on the date of this agreement.

ASSIGNMENT DELEGATION: No right or interest in this contract shall be assigned or delegation of any obligation made by Seller without the written permission of the Buyer. Any attempted assignment or delegation by Seller shall be wholly void and totally ineffective for all purposes unless made in conformity with this paragraph. Any contract entered

into pursuant to this request is not assignable, nor the duties thereunder, by either party, without the written consent of the other party in the contract County Judge and County Auditor.

CONTRACT OBLIGATION: Cameron County Commissioners Court must award the contract and the County Judge or other person authorized by the Cameron County Auditor must sign the contract before it becomes binding on Cameron County or the offerors. Department heads are NOT authorized to sign agreements for Cameron County. Binding agreements shall remain in effect until all products and/or services covered by this purchase have been satisfactorily delivered and accepted.

ERRORS AND OMISSIONS: Errors and Omissions in the Bid of any provision herein described will not be construed as to relieve the Vendor of any responsibility or obligation, requisite to the complete and satisfactory implementation, operation, and support of any and all equipment, systems or services.

FORCE MAJEURE: If, by reason of Force Majeure, either party hereto shall be rendered unable wholly, or in part, to carry out its obligations under this agreement, then such party shall give notice and full particulars of Force Majeure in writing to the other party within a reasonable time after occurrence of the event or cause relied upon, and the obligation of the party giving such notice, so far as it is affected by such Force Majeure, shall be suspended during the continuance of the inability then claimed, except as hereinafter provided, but for no longer period, and such party shall endeavor to remove or overcome such inability with all reasonable dispatch. The term "Force Majeure" as employed herein, shall mean acts of God, strikes, lockouts, or other industrial disturbances, act of public enemy, orders of any kind of government of the United States or the State of Texas or any civil or military authority, insurrections, riots, epidemics, landslides, lightning, earthquakes, fires, hurricanes, storms, floods, washouts, droughts, arrests, restraint of government and people, civil disturbances, explosions, breakage or accidents to machinery, pipelines or canals, or other causes not reasonably within the control of the party claiming such inability. It is understood and agreed that the settlement of strikes and lockouts shall be entirely with the discretion of the party having the difficulty, and that the above requirement that any Force Majeure shall be remedied with all reasonable dispatch shall not require the settlement of strikes and lockouts by acceding to the demands of the opposing party or parties when such settlement is unfavorable in the judgement of the party having the difficulty.

HOLD HARMLESS AGREEMENT: Contractor, the successful offeror, shall indemnify and hold Cameron County harmless from all claims for personal injury, death and/or property damage resulting directly or indirectly from contractor's performance. Contractor shall procure and maintain, with respect to the subject matter of this bid, appropriate insurance coverage including, as a minimum, public liability and property damage with adequate limits to cover contractor's liability as may arise directly or indirectly from work performed under terms of this bid. Certification of such coverage must be provided to the County upon request.

INFRINGEMENTS: There will be no warranty by buyer against infringements. As part of this contract for sales, Seller agrees to ascertain whether goods manufactured in accordance with the specifications attached to this agreement will give rise to the rightful claim of any third person by way of infringement or the like. Buyer makes no warranty that the production of goods according to the specification will not give rise to such a claim, and in no event shall Buyer be liable to Seller for indemnification in the event that Seller is sued on the grounds of infringement or the like. If Seller is

of the opinion that an infringement or the like will result, he will notify Buyer to this effect in writing within two (2) weeks after the signing of this agreement. If Buyer does not receive notice and is subsequently held liable for the infringement or the like, Seller will hold Buyer harmless. If Seller in good faith ascertains that production of the goods in accordance with the specifications will result in infringement or the like, this contract shall be null and void, except that Buyer will pay Seller the reasonable cost of his/her search as to infringement. The contractor agrees to protect the County from claims involving infringement of patents or copyrights.

INTERPRETATION PAROLE EVIDENCE: This writing is intended by the parties as a final expression of their agreement and is intended also as a complete and exclusive statement of the terms of their agreement. No course of prior dealings between the parties and no usage of the trade shall be relevant to supplement or explain any term used in the agreement. Acceptance or acquiescence in a course of performance rendered under this agreement shall not be relevant to determine the meaning of this agreement, even though the accepting or acquiescing party has knowledge of the performance and opportunity for objection. Whenever a term defined by the Uniform Commercial Code is used in this agreement, the definition contained in the Code is to Control.

MODIFICATIONS: This contract can be modified or rescinded only by a writing signed by both of the parties or their duly authorized agents.

O.S.H.A: Offeror must meet all Federal and State OSHA requirements.

RIGHT TO ASSURANCE: Whenever one (1) party to this contract in good faith has reason to question the other party's intent to perform, he/she may demand that the other party give written assurance of their intent to perform. In the event that a demand is made, and no assurance is given within five (5) days the demanding party may treat this failure as an anticipatory repudiation of the contract.

SEVERABILITY: If any section, subsection, paragraph, sentence, clause, phrase or word of these requirements or the specifications shall be held invalid, such holding shall not affect the remaining portions of these requirements and the specifications and it is hereby declared that such remaining portions would have been included in these requirements and the specifications as though the invalid portion had been omitted.

VENUE: Both parties agree that venue for any litigation arising from this contract shall lie in Cameron County, Texas.

GENERAL CONDITIONS OF THE AGREEMENT

Contract and Contract Documents

The Plans, Specifications and Addenda, hereinafter enumerated in Paragraph 1 of the Supplemental General Conditions shall form part of this contract and the provisions thereof shall be as binding upon the parties hereto as if they were herein frilly set forth

DEFINITIONS

Whenever used in any of the Contract Documents, the following meanings shall be given to the terms here in defined:

- A. The term "Contract" means the Contract executed between the **County of Cameron**, hereinafter called the **Locality** and _____ hereinafter called **Contractor**, of which these **GENERAL CONDITIONS**, form a part.
- B. The term "Project Area" means the area within which is the specified Contract limits of the Improvements contemplated to be constructed in whole or in part under this contract.
- C. The term "**Engineer**" means the Cameron County Engineer, **Engineer** in charge, serving the **Locality** with architectural or engineering services, his successor, or any other person or persons, employed by the **Locality** for the purpose of directing or having in charge the work embraced in this Contract.
- D. The term "Contract Documents" means and shall include the following: Executed Contract, Addenda (if any), Invitation for Bids, Instructions to Bidders, Signed Copy of Bid, General Conditions, Special Conditions, Technical Specifications, and Drawings (as listed in the Schedule of Drawings).

SUPERVISION BY CONTRACTOR

- A. Except where the **Contractor** is an individual and gives his personal supervision to the work, the Contractor shall provide a competent superintendent, satisfactory to the Local Public Agency and the **Engineer**, on the work at all times during working hours with full authority to act for him. The Contractor shall also provide an adequate staff for the proper coordination and expediting of his work.
- B. The **Contractor** shall lay out his own work and he shall be responsible for all work executed by him under the Contract. He shall verify all figures and elevations before proceeding with the work and will be held responsible for any error resulting from his failure to do so.

SUBCONTRACTS

- A. The **Contractor** shall not execute an agreement with any subcontractor or permit any subcontractor to perform any work included in this contract until he has verified the subcontractor as eligible to participate in federally funded contracts.
- B. No proposed subcontractor shall be disapproved by the city/county except for cause.
- C. The **Contractor** shall be as frilly responsible to the city/county for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them.
- D. The **Contractor** shall cause appropriate provisions to be inserted in all subcontracts relative to the work and required compliance by each subcontractor with the applicable provisions of the Contract,

- E. Nothing contained in the Contract shall create any contractual relation between any subcontractor and the **Locality**.

FITTING AND COORDINATION OF WORK

The **Contractor** shall be responsible for the proper fitting of all work and for the coordination of the operations of all trades, subcontractors, or material suppliers engaged upon this Contract.

PAYMENTS TO CONTRACTOR

A Partial Payments

1. The **Contractor** shall prepare his requisition for partial payment as of the last day of the month and submit it, with the required number of copies, to the **Engineer** for his approval. The amount of the payment due the **Contractor** shall be determined by adding to the total value of work completed to date, the value of materials properly stored on the site and deducting (1) ten percent (**10%**) of the total amount, to be retained until final payment and (2) the amount of all previous payments. The total value of work completed to date shall be based on the estimated quantities of work completed and on the unit prices contained in the agreement. The value of materials properly stored on the site shall be based upon the estimated quantities of such materials and the invoice prices, Copies of all invoices shall be available for inspection of the **Engineer**.
2. Monthly or partial payments made by the **Locality** to the **Contractor** are moneys advanced for the purpose of assisting the contractor to expedite the work of construction. The **Contractor** shall be responsible for the care and protection of all materials and work upon which payments have been made until final acceptance of such work and materials by the **Locality**. Such payments shall not constitute a waiver of the right of the **Locality** to require the fulfillment of all terms of the Contract and the delivery of all improvements embraced in this Contract complete and satisfactory to the **Locality** in all details,

B. Final Payment

1. After final inspection and acceptance by the **Locality** of all work under the Contract, the **Contractor** shall prepare his requisition for final payment which shall be based upon the careful inspection of each item of work at the applicable unit prices stipulated in the Agreement. The total amount of the final payment due the **Contractor** under this contract shall be the amount computed as described above less all previous payments.
2. The **Locality** before paying the final estimate shall require the **Contractor** to furnish releases or receipts from all subcontractors having performed any work and all persons having supplied materials, equipment (installed on the Project) and services to the **Contractor**, if the **Locality** deems it necessary in order to protect its interest. The **Locality** may, if it deems such action advisable, make payment in part or in full to the **Contractor** without requiring the furnishing of such releases or receipts and any payments made shall in no way impair the obligations of any surety or sureties furnished under this Contract,
3. Any amount due the **Locality** under Liquidated Damages, shall be deducted from the final payment due the contractor.

C. Payments Subject to Submission of Certificates

Each payment to the **Contractor** by the **Locality** shall be made subject to submission by the **Contractor** of all written certifications required of him and his subcontractors.

D. Withholding Payments

The **Locality** may withhold from any payment due the **Contractor** whatever is deemed necessary to protect the **Locality**, and if so elects, may also withhold any amounts due from the **Contractor** to any subcontractors or material dealers, for work performed or material furnished by them. The foregoing provisions shall be construed solely for the benefit of the **Locality** and will not require the **Locality** to determine or adjust any claims or disputes between the **Contractor** and his subcontractors or material dealers, or to withhold any moneys for their protection unless the **Locality** elects to do so. The failure or refusal of the **Locality** to withhold any moneys from the **Contractor** shall in no way impair the obligations of any surety or sureties under any bond or bonds furnished under this Contract.

CHANGES IN THE WORK

- A.** The **Locality** may make changes in the scope of work required to be performed by the **Contractor** under the Contract without relieving or releasing the **Contractor** from any of his obligations under the Contract or any guaranty given by him pursuant to the Contract provisions, and without affecting the validity of the guaranty bonds, and without relieving or releasing the surety or sureties of said bonds. All such work shall be executed under the terms of the original Contract unless it is expressly provided otherwise. Additionally, all such change orders must be approved by the County Commissioners Court prior to execution of same.
- B.** Except for the purpose of affording protection against any emergency endangering health, life, limb or property, the **Contractor** shall make no change in the materials used or in the specified manner of constructing and/or installing the improvements or supply additional labor, services or materials beyond that actually required for the execution of the Contract, unless in pursuance of a written order from the **Locality** authorizing the **Contractor** to proceed with the change, No claim for an adjustment of the Contract Price will be valid unless so ordered.
- C.** If applicable unit prices are contained in the Agreement, the **Locality** may order the **Contractor** to proceed with desired unit prices specified in the Contract; provided that in case of a unit price contract the net value of all changes does not increase the original total amount of the agreement by more than twenty-five percent (25%) or decrease the original the total amount by eighteen percent (18%).
- D.** Each change order shall include in its final form:
 - 1. A detailed description of the change in the work.
 - 2. The **Contractor's** proposal (if any) or a confirmed copy thereof
 - 3. A definite statement as to the resulting change in the contract price and/or time.
 - 4. The statement that all work involved in the change shall be performed in accordance with contract requirements except as modified by the change order.
 - 5. The procedures as outlined in this Section for a unit price contract also apply in any lump sum contract.

CLAIMS FOR EXTRA COST

- A.** If the **Contractor** claims that any instructions by Drawings or otherwise involve extra cost or extension of time, he shall, within ten days after the receipt of such instructions, and in any event before proceeding to execute the work, submit his protest thereto in writing to the **Locality**, stating clearly and in detail the basis of his objections. No such claim will be considered unless so made.
- B.** Claims for additional compensation for extra work, due to alleged errors in ground elevations, contour lines, or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work, than would be reasonably estimated from the Drawings and maps issued.

- C. Any discrepancies which may be discovered between actual conditions and those represented by the Drawings and maps shall be reported at once to the Locality and work shall not proceed except at the **Contractors** risk, until written instructions have been received by him from the **Locality**.
- D. If, on the basis of the available evidence, the **Locality** determines that an adjustment of the Contract Price and/or time is justifiable, a change order shall be executed.

EXTRA WORK

The term “EXTRA WORK” as used in the agreement shall be understood to mean and include all work that may be required by the **Engineer** or **Locality** to be done by the **Contractor** to accomplish any change, alteration or addition to the work shown upon the plans, or reasonably implied by the specifications, and not covered by the **Contractor’s** proposal. It is agreed that the **Contractor** shall perform all Extra Work under the direction of the **Engineer** when presented with a written Work Order signed by the **Engineer**; Subject, however, to the right of the **Contractor** to require a written confirmation of such Extra Work Order by the **Locality**. It is also agreed that the compensation to be paid the **Contractor** for performing said Extra Work shall be determined by one or more of the following methods:

Method (a): By agreed unit prices;

Method (b): By agreed lump sum;

Method (c): If neither Method (a) nor Method (b) can be agreed the “actual field cost” of the work plus ten (10) percent.

In the event said Extra Work be performed and paid for under **Method (c)**, then the provisions of this paragraph shall apply and the “actual field cost” is hereby defined to include the cost of all workmen, such as foremen, time keepers, mechanics and laborers, and materials, supplies, trucks, rental of machinery and equipment for the time actually employed or used on such Extra Work plus actual transportation changes necessarily incurred if the kind of equipment or machinery is not already on the job, together with the power, fuel, lubricants, water and similar operating expenses, also all necessary incidental expenses incurred directly on account of such Extra Work, including Social Security, Old Age Benefits and other payroll taxes, and a rateable proportion of premiums on Construction and Maintenance Bonds, Public Liability and Property Damage and Workmen’s Compensation, and all other insurance as may be required by any law or ordinance, or directed by the **Engineer** or **Locality**, or by them agreed.

The **Engineer** may direct the form in which accounts of the “actual field cost” shall be kept and may also specify in writing, before the work commences, the method of doing the work and the type and kind of machinery and equipment to be used, otherwise these matters shall be determined by the **Contractor**. Where practicable the terms and prices for the use of machinery and equipment shall be incorporated in the Written Extra Work Order.

The ten (10) percent of the “actual field cost” to be paid the **Contractor** shall cover and compensate him for his profit, overhead, general superintendence and field office expense, and all other elements of cost and expense not embraced within the “actual field cost” as contract defined, save that where the **Contractor’s** Camp or Field Office must be maintained primarily on account of such Extra Work, then the cost to maintain and operate same, excluding staff, shall included in the “actual field cost”.

No claim for extra work of any kind will be allowed unless ordered in writing by the **Engineer**. In case any orders or instructions, either oral or written, appear to the **Contractor** to involve extra work for which he should receive compensation, he shall make written request to the **Engineer** for written order authorizing Extra Work. Should a difference of opinion arise as to what does or does not constitute extra work, or as to the payment therefore, and the **Engineer** insists upon its performance, the **Contractor** shall proceed with the work after making written order and shall keep an accurate account of the “actual field cost” thereof, as provided

under **Method (c)**. The **Contractor** will thereby preserve the right to submit the matter for payment, as herein above described.

TERMINATION, DELAYS, AND LIQUIDATED DAMAGES

A. Right of the Locality to Terminate Contract.

In the event that any of the provisions of this contract are violated by the **Contractor**, or by any of his subcontractors, the **Locality** may serve written notice upon the **Contractor** and the Surety of its intention to terminate the contract. The notices shall contain the reasons for such intention to terminate the contract, and unless such violation or delay shall cease and satisfactory arrangement of correction be made within ten days, the contract shall, upon the expiration of said ten (10) days, cease and terminate. In the event of any such termination, the **Locality** shall immediately serve notice thereof upon the Surety and the **Contractor**. The Surety shall have the right to take over and perform the contract. Provided, however, that if the Surety does not commence performance thereof within ten (10) days from the date of the mailing to such Surety of notice of termination, the **Locality** may take over the work and complete the project by bid/contract or by force account at the expense of the **Contractor** and his Surety shall be liable to the **Locality** for any excess cost incurred. In such event the **Locality** may take possession of and utilize in completing the work, such materials, appliances, and plant as may be on the site of the work and necessary therefore.

C. Liquidated Damages for Delays.

If the work is not completed within the time stipulated in the applicable bid for Lump Sum or Unit Price Contract provided, the **Contractor** shall pay to the **Locality** as fixed, agreed, and liquidated damages (it being impossible to determine the actual damages occasioned by the delay) the amount of **Two-Hundred and Fifty Dollars (\$250.00) for each calendar day of delay, until the work is completed**. The **Contractor** and his sureties shall be liable to the **Locality** for the amount thereof.

C. Hindrance and Delays.

No damages for delays shall be paid to the **Contractor** by the **Locality**, except for any unreasonable delays caused by the **Locality**.

D. Excusable Delays.

The right of the **Contractor** to proceed shall not be terminated nor shall the **Contractor** be charged with liquidated damages for any delays in the completion of the work due to:

- (1) Any acts of the Government, including controls or restrictions upon or requisitioning of materials, equipment, tools, or labor by reason of war, national defense, or any other national emergency;
- (2) Any acts of the **Locality**;
- (3) Causes not reasonably foreseeable by the parties to this Contract at the time of the Execution of the Contract which are beyond the control and without the fault or negligence of the **Contractor**, including, but not restricted to, acts of God or of the public enemy, acts of another **Contractor** in the performance of some other contract with the **Locality**, fires, floods, epidemics, quarantine, restrictions, strikes, freight embargoes, and weather of unusual severity such as hurricanes, tornadoes, cyclones and other extreme weather conditions.

Provided, however, that the **Contractor** promptly notifies the **Locality** within ten (10) days in writing of the cause of the delay. Upon receipt of such notification, the **Locality** shall ascertain the facts and the cause and extent of delay. If, upon the basis of the facts and the terms of this contract, the delay is properly excusable, the **Locality** shall extend the time for completing the work for a period of time commensurate with the period of excusable delay.

ASSIGNMENT OR NOVATION

The **Contractor** shall not assign or transfer, whether by an assignment or novation, any of its rights, duties, benefits, obligations, liabilities, or responsibilities under this Contract without the written consent of the

Locality; provided, however, that assignments to banks or other financial institutions may be made without the consent of the **Locality**. No assignment or novation of this Contract shall be valid unless the assignment or novation expressly provides that the assignment of any of the **Contractors** rights or benefits under the Contract is subject to a prior lien for labor performed, services rendered, and materials, tools, and equipment supplied for the performance of the work under this Contract in favor of all persons, firms, or corporations rendering such labor or services or supplying such materials, tools, or equipment.

DISPUTES

- A. All disputes arising under this Contract or its interpretation except those disputes covered by FEDERAL LABOR STANDARDS PROVISIONS whether involving law or fact or both, or extra work, and all claims for alleged breach of contract shall, within ten (10) days of commencement of the dispute, be presented by the **Contractor** to the **Locality** for decision. Any claim not presented within the lime limit specified in this paragraph shall be deemed to have been waived, except that if the claim is of a continuing character and notice of the claim is not given within ten (10) days of its commencement, the claim will be considered only for a period commencing ten (10) days prior to the receipt of the **Locality**.
- B. The **Contractor** shall submit in detail his claim and his proof thereof.
- C. If the **Contractor** does not agree with any decision of the **Locality**, he shall in no case allow the dispute to delay the work but shall notify the **Locality** promptly that he is proceeding with the work under protest.

TECHNICAL SPECIFICATIONS AND DRAWINGS

Anything mentioned in the Technical Specifications and not shown on the Drawings or vice versa shall be of like effect as if shown on or mentioned in both. In case of difference between Drawings and Technical Specifications, the Technical Specifications shall govern. In case of any discrepancy in Drawings, or Technical Specifications, the matter shall be immediately submitted to the **Locality**, without whose decision, said discrepancy shall not be adjusted by the **Contractor**, save only at his own risk and expense.

SHOP DRAWINGS

- A. All required shop drawings, machinery details, layout drawings, etc. shall be submitted to the **Engineer** in copies for approval sufficiently in advance of requirements to afford ample time for checking, including time for correcting, resubmitting and rechecking if necessary. The **Contractor** may proceed, only at his own risk, with manufacture or installation of any equipment or work covered by said shop drawings, etc. until they are approved and no claim, by the **Contractor**, for extension of the contract time shall be granted by reason of his failure in this respect.
- B. Any drawings submitted without the **Contractor's** stamp of approval will not be considered and will be returned to him for proper resubmission. If any drawings show variations from the requirements of the Contract because of standard shop practice or other reason, the **Contractor** shall make specific mention of such variation in his letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment of contract price and/or time, otherwise the **Contractor** will not be relieved of the responsibility for executing the work in accordance with the Contract even though the drawings have been approved.
- C. If a shop drawing is in accordance with the contract or involves only a minor adjustment in the interest of the **Locality** not involving a change in contract price or time; the **Engineer** may approve the drawing. The approval shall not relieve the **Contractor** from his responsibility for adherence to the contract or for any error in the drawing.

REQUESTS FOR SUPPLEMENTARY INFORMATION

It shall be the responsibility of the **Contractor** to make timely requests of the **Locality** for any additional information not already in his possession which should be furnished by the **Locality** under the terms of this Contract, and which he will require in the planning and execution of the work. Such requests may be submitted from time to time as the need approaches, but each shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay. Each request shall be in writing, and list the various items and the latest date by which each will be required by the **Contractor**.

The first list shall be submitted within two weeks after Contract award and shall be as complete as possible at that time. The **Contractor** shall, if requested, furnish promptly any assistance and information the **Engineer** may require in responding to these requests of the **Contractor**. The **Contractor** shall be fully responsible for any delay in his work or to others arising from his failure to comply frilly with the provision of this section.

MATERIALS AND WORKMANSHIP

- A. Unless otherwise specifically provided for in the technical specifications, all workmanship, equipment, materials and articles- incorporated in the work shall be new and the best grade of the respective kinds for the purpose. Where equipment, materials, articles or workmanship are referred to in the technical specifications as "equal to" any particular standard, the **Engineer** shall decide the question of equality.
- B. The **Contractor** shall furnish to the **Locality** for approval the manufacturer's detailed specifications for all machinery, mechanical and other special equipment, which he contemplates installing together with full information as to type, performance characteristics, and all other pertinent information as required, and shall likewise submit for approval full information concerning all other materials or articles which he proposes to incorporate.
- C. Machinery, mechanical and other equipment, materials or articles installed or used without such prior approval shall be at the risk of subsequent rejection.
- D. Materials specified by reference to the number or symbol of a specific standard, shall comply with requirements in the latest revision thereof and any amendment or supplement thereto in effect on the date of the Invitation for Bids, except as limited to type, class or grade, or modified in the technical specifications shall have full force and effect as though printed therein.
- E. The **Locality** may require the **Contractor** to dismiss from the work such employee or employees as the **Locality** or the **Engineer** may deem incompetent, or careless, or insubordinate.

SAMPLES, CERTIFICATES AND TESTS

- A. The **Contractor** shall submit all material or equipment samples, certificates, affidavits, etc., as called for in the contract documents or required by the **Engineer**, promptly after award of the contract and acceptance of the **Contractor's** bond. No such material or equipment shall be manufactured or delivered to the site, except at the Contractor's own risk, until the required samples or certificates have been approved in writing by the **Engineer**. Any delay in the work caused by late or improper submission of samples or certificates for approval shall not be considered just cause for an extension of the contract time.
- B. Each sample submitted by the **Contractor** shall carry a label giving the name of the **Contractor**, the project for which it is intended, and the name of the producer. The accompanying certificate or letter from the **Contractor** shall state that the sample complies with contract requirements, shall give the name and brand of the product, its place of origin, the name and address of the producer and all specifications or other detailed information which will assist the **Engineer** in making a prompt decision regarding the acceptability of the sample. It shall also include the statement that all materials or equipment furnished for use in the project will comply with the samples and/or certified statements.
- C. Approval of any materials shall be general only and shall not constitute a waiver of the **Locality's** right to demand full compliance with Contract requirements. After actual deliveries, the Engineer will have such

check tests made as he deems necessary in each instance and may reject materials and equipment and accessories for cause, even though such materials and articles have been given general approval. If materials, equipment or accessories which fail to meet check tests have been incorporated in the work, the **Engineer** will have the right to cause their removal and replacement by proper materials or to demand and secure such reparation by the **Contractor** as is equitable.

- D.** Except as otherwise specifically stated in the Contract, the costs of sampling and testing will be divided as follows:
- 1.** The **Contractor** shall furnish without extra cost, including packing and delivery charges, all samples required for testing purposes, except those samples taken on the project by the **Engineer**;
 - 2.** The **Contractor** shall assume all costs of re-testing materials which fail to meet contract requirements;
 - 3.** The **Contractor** shall assume all costs of testing materials offered in substitution for those found deficient;
 - 4.** The **Locality** will pay all other expenses.

PERMITS AND CODES

- A.** The **Contractor** shall give all notices required by and comply with all applicable laws, ordinances, and codes of the Local Government. All construction work and/or utility installations shall comply with all applicable ordinances, and codes including all written waivers. Before installing any work, the **Contractor** shall examine the drawings and technical specifications for compliance with applicable ordinances and codes and shall immediately report any discrepancy to the **Locality**. Where the requirements of the drawings and technical specifications fail to comply with such applicable ordinances or codes, the **Locality** will adjust the Contract by Change Order to conform to such ordinances or codes (unless waivers in writing covering the difference have been granted by the governing body or department) and make appropriate adjustment in the Contract Price or stipulated unit prices.

Should the Contractor fail to observe the foregoing provisions and proceed with the construction and/or install any utility at variance with any applicable ordinance or code, including any written waivers (notwithstanding the fact that such installation is in compliance with the drawings and technical specifications), the **Contractor** shall remove such work without cost to the **Locality**,

- B.** The **Contractor** shall at his own expense, secure and pay for all permits for street pavement, sidewalks, shed, removal of abandoned water taps, sealing of house connection drains, pavement cuts, buildings, electrical, plumbing, water, gas and sewer permits required by the local regulatory body or any of its agencies.
- C.** The **Contractor** shall comply with applicable local laws and ordinances governing the disposal of surplus excavation, materials, debris and rubbish on or off the Project Area and commit no trespass on any public or private property in any operation due to or connected with the Improvements contained in this Contract.

CARE OF WORK

- A.** The **Contractor** shall be responsible for all damages to person or property that occur as a result of his fault or negligence in connection with the prosecution of the work and shall be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance.
- B.** The **Contractor** shall provide sufficient competent watchmen, both day and night, including Saturdays, Sundays, and holidays, from the time the work is commenced until final completion and acceptance.
- C.** In an emergency affecting the safety of life, limb or property, including adjoining property, the **Contractor**, without special instructions or authorization from the **Locality** is authorized to act at his

discretion to prevent such threatened loss or injury, and he shall so act. He shall likewise act if instructed to do so by the **Locality**.

- D.** The **Contractor** shall avoid damage as a result of his operations to existing sidewalks, streets, curbs, pavements, utilities (except those which are to be replaced or removed), adjoining property, etc., and he shall at his own expense completely repair any damage thereto caused by his operations.
- E.** The **Contractor** shall shore up, brace, underpin, secure, and protect as maybe necessary, all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the construction of the improvements included in this Contract. The **Contractor** shall be responsible for the giving of any and all required notices to any adjoining or adjacent property owner or other party before the commencement of any work. The **Contractor** shall indemnify and save harmless the **Locality** from any damages on account of settlements or the loss of lateral support of adjoining property and from all loss or expense and all damages for which the **Locality** may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

ACCIDENT PREVENTION

- A.** No laborer or mechanic employed in the performance of this Contract shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health or safety as determined under construction safety and health standards promulgated by the Secretary of Labor.
- B.** The **Contractor** shall exercise proper precaution at all times for the protection of persons and property and shall be responsible for all damages to persons or property, either on or off the site, which occur as a result of his prosecution of the work.
- C.** The **Contractor** shall maintain an accurate record of all cases of death, occupational disease, or injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under the Contract. The **Contractor** shall promptly furnish the **Locality** with reports concerning these matters
- D.** The **Contractor** shall indemnify and save harmless the **Locality** from any claims for damages resulting from property damage, personal injury and/or death suffered or alleged to have been suffered by any person as a result of any work conducted under this contract.
- E.** The **Contractor** shall provide trench protection for all trenches in excess of a depth of five (5) feet, in the manner specified in the technical specifications and drawings.

SANITARY FACILITIES

The **Contractor** shall furnish, install and maintain ample sanitary facilities for the workmen. As the needs arise, a sufficient number of enclosed temporary toilets shall be conveniently placed as required. Drinking water shall be provided from an approved source, so piped or transported as to keep it safe and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing and governing health regulations.

USE OF PREMISES

- A.** The **Contractor** shall confine his equipment, storage of materials, and construction operations to the contract limits as shown on the drawings and as prescribed by ordinances or permits, or as may be desired by the **Locality**, and shall not unreasonably encumber the site or public rights of way with his materials and construction equipment.

- B.** The **Contractor** shall comply with all reasonable instructions of the **Locality** and all existing state and local regulations regarding signs, advertising, traffic, fires, explosives, danger signals, and barricades

REMOVAL OF DEBRIS, CLEANING, ETC.

The **Contractor** shall, periodically or as directed during the progress of the work, remove and legally dispose of all surplus excavated material and debris, and keep the Project Area and public rights of way reasonably clear. Upon completion of the work, he shall remove all temporary construction facilities, debris and unused materials provided for work, and put the whole site of the work and public rights of way in a neat and clean condition.

INSPECTION

- A.** All materials and workmanship shall be subject to inspection, examination, or test by the **Locality** and **Engineer** at any and all times during manufacture or construction and at any and all places where such manufacture or construction occurs. The **Locality** shall have the right to reject defective material and workmanship or require its correction. Unacceptable workmanship shall be satisfactorily corrected. Rejected material shall be promptly segregated and removed from the Project Area and replaced with material of specified quality without charge. If the **Contractor** fails to proceed at once with the correction of rejected workmanship or defective material, the **Locality** may by contract or otherwise have the defects remedied or rejected materials removed from the Project Area and charge the cost of the same against any Monies which may be due the **Contractor**, without prejudice to any other rights or remedies of the **Locality**.
- B.** The **Contractor** shall furnish promptly all materials reasonably necessary for any tests which may be required. All tests by the **Locality** will be performed in such manner as not to delay the work unnecessarily and will be made in accordance with the provisions of the technical specifications.
- C.** The **Contractor** shall notify the **Locality** sufficiently in advance of back filling or concealing any facilities to permit proper inspection. If any facilities are concealed without approval or consent of the **Locality**, the **Contractor** shall uncover for inspection and recover such facilities at his own expense, when so requested by the **Locality**.
- D.** Should it be considered necessary or advisable by the **Locality** at any time before final acceptance of the entire work to make an examination of work already completed by uncovering the same, the **Contractor** shall on request promptly furnish all necessary facilities, labor, and material. If such work is found to be defective in any important or essential respect, due to fault of the **Contractor** or his subcontractors, the **Contractor** shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the actual cost of labor and material necessarily involved in the examination and replacement, shall be allowed the **Contractor** and he shall, in addition, if completion of the work of the entire Contract has been delayed thereby, be granted a suitable extension of time on account of the additional work involved.
- F.** Inspection of materials and appurtenances to be incorporated in the improvements included in this Contract may be made at the place of production, manufacture or shipment, whenever the quantity justifies it, and such inspection and acceptance, unless otherwise stated in the technical specifications, shall be final, except as regards (1) latent defects, (2) departures from specific requirements of the Contract, (3) damage or loss in transit, or (4) fraud or such gross mistakes as amount to fraud. Subject to the requirements contained in the preceding sentence, the inspection of materials as a whole or in part will be made at the Project Site.
- F.** Neither inspection, testing, approval nor acceptance of the work in whole or in part, by the **Locality** or its agents shall relieve the **Contractor** or his sureties of full responsibility for materials furnished or work performed not in strict accordance with the Contract.

REVIEW BY LOCALITY

The **Locality** and its authorized representatives and agents shall have access to and be permitted to observe and review all work, materials, equipment, payrolls, personnel records, employment conditions, material invoices, and other relevant data and records pertaining to this Contract, provided, however that all instructions and approval with respect to the work will be given to the **Contractor** only by the **Locality** through its authorized representatives or agents.

FINAL INSPECTION

When the Improvements included in this Contract are substantially completed, the **Contractor** shall notify the **Locality** in writing that the work will be ready for final inspection on a definite date which shall be stated in the notice. The **Locality** will make the arrangements necessary to have final inspection commenced on the date stated in the notice, or as soon there after as is practicable.

DEDUCTION FOR UNCORRECTED WORK

If the **Locality** deems it not expedient to require the **Contractor** to correct work not done in accordance with the Contract Documents, an equitable deduction from the Contract Price will be made by agreement between the **Contractor** and the **Locality** and subject to settlement, in case of dispute, as herein provided.

INSURANCE

The **Contractor** shall not commence work under this contract until he has obtained all the insurance required under this paragraph and such insurance has been approved by the **Locality**.

- A. Compensation Insurance: The **Contractor** shall procure and shall maintain during the life of this contract Workers Compensation Insurance as required by the State of Texas for all of his employees to be engaged in work at the site of the project under this contract and, in case of any such work sublet, the **Contractor** shall require the subcontractor similarly to provide Worker's Compensation Insurance for all of the employees to be engaged in such work unless such employees are covered by the protection afforded by the Contractors Workers Compensation Insurance.
- B. Contractors Public Liability and Property Damage Insurance and Vehicle Insurance: The **Contractor** shall procure and shall maintain during the life of this contract Contractor's Public Liability Insurance, **Contractor's** Property Damage Insurance and Vehicle Liability Insurance in the following amounts: See Special Conditions of the Agreement.
- C. Proof of Insurance: The **Contractor** shall furnish the **Locality** with certificates showing the type, amount, class of operations covered, effective dates and date of expiration of policies. Such certificates shall also contain substantially the following statement: 'The insurance covered by this certificate will not be canceled or materially altered, except after ten (10) days written notice has been received by the **Locality**.'

WARRANTY OF TITLE

No material, supplies, or equipment to be installed or furnished under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale, lease-purchase or other agreement by which an interest is retained by the seller or supplier. The **Contractor** shall warrant good title to all materials, supplies, and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all improvements and appurtenances constructed or placed by him to the **Locality** free from any claims, liens, or charges. Neither the Contractor -nor any person, firm, or corporation furnishing any material or labor for any work covered by this Contract shall have any right to a lien upon any improvement or appurtenance. Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any law permitting such persons to look to funds due the **Contractor** in the hands of the **Locality**. The provisions of this paragraph shall be inserted in all subcontracts

and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

WARRANTY OF WORKMANSHIP AND MATERIALS

Neither the final certificate of payment nor any provision in the Contract nor partial or entire use of the improvements included in this Contract by the **Locality** or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the **Contractor** of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The **Contractor** shall promptly remedy any defects in the work and pay for any damage to other work resulting there from which shall appear within a period of twelve (12) months from the date of final acceptance of the work.

COMPLIANCE WITH AIR AND WATER ACTS

In compliance with the Clean Air Act, as amended, 41 U.S.C. Sec. 7401 et. seq., and the regulations of the Environmental Protection Agency with respect thereto, the **Contractor** agrees that:

- 1. Any facility to be utilized in the performance of this contract or any subcontract shall be a facility listed on the EPA List of Violating Facilities pursuant to 40 CFR 15.20.
- 2. He will comply with all requirements of Section 114 of the Clean Air Act, as amended.

EQUAL EMPLOYMENT OPPORTUNITY

- A. The **Contractor** will not discriminate against any employee or the applicant for employment because of race, color, religion, sex, or national origin. The **Contractor** will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: employment, promotion, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The **Contractor** agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the owner.
- B. The **Contractor** will, in all solicitations or advertisements for employees placed by or on behalf of the **Contractor**, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.
- C. The **Contractor** will cause the foregoing provisions to be inserted in all subcontracts for any work covered by this contract so that such provisions will be binding upon each subcontractor, provided that the foregoing provisions shall not apply to contracts or subcontracts for standard commercial supplies or raw materials.
- D. The goals and timetables for minority and female participation are as follows:

Timetables	Goals for	Goals for
	Minority	female
	participation	participation
	in each trade	in each trade

These goals are applicable to all the **Contractors** construction work (whether or not it is federal or federally assisted) performed in the covered area.

- E. The **Contractor** shall take affirmative actions to ensure equal employment opportunity. The evaluation of the **Contractors** compliance with these specifications shall be based upon its effort to achieve maximum results from its actions.

F. **Contractors** are encouraged to participate in voluntary associations which assist in fulfilling their affirmative action obligations.

G. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority.

H. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

I. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts.

J. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents.

AFFIRMATIVE ACTION FOR HANDICAPPED WORKERS

The Contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap in regard to any position for which the employee or applicant for employment is qualified. The Contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified handicapped individuals without discrimination based upon their physical or mental handicap in all employment practices such as the following: employment, promotion, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

SECTION 109 OF THE -HOUSING AND COMMUNITY DEVELOPMENT ACT OF 1974

No person in the United States shall on the ground of race, color, national origin, or sex be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity funded in whole or in part with funds made available under this title.

TILE PROVISION OF LOCAL TRAINING, EMPLOYMENT, AND BUSINESS OPPORTUNITIES

A. To the greatest extent feasible opportunities for training and employment be given lower income residents of the project area and contracts for work in connection with the project be awarded to business concerns which are located in, or owned in substantial part by persons residing in the area of the project.

B. The **Contractor** will include this clause in every subcontract for work in connection with the project.

NON SEGREGATED FACILITIES

The **Contractor** certifies that he does not and will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not and will not permit his employees any segregated facilities at any of his establishments, or permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. As used in this paragraph the term "segregated facilities" means any waiting rooms, work areas, rest rooms and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national origin, because of habit, local custom, or otherwise.

JOB OFFICES

- A. The **Contractor** and his subcontractors may maintain such office and storage facilities on the site as are necessary for the proper conduct of the work. These shall be located so as to cause no interference to any work to be performed on the site. The **Locality** shall be consulted with regard to locations
- B. Upon completion of the improvements, or as directed by the **Locality**, the **Contractors** shall remove all such temporary structures and facilities from the site, and leave the site of the work in the condition required by the Contract.

PARTIAL USE OF SITE IMPROVEMENTS

The **Locality** may give notice to the **Contractor** and place in use those sections of the improvements which have been completed, inspected and can be accepted as complying with the technical specifications and if in its opinion, each such section is reasonably safe, fit, and convenient for the use and accommodation for which it was intended, provided:

- A. The use of such sections of the Improvements shall in no way impede the completion the remainder of the work by the **Contractor**.
- B. The **Contractor** shall not be responsible for any damages or maintenance costs due directly to the use of such sections.
- C. The period of guarantee stipulated in the Section 132 hereof shall not begin to run until the date of the final acceptance of all work which the **Contractor** is required to construct under this Contract.

CONTRACT DOCUMENTS AND DRAWINGS

The Local Public Agency will furnish the **Contractor** without charge 4 copies of the Contract Documents, including Technical Specifications and Drawings. Additional copies requested by the **Contractor** will be furnished at cost.

CONTRACT PERIOD

The work to be performed under this contract shall commence within the time stipulated by the **Locality** in the Notice to Proceed, and shall be fully completed within **200** working days thereafter.

LIQUIDATED DAMAGES

Since the actual damages for any delay in completion of the work under this contract are impossible to determine, the **Contractor** and his Sureties shall be liable for and shall pay to the **Locality** the sum of **Two Hundred Fifty dollars (\$ 250.00)** as fixed, agreed and liquidated damages for each calendar day of delay from the above stipulated time for completion.

RESTRICTIONS ON PUBLIC BUILDINGS AND PUBLIC WORKS PROJECTS (NOTE: This only applies to TCDP Contracts beginning with 1988.)

A. Definitions

“Component” as used in this clause means those articles, materials and supplies incorporated directly into the product.

“**Contractor** or sub-contractor of a foreign country” as used in this clause means any **Contractor** or - subcontractor that is a citizen or national of a foreign country or is controlled directly or indirectly by citizens or nationals of a foreign country. A **contractor** or subcontractor shall be considered to be a citizen

or national of a foreign country, or controlled directly or indirectly by citizens or nationals of a foreign country.

1. If 50% or more of the **Contractor** or subcontractor is owned by a citizen or national of the foreign country;
2. If the title to 50% or more of the stock of the **Contractor** or subcontractor is held subject to trust or fiduciary obligation in favor of citizens or nationals of the foreign country;
3. If 50% or more of the voting power in the **Contractor** or subcontractor is vested in or exercisable on behalf of a citizen or national of the foreign country.
4. In the case of a partnership, if any general partner is a citizen of the foreign country.
5. In the case of a corporation, if its president or other chief executive officer or the chairman of its board of directors is a citizen of the foreign country or the majority of any number of its directors necessary to constitute a quorum are citizens of the foreign country or the corporation is organized under the laws of the foreign country or any subdivision, territory or possession thereof; or
6. In the case of a **contractor** or subcontractor who is a joint venture, if any participant firm is a citizen or national of a foreign country or meets any of the criteria in (1) through (5) of this clause. 'Product' as used in this clause means construction materials--i.e. articles, materials and supplies brought to the construction site for incorporation into the public works project, including permanently affixed equipment, instruments, utilities, electronic or other devices, but not including vehicles or construction equipment. In determining the origin of a product, the **Locality** will consider a product as produced in a foreign country if it has been assembled or manufactured in the foreign country, or if the cost of the components mined, produced or manufactured in the foreign country exceed 50% of the cost of all its components.

B. Restrictions: The Contractor shall not:

1. Knowingly enter into any subcontract under this contract with a subcontractor of a foreign country included on the list of countries that discriminate against U.S. firms published by the United States Trade Representative (USTR); or
2. Supply any product under this contract of a country included on the list of foreign.
3. USTR List. The current list contains only one country--Japan
4. Certification: The contractor may rely upon the certification of a prospective subcontractor that it is not a subcontractor of a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR and that products supplied by such subcontractor for use on the Federal public works project under this contract are not products of a foreign country included on the list of foreign countries that discriminate against U.S. firms published by the USTR, unless such **Contractor** has knowledge that the certification is erroneous.
5. Subcontracts: The contractor shall incorporate this clause, including this paragraph in all subcontracts.

ABANDONMENT BY CONTRACTOR

In case the **Contractor** should abandon or fail to resume work within ten (10) days after written notification from the **Locality** or the **Engineer**, or the **Contractor** fails to comply with the orders of the **Engineer** when such orders are consistent with this contract or this Agreement or with the specifications hereto attached, then and in that case, the Surety on the bonds shall be notified in writing and directed to complete the work, and a copy of said notice shall be delivered to the **Contractor**. After receiving said notice of abandonment, the **Contractor** shall not remove from the work any machinery, equipment, tools, materials or supplies then on the job, but the same, together with any materials and equipment under contract for work, may be held for use on the work by the **Locality** or the Surety on the construction bond, or another **Contractor**, in completion of

the work; and the **Contractor** shall not receive any rental or credit therefore (except when used in connection with extra work, where credit shall be allowed as provided for under Paragraph 17, Extra Work), it being understood that the use of such equipment and materials will ultimately reduce the cost to complete the work and be reflected in the final settlement.

In case the Surety should fail to commence compliance with the notice for completion herein before provided for within ten (10) days after services of such notice, then the **Locality** may provide for completion of the work in either of the following elective manners:

A. The **Locality** may thereupon employ such force of men and use such machinery, equipment, tools, materials and supplies as said Locality may deem necessary to complete the work and charge the expense of such labor, material, machinery, equipment, tools and supplies to said **Contractor** and the expense so charged shall be deducted and paid by the **Locality** out of such money as may be due, or that may thereafter at any time become due to the **Contractor** under and by virtue of this Agreement. In case such expense is more than the sum which would have been payable under this contract if the same had been completed by the **Contractor**, then the **Contractor** and/or his surety shall pay the amount of such excess to the **Locality**;
Or

B. The **Locality**, under sealed bids, after five (5) days notice published one or more times in a newspaper having a general circulation in the County of the location of the work, may let a contract for the completion of the work under substantially the same terms and conditions which are provided in this contract. In case of any increase in cost to the **Locality** under the new contract as compared to what would have been the cost under this contract, such increase shall be charged to the **Contractor** and the Surety shall be and remain bound theretofore. When the work shall have been substantially completed the **Contractor** and his Surety shall be notified and Certificates of Completion and Acceptance shall be issued as provided in Paragraph 25 herein-above, a complete itemized statement of the contract accounts, certified to by the **Engineer** as being correct, shall then be prepared and delivered to the **Contractor** and his Surety, whereupon the **Contractor** and/or his Surety shall pay the balance due as reflected by said statement within twenty-one (21) days after the date of such Certificate of Completion.

In the event the statement of the account shows that the cost to complete the work is less than that which would have been the cost to the **Locality** had the work been completed by the **Contractor** under the terms of this contract and when the **Contractor** and/or his Surety shall pay the balance shown to be due by them to the **Locality**, then all machinery, equipment tools, materials or supplies left on the site of the work shall be turned over to the **Contractor** and/or his Surety. Should the cost to complete the work exceed the contract price and the **Contractor** and/or his Surety fail to pay the amount due the **Locality** within the time designated hereinabove, and there remains any machinery, equipment, tools, material or supplies on the site of the work, notice thereof, together with an itemized list of such equipment and materials, shall be mailed to the **Contractor** and his Surety at the respective addresses designated in this contract provided, however, that actual written notice given in any manner will satisfy this condition. After mailing or otherwise giving such notice, such property shall be held at the risk of the **Contractor** and his Surety subject only to the duty of the **Locality** to exercise ordinary care to protect such property. After fifteen (15) days from the date of said notice the **Locality** may sell such machinery, equipment, tools, materials or supplies and apply the net sum derived from such sale to the credit of the **Contractor**, as the **Locality** may elect.

The **Locality** shall release any machinery, equipment, tools, materials or supplies, which remain on the work and belong to persons other than the **Contractor** or his Surety, to their proper **Localities** without notice to the **Contractor**.

ABANDONMENT BY THE LOCALITY

In case the **Locality** shall fail to comply with the terms of this contract and should fail or refuse to comply with said terms within ten (15) days after written notifications by the **Contractor**, the **Contractor** may suspend or wholly abandon the work, and may remove there from all machinery, tools and equipment. And thereupon the **Engineer** shall make an estimate of the total earned by the **Contractor**, which estimate shall include the value of all work actually completed by said **Contractor** at the prices stated in the attached proposal, the value of all partially completed work at a fair and equitable price, and the amount of all extra work performed at the prices agreed upon, or provided for by the terms of this contract, and a reasonable sum to cover the cost of any provisions made by the **Contractor**, to carry the whole work to completion and which cannot be utilized. The **Engineer** shall then make a final statement of the balance due the **Contractor** by deducting from the above estimate all previous payments by the **Locality**, all other sums that may have been retained by the **Locality**, under the terms of this Agreement, and shall certify same to the **Locality** who shall pay to the **Contractor** on or before thirty (30) days after the date of the notification by the **Contractor**, the balance shown by said final statement as due the **Contractor** under the terms of this Agreement.

BONDS

It is therefore agreed by the parties of this contract that the **Contractor** shall execute a performance bond and a payment bond, each in the sum of one hundred (100) percent, in the forms provided for this purpose, and it agreed that this contract shall not be in effect until such bonds are furnished and approved by the **Locality**.

PREVAILING WAGE LEGAL REQUIREMENTS

The **Contractor's** attention is called to Articles 5159A and 5160 of the Revised Civil statutes of Texas which Statutes must be complied with. These articles are as follows:

ARTICLE 5159A

SECTION 1: Not less than the general prevailing rate of per diem wages for work of a similar character in the locality which the work is performed, and not less than the general prevailing rate of per diem wages for legal holiday and overtime work, shall be paid to all laborers, workmen and mechanics employed by or on behalf of any County, City and County, City, Town, District or other political subdivision of the State, engaged in the construction of public works, exclusive of maintenance work. Laborers, workmen and mechanics employed by contractors or subcontractors in the execution of any contract or contracts for public works with the State, or any officer or public body thereof, or in the execution of any contract or contracts for public works, with any County, City and County, City, Town, District or other political subdivision of this State, or any officer or public body thereof, shall be deemed to be employed upon public work.

SECTION 2: The public body awarding any contract for public work on behalf of the State, or on behalf of any County, City and County, City, Town, District or other political subdivision thereof or otherwise undertaking any public work, shall ascertain the general prevailing rate of per diem wages in the locality in which the work is to be performed for each craft or type of workmen or mechanic needed to execute the contract, and shall specify in the call for bids for said contract, and in the contract itself, what the general prevailing rate of per diem wages in the said locality is for each craft or type of workmen needed to execute the contract, also the prevailing rate for legal holiday and overtime work, and it shall be needed to execute the contract, also the prevailing rate for legal holiday and overtime work, and it shall be mandatory upon the **Contractor** to whom the contract is awarded, and upon any subcontractor under him, to pay not less than the said specified rates to all laborers, workmen and mechanics employed by them in the execution of the contract. The **Contractor** shall forfeit as a penalty to the State, County, City and County, City, Town, District or other political subdivision on whose behalf the contract is made or awarded, Ten Dollars (\$10.00) for each laborer, workman or mechanic employed for each calendar the, or portion thereof, such laborer, workman or mechanic is paid less than the stipulated rates for any work done under said contract, by him, or by any subcontractor under him, and the said public body awarding the contract shall cause to be inserted in the contract a stipulation to this effect. It shall be the duty of such public body awarding the contract, and its agents and officers to take cognizance of complaints of all violations of the provisions of this Act committed in the course of the execution of the contract, and when making payments to the contractor of monies becoming due under said contract to withhold and retain there from all sums and amounts which shall have been forfeited pursuant to the herein said stipulation and the terms of this Act; provided, however, that no sum shall be so withheld, retained or forfeited, except from the final payment, without a frill investigation by the awarding body. It shall be lawful for any contractor to withhold from any subcontractor under him sufficient sums to cover any penalties withheld from him by the awarding body on account of said subcontractor's failure to comply with the terms of this Act, and if payment has already been made to him the contractor may recover from him the amount of the penalty or forfeiture in a suit at law.

SECTION 3: The contractor and each subcontractor shall keep, or cause to be kept, an accurate record showing the names and occupations of all laborers, workmen and mechanics employed by him, in connection with the said public work, and showing the actual per diem wages paid to each of such workers, which record shall be open at all reasonable hours to the inspection of the public body awarding the contract, its officers and agents.

SECTION 4: Any construction or repair work done under contract, and paid for in whole or in part out of public funds, other than work done directly by any public utility company pursuant to order of the Railroad Commission or other public authority, whether or not done under public supervision or direction or paid for wholly or in part out of public funds, shall be held to be "public works" within the meaning of political subdivision of this State in which the building, highway, road, excavation, or other structures, project,

development or improvement is situated in all cases in which the contract is awarded by the State, or any public body thereof; and shall be held to mean the limits of the County, City and County, City, Town, District or other political subdivision on whose behalf the contract is awarded in all other cases. The term “general prevailing rate of per diem wages” shall be the rate determined upon as such rate by the public body awarding the contract, or authorizing the work, whose decision in the matter shall be final. Nothing in this act, however, shall be construed to prohibit the payment to any laborer, workman or mechanic employed on any public work as aforesaid of more than the said general prevailing rate of wages.

ARTICLE 5160 **Bond for Wages:**

Any person or persons, firm or corporation, entering into a formal contract with this State or its counties or school districts or other subdivisions thereof or any municipality therein for the construction of any public building, or the prosecution and completion of any public work shall be required, before, commencing such work, to execute the usual Penal Bond, with additional obligation that such contractor shall promptly make payments to all persons supplying him or them with labor and materials in the prosecution of the work provided for in such contract. Any person, company, or corporation who has furnished labor or materials used in the construction or repair of any public building or public work, and payment for which has not been made, shall have the right to intervene and be made a party to any action instituted by the State or any adjudicated in such action and judgment rendered thereon, subject, however, to the priority of the claims and judgment of the State or municipality.

If the full amount of the liability of the surety on said bond is insufficient to pay the full amount of said claims and demands, then, after paying the full amount due to the State or municipality, the remainder shall be distributed pro-rata among said interveners. Provided, further, that all claims for labor and materials furnished to said Contractor, and all claims for labor and material furnished to any contractor shall be itemized and sworn to as required by Statutes as to mechanic’s lien claims, and such claims shall be filed with the County Clerk of the County, in which said work is being prosecuted, within ninety days from the date of the delivery of said material and the performance of said work. The County Clerk shall note on the mechanic’s lien record, the name of the claimant, the amount claimed, the name of the contractor and the name of the county, School District, other subdivisions, or municipality with which the contract was made; and the County Clerk shall index the claim under the name of the contractor and under the name of the County, School District, other subdivision or municipality; with which the contract was made.

Provided further, that after completion and acceptance of completed project all moneys due contractor under said contract shall be held by the state or its counties or school districts or other subdivision, thereof or an affidavit made by Contractor that all just bills for labor and material under this contract has been paid in by the Contractor.

Acts 1913,

P.185; Acts 1929, 4P leg. P.4881. Ch. 22 paragraph I.

GENERAL PROVISIONS

Project: **PRECINCT NO. 4 – VARIOUS ROADWAYS PHASE II, PROJECT I**

Scope of Work: **ROADWAY IMPROVEMENTS AND ASSOCIATED ITEMS**

To minimize disturbance of the surrounding areas, the Contractor shall conduct all of the construction only within those portions of the site which are required and indicated on the plans. Any existing structures and/or utilities not pertaining to this project damaged by this Contractor will be replaced or repaired at the Contractor's expense. See plans for details and appurtenances. All labor, materials, equipment, supervision and other services required for this construction will be furnished in accordance with plans and specifications as prepared by

Schedule and Sequence of Construction

The Contractor shall, prior to beginning work, prepare and submit a proposed schedule of work to the Engineer for his approval.

Upon award of contract, the Owner will allow the Contractor 10 days to order or fabricate materials needed to successfully complete this project. If materials are delivered prior to expiration of days allowed, the Contractor may commence work after letter to begin has been sent by Engineer.

The Contractor shall not close the road nor begin construction until all materials requiring fabrication away from the project site have been delivered to the project site and/or a site approved by the Engineer.

Traffic Control

The Contractor shall place all barricades, warning signs, and all traffic control devices in accordance with that prescribed by the 2011 Texas Manual on Uniform Traffic Control Devices.

No street or driveway, other than those designated in the plans, shall be closed to through traffic.

Inspection of Work

The Engineer shall inspect the work covered under this contract or the Owner's authorized representative. The quality of the material and the quality of the construction and related equipment shall be of satisfaction of the Inspector. It shall be the Contractor's responsibility for the construction methods and safety precautions in the undertaking of the contract.

Testing and Acceptance of Improvements

The Owner reserves the option of testing any and all materials used in this construction. An independent laboratory designated and paid by the Owner, unless otherwise stated in the specifications of the items to be tested will make all testing. All costs for testing of completed construction specified herein, i.e., subgrade, caliche base, HMAC thickness, shall be at the owner's designated lab's expense in accordance with accepted

practice and ASTM Standards. The Engineer shall be notified of work in Progress that will require testing for acceptance for scheduling 24 hours in advance of the actual testing. All test results, not performed by the Engineer shall be submitted to the Engineer and Owner on a timely basis.

Disposal of Surplus Materials

The Contractor shall at his own expense make arrangements for the disposal of surplus material such as broken concrete, broken pipes, trees, brush, and all other unwanted backfill material. All materials including asphalt and broken concrete from existing structures, etc. shall not be used or spoiled within the county right-of-way but shall be removed from the project by the Contractor. Payment shall be considered subsidiary to the various bid items.

Dust Control

The proposed construction will require considerable truck and construction traffic creating dust. The Contractor shall use appropriate means, i.e., watering, speed of traffic, etc. to minimize the dust and nuisance to the project's vicinity.

Final Clean-Up

The Contractor shall not bury any brush, trash, surplus, discarded materials, temporary services, broken pipes, concrete structures, or any kind of debris within the project area. The Contractor shall leave the work site in a neat and orderly condition. Waste materials removed from the site shall be disposed of at locations satisfactory to the Owner and the Engineer.

Upon completion of the work and before acceptance and final payment will be made, the Contractor shall clean and remove from the site of the work all brush, trash, surplus and discarded materials, temporary services, pipes, concrete structures and debris of every kind. Fences, driveways, mailboxes, sidewalks and any existing improvements within the area damaged by the Contractor shall be reconstructed to their original conditions at the Contractor's expense.

Competency of Bidders

The Bidder must be capable of performing each of the various items of work bid upon. Upon requests, the successful Bidder shall submit a complete statement of his financial resources and his experience in similar work. The successful Bidder, also upon request, will submit a list of his equipment that will be available for the work.

Guarantee of Work

All workmanship, equipment and materials, furnished or installed by the Contractor shall be guaranteed for a period of at least one (1) year against faulty workmanship or defective materials. The warranty period shall begin on the date of acceptance of the project by the Owner and extend for a period of 365 days thereafter. The Owner may at his option, require that the Contractor post a performance bond in the amount of ten (10) percent of **final** total cost of the project to provide surety for the guarantee.

Subsidiary Items

The Contractor will be responsible for all construction shown on the plans and detailed in the specifications. If an item of construction is not listed in the bid proposal that item will be subsidiary to other items on the proposal. An item shown on the plans, but not listed on the bid proposal does not relieve the Contractor from the responsibility of the work. It will be the Contractor's responsibility to place the cost of the subsidiary item with the cost of a primary item on the proposal.

Emergencies

The Contractor, prior to beginning work, shall provide the County of Cameron and the Engineer with current telephone numbers (home, office, pager and mobile) where the Contractor can be contacted 24 hours per day, including weekends, in case of emergencies related to the project.

SECTION 4

TECHNICAL SPECIFICATIONS LIST

**PRECINCT NO. 4 – VARIOUS
ROADWAYS PHASE II, PROJECT I**

Project: Pct. 4 Phase 2 Project 1 Various Roads

COUNTY OF CAMERON

**GOVERNING SPECIFICATIONS AND SPECIAL PROVISIONS FOR THE CAMERON COUNTY
ROADWAYS AND CITY OF PRIMERA ROADWAYS**

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

**ALL SPECIFICATIONS AND SPECIAL PROVISIONS APPLICABLE TO THE CAMERON COUNTY
ROADWAYS AND CITY OF PRIMERA ROADWAYS LISTED IN THIS PROJECT ARE IDENTIFIED
BELOW:**

STANDARD SPECIFICATIONS:

- ITEM 104 REMOVING CONCRETE
- ITEM 247 FLEXIBLE BASE (105) (204) (210) (216) (520)
- ITEM 251 REWORKING BASE COURSES (204) (210) (216) (247) (520)
- ITEM 260 LIME TREATMENT (ROAD-MIXED) (4) (105) (132)
(204) (210) (216) (247) (300) (310) (520)
- ITEM 300 ASPHALTS, OILS, AND EMULSIONS
- ITEM 302 AGGREGATES FOR SURFACE TREATMENTS (300) (301)
- ITEM 310 PRIME COAT (300) (316)
- ITEM 316 SURFACE TREATMENTS (210) (300) (302)
- ITEM 340 DENSE-GRADED HOT-MIX ASPHALT (SMALL QUANTITY)
(300) (301) (320) (520) (585)
- ITEM 400 EXCAVATION AND BACKFILL FOR STRUCTURES
(110) (132) (401) (402) (403) (416) (420) (421) (423)
- ITEM 464 REINFORCED CONCRETE PIPE (400) (402) (403) (467) (476)
- ITEM 467 SAFETY END TREATMENTS (400) (420) (421) (432) (440) (442) (445)
(460) (464)
- ITEM 480 CLEANING EXISTING CULVERTS
- ITEM 500 MOBILIZATION
- ITEM 502 BARRICADES, SIGNS AND TRAFFIC HANDLING
- ITEM 506 TEMPORARY EROSION, SEDIMENTATION AND ENVIRONMENTAL CONTROLS
(161) (432) (556)
- ITEM 530 INTERSECTIONS, DRIVEWAYS AND TURNOUTS
(247) (260) (263) (275) (276) (292) (316) (330) (334) (340) (360) (421) (440)
- ITEM 540 METAL BEAM GUARD FENCE (421) (441) (445) (529)
- ITEM 560 MAILBOX ASSEMBLIES
- ITEM 636 SIGNS (643)
- ITEM 644 SMALL ROADSIDE SIGN ASSEMBLIES
(421) (440) (441) (442) (445) (636) (643) (656)
- ITEM 666 RETROREFLECTORIZED PAVEMENT MARKINGS (316) (502) (662) (677) (678)
- ITEM 668 PREFABRICATED PAVEMENT MARKINGS (678)
- ITEM 672 RAISED PAVEMENT MARKERS (677) (678)

SPECIAL PROVISIONS:

SPECIAL PROVISIONS WILL GOVERN AND TAKE PRECEDENCE OVER THE SPECIFICATIONS ENUMERATED HEREON WHEREVER IN CONFLICT THEREWITH.

SPECIAL PROVISION TO ITEM 247 (247-003)
SPECIAL PROVISION TO ITEM 340 (340-003)
SPECIAL PROVISION TO ITEM 464 (464-001)
SPECIAL PROVISION TO ITEM 502 (502-008)
SPECIAL PROVISION TO ITEM 506 (506-002)
SPECIAL PROVISION TO ITEM 666 (666-007)

SPECIAL SPECIFICATIONS:

SPECIAL SPECIFICATION ITEM 5001

GENERAL:

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

GOVERNING SPECIFICATIONS AND SPECIAL PROVISIONS FOR THE CITY OF LA FERIA ROADWAYS

SPECIFICATIONS: SPECIFICATIONS PROVIDED AND LABELED UNDER THE NAME "2022 STREET REHABILITATION PROJECT - PROJECTS 1 THRU 15" DATED 01/03/2022 SHALL GOVERN ON THIS PROJECT FOR THE CITY OF LA FERIA ROADWAYS.

TABLE OF CONTENTS
APPENDIX "A"
2022 STREET REHABILITATION PROJECT
PROJECTS 1 THRU 15

SECTION	DESCRIPTION	PAGE
01568 -	EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION.....	2
02101 -	SITE PREPARATION	11
02210 -	SUBGRADE PREPARATION	13
02230 -	EXCAVATION	15
02240 -	LIME STABILIZATION.....	17
02601 -	FLEXIBLE BASE.....	23
02610 -	PRIME COAT.....	34
02612 -	HOT MIX ASPHALT CONCRETE PAVEMENT.....	38
02617 -	SEAL COAT.....	59
02620 -	TACK COAT.....	64
02660 -	CONCRETE CURB, CURB & GUTTER AND VALLEY GUTTER.....	70
02670 -	MILLING	75
02780 -	FLAT WHEEL ROLLING.....	77
02782 -	PNEUMATIC TIRE ROLLING	79
02784 -	TAMPING ROLLING.....	82
02786 -	PROOF ROLLING.....	84
03300 -	CAST-IN-PLACE CONCRETE.....	86
03330 -	REINFORCING STEEL	104
09900 -	REFLECTORIZED PAINTED PAVEMENT MARKINGS.....	113



Ramiro Gutierrez, P.E.

DATE: 01/03/2022

01568 - EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION

1.00 GENERAL

1.01 WORK INCLUDED

Furnish labor, materials, equipment and incidentals necessary to provide erosion and sediment control for the duration of the construction period including furnishing, installing and maintaining erosion and sediment control structures and procedures and the proper removal when no longer required.

The intent of this specification is to provide guidelines for the Contractor to adhere to all State, Federal, and Local environmental regulations. It is also the intent to provide preventive measures to keep sediment from entering any storm water system, including open channels. It is the Contractor's responsibility to adhere to all State, Federal and Local requirements. While the Owner may require the Contractor to install erosion control devices during construction, this will in no way relieve the Contractor of his responsibility.

1.02 QUALITY ASSURANCE

- A. Comply with applicable requirements of all governing authorities having jurisdiction. The Specifications and the Plans are not represented as being comprehensive, but rather to convey the intent to provide complete slope protection and erosion control for both the Owner's and adjacent property.
- B. Erosion control measures shall be established at the beginning of construction and maintained during the entire length of construction. On-site areas which are subject to severe erosion and off-site areas which are especially vulnerable to damage from erosion and/or sedimentation are to be identified and receive additional erosion control measures as directed by the Owner or the Engineer.
- C. All land-disturbing activities shall be planned and conducted to minimize the size of the area to be exposed at any one time and to minimize the time of exposure.
- D. Surface water runoff originating upgrade of exposed area shall be controlled to reduce erosion and sediment loss during the period of exposure.
- E. When the increase in the peak rates and velocity of storm water runoff resulting from a land-disturbing activity is sufficient to cause accelerated erosion of the receiving ditch or stream, the Contractor shall install measures to control both the velocity and rate of release so as to minimize accelerated erosion and increased sedimentation of the stream as directed by the Owner or the Engineer.
- F. All land-disturbing activities shall be planned and conducted so as to minimize off-site sedimentation damage.

- G. The Contractor shall be responsible for periodically cleaning out and disposing of all sediment once the storage capacity of the drainage feature or structure receiving the sediment is reduced by one-half. The Contractor shall also be responsible for cleaning out and disposing of all sediment at the time of completion of the Work.

1.03 SUBMITTALS

1.04 STANDARDS

1.05 DELIVERY AND STORAGE [Not Used]

1.06 JOB CONDITIONS; CODES AND ORDINANCES

Comply with the local codes and ordinances. If local codes and ordinances require more stringent or additional erosion and sediment control measures during construction, Contractor shall provide such measures.

1.07 OPTIONS

1.08 GUARANTEES

2.00 PRODUCTS

2.01 MATERIALS

- A. STRAW BALES: Straw bales shall weigh a minimum of fifty (50) pounds and shall be at least 30" in length. Bales shall be composed entirely of vegetable matter and be free of seeds. Binding shall be either wire or nylon string, jute or cotton binding is unacceptable. Bales shall be used for not more than three months before being replaced. However, if weather conditions cause biological degradation of the straw bales, they shall be replaced sooner than the three month time period to prevent a loss of structural integrity of the dike.

- B. SILT FENCE: Silt fence fabric shall be a nylon reinforced polypropylene fabric which has a built-in cord running the entire length of the top edge of the fabric. The fabric must meet the following minimum criteria:

Tensile Strength, ASTM D4632	90 lbs.,
Puncture Rating, ASTM D4833	60 lbs.,
Mullen Burst Rating, ASTM D3786	200 psi,
Apparent Opening Size, U.S. Sieve No.	40

Silt fence shall be "Enviro Fence" preassembled silt fence, AMXCO Silt Stop prefabricated silt fence, AMOCO Style 2155 preassembled silt fence or approved equal.

- C. SILT FENCE POSTS: A minimum 2" x 2" (nominal) x 54" pressure treated wood posts of Number 2 Grade southern yellow pine or approved equal.
- D. SAND BAG: Sand bag material shall be polypropylene, polyethylene, polyamide or cotton burlap woven fabric, minimum unit weight four (4) ounces per square yard, mullen burst strength exceeding 300 psi and ultraviolet stability exceeding 70%. Length shall be 24 to 30 inches, width shall be 16 to 18 inches and thickness shall be six (6) to eight (8) inches and having an approximate weight of 40 pounds. Sand bags shall be filled with coarse grade sand, free from deleterious material. All sand shall pass through a No. 10 sieve.
- E. P.V.C. PIPE: Pipe shall be SDR-35 polyvinyl chloride having a minimum nominal internal diameter of 4". Pipes shall be sized for anticipated flows.
- F. SOIL RETENTION BLANKET: Soil retention blankets shall consist of a geocomposite of excelsior or fiber blanket with an extruded plastic net attached to the top side. The plastic net shall be photodegradable and the excelsior or fiber blanket shall be made smolder resistant without the use of chemicals. Soil retention blankets shall be high velocity type to resist severe runoff. The soil retention blanket shall be one (1) of the following classes and types:
 - 1. Class 1. "Slope Protection"
 - (a) Type A. Slopes of 3:1 or flatter - Clay soils
 - (b) Type B. Slopes of 3:1 or flatter - Sandy soils
 - (c) Type C. Slopes steeper than 3:1 - Clay soils
 - (d) Type D. Slopes steeper than 3:1 - Sandy soils
 - 2. Class 2. "Flexible Channel Liner"
 - (a) Type E. Short-term duration (Up to 2 Years)
Shear Stress (t_d) < 1.0 lb./sq. ft.
 - (b) Type F. Short-term duration (Up to 2 Years)
Shear Stress (t_d) 1.0 to 2.0 lb./sq. ft.
 - (c) Type G. Long-term duration (Longer than 2 Years)
Shear Stress (t_d) > 2.0 to < 5.0 lb./sq. ft.
 - (d) Type H. Long-term duration (Longer than 2 Years)
Shear Stress (t_d) greater than 0 Equal to 5.0 lb./sq. ft.

The Contractor has the option of selecting an approved soil retention blanket provided that selection conforms to the following list of approved soil retention blankets for slope protection applications:

CLASS I. SLOPE PROTECTION

TYPE A: Slopes of 3:1 or Flatter-Clay Soils

- Airtrol® ANTI-WASH®/GEOJUTE® (Regular)
- Contech Standards®
- Contech Standards Plus®
- Green Triangle Regular®

Green Triangle Superior®
GREENSTREAK® PEC MAT
Curlex®
North American Green® S150
North American Green® S75
North American Green® SC150
POLYJUTEÔ 407/GT
SOIL SAVER®
TerraJute®
Verdyol® ERO-MAT®
Xcel Regular®
Xcel Superior®

TYPE B: Slopes of 3:1 or Flatter-Sandy Soils

Contech Standards®
Contech Standards Plus®
GEOCOIR®/DEKOWE® 700
Green Triangle Superior®
Green Triangle Regular®
North American Green® S75
North American Green® SC150
North American Green® S150
POLYJUTEÔ 407/GT
TerraJute®
Verdyol® ERO-MAT®
Xcel Superior®
Xcel Regular®

TYPE C: Slopes Steeper than 3:1-Clay Soils

Airtrol®
ANTI-WASH®/GEOJUTE® (Regular)
Contech Standards Plus®
Curlex®
Green Triangle Superior®
GREENSTREAK® PEC-MAT
North American Green® SC150
North American Green® S150
POLYJUTEÔ 407/GT
SOIL SAVER®
TerraJute®
Xcel Superior®

TYPE D: Slopes Steeper than 3:1-Sandy Soils

Contech Standards Plus®
GEOCOIR®/DEKOWE® 700
Green Triangle Superior®

North American Green® S150
North American Green® SC150
POLYJUTEÔ 407GT
TerraJute®
Xcel Superior®

CLASS II: FLEXIBLE CHANNEL LINER PROTECTION

2.02 MIXES [Not Used]

2.03 FABRICATIONS [Not Used]

2.04 MANUFACTURED PRODUCTS [Not Used]

3.00 EXECUTION

3.01 PREPARATION

3.02 INSTALLATION

A. TEMPORARY STRAW BALE DIKE

1. Straw bales shall be embedded a minimum of 4" and securely anchored using 2" x 2" wood stakes driven through the bales into the ground a minimum of 6". Straw bales are to be placed directly adjacent to one another leaving no gap between them.
2. Bales shall be placed in a single row, lengthwise on proposed line, with ends of adjacent bales tightly abutting one another. In swales and ditches, the barrier shall extend to such a length that the bottoms of the end bales are higher in elevation than the top of the lowest middle bale. Additional bales shall be placed behind the first row where the bales abut each other. The additional bale is used to prevent unfiltered runoff from escaping between the bales.
3. The excavated soil shall be backfilled against the barrier. Backfill shall conform to ground level on the downhill side and shall be built up to 4" above ground level on the uphill side. Loose straw shall be scattered over the area immediately uphill from a straw barrier.

B. SILT FENCE

The purpose of a silt fence is to intercept and detain water-borne sediment from unprotected areas to a limited extent. The Contractor shall excavate a 6" by 6" trench for site fence bedding along the lower perimeters of the site where necessary to prevent sediment from entering any drainage system. The Contractor shall install the silt fence in accordance with the manufacturer's recommendations and instructions. Silt fence is used during the period of construction near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. This fence shall remain in place until the disturbed area is permanently stabilized. Silt fence should not be used where there is a concentration of water in a channel or drainage way or where soil conditions prevent a minimum toe-in depth of 6" or installation of support post to depth of 12". Fabric shall overlap at abutting ends a minimum of 3' and shall be jointed such that no leakage or bypass occurs. If concentrated flow occurs after installation, corrective action must be taken such as placing rock berm in the areas of concentrated flow.

C. SAND BAG BERM

1. The purpose of a sandbag berm is to intercept sediment-laden water from disturbed areas such as construction in steam beds, create a retention pond, detain sediment and release water in sheet flow.
2. A temporary sand bag berm shall be installed across a channel or right of way in a developing or disturbed area and should be used when the contributing drainage area is greater than 5 acres. The berm shall be a minimum height of 18", measured from the top of the existing ground at the upslope toe to the top of the berm. The berm shall be sized to have a minimum width of 48" measured at the bottom of the berm and 18" measured at the top of the berm.
3. The sand bag berm shall be inspected after each rain. The sand bags shall be reshaped or replaced as needed during inspection. Additional inspections shall be made daily by the responsible party and when the silt reaches 6", the accumulated silt shall be removed and disposed of at an approved site in a manner that will not contribute to additional siltation. The sand bag berm shall be left in place until all upstream areas are stabilized and accumulated silt removed; removal must be done by hand.

D. SOIL RETENTION BLANKETS

1. A soil retention blanket (SRB) is a geotextile or biodegradable fabric placed over disturbed areas to limit the effects of erosion due to rainfall impact and runoff across barren soil. Soil retention blankets are manufactured by a wide variety of vendors addressing a wide variety of conditions such as vegetation establishment and high velocity flow. Blankets are used in areas which are difficult to stabilize such as steep slopes, drainage swales or high pedestrian traffic areas.

2. The soil retention blanket, whether installed as slope protection or as flexible channel liner, shall be placed within 24 hours after seeding or sodding operations have been completed, or as approved by the Engineer. Prior to placing the blanket, the area to be covered shall be relatively free of all rocks or clods over 1-1/2" in maximum dimension and all sticks or other foreign material which will prevent the close contact of the blanket with the soil. The area shall be smooth and free of ruts and other depressions. If as a result of rain, the prepared bed becomes crusted or eroded or if any eroded places, ruts or depressions exist for any reason, the Contractor shall be required to rework the soil until it is smooth and to reseed or resod the area at the Contractor's expense.

Installation and anchorage of the soil retention blanket shall be in accordance with the manufacturer's recommendations.

E. PROTECTION OF BARE AREAS

1. Apply seeding and soil retention blanket to bare areas including new embankment areas, fills, stripped areas, graded areas or otherwise disturbed areas, which have a grade greater than 5% or which will be exposed for more than 30 days.
2. Bare working areas on which it is not practical or desirable to install seeding and soil retention blankets, as determined by the Engineer, such as areas under proposed building slabs, shall be temporarily sloped to drain at a minimum of 0.2% and a maximum of 5% grade. These areas shall then be "trackwalked" with a crawler dozer traveling up and down the slope to form the effect of small "terraces" with the tracks of the dozer. Apply a minimum of three (3) coverages to each area with the dozer tracks.
3. Route runoff from the areas through the appropriate silt fence system.
4. Protect earth spoil areas by "trackwalking" and silt fences.

F. INTERCEPTOR SWALE

1. Interceptor swales may have a v-shape or be trapezoidal with a flat bottom and side slopes of 3:1 or flatter. These are used to shorten the length of exposed slope by intercepting runoff and can also serve as perimeter swales preventing off-site runoff from entering the disturbed area or prevent sediment-laden runoff from leaving the construction site or disturbed area. The outflow from a swale must be directed to a stabilized outlet or sediment trapping device. The swales should remain in place until the disturbed area is permanently stabilized.
2. Stone Stabilization shall be used when grades exceed 2% or velocities exceed 6' per second and shall consist of a layer of crushed stone 3" thick, or flexible channel liner soil retention blankets. Stabilization shall extend across the bottom of the swale and up both sides of the channel to minimum height of 3" above the design water surface elevation based on a two year storm.

3. Interceptor swale shall be installed across exposed slopes during construction and should intercept no more than five (5) acres of runoff. Swales shall have a minimum bottom width of 2'-0" and a maximum depth of 1'-6" with side slopes of 3:1 or flatter. Swale must have positive drainage for its entire length to an outlet. When the slope exceeds 3%, or velocities exceed 4' per second (regardless of slope), stone stabilization is required. Check dams are also recommended to reduce velocities in the swales possibly reducing the amount of stabilization necessary. Swales should be inspected on a weekly basis during wet weather and repairs should be made promptly to maintain a consistent cross section.
4. All trees, brush, stumps, obstructions and other material shall be removed and disposed of so as not to interfere with the proper functioning of the swale.
5. The swale shall be excavated or shaped to line, grade, and cross-section as required to meet criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
6. All earth removed and not needed in construction shall be disposed of in an approved spoils site so that it will be conveyed to a sediment trapping device.
7. Diverted runoff from a disturbed or exposed upland area shall be conveyed to a sediment trapping device.
8. The on-site location may need to be adjusted to meet field conditions in order to utilize the most suitable outlet.
9. Minimum compaction for the swale shall be 90% standard proctor.

G. LOCATION OF EROSION AND SEDIMENT CONTROL STRUCTURES

1. Locate erosion and sediment control structures as required to prevent erosion and removal of sediment from the project site. Silt fences shall be required for disturbed areas and soil stockpiles/spoil areas. Each silt fence installation shall have a minimum net length (exclusive of embedments into diversion dikes or other ineffective areas) of 25'. The runoff from a maximum of one (1) acre of disturbed area or soil stockpile/ spoil area shall be routed through any individual silt fence installation.
2. Install diversion dikes to divert runoff to the silt fence installation.
3. Install silt traps at the inlet (upstream) end of the drainage structures, including open channels, through which runoff from disturbed areas or soil stockpiles/spoil areas may drain.
4. Provide an overall erosion and sediment control system which protects disturbed areas and soil stockpiles/spoil areas. The system shall be modified by the Contractor from time to time to effectively control erosion and sediment during construction.

3.03 MAINTENANCE

- A. Maintain erosion and sediment control structures and procedures in full working order at all times during construction. This shall include any necessary repair or replacement of items which have become damaged or ineffective. Remove sediment on a regular basis which accumulates in sediment control devices and place the material in approved earth spoil areas or return the material to the area from which it eroded.
- B. Upon completion of construction, properly remove the temporary erosion and sediment control structures and complete the area as indicated.
- C. Soil retention blankets will not require removal if installed on a finished graded area specified to receive seeding.

3.04 FIELD QUALITY CONTROL

In the event of conflict between the requirements and storm water pollution control laws, rules or regulations or other Federal, State or Local agencies, the more restrictive laws, rules or regulations shall apply.

3.05 CLEAN AND ADJUST [Not Used]

***** END OF SECTION *****

02101 - SITE PREPARATION

PART 1 - GENERAL

1.01 GENERAL DESCRIPTION OF WORK:

- A. Relocation or removal and proper disposal of all obstructions (as applicable) from the property and from designated easements.
- B. Obstructions shall include:
 - 1. Remains of houses not completely removed by others.
 - 2. Concrete, foundations, floor slabs, curb and gutter, driveways, and sidewalk.
 - 3. Building materials such as brick, lumber and plaster.
 - 4. Water wells, septic tanks, manholes, inlets, utility pipes and conduits.
 - 5. Underground service station tanks, equipment or other foundations.
 - 6. Fencing and retaining walls.
 - 7. Paved parking areas.
 - 8. Abandoned railroad tracks, ties, and scrap iron.
 - 9. Ancillary structures such as shacks and outhouses.
 - 10. Trees, stumps, bushes, shrubs, roots, limbs and logs.
 - 11. All rubbish and debris whether above or below ground.
 - 12. Power poles, telephone poles and service poles.
 - 13. Mail boxes.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Provide materials required to perform work as specified.

PART 3 - EXECUTION

3.01 GENERAL

- A. Clear entire project site and such other areas, including public or corporate lands, specified in the plans of all structures and obstructions.
- B. Trim carefully all trees and shrubs designated for preservation and protect from scarring or other injuries during construction operation.
- C. Removal of all foundations and underground obstructions, unless otherwise specified, shall be removed to the following depths:
 - 1. In embankment areas, two (2) feet below natural ground.
 - 2. In excavation areas, two (2) feet below the lower elevation of excavation.
 - 3. In all other areas, one (1) foot below natural grade.

- D. Backfill all holes, as directed by the ENGINEER, resulting from all removals.
- E. Complete the preparation of site such that prepared site is free of holes, ditches and other abrupt changes in elevations and irregularities to contours.
- F. Plug the remaining ends of all abandoned storm sewers, culverts, sanitary sewers, conduits, and utility pipes with concrete, as specified by the ENGINEER, to form a tight closure.
- G. On existing concrete where only a portion is to be removed, care shall be exercised to avoid damage to remaining concrete. Where concrete reinforcement is encountered in removed portions, a minimum of one (1) foot of such reinforcement shall be cleaned of old concrete and left in place to tie into new construction. Concrete to be preserved, but subsequently destroyed by the CONTRACTOR's operations, shall be replaced by the CONTRACTOR at his expense in accordance with the Specifications, or as directed by the ENGINEER.
- H. The necessary Replacement or Relocation of obstructions shall be considered incidental work to this Section and will not be paid for directly.

PART 4 - MEASUREMENT AND PAYMENT

4.01 PREPARATION OF SITE

- A. Preparation of site shall be measured on a lump-sum basis with measurement for payment made only on areas indicated and classified on the plans as preparation of site.
- B. When not listed as a separate contract pay item, preparation of site shall be considered as incidental work, and the cost thereof shall be included in such contract pay item(s) as are provided in the proposal contract.
- C. Compensation, whether by contract pay item or incidental work will be for furnishing all materials, labor, equipment, tools and incidentals required for the work, all in accordance with the plans and these specifications.

***** END OF SECTION *****

02210 - SUBGRADE PREPARATION

PART 1 - GENERAL

1.01 GENERAL DESCRIPTION OF WORK:

- A. This work shall consist of scarifying, blading and rolling the subgrade to obtain a uniform texture and provide as nearly as practical a uniform density for the full depth of the subgrade.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Provide materials required to perform work as specified.

PART 3 - EXECUTION

3.01 CONSTRUCTION METHODS:

- A. All preparing of the right-of-way and /or clearing and grubbing shall be completed before starting the subgrade preparation.
- B. The subgrade shall be scarified and shaped in conformity with the typical sections and the lines and grades indicated or as established by the ENGINEER by the removal of existing material or addition of approved material.
- C. All unsuitable material shall be removed and replaced with approved material.
- D. All foundations, walls or other objectionable material shall be removed to in accordance with Section 02101, Site Preparation. All holes, ruts and depressions shall be filled with approved material.
- E. The surface of the subgrade shall be finished to the lines and grades as established and be in conformity with the typical section indicated.
- F. Any deviation in excess of 1/2 inch cross section and in a length of 10 feet measured longitudinally shall be corrected by loosening, adding or removing material, reshaping and compacting by sprinkling and rolling.
- G. Sufficient subgrade shall be prepared in advance to insure satisfactory prosecution of the work.
- H. The CONTRACTOR will be required to set blue tops for the subgrade on centerline, at quarter points and curb lines or edge of pavement at intervals not exceeding 50 feet.
- I. All suitable material removed may be utilized in the subgrade with the approval

of the ENGINEER. All other material required for completion of the subgrade shall also be subject to approval by the ENGINEER.

- J. Subgrade materials on which structures shall be placed shall be compacted by approved mechanical tamping equipment to a dry density of the total material of not less than 95 percent nor more than 100 percent of the maximum dry density as determined in accordance with TX DOT Test Method Tex-114-E.
- K. Subgrade materials on which planting or turf will be established shall be compacted to a minimum of 85 percent of the maximum dry density as determined in accordance with SDHPT Test Method Tex-114-E.
- L. Tests for density will be made as soon as possible after compacting operations are completed. If the material fails to meet the density specified, it shall be reworked as necessary to obtain the density required.
- M. Just prior to placing any base materials, density and moisture content of the top 6 inches of compacted subgrade shall be checked and if tests show the density to be more than 2 percent below the specified minimum or the moisture content to be more than 3 percent above or below the optimum, the subgrade shall be reworked as necessary to obtain the specified compaction and moisture content.
- N. When lime stabilization of the subgrade is specified, the lime is to be added in accordance with Section 02240, Lime stabilization.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT:

- A. All acceptable subgrade preparation will be measured by the square yard.
- B. The measured area includes the entire width of the roadway for the entire length as indicated.

4.02 PAYMENT:

- A. The accepted quantities of subgrade preparation will be paid for at contract unit bid price per square yard.
- B. When not listed as a separate contract pay item, subgrade preparation shall be considered as incidental work, and the cost thereof shall be included in such contract pay item(s) as are provided in the proposal contract.
- C. Compensation, whether by contract pay item or incidental work will be for furnishing all materials, labor, equipment, tools and incidentals required for the work, all in accordance with the plans and these specifications.

****** END OF SECTION ******

02230 - EXCAVATION

PART 1 - GENERAL

1.01 GENERAL DESCRIPTION OF WORK:

- A. This work shall consist of excavating and properly utilizing or otherwise properly disposing of all excavated materials, of whatever character, within the limit of work.
- B. Excavation shall also consist of constructing, compacting, shaping and finishing of all earthwork in designated areas on the plans, as specified herein, and in conformity with the required lines grades and typical cross sections or as directed by the ENGINEER.

PART 2 - PRODUCTS

2.01 CLASSIFICATION:

- A. All excavations shall be unclassified and shall include all materials encountered regardless of their nature or the manner in which they are removed.

PART 3 - EXECUTION

3.01 CONSTRUCTION METHODS:

- A. Prior to commencing this work, all erosion control and tree protection measures required shall be in place and all utilities located and protected.
- B. Construction equipment shall not be operated within the drip line of trees, unless otherwise indicated.
- C. Construction materials shall not be stockpiled under the canopies of trees. No excavation or embankment shall be placed within the drip line of trees until tree wells are constructed.
- D. All excavation shall be performed as specified herein and shall conform to the established alignment, grades and cross sections.
- E. Suitable excavated materials may be utilized in constructing required embankments.
- F. The construction of all embankments shall conform to Section 02236 - Embankment. No material shall be stockpiled within the banks of a waterway.
- G. Unsuitable excavated materials or excavation in excess of that needed for construction shall be known as "Waste" and shall become the property of the CONTRACTOR and it shall become his sole responsibility to

properly dispose of this material off site in an environmentally sound manner at a permitted disposal site.

- H. Adequate dewatering and drainage of excavation shall be maintained throughout the time required to complete the work.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT:

- A. Measurement of the volume of excavation in cubic yards by the average end areas. Cross sectional areas shall be computed from the existing ground section to the established line of the subgrade, as shown on typical sections for the limits of the right-of-way or other work limits, including parkway slopes and sidewalk areas.
- B. Measurement of the area in square yards of surface area excavated as shown on the typical sections included in the plans.
- C. Measurement of the volume of excavation is in cubic yards, based upon the average end areas taken from pre-construction cross sections and planned grades. The planned quantities for excavation will be used as the measurement for payment for this item.

4.02 PAYMENT:

- A. This item will be paid for at the contract unit price bid for "Excavation", as provided under the measurement method as included in the bid, which price shall be full compensation for all work herein specified: including dewatering, drainage, subgrade preparation, unless otherwise indicated and the furnishing of all materials, equipment, tools, labor and incidentals necessary to complete the work.
- B. When not listed as a separate contract pay item, excavation shall be considered as incidental work, and the cost thereof shall be included in such contract pay item(s) as are provided in the proposal contract.
- C. Compensation, whether by contract pay item or incidental work will be for furnishing all materials, labor, equipment, tools and incidentals required for the work, all in accordance with a the plans and these specifications.

****** END OF SECTION *****

02240 - LIME STABILIZATION

PART 1 - GENERAL

1.01 GENERAL DESCRIPTION OF WORK:

- A. Treating of subgrade, subbase, and base courses by the pulverization, addition of lime, mixing and compacting the mixed material to the required density.
- B. Application to natural ground, embankment, existing pavement, base or subbases under this contract, or as directed by the ENGINEER, which shall be constructed as specified herein and in conformity with the typical section, lines, and grades as shown on the plans.

1.02 QUALITY ASSURANCE:

- A. Comply with the latest published edition (or addended portions thereof) of the following standards and codes:
 - 1. ASTM C-207 or Type N - Requirements for Hydrated Lime
 - 2. ASTM Designation C5 - Quick Lime for Structural Purposes
 - 3. Texas DOT Test Method Tex-600-J - Hydrated Lime
 - 4. ASTM D-1557 - Density of Compacted Materials
 - 5. ASTM D-2049 - Density of Compacted Materials
 - 6. Texas DOT Test Method Tex 113-E - Density of Compacted Materials
 - 7. AASHTO T-99, Method C - Density of Compacted Materials
 - 8. AASHTO M-216 - Hydrated Lime

PART 2 - PRODUCTS

2.01 HYDRATED (DRY) LIME:

- A. Use, for stabilization of soils, a dry powder consisting primarily of calcium hydroxide (Ca(OH)₂).
- B. Provide Material in accordance with Texas SDHPT Test Method TEX-600-J and conforming to the following chemical composition:

Hydrate Alkalinity, Percent by Weight Ca(OH) ₂	90% Min.
Unhydrate Lime Content, Percent by Weight CaO	5% Max.
"Free Water" Content, Percent by Weight H ₂ O	4% Max.

And with the following residue retainage:

Residue Retained on No. 6 Sieve	None
Residue Retained on No. 10 Sieve	1% Max.
Residue Retained on No. 30 Sieve	2.5% Max.

- C. Store and handle hydrated lime in closed, weather proof containers, storage bins, or bags until immediately before application to the road.
- D. Furnish hydrated lime in trucks, as applicable, with weight of lime measured on certified scales and clearly marked on the truck or stamped on a haul ticket.
- E. Furnish hydrated lime in bags, as applicable, bearing the manufacturer's certified weight. Bags varying more than five percent may be rejected.

2.02 HYDRATED LIME SLURRY:

- A. Provide a pumpable suspension of solids, principally composed of hydrated lime, in water.
- B. Provide material with a "Solids Content" having a hydrated alkalinity Ca (OH) 2 of not less than 90 percent by weight and a residue retainage equal to the retainage specified in Part 2.01 above.
- C. Supply Type B, commercial lime slurry, with a "dry solids content" of at least 31% by weight of the slurry (Grade 1).
- D. Procure mixing water only from Municipal water mains. The Contractor shall make arrangements with the Water Department to obtain a meter and subsequent payment for water used.

2.03 TYPE C QUICKLIME (MASON'S LIME):

- A. GRADE S, quicklime, is unsuitable for "Dry Placing;" Provide as a dry powder in a tank, to form a lime slurry.
- B. GRADE DS, "pebble" quicklime, is suitable for either "Dry Placing" or for preparation of a slurry for "Slurry Placing."

PART 3 - EXECUTION

3.01 GENERAL:

- A. Provide a completed course of treated materials containing a uniform lime mixture, free from loose or segregated areas, of uniform density and moisture content, well bound for its full depth, and with a smooth surface and suitable for placement of subsequent courses.
- B. Regulate sequence of work, use proper amounts of lime, maintain the work, and rework the courses as necessary to meet the requirements of this specification.
- C. Construct and shape roadbed to conform with typical sections, lines, and grades as shown on the plans, or as directed by the ENGINEER.

- D. Excavate materials to be treated to the proposed bottom of lime treatment grade and remove or windrow to expose secondary grade.
- E. Correct any wet or unstable material below the secondary grade by scarifying, adding lime and compacting until uniform stability is achieved.
- F. Use a cutting or pulverizing machine, as applicable, to remove subgrade material accurately to secondary grade and pulverize the material at the same time. When a cutting or pulverizing machine is used, the requirement for exposing and windrowing the material is waived.
- G. Proof Roll subgrade before use of pulverizing machinery and correct any soft areas that proof rolling operations shall reveal.
- H. Materials for new bases and subbases shall be delivered, placed and spread in the required amount per station. The material shall be thoroughly mixed prior to the addition of lime.
- I. Lime shall be spread only on that area where first mixing operation can be completed in the same working day.
- J. The rate of lime application or the lime content of the treated material shall be as specified by the Engineer.

3.02 SLURRY PLACING:

- A. Mix lime with water in trucks or approved distributors and apply as a thin water suspension or slurry.
- B. The lime slurry shall be applied with approved distributors by successive passes over a measured surface of roadway until the proper moisture and lime content is achieved.
- C. Lime slurry distributors shall be equipped with an agitator for maintaining lime and water in a uniform mixture.

3.03 DRY PLACING:

- A. Apply lime at a uniform rate by an approved screw type spreader box or by bag distribution until the proper lime content is achieved.
- B. Distribute lime in such a manner as to reduce scattering of lime to a minimum. Lime shall not be applied "dry" when wind conditions, in the opinion of the ENGINEER, will cause objectionable blowing of lime towards traffic or adjacent properties.
- C. Motor graders shall not be used to spread "dry" lime, except TYPE C, GRADE DS, "pebble" quicklime.

D. Sprinkle material until proper moisture content is achieved.

3.04 MIXING

A. Mixing procedures shall be the same for "Dry Placing" or "Slurry Placing" of lime.

B. Treatment for Materials in Place:

1. Thoroughly mix material and lime using approved road mixers or other approved equipment, until a homogeneous, friable mixture of material is obtained, free from all clods and lumps.
2. For materials containing plastic clay or other materials not readily mixed with lime, mix as thoroughly as possible at the time of lime application, bring to proper moisture content, seal with a pneumatic roller, and leave to cure two to four days, unless otherwise directed by the ENGINEER.
3. During curing period, material shall be kept moist by method(s) approved by the ENGINEER.
4. Uniformly mix, after required curing time, using approved methods.
5. Clods in soil binder - Lime mixture shall be reduced in size by raking, blading, discing, harrowing, scarifying or by other approved pulverization methods such that nonslaking aggregates obtained on the No. 4 sieve are removed. The remainder of the material shall meet the following requirements when test dry by laboratory sieves:

Minimum Passing 1 3/4 inch	100%
Minimum Passing No. 4 Sieve	60%

C. Treatment of New Material

1. Thoroughly mix and blend, using approved road mixers or other approved equipment, the base or subbase material, lime and required water until a homogeneous, friable mixture is obtained.
 2. When lime is placed as a slurry and mixed by use of blades, the material shall be bladed as the limewater mixture is applied.
- D. During the time between application and mixing, hydrated lime that has been exposed to the open air for a period of six hours or more, or has been subjected to excessive loss due to washing or blowing, shall not be accepted for payment.

3.05 COMPACTION:

A. Compaction of the mixture shall begin immediately after final mixing and in no

case later than three calendar days after final mixing.

- B. Aerate or sprinkle material as necessary to provide optimum moisture.
- C. Compaction shall begin at the bottom and shall continue in 6 inch lifts (maximum) until entire depth of mixture is uniformly compacted to 95% of maximum density as determined by AASHTO T-99, Method C.
- D. If any portion fails to meet the density specified, it shall be reworked as required to obtain specified density.

3.06 FINISHING, CURING, AND PREPARATION FOR SURFACING:

- A. Shape surface after compaction to the required lines, grades, and cross sections, followed by thorough rolling sufficiently light to prevent hair-line cracking.
- B. Completed shaped and rolled sections shall be moist cured for a minimum of seven days before further courses are added or any traffic, other than sprinkling equipment, is permitted on the completed sections.
- C. The surface or compacted layer shall be kept moist until covered by other base or paving material, or until a curing seal of CSS-1 or SS-1 emulsified asphalt has been applied. If used, the curing seal shall be applied, as soon as possible after final rolling, at a rate of 0.10 to 0.20 gallons per square yard. The exact rate will be as directed by the ENGINEER.
- D. No equipment or traffic will be permitted on lime treated materials for 72 hours after application of a curing seal.

3.07 MAINTENANCE OF COMPLETED SECTIONS:

- A. Maintain the completed lime treated material within the limits of contract, in condition satisfactory to the ENGINEER as to grade, crown and cross section until following course is constructed.
- B. Immediately repair all irregularities and defects that may occur before the next course is constructed at no cost to the Owner and as directed by the ENGINEER.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT AND PAYMENT:

- A. Lime treatment shall be measured for payment in square yards for the thickness of material shown on the plans for the surface area of completed and accepted work. Lime treatment shall be paid for at the contract unit price per square yard.

- B. Lime will be measured by the ton 2000 pounds dry weight. Lime will be paid for at the contract unit cost per ton of 2000 pounds dry weight.
- C. The contract unit price for lime treatment shall be full compensation for preparing roadbed; for loosening, pulverizing, application of lime, water content of slurry mixture and the mixing water; mixing, shaping, sprinkling, compacting, finishing, curing and maintaining; for manipulations required, for all labor, equipment, fuels, tools and incidentals necessary to complete the work.
- D. The contract unit price for lime shall be full compensation for furnishing the material; for all freight involved; for all unloading, storing and hauling; and for all labor, equipment, fuels, tools, and incidentals necessary to complete the work.

***** END OF SECTION *****

02601 - FLEXIBLE BASE

PART I - GENERAL

1.01 GENERAL DESCRIPTION OF WORK:

- A. This work shall consist of furnishing and placing a foundation course for surface courses or for other base courses.
- B. Flexible base shall be composed of either caliche (argillaceous limestone, calcareous or calcareous clay particles, with or without stone, conglomerate, gravel, sand or other granular materials), crushed stone, gravel, iron ore topsoil, sand shell, or crushed slag.
- C. Flexible base shall be constructed as specified herein in one or more courses in conformance with details, lines and grades shown on the plans, and as established by the ENGINEER.
- D. When lime stabilization of the subgrade is specified, the flexible base is to be added in accordance with Section 02240, Lime stabilization.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Materials for flexible base shall be crushed or uncrushed as necessary to comply with the requirements hereinafter specified.
- B. Materials shall consist of durable course aggregate particles mixed with approved binding materials.

2.02 LIME STABILIZATION:

- A. Where shown on the plans, or directed by the ENGINEER, material for flexible base shall be lime stabilized in accordance with the provisions of Section 02240.

2.03 TYPES:

- A. Type A - Crushed or broken aggregate (excluding gravel aggregate).
- B. Type B - Gravel Aggregate
- C. Type C - Iron Ore Topsoil
- D. Type D - Shell Aggregate with Sand Admixture
- E. Type E - Shell Aggregate with Sand and Caliche Admixture
- F. Type F - Caliche
- G. Type G - Crushed Slag

H. Unless otherwise noted on the plans, the CONTRACTOR may use any one type of these types provided the material used meet the requirements set forth in the specification test limits herein.

2.04 GRADES:

- A. Unless otherwise shown on the plans or directed by the ENGINEER, the final course of base material shall consist of Grades 1 or 2 as specified in Table 02601-1.
- B. Base courses or subbase materials, unless otherwise noted on the plans or directed by the ENGINEER, may consist of Grades 1, 2, 3, or 4, as specified in Table 02601-1.
- C. All grades shall, when tested in accordance with standard laboratory test procedures, meet the physical requirements set forth in Table 02601-1.
- D. Testing of flexible base materials shall be in accordance with the following test procedures:

<u>TEST</u>	<u>TESTING PROCEDURE</u>
Preparation for soil constants and sieve analysis	TEX-101-E
Liquid Limit	TEX-104-E
Plastic Limit	TEX-105-E
Plasticity Limit	TEX-106-E
Sieve Analysis	TEX-110-E
Wet Ball Mill	TEX-116-E
Triaxial Test	TEX-117-E (Part I or II)

- E. Unless otherwise specified on the plans, samples for testing the material for Soil Constants, Gradation and Wet Ball Mill shall be taken prior to the compaction operations.
- F. Unless otherwise specified on the plans, samples for triaxial tests shall be taken from the stockpile or from production, as directed by the ENGINEER, where stockpiling is required and from production where stockpiling is not required.

TABLE 02601-1

PHYSICAL REQUIREMENTS FOR FLEXIBLE BASE MATERIALS

TYPES	GRADES			
	Grade 1: (Triaxial class 1 Min. compressive strength, psi: 45 at 0 psi lateral pressure and 175 at 15 psi lateral pressure	Grade 2: (Triaxial Class 1 to 2.3) Min. com- pressive strength, psi: 35 at 0 psi lateral pressure and 175 at 15 psi lateral pressure	Grade 3: (Unspecified Tri axial Class)	Grade 4:
TYPE A Crushed or Broken Aggregate (excluding gravel aggregate)	% Retained on Sq. Sieve 1-3/4".....0 7/8".....10-35 3/8".....30-50 No. 4.....45-65 No. 40.....70-85 Max LL.....35 Max PI.....10 Wet Ball Mill Max Amt.....40 in Passing No. 40.....20	% Retained on Sq. Sieve 1-3/4".....0-10 No. 4.....45-75 No. 40.....60-85 Max LL.....40 Max PI.....12 Wet Ball Mill Max. Amt.....50 Max Increase In Passing No. 40.....20;;	% Retained on Sq. Sieve 1-3/4".....0-10 No. 40.....60-85 Max LL.....45 Max PI.....15 Wet Ball Mill Max Amt.....55 Max Increase in passing No. 40.....20	As Shown on Plans
TYPE B Gravel Aggregate		% Retained on Sq. Sieve 1-3/4".....0-10 No. 4.....30-75 No. 40.....70-85 Max LL.....35 Max PI.....12	% Retained on Sq. Sieve 1-3/4".....0-5 No. 4.....30-75 No. 40.....65-85 Max LL.....35 Max PI.....12	As Shown On Plans
TYPE C Iron Ore Topsoil		% Retained on Sq. Sieve 2-1/2".....0 No. 40.....50-85 Max LL.....35 Max PI.....12	% Retained on Sq. Sieve 2-3/4".....0 No. 40.....45-85 Max LL.....35 Max PI.....12	As Shown on Plans
TYPE D Sand-Shell		% Retained on Sq. Sieve 1-3/4".....0-10 No. 4.....45-65 No. 40.....50-70 Max LL.....35	% Retained Sq. Sieve 1-3/4".....0 No. 40.....45-65 Max LL.....35 Max PI.....12	As Shown on Plans

Max Pl.....12

TYPE E Shell with Sand and Caliche	% Retained Sq. Sieve 1-3/4".....0 No. 40.....45-65 Max LL.....35 Max Pl.....10	% Retained Sq. Sieve 1-3/4".....0 No. 40.....45-65 Max LL.....35 Max Pl.....12	As Shown on Plans
TYPE F Caliche	% Retained Sq. Sieve 1-3/4".....0 No. 4.....45-75 No. 40.....50-85 Max LL.....40 Max Pl.....12	% Retained Sq. Sieve 1-3/4".....0 No. 40.....50-85 Max LL.....40 Max Pl.....12	As Shown on Plans
TYPE G Crushed Blast Fur- nace Slag		As Shown on Plans	

- G. The limits establishing reasonable close conformity with the specified gradation and plasticity index are defined by the following:
1. The ENGINEER may accept the material, providing not more than 2 of 10 consecutive gradation tests performed are outside the specified limits on any individual or combination of sieves by no more than 5% and where no two consecutive tests are outside the specified limits.
 2. The ENGINEER may accept the material providing not more than 2 of 10 consecutive plasticity index samples tested are outside the specified limit by no more than two points and where no two consecutive tests are outside the specified limit.

2.05 STOCKPILING:

- A. When specified on the plans, the material shall be stockpiled prior to delivery on the road. The stockpile shall be not less than the height indicated and shall be made up of layers of material not to exceed the depth shown on the plans.
- B. After a sufficient stockpile has been constructed as specified on the plans, the CONTRACTOR may proceed with loading from the stockpile for delivery to the road.
- C. In loading from the stockpile for delivery to the road, the material shall be loaded by making successive vertical cuts through the entire depth of the

stockpile.

- D. If the CONTRACTOR elects to produce the Type "A" material from more than one material or more than one source, each material shall be crushed separately and placed in separate stockpiles so that at least 75 percent of the material in the course aggregate stockpiles will be retained on the No. 4 sieve and at least 70 percent of the material in the fine aggregate stockpile will pass the No. 4 sieve.
- E. The materials shall be combined in a central mixing plant in the proportions determined by the ENGINEER to produce a uniform mixture which meets all of the requirements of the specification. In the event that combinations of the materials produced fail to meet all of the specification requirements, the CONTRACTOR will be required to secure other materials which will meet specifications requirements.
- F. The central mixing plant shall be either the batch or continuous flow type, and shall be equipped with feeding and metering devices which will add the materials into the mixer in the specified quantities.
- G. Mixing shall continue until a uniform mixture is obtained.

PART 3 - EXECUTION

3.01 PREPARATION OF SUBGRADE:

- A. Type roadbed shall be excavated and shaped in conformity with the typical sections shown on the plans and to the lines and grades as established by the ENGINEER.
- B. All unstable or otherwise objectionable material shall be removed from the subgrade and replaced with approved material.
- C. All holes, ruts and depressions shall be filled with approved material and, if required, the subgrade shall be thoroughly wetted with water and reshaped and rolled to the extent directed in order to place the subgrade in an acceptable condition to receive the base material.
- D. The surface of the subgrade shall be finished to line and grade as established and in conformity with the typical section shown on plans, and any deviation in excess of 1/2 inch in cross section and in a length of 16-feet measured longitudinally shall be corrected by loosening, adding or removing material, reshaping and recompacting by sprinkling and rolling.
- E. Sufficient subgrade shall be prepared in advance to insure satisfactory prosecution of the work.
- F. Material excavated in the preparation of the subgrade shall be utilized in the construction of adjacent shoulders and slopes or otherwise disposed on as directed, and any additional material required for the completion of the

shoulders and slopes shall be secured from sources indicated on plans or as directed by the Engineer.

3.02 PLACEMENT OF FIRST COURSE - TYPE A, TYPE B, TYPE C, TYPE F, AND TYPE G MATERIAL:

- A. Immediately before placing the base material, the subgrade shall be checked as to conformity with grade and section.
- B. The material shall be delivered in approved vehicles of a uniform capacity, and it shall be the charge of the CONTRACTOR that the required amount of specified material shall be delivered in each 100- foot station.
- C. Material deposited upon the subgrade shall be spread and shaped the same day.
- D. In the event inclement weather or other unforeseen circumstances render impractical the spreading of the material during the first 24-hour period, the materials shall be scarified and spread as directed by the Engineer.
- E. The material shall be sprinkled, if directed, and shall then be bladed, dragged and shaped to conform to typical sections as shown on plans.
- F. All areas and "nests" of segregated coarse or fine material shall be corrected to removed and replaced with well graded material, as directed by the ENGINEER.
- G. If additional binder is considered desirable or necessary after the material is spread and shaped, it shall be furnished and supplies in the amount directed by the ENGINEER. Such binder material shall be carefully and evenly incorporated with the material in place by scarifying, harrowing, brooming or by other approved methods.
- H. The course shall be compacted by method of compaction hereinafter specified as the "Ordinary Compaction" method or the "Density Control" method of compaction as indicated on the plans, or as directed by the ENGINEER.
 1. When the "Ordinary Compaction" method is to be used, the following provisions shall apply:
 - a) The course shall be sprinkled as required and rolled as directed until a uniform compaction is secured. Throughout this entire operation, the shape of the course shall be maintained by blading and the surface upon completion shall be smooth and in conformity with the typical sections shown on plans and to the established lines and grades.
 - b) In that area on which pavement is to be placed, any deviation in excess of 1/4 inch in cross section in a length of 16 feet measured longitudinally shall be corrected by loosening, adding or removing material, reshaping and recompacting by sprinkling and rolling.

- c) All irregularities, depressions or weak spots which develop shall be corrected immediately by scarifying the areas affected, adding suitable material as required, reshaping and recompacting by sprinkling and rolling.
2. When the "Density Control" method of compaction is to be used, the following provisions shall apply:
- a) The course shall be sprinkled as required and compacted to the extent necessary to provide not less than the percent density as hereinafter specified under "Density".
 - b) In addition to the requirements specified for density, the full depth of the flexible base shown on the plans shall be compacted to the extent necessary to remain firm and stable under construction equipment.
 - c) After each section of flexible base is completed, density tests shall be performed as required by the ENGINEER. If the material fails to meet the density requirements, it shall be reworked as necessary to meet the density requirements.
 - d) Throughout this entire operation, the shape of the course shall be maintained by blading, and the surface upon completion shall be smooth and in conformity with the typical sections shown on the plans and to the established lines and grades.
 - e) In that area on which pavement is to be placed, any deviation in excess of 1/4 inch in cross section in a length of 16 feet measured longitudinally shall be corrected by loosening, adding or removing material, reshaping and recompacting by sprinkling and rolling.
 - f) All irregularities, depressions or weak spots which develop shall be corrected immediately by scarifying the areas affected, adding suitable material as required, reshaping and recompacting by sprinkling and rolling.
- I. Should the base course, due to any reason or cause, lose the required stability, density or finish before the surfacing is complete, it shall be recompacted and refinished at the sole expense of the CONTRACTOR.
- J. Where Type C material is used, the material shall be scarified, thoroughly wetted, mixed, manipulated, and bladed so as to secure a uniformly wetted material, and pulled in over the subgrade in courses and set under the action of blading and rolling. The work of mixing, blading, rolling, shaping, and subsequent maintenance shall be performed by the continuous use of sufficient number of satisfactory rollers and power maintainers with adequate scarifier attachments.

3.03 PLACEMENT OF FIRST COURSE - TYPE D MATERIAL:

- A. Immediately before placing the base material, the subgrade shall be checked as to conformity with grade and section, and corrections made if necessary.
- B. All materials shall be delivered in approved vehicles of a uniform capacity.
- C. The required amount of shell shall be uniformly spread across the section and allowed to dry sufficiently to insure proper slaking and mixing of the binder material. Immediately upon completion of the drying period, as determined by the ENGINEER, the specified amount of sand admixture as required to produce a combined material meeting the requirements hereinbefore specified, shall be spread uniformly across the shell.
- D. The material shall then be sprinkled as required and thoroughly mixed by blading and harrowing, or other approved methods.
- E. Failure to proceed with the placing of sand admixture or mixing and placing operations will be grounds for the suspension of placing of shell.
- F. Under no conditions will the CONTRACTOR be allowed to place an excessive amount of shell without proceeding with the mixing and placing operations.
- G. The course shall be compacted by the method of compaction hereinafter specified as the "Ordinary Compaction" method or the "Density Control" method of compaction as indicated on the plans, or as directed by the ENGINEER.
 - 1. When the plans indicate that the "Ordinary Compaction" method is to be used, the following provisions shall apply:
 - a) After mixing, all material shall be windrowed, and then spread over the section in layers.
 - b) The layer shall not exceed 2 inches in loose depth.
 - c) If necessary to prevent segregation, the material shall be wetted in the window prior to spreading.
 - d) After each lift is spread, it shall be sprinkled and rolled to secure maximum compaction as directed by the ENGINEER. Succeeding layers shall then be placed similarly until the course is completed.
 - e) All areas and "nest of segregated coarse or fine material shall be corrected or removed and replaced with well graded material, as directed by the ENGINEER.
 - f) The course shall then be sprinkled as required and rolled as directed until a uniform compaction is secured.

- g) Throughout this entire operation, the shape of the course shall be maintained by blading; and the surface, upon completion, shall be smooth and in conformity with the typical sections shown on plans, and to the established lines and grades.
 - h) In that area on which pavement is to be place, any deviation in excess of 1/4 inch in cross section in a length of 16-feet measured longitudinally shall be corrected by loosening, adding or removing material, reshaping and recompacting by sprinkling and rolling.
 - i) All irregularities, depressions or weak spots which develop shall be corrected immediately by scarifying the areas affected, adding suitable material as required, reshaping and recompacting by sprinkling and rolling.
2. When the plans indicate that the "Density Control" method of compaction is to be used, the compaction method shall be the same as prescribed for Type A, Type B, Type C, Type F and Type G material.
- H. When indicated on the plans or permitted by the ENGINEER, Type D material may be mixed in a central mixing plant and delivered to the road as a combined mixture. When this method is used, the combined mixture shall meet the requirements for type D material as hereinbefore specified and the placing and compaction requirement shall be the same as prescribed for Type A, Type B, Type C, Type F and Type G material.

3.04 PLACEMENT OF FIRST COURSE - TYPE E MATERIAL:

- A. The construction methods for placing the first course of Type E material shall be the same as prescribed for Type D material except that after the shell and sand have been placed, the prescribed amount of caliche shall then be spread across the sand and shell.
- B. The composite mixture shall then be sprinkled as required and thoroughly mixed by blading and harrowing or other approved methods.
- C. Compaction of the first course of Type E material shall be the same as prescribed above for Type D material.
- D. Failure to proceed with placing the sand and caliche admixture or mixing and placing operations will be grounds for the suspension of placing of shell.
- E. Under no conditions will the CONTRACTOR be allowed to place an excessive amount of shell without proceeding with the mixing and placing operations.

3.05 PLACEMENT OF SUCCEEDING COURSES - ALL MATERIAL TYPES:

- A. Construction methods shall be the same as prescribed for the first course.

- B. Prior to placing the surfacing on the completed base, the base shall be "dry cured" to the extent directed by the ENGINEER.

3.06 DENSITY CONTROL:

- A. When the "Density Control" method of compaction is indicated on the plans, each course of flexible base shall be compacted to the percent density shown on the plans.
- B. The testing will be as outlined in TX DOT Test Method Tex-114-E.
- C. It is the intent of this specification to provide in the top 8 inches of the base material immediately below the finished surface of the roadway not less than 100 percent of the density as determined by the compaction ratio method.
- D. Field density determination shall be made in accordance with TX DOT Test Method Tex-115-E.

3.07 TOLERANCES:

- A. When tolerances are permitted by the plans, the limits establishing reasonable close conformity with percent density specified are defined by the following:
 - 1. The ENGINEER may accept the work providing not more than 25 percent of the density tests performed each day are outside the specified density by no more than three pounds per cubic foot and where no two consecutive tests on continuous work are outside the specified limits.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT:

- A. Flexible base will be measured by the square yard of surface area of completed and accepted work based on the width of flexible base as shown on the plans.
 - 1. The flexible base shall be measured for depth by the units of 2000 square yards and remaining fraction of square yards, with one measurement taken at a location selected by the ENGINEER.
 - 2. In that unit where flexible base is deficient by more than 1/2 inch in thickness, the deficiency shall be corrected by scarifying, adding material as required, reshaping and recompacting by sprinkling and rolling.
 - 3. No additional payment over the contract unit price will be made for any flexible base of a thickness exceeding that required by plans.
- B. The CONTRACTOR shall schedule his operations in such a manner as to facilitate the measurement of the pay item.
- C. The ENGINEER may accept the work provided no more than 2 out of 10 depth

tests performed are deficient by not more 1/2 inch and where no two consecutive tests on continuous work are outside the specified depth.

4.02 PAYMENT:

- A. The accepted quantities of flexible base of the type, grade, and compaction method specified will be paid at the contract unit price per square yard, complete in place.
- B. All sprinkling, rolling, and manipulation required will not be paid for directly, but will be considered incidental work.
- C. Passing "Density Control" tests shall be paid by the OWNER. Failing "Density Control" tests shall be paid by the CONTRACTOR.
- D. The unit prices bid shall each be full compensation for shaping and fine grading the roadbed; for securing and furnishing all materials, including all royalty and freight involved; for furnishing scales and labor involved in weighing the material when required; for loosening, blasting, excavating, screening, crushing and temporary stockpiling when required; for loading all materials for all hauling and delivering. on the road; for spreading, mixing, blading, dragging, shaping and finishing and for all manipulation, labor, tools and incidentals necessary to complete the work.

***** END OF SECTION *****

02610 - PRIME COAT

PART 1 - GENERAL

1.01 GENERAL DESCRIPTION:

- A. Prime coat shall consist of application of asphaltic materials on completed base course and/or other approved area, which shall be applied in accordance with these specifications, as shown on the plans, and as directed by the ENGINEER.

1.02 QUALITY ASSURANCE:

- A. Test and Certification of Bituminous Materials.
 - 1. Bituminous material is to be tested in accordance with the requirements of AASHTO M-82 and sampled in conformance with AASHTO T-40.
 - 2. Supply, at the time of delivery of each shipment of asphalt, two certified copies of test reports, from supplying vendor, to the ENGINEER.
 - 3. Test reports shall indicate name of vendor, type and grade of asphalt delivered, date and point of delivery, quantity delivered, delivery ticket number, purchase order number, and result of specified tests.

The test report, signed by an authorized representative of the vendor, shall certify that the product delivered conforms to the specifications for type and grade indicated.

Certified test reports and the testing required in the preparation of such report shall be at no cost to the Owner.

- 4. Final acceptance of bituminous materials shall be dependent on the determination by the ENGINEER that the material meets prescribed standards.

PART 2- PRODUCTS

2.01 MEDIUM CURING CUTBACK ASPHALT:

- A. Medium-curing liquid asphalt, designated by the letters MC, shall consist of an uncracked petroleum base stock, produced by the processing of asphaltic or semi-asphaltic base crude petroleum, blended with a kerosene-type solvent. The base stock for all MC materials shall be straight run asphalt produced within the penetration range of 100 to 300, and the end point of the kerosene type solvent shall not exceed 525 degrees F. Medium curing liquid cutback asphalt shall be free from water and show no separation.
- B. Medium curing cutback asphalt shall consist of materials specified above and

conforming to the requirements set forth in Table 2610-1.

- C. Unless otherwise noted on the plans or directed by the ENGINEER, cutback asphalt Grade MC-30 shall be used.

2.02 BLOTTER MATERIAL:

- A. Supply blotter material consisting of native sand and/or sweepings from base course.
- B. Native sand shall be local material obtained from approved sources as approved by the ENGINEER.

PART 3 - EXECUTION

3.01 CONSTRUCTION METHODS:

- A. Unless otherwise specified on the plans or, required by the ENGINEER, only asphaltic material shall be used. Where required, a combination of asphaltic and blotter material shall be used.
- B. Application of Asphaltic Materials Only.
 - 1. Apply prime coat to prepared surface when ambient air temperature is above 40 degrees F. and is rising and shall not be applied when the ambient air temperature is below 50 degrees F. and falling.
 - 2. Apply prime coat to surfaces that have been cleaned by sweeping or other approved methods and where base is thoroughly dry and satisfactory for receiving prime coat.
 - 3. Apply prime coat to cleaned base, at a rate of 0.2 to 0.5 gallons per square yard of surface area, using an approved type of self-propelled pressure distributor so constructed and operated to distribute the material evenly and smoothly.
 - 4. Provide necessary facilities for the determination of temperature of asphaltic material in all heating equipment and distributors; and for determination of rate at which it is applied; and for securing uniformity at the junction of two distributor loads.
 - 5. Keep in clean and good working condition all storage tanks, piping, retorts, booster tanks and distributors used in the storage and handling of asphaltic materials.
 - 6. Operate all associated equipment in a manner such that there is no contamination of asphaltic material with foreign material.
 - 7. Calibrate distributor and furnish ENGINEER with an accurate and satisfactory record of such calibrations.

TABLE 2610-1

Specification Designation	AASHTO	ASTM	Grade				
	Test Method	Test Method	MC 30	MC 70	MC 250	MC 800	MC 3000
Flash Point (Open Cleve) °F, Min.	T48	D92	100	100	150	150	150
Viscosity 140°F, Kinematic, CS	T201	D2170	30 to 60	70 to 140	250 to 500	800 to 1600	3000 to 6000
Furol Viscosity at 77°F. (Secs.) at 122°F. (Secs.) at 140°F. (Secs.) at 180°F. (Secs.)	T 72	D 88	75- 150	60- 120	125- 250	100- 200	300- 600
Distillation Distillate (% of Total Distillate to 680°F) to 437°F to 500°F to 600°F	T 78	D 402	0-25 40-70 75-93	0-20 25-60 75-90	0-10 20-55 70-85	-0- 10-35 65-80	-0- 0-15 50-75
Residue from Distillation to 680°F Volume % by Difference Min.			50	55	67	75	80
Tests on Residue From Distillation Penetration at 77°F	T 49	D 5	120 to 250	120 to 250	120 to 250	120 to 250	120 to 250
*Ductility 77°F cm., Min.	T 51	D 113	100	100	100	100	100
Solubility in CC14, % Min.	T 44	None	99.5	99.5	99.5	99.5	99.5
Water, % Max.	T 55	D 95	0.2	0.2	0.2	0.2	0.2
Reaction to Spot Test	T 102**		-0-	-0-	-0-	-0-	-0-

* If penetration of residue is more than 200 and its ductility at 77°F is less than 100, the material will be acceptable if the ductility at 60°F is greater than 100.

** Using 85% Standard Naphtha and 15% Xylene.

NOTE: Viscosity tests may be made by either Kinematic or Furol test methods.

8. Recalibrates distributor, in a manner satisfactory to the ENGINEER, after the beginning of work, should the yield on the asphaltic material applied

appear to be in error.

9. No traffic, hauling or placing of subsequent courses shall be permitted over freshly applied prime coat until authorized by the ENGINEER.
10. Apply asphaltic material at a temperature within 15oF of temperature of application selected by the ENGINEER based on temperature viscosity relationship noted in Table 2610-1.
11. Maintain surface until work is accepted by the ENGINEER.

C. Application of Asphaltic and Blotter Material

1. Haul blotter material in vehicles of uniform capacity and placed on shoulders at spacings designated by the ENGINEER.
2. After application of asphaltic material as specified above, cover surface with blotter material as directed by the ENGINEER.
3. After application of blotter material, drag surface with approved drag broom, evenly and smoothly distributing the blotter material.

Brooming or dragging operation shall continue, as directed by the ENGINEER, until the course has properly cured under traffic.

PART 4 - MEASUREMENT AND PAYMENT

4.01 PRIME COAT:

- A. Asphaltic material for prime coat will be measured for payment at point of delivery on the project in gallons at applied temperature. Payment will be paid at the unit bid price for "Prime Coat".
- B. When not listed as a separate contract pay item, prime coat shall be considered as incidental work, and the cost thereof shall be included in such contract pay item(s) as are provided in the proposal contract.
- C. Compensation, whether by contract pay item or incidental work will be for furnishing all materials, labor, equipment, tools and incidentals required for the work, all in accordance with the plans and these specifications.

4.02 BLOTTER MATERIALS:

- A. Blotter mater will be considered incidental to asphaltic material for prime coat with no direct payment or payment therefor.

****** END OF SECTION ******

02612 - HOT MIX ASPHALT CONCRETE PAVEMENT

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. Hot mix asphalt concrete (HMAC) pavement shall consist of a binder course, a leveling up course, a surface course or a combination of the courses as shown on the plans, or as directed by the ENGINEER.
- B. HMAC pavement shall be composed of a compacted mixture of mineral aggregate and asphaltic material, constructed on previously completed and approved subgrade, subbase course, base course, or existing pavement.
- C. HMAC pavement shall be in accordance with the specifications herein and in conformity with the lines, grades, quantities and typical sections in the contract and/or as directed by the ENGINEER.

1.02 QUALITY CONTROL:

- A. HMAC pavement and its constituent part shall conform to the ASTM, AASHTO and/or Texas SDHPT test methods noted below.

PART 2 - PRODUCTS

2.01 ASPHALTIC MATERIALS:

- A. Asphalt cement binders shall be uncracked petroleum asphalts and shall be carefully refined, by steam, vacuum, or solvent, from asphaltic or semi-asphaltic base crude petroleum at a temperature not to exceed 700 degrees F. Asphalt cements shall be free from thermal decomposition products and shall not be blended with any materials which have been subjected to cracking or produced from a crude petroleum source other than that of the original material. The asphalt cement shall not contain residues from non-asphaltic sources. Asphalt cement shall be homogeneous, free from water, and shall not foam when heated to 347 degrees F.
- B. Paving asphalt shall be classified by penetration or viscosity and shall conform to the requirements set forth in one of the following tables as designated by the ENGINEER. The CONTRACTOR may supply asphalt meeting the requirements of one of the following tables provided that he obtains prior approval of the ENGINEER and with the provision that once approval has been obtained, that the CONTRACTOR will remain with that grade throughout the project.

TABLE 02612-1

Specification	AASHTO Test	ASTM Test	40 to	60 to	85 to	120 to	150 to	200 to
Designation	Method	Method	50	70	100	150	200	250
Flash Point (Open cup) Min.	T48	D92		450	450	450	425	350
Penetration of Orig. Sample at 77°F	T49	D5	40 to 50	60 to 70	85 to 100	120 to 150	150 to 200	200 to 250
Thin-Film Oven Loss, Hours at 325°F, % Max	T179	D1754	0.75	0.75	0.75	0.75	1.00	1.00
Test of Residue from Thin-Film Oven Test: % of Orig. Pen., Min.	T49	D5	52	50	50	50	50	50
Ductility at 77°F, cm. after Loss at 325°F, Min.	T51	D113	50	50	100	100	100	100
Solubility in CC14 Min.	T44*	None	99.5	99.5	99.5	99.5	99.5	99.5
Reaction to Spot Test	T102**	None	-0-	-0-	-0-	-0-	-0-	-0-

* Procedure No. 1 with CCl₄ substituted for CS₂.

** Using 85% Standard Naphtha Solvent and 15% Xylene.

TABLE 02612-2

TYPE-GRADE	0A-30		0A-175**		0A-400	
	Min.	Max.	Min.	Max.	Min.	Max.
Penetration at 32°F, 200g., 60 sec	15	--	--	--	--	--
Penetration at 77°F, 100g., 5 sec	25	35	150	200	--	--
Penetration at 115°F, 50g., 5 sec	--	65	--	--	--	--
Ductility at 77°F, 5 cm/min., cms: Original OA	2	--	70	--	--	--
Flash Point C.O.C., F	450	--	425	--	425	--
Softening Point, R. & B., F	185	--	95	130	--	--
Thin Film Oven Test, 1/8 in. Film 50 g., 5hrs., 325°F, % Loss by wt . .	--	0.4	--	1.4	--	2.0
Penetration of Residue, at 77°F, 100g., 5 sec. % of Original Pen	--	--	40	--	--	--
Ductility of Residue at 77°F, 5 cm/min., cms	--	--	--	100	--	--
Solubility in Trichloroethylene, % . .	99.0	--	99.0	--	99.0	--
Spot Test on Original OA	Neg.		Neg.		Neg.	
Float Test at 122°F, sec	--	--	--	--	120	150
Test on 85 to 115 Pen. Residue* Residue by Wt., %	--	--	--	--	75	--
Ductility, 77°F, 5 cm/min: Original Res., cms	--	--	--	--	100	--
Subjected to Thin Film Test, cms . .	--	--	--	--	100	--

*Determined by Vacuum Distillation (by evaporation if unable to reduce by vacuum).

**For use with Latex Additive only.

TABLE 02612-3

PROPERTIES	AC-1.5		AC-3		AC-5		AC-10		AC-20		AC-40	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Viscosity, 140°F strokes	150	50	300	100	500	100	1000	200	2000	400	4000	800
Viscosity, 275°F strokes	0.7	--	1.1	--	1.4	--	1.9	--	2.5	--	3.5	--
Penetration, 77°F 100 g, 5 sec.	250	--	210	--	135	--	85	--	55	--	35	--
Flash Point, C.O.C., F	425	--	425	--	425	--	450	--	450	--	450	--
Solubility in trichloroethylene, percent	99.0	--	99.0	--	99.0	--	99.0	--	99.0	--	99.0	--
Test on residues from thin film oven test: Viscosity, 140°F stokes	--	450	--	900	--	1500	--	3000	--	6000	--	12000
Ductility, 77°F, 5 cms per min, cms	100	--	100	--	100	--	70	--	50	--	30	--

Spot test. Negative for all grades

=====

- C. A minimum of two percent, by weight, latex additive (solids basis) shall be added to the OA-175 Asphalt or to AC-5 Asphalt when specified in the contract. The latex additive shall be governed by the following specifications:

The latex is to be an anionic emulsion of butadiene-styrene low-temperature copolymer in water, stabilized with fatty-acid soap so as to have good storage stability, and possessing the following properties:

- Monomer ratio, B/S.....70/30
- Minimum solids content.....67%
- Solids content per gal. @ 67%.....5.3 lbs
- Coagulum on 80-mesh screen.....0.01% max
- Type Anti-oxidant.....staining
- Mooney viscosity of Polymer (M/L 4@212F).....100 min.
- pH of Latex.....9.4 - 10.5
- Surface tension.....28-42 dynes/cm²

The finished latex-asphalt blend shall meet the following requirements:

- Viscosity at 140° F, stokes.....1500 max.
- Ductility at 39.2° F. 1 cm. per., min. cm.....100 min.

- A. Asphalt content shall be within the limits noted below:

Table 02612-4

HMAC Type	Percent of Mixture by Weight	Percent of Mixture by Volume
"A"	3.5 - 7.0	8.0 - 16.0
"B"	3.5 - 7.0	8.0 - 16.0
"C"	3.5 - 7.0	8.0 - 16.0
"D"	4.0 - 8.0	9.0 - 19.0
"F"	3.5 - 6.5	8.0 - 16.0

=====

- E. At the time of delivery of each shipment of asphalt, the vendor supplying the material shall deliver to the purchaser certified copies of the test report which shall indicate the name of the vendor, type and grade of asphalt delivered, date and point of delivery, quantity delivered, delivery ticket number, and results of the above-specified tests. The test report shall be certified and signed by an authorized representative of the vendor that the product delivered conforms to the specifications for the type and grade indicated.
- F. Until the certified test reports and samples of the material have been checked by the ENGINEER to determine their conformity with the prescribed requirements, the material to which such report relates and any work in which it may have been incorporated as an integral component will be only tentatively accepted by the Engineer. Final acceptance will be dependent upon the determination of the ENGINEER that the material involved fulfills the requirements prescribed therefor. The certified test reports and the testing required in connection with the reports will be at the expense to the Owner.
- G. Unless otherwise specified in these specifications or in the Supplementary Specifications, the various grades of paving asphalt shall be applied at a temperature range of from 210°F, the exact temperature to be determined by the ENGINEER.
- H. Paving asphalt shall be heated in such a manner that steam or hot oils will not be introduced directly into the paving asphalt during heating. The CONTRACTOR shall furnish and keep on the site, at all times, an accurate thermometer suitable for determining the temperature of the paving asphalt.
- I. HMAC asphalt shall be the grade having the highest penetration, within specified limits, to produce a mix having a maximum stability of the compacted mixtures.
- J. Only one (1) grade of asphalt shall be required unless otherwise shown on the plans or as required by the ENGINEER.

2.02 AGGREGATES:

A. HMAC aggregate will be tested in accordance with the following test:

AASHTO T-30	Mechanic Testing
AASHTO T-27	Passing No. 200 Sieve
AASHTO T-89	Liquid Limit
AASHTO T-96	Los Angeles Abrasion
AASHTO T-104	Soundness (Magnesium Sulfate)
ASTM C-131	Resistance to Degradation
ASTM C-136	Sieve Analysis
ASTM C-2419	Sand Equivalence Value
SDHPT Tex-106-E	Method of Calculating Plasticity Index of Soils
SDHPT Tex-217-F (I & II)	Determination of Deleterious Materials and Decantation Test
SDHPT Tex-203-F	Quality Tests for Mineral Aggregates

B. Aggregates shall have an abrasion of not more than 40 for all course except the non-skid surface course, which shall have an abrasion of not more than 35.

C. When properly proportioned, HMAC aggregate shall produce a gradation which will conform to the limitations for classification for HMAC type shown below, or as directed by the ENGINEER.

D. Course aggregate to be crushed limestone rock or crushed gravel with limestone filler. (Crushed gravel shall be per Highway Department Specifications.)

E. Binder Aggregate to be composed of crushed Limestone screenings.

1. Type "A" - Course Graded Base Course

Percent Aggregate by
Weight or Volume

Passing 2" sieve.....	100
Passing 1-3/4" sieve.....	95 to 100
Passing 1-3/4" sieve, retained on 7/8" sieve.....	16 to 42
Passing 7/8" sieve, retained on 3/8" sieve.....	16 to 42
Passing 3/8" sieve, retained on No. 4 sieve.....	10 to 26
Passing No. 4 sieve, retained on No. 10 sieve.....	5 to 21
Total retained on No. 10 sieve.....	68 to 84
Passing No. 10 sieve, retained on No. 40 sieve.....	5 to 21
Passing No. 40 sieve, retained on No. 80 sieve.....	3 to 16
Passing No. 80 sieve, retained on No. 200 sieve.....	2 to 16
Passing No. 200 sieve.....	1 to 8

2. Type "B" - Fine Graded or Leveling-Up Course
Percent Aggregate by
Weight or Volume
- | | |
|--|-----------|
| Passing 1" sieve..... | 100 |
| Passing 7/8" sieve..... | 95 to 100 |
| Passing 7/8" sieve, retained on 3/8" sieve..... | 21 to 53 |
| Passing 3/8" sieve, retained on No. 4 sieve..... | 11 to 42 |
| Passing No. 4 sieve, retained on No.10 sieve..... | 5 to 26 |
| Total retained on No.10 sieve..... | 58 to 74 |
| Passing No. 10 sieve, retained on No. 40 sieve..... | 6 to 32 |
| Passing No. 40 sieve, retained on No. 80 sieve..... | 4 to 21 |
| Passing No. 80 sieve, retained on No. 200 sieve..... | 3 to 21 |
| Passing No. 200 sieve..... | 1 to 8 |
3. Type "C" - Course Graded Surface Course
Percent Aggregate by
Weight or Volume
- | | |
|---|-----------|
| Passing 7/8" sieve..... | 100 |
| Passing 5/8" sieve..... | 95 to 100 |
| Passing 5/8" sieve, retained on 3/8" sieve..... | 16 to 42 |
| Passing 3/8" sieve, retained on No.4 sieve..... | 11 to 37 |
| Passing No.4 sieve, retained on No.10 sieve..... | 11 to 32 |
| Total retained on No. 10 sieve..... | 54 to 74 |
| Passing No. 10 sieve, retained on No. 40 sieve..... | 6 to 32 |
| Passing No.40 sieve, retained on No.80 sieve..... | 4 to 27 |
| Passing No.80 sieve, retained on No.200 sieve..... | 3 to 27 |
| Passing No. 200 sieve..... | 1 to 8 |
4. Type "D" - Fine Graded Surface Course
Percent Aggregate by
Weight or Volume
- | | |
|--|-----------|
| Passing 1/2" sieve..... | 100 |
| Passing 3/8" sieve..... | 85 to 100 |
| Passing 3/8" sieve, retained on No. 4 sieve..... | 21 to 53 |
| Passing No.4 sieve, retained on No.10 sieve..... | 11 to 32 |
| Total retained on No. 10 sieve..... | 54 to 74 |
| Passing No. 10 sieve, retained on No. 40 sieve..... | 6 to 32 |
| Passing No. 40 sieve, retained on No. 80 sieve..... | 4 to 27 |
| Passing No. 80 sieve, retained on No. 200 sieve..... | 3 to 27 |
| Passing No. 200 sieve..... | 1 to 8 |

5. Type "F" - Fine Graded Surface Course
 Percent Aggregate by
 Weight or Volume

Passing 3/8" sieve.....	100
Passing No. 4 sieve.....	95 to 100
Passing No. 4 sieve, retained on No. 10 sieve.....	58 to 73
Passing No. 10 sieve, retained on No. 40 sieve.....	6 to 26
Passing No. 40 sieve, retained on No. 80 sieve.....	3 to 13
Passing No. 80 sieve, retained on No. 200 sieve.....	2 to 11
Passing No. 200 sieve.....	1 to 8

2.03 PRIME COAT:

- A. Prime coat, when specified on the plans, or as directed by the ENGINEER, shall be in accordance with Section 02610 - Prime Coat, and as specified herein.
- B. Prime coat shall be applied to surfaces of bases at least 12 hours prior to placing the HMAC unless otherwise directed by the ENGINEER.
- C. Asphalt prime shall be applied uniformly at the rate of 0.10 to 0.30 gallon per square yard or as directed by the ENGINEER. It shall be applied only when permitted by the ENGINEER and when the air temperature is not less than 40°F.
- D. In order to prevent lapping at the junction of two applications, the distributor shall be promptly shut off. A hand spray shall be used to touch up all spots unavoidably missed by the distributor.
- E. Immediately prior to application of the asphalt prime, an inspection will be made by the ENGINEER to verify that the base course has been constructed as specified. Also, all loose and foreign material shall be removed by light sweeping. Material so removed shall not be mixed with cover aggregate.
- F. The surface to be primed shall be in a smooth and well-compacted condition, true to grade and cross section, and free from ruts and inequalities.
- G. The pressure distributor used for applying prime coat material shall be equipped with pneumatic tires and shall be so designed and operated as to distribute the prime material in a uniform spray without atomization, in the amount and between the limits of temperature specified. It shall be equipped with a speed tachometer registering feet per minute and so located as to be visible to the truck driver to enable him to maintain the constant speed required for application at the specified rate.
- H. The pressure distributor shall be equipped with a tachometer registering the pump speed, pressure gauge, and a volume gauge. The rates of application shall not vary from the rates specified by the ENGINEER by more than 10%. Suitable means for accuracy indicating at all times the temperatures of the prime material shall be provided. The thermometer well shall be so placed as not to be in contact with a heating tube.

- I. The distributor shall be so designed that the normal width of application shall be not less than 6 feet, with provisions for the application of lesser width when necessary. If provided with heating attachments, the distributor shall be so equipped and operated that the prime material shall be circulated or agitated through the entire heating process.
- J. The asphalt prime coat should preferably be entirely absorbed by the base course and, therefore, require no sand cover. If, however, it has not been completely absorbed prior to the start of placing the asphalt concrete mixture and in the meantime it is necessary to permit traffic thereon, just sufficient sand shall be spread over the surface to blot up the excess liquid asphalt and prevent picking it up under traffic. Also, sand shall be used in amounts deemed necessary by the ENGINEER at intersections and such areas where traffic may pass over the prime coat. Prior to placing the asphalt concrete, loose or excess sand shall be swept from the base. If a sand cover is specified in the Supplementary Specifications or noted on the plans to cover asphalt prime, it shall be applied within 4 hours after the application of said prime coat, unless otherwise ordered by the ENGINEER.
- K. Liquid asphalt shall be prevented from spraying upon adjacent pavements, structures, guard rails, guide posts, culvert markers, trees, and shrubbery that are not to be removed; adjacent property and improvements; and other facilities or that portion of the traveled way being used by traffic.
- L. The CONTRACTOR shall protect the prime coat against all damage and markings, both from foot and other traffic. Barricades shall be placed where necessary to protect the prime coat. If, after prime coat has been applied to the satisfaction of the ENGINEER and has been accepted by him, it is disturbed by negligence of the part of the CONTRACTOR, it shall be restored at his expense to its condition at the time of acceptance. No material shall be placed until the prime coat is in a condition satisfactory to the ENGINEER.

2.04 TACK COAT:

- A. If the asphalt concrete pavement is being constructed directly upon an existing hard-surfaced pavement, a tack coat shall be evenly and uniformly applied to such existing pavement preceding the placing of the asphalt concrete. The surface shall be free of water, all foreign material, or dust when the tack coat is applied. No greater area shall be treated in any one day than will be covered by the asphalt concrete during the same day. Traffic will not be permitted over tack coating.
- B. Tack coat for HMAC shall consist of either rapid curing cut-back asphalt RC-2 diluted by addition of (not to exceed 15 percent by volume) an approved grade of gasoline and/or kerosene; emulsified asphalt, EA-11M diluted with 50 percent water, or a cut-back asphalt made by combining 50 to 70 percent of the asphaltic materials specified for the paving mixture with 30 to 50 percent gasoline and/or kerosene by volume.
- C. Tack coat shall conform to the requirements of Section 02620 - Tack Coat, or as

specified herein.

- D. Application rate shall be 0.10 to 0.15 gallons per square yard as directed by the ENGINEER.
- E. A similar tack coat shall be applied to the surface of any course if, in the opinion of the ENGINEER, the surface is such that a satisfactory bond cannot be obtained between it and the succeeding course.
- F. When required, the contact surfaces of all cold pavement joints, curbs, gutters, manholes, and the like shall be painted with a tack coat immediately before the adjoining asphalt concrete is placed. Asphalt tack coat shall be applied in controlled amounts as shown on the plans or determined by the ENGINEER. Surfaces where a tack coat is required shall be cleaned to the satisfaction of the ENGINEER before the tack coat is applied.

2.05 MINERAL FILLER:

- A. Mineral filler, other than hydrated lime, shall consist of a thoroughly dry stone dust, portland cement or other mineral dust approved by the ENGINEER.
- B. The mineral filler shall be free from foreign or other deleterious matter.
- C. When tested by the method outlined in SDHPT Test Method Tex-200-F (Part 1 or 3), mineral filler shall meet the following gradations by weight:

Passing No. 30 Sieve	95-100%
Passing No. 80 Sieve	75%
Passing No. 200 Sieve	55%

2.06 HYDRATED LIME:

- A. Hydrated lime shall conform with the requirements of ASTM C-207, Type N
- B. Hydrated lime shall be furnished in amounts shown on the plans or as directed by the ENGINEER.

2.07 JOB MIX FORMULA:

- A. A job mix formula based on representative samples, including filler if required, shall be determined by the ENGINEER, or submitted by the CONTRACTOR for approval of the ENGINEER.
- B. The resultant job mix formula shall be within the master range for the specified type of HMAC.
- C. When lime is added, it shall be included in the gradation for establishing job mix formula.
- D. The job mix formula for each mixture shall establish a single percentage of

aggregate passing each required sieve size, and a single percentage of bituminous material to be added to the aggregate and shall provide for 3 to 5% air voids in the resultant design mix. During the mix design process the ENGINEER will consider other factors, in addition to air voids and Marshall stability, such as durability, water resistance and asphalt film thickness when developing the mix design.

- E. After the job mix formula is established, mixtures for the project shall conform thereto within the following tolerances which may fall outside of the specified master range:

Percent by Weight or
Volume as Applicable

Passing 1-3/4" sieve, retained on 7/8" sieve.....	Plus or minus 5
Passing 7/8" sieve, retained on 3/8" sieve.....	Plus or minus 5
Passing 5/8" sieve, retained on 3/8" sieve.....	Plus or minus 5
Passing 3/8" sieve, retained on No. 4 sieve.....	Plus or minus 5
Passing No. 4 sieve, retained on No. 10 sieve.....	Plus or minus 5
Total retained on No. 10 sieve.....	Plus or minus 5
Passing No. 10 sieve, retained on No. 40 sieve.....	Plus or minus 3
Passing No. 40 sieve, retained on No. 80 sieve.....	Plus or minus 3
Passing No. 80 sieve, retained on No. 200 sieve.....	Plus or minus 3
Passing No. 200 sieve.....	Plus or minus 3
 Asphaltic Material.....	 Plus or minus 0.05 by wt or 1.2 by vol.
 Hydrated Lime.....	 Plus or minus 0.3
 Mixing Temperature.....	 Plus or minus 20°F

- F. Asphaltic mixture shall be tested in accordance with SDHPT Test Method Tex-200-4 (Part I or Part III) and shall have the following laboratory values:

	<u>Surface Course</u>	<u>Base Course</u>
Density - Minimum	95%	95%
Maximum	99%	99%
Optimum	97%	97%
 Stability (Hveem)		
Minimum	30%	30%
Maximum	45%	45%
 Stability (Marshall - 75 Blow Briquette)	 1500 lbs.	 1500lbs.
 Voids	 3 - 7%	 4 - 7%

Voids Filled With Asphalt	75 - 85%	65 - 80%
Sand Equivalent	40	40

2.08 EQUIPMENT:

- A. All equipment for the handling of all material, mixing, and placing of HMAC shall be in accordance with the provisions of Texas SDHPT Item 340.

2.09 STOCKPILING, STORAGE, PROPORTIONING AND MIXING:

- A. Stockpiling, storage proportioning and mixing operations shall be in accordance with the Provisions of Texas SDHPT Item 340.

PART 3 - EXECUTION

3.01 WEATHER AND TEMPERATURE LIMITATIONS:

- A. Asphaltic mixture, when placed with a spreading and finishing machine, or the tack coat shall not be placed when the air temperature is 50°F and falling, but may be placed when the air temperature is 40°F and rising.
- B. Asphaltic mixture, when placed with a motor grader, shall not be placed when the air temperature is 60°F and falling, but may be placed when the air temperature is 50°F and rising.
- C. Mat thicknesses of 1½ inches or less shall not be placed when the temperature on which the mat is to be laid is below 50°F.
- D. No tack coat or asphaltic mixture shall be placed when the humidity, general weather conditions and temperature and moisture condition of the base, in the opinion of the ENGINEER, are unsuitable.
- E. If, after being discharged from the mixer and prior to placing, the temperature of the asphaltic mixture is 50°F or more below the temperature established by the ENGINEER, all or any part of the load may be rejected and payment will not be made for the rejected material.

3.02 EQUIPMENT:

- A. Hauling Equipment:
 - 1. Trucks used for hauling asphaltic mixtures shall have tight, clean, smooth metal beds which have been thinly coated with a minimal amount of paraffin oil, lime slurry, tine solution or other approved material to prevent mixture adhesion to the bed.
 - 2. The dispatching of hauling equipment shall be arranged so that all material delivered may be placed and all rolling completed during daylight hours, unless otherwise directed by the ENGINEER.

3. All trucks shall be equipped with a cover of canvas, or other suitable material to protect the mixture from weather or on hauls where the temperature of the mixture will fall below specified level. Use of covers will be as directed by the ENGINEER.

B. Rollers:

1. Pneumatic Tire Roller. This roller shall consist of not less than seven pneumatic tire wheels, running on axles in such manner that the rear group of tires shall cover the entire gap between adjacent tires of the forward group; mounted in a rigid frame; and provided with a loading platform or body suitable for ballast loading. The front axle shall be attached to the frame in such manner that the roller may be turned within a minimum circle. The tire shall afford surface contact pressures up to 90 pounds per square inch or more. The roller shall be so constructed as to operate in both a forward and a reverse direction with suitable provisions for moistening the surface of the tires while operating; and shall be approved by the ENGINEER.
2. Two Axle Tandem Roller. This roller shall be acceptable power-driver, steel-wheel, tandem roller weighing not less than eight tons. It must operate in forward and reverse directions; contain provision for moistening the surface of the wheels while in motion; and shall be approved by the ENGINEER.
3. Three Wheel Roller. This roller shall be an acceptable power-driven, all steel three wheel roller weighing not less than 10 tons. It must operate in forward and reverse directions; contain provisions for moistening the surface of the wheels while in motion; and shall be approved by the ENGINEER.
4. Vibratory Steel Wheel Roller. If approved for use by the OWNER, this roller shall have a minimum weight of six tons. The compactor shall be equipped with amplitude and frequency controls and shall be specifically designed to compact the material on which it is used. It shall be operated in accordance with the manufacturers recommendations.

C. Straight Edges:

1. The CONTRACTOR shall provide an acceptable 16-foot straight-edges for surface testing. Satisfactory templates shall be provided as required by the ENGINEER.

D. Spreading and Finishing Machine:

1. Bituminous pavers shall be self-contained, power-propelled units, provided with an activated screed or a strike-off assembly, heated if necessary, and capable of spreading and finishing courses of bituminous plant mix material in lane widths applicable to the specified typical section and

thickness shown on the plans.

2. The paver shall be equipped with a receiving hopper having sufficient capacity for a uniform spreading operation. The hopper shall be equipped with a distribution system to place the mixture uniformly in front of the screed. Design will be such that no part of the truck weight will be supported by the paver.
3. The screed or strike-off assembly shall effectively produce a finished surface of the required evenness and texture without tearing, shoving or gouging the mixture. When laying mixtures, the paver shall be capable of being operated at forward speeds consistent with satisfactory laying of the mixture. The screed shall be adjustable for both height and crown and shall be equipped with a controlled heating device.
4. The bituminous paver shall be equipped with an automatic leveling device controlled from an external guide. The initial pass for each course shall be made using a paver equipped with a 40-foot minimum external reference, except that this requirement will not apply when asphalt concrete is placed adjacent to portland cement concrete pavement. Subsequent passes may utilize the matching device of one foot minimum length riding on the adjacent lay.

3.03 CONSTRUCTION METHODS:

A. Addition of Hydrated Lime:

1. Hydrated lime shall be added to the entire portion of asphalt concrete aggregate in an enclosed plug mill or other methods approved by the Engineer.
2. The hydrated lime shall be added to the aggregate such that loss of hydrated lime is minimal or nonexistent. Placement of the lime on an open conveyer belt will not be permitted. Placement of the lime on an enclosed belt that does not permit blowing or loss of lime is acceptable.
3. The CONTRACTOR shall provide appropriate weighing devices, approved by the ENGINEER, to assure that the proportionate amounts of hydrated lime are being added to the coarse aggregate, fine aggregate and filler (if required).
4. The addition of the hydrated lime to the aggregate shall be accomplished by Method A or B as follows:

Method A

The hydrated lime shall be added to the entire aggregate portion prior to stockpiling. The lime, aggregate and moisture will be mixed in a pugmill prior to the aggregate being stockpiled. Twenty-five (25) percent by weight of the hydrated lime shall be added to the coarse aggregate and seventy-five (75) percent by weight of the hydrated lime shall be added

to the fine aggregate. If filler is required, the above percentages by weight will be adjusted by the ENGINEER to provide for addition of lime to all aggregate fractions to be incorporated into the PMBP. Minimum moisture content shall be 2 percent by weight for the coarse aggregate and 4 percent by weight for the fine aggregate, at the time the aggregate and lime are mixed.

OR

Method B

Hydrated lime shall be added to the combined aggregate materials in a pugmill immediately after leaving the cold feed and just prior to introduction into the dryer drum or dryer.

5. Minimum moisture content of the combined aggregates shall be 3 percent by weight, at the time the aggregate and lime are mixed.
6. The following parameters are applicable when utilizing Method A or Method B:
 - a) ENGINEER may increase the moisture content of the coarse and fine aggregates or the combination of coarse and fine aggregates to obtain proper coating of the aggregates with hydrated lime and to eliminate dust pollution. The CONTRACTOR will provide a method to positively determine the amount of moisture added to lime-aggregate mix.
 - b) The CONTRACTOR shall provide a method for determining the weight of the lime used in the plant mix bituminous pavement. The method to be used will be approved by the Materials Laboratory Bureau prior to the production of any plant mix bituminous pavement.

B. Spreading and Finishing:

1. The asphalt concrete mixture shall be laid on the approved surface, spread and struck off to the grade and elevation established. It shall be spread and compacted in layers as shown on the plans or as directed by the ENGINEER. Bituminous pavers shall be used to distribute the mixture either over the entire width or over such partial width as may be practicable.
2. The ENGINEER will determine a minimum placement temperature within a range from 220°F to 300°F which will produce the required density. The established placement temperature, which is measured immediately behind the laydown machine, shall not vary more than 20°F.
3. A conventional paver or suitable equipment approved by the ENGINEER may be used to place asphalt concrete material on shoulders depressed from the traveled lanes in order to establish a uniform typical section.

Approval of the equipment used will be based upon the results obtained.

4. The asphalt concrete may be dumped from the hauling vehicles directly into the paving machine or it may be dumped upon the surface being paved and subsequently loaded into the paving machine; however, no asphaltic concrete shall be dumped from the hauling vehicles at a distance greater than 250 feet in front of the paving machine. When asphaltic concrete is dumped first upon the surface being paved, the loading equipment shall be self-supporting and shall not exert any vertical load on the paving machine. Substantially all of the asphaltic concrete dumped shall be picked up and loaded into the paving machine.
5. To achieve, as far as practicable, a continuous operation, the speed of the paving machine shall be coordinated with the production of the plant. Sufficient hauling equipment shall be available to insure continuous operation.
6. The control system shall control the elevation of the screed at each end by controlling the elevation of one end directly and the other indirectly either through controlling the transverse slope or alternately when directed, by controlling the elevation of each end independently, including any screed attachments used for widening, etc. Failure of the control system to function properly shall be cause for the suspension of the asphaltic concrete operations.
7. When dumping directly into the paving machine from trucks, care shall be taken to avoid jarring the machine or moving it out of alignment.
8. All courses of asphaltic concrete shall be placed and finished by means of self-propelled paving machines except under certain conditions or at certain locations where the ENGINEER deems the use of self-propelled paving machines impracticable.
9. Self-propelled paving machines shall spread the asphaltic concrete without segregation or tearing within the specified tolerances, true to the line, grade, and crown indicated on the plans. Pavers shall be equipped with hoppers and augers which will place the asphaltic concrete evenly in front of adjustable screeds without segregation. Screeds shall include any strike-off device operated by tamping or vibrating action which is effective without tearing, shoving or gouging the asphaltic concrete and which produces a finished surface of an even and uniform texture for the full width being paved. Screeds shall be adjustable as to height and crown and shall be equipped with a controlled heating device for use when required.
10. On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impracticable, the mixture shall be spread, raked, fluted and compacted with hand tools. For such areas the mixture shall be dumped, spread and screed to give the required compacted thickness.

C. Compaction:

1. Rolling with the 3-wheel and tandem roller shall start longitudinally at the sides and proceed toward the center of the surface course, overlapping on successive trips by at least half the width of the rear wheels.
2. Alternate trips of the roller shall be slightly different in length.
3. Rolling with a pneumatic tired roller shall be as directed by the ENGINEER.
4. Rolling shall continue when no further compression can be obtained and all roller marks are eliminated.
5. The motion of the roller shall be slow enough at all times to avoid displacement of asphaltic materials. If displacement occurs, it shall be corrected immediately by use of rakes and fresh asphaltic mixtures, where required.
6. The roller shall not be allowed to stand on the surface course when it has not been fully compacted and allowed to cool.
7. To prevent adhesion of the surface course to the roller, the wheels shall be kept thoroughly moistened with water; however, excess water shall not be allowed.
8. All precautions shall be taken to prevent dripping of gasoline, oil, grease, or other foreign substances on the surface or base courses during rolling operations or while rollers are standing.
9. With the approval of the ENGINEER, a vibratory steel wheeled roller may be substituted for the 3-wheel roller and tandem roller.
10. Along forms, curbs, headers, walls and other places not accessible to the rollers, the mixture shall be thoroughly compacted with hot hand tampers, smoothing irons, or with mechanical tampers. On depressed areas, a trench roller may be used or cleated compression strips may be used under the roller to transmit compression to the depressed area.
11. Any mixture that becomes loose, broken, mixed with dirt, segregated, or is in any way defective shall be removed and replaced with fresh hot bituminous mixture, which shall be compacted to conform with the surrounding area. Any area showing excess or deficiency of bituminous material shall be corrected immediately as directed by the ENGINEER.

D. In-Place Density:

1. In-place density shall be required for all mixtures except thin irregular depth leveling courses.

2. Each course, after final compaction, shall have a density of not less than 95 percent of the density developed in the laboratory test method outlined in Texas SDHPT Bulletin C-14.
3. Density shall be determined with a portable nuclear test device in conformity with ASTM D-2950.76.
4. Calibration of the portable nuclear device will be established by the ENGINEER from cut pavement samples tested in accordance with AASHTO T-166 (weight, volume method). The density readings of the cut pavement samples determined in accordance with AASHTO T-166 (weight, volume method), and the density readings of the pavement determined by the portable nuclear test device in conformity with ASTM D 2950 will be correlated by the ENGINEER.
5. Other methods of determining in-place density may be used as deemed necessary by the ENGINEER.
6. It is intended that acceptance density testing will be done while the bituminous mixture is hot enough to permit further compaction if necessary. If the density of an acceptance section does not meet the specified requirements, the CONTRACTOR shall continue the compaction effort until the optimum density is obtained, but rolling for any compactive effort will not be allowed when the temperature of the mix is below 175°F unless authorized in writing by the ENGINEER. Rerolling the paved surface after it has initially cooled will not be allowed.
7. If in-place density tests of the mixture produce a value lower than specified and in the opinion of the ENGINEER is not due to a change in the quality of the material, production may proceed with subsequent changes in the mix and/or construction procedures until in-place density equals or exceeds the specified density.
8. In-place density tests will be provided by the ENGINEER unless otherwise specified.

E. Joints:

1. Placing of the asphalt concrete shall be as continuous as possible. Rollers shall not pass over the unprotected end of a freshly laid mixture unless authorized by the ENGINEER.
2. When plant mix bituminous pavement is placed over plant mix bituminous treated base or when plant mixed seal coat is placed over plant mix bituminous pavement, longitudinal joints shall be staggered at least 6 inches with relation to the longitudinal joints of the underlying course.
3. Transverse joints shall have a two foot or 12:1 minimum taper. Longitudinal joints shall have a one foot or 6:1 minimum taper. All transverse tapers shall be cut and squared off prior to commencing new work. Tapered

longitudinal joints from previous operations shall be cleaned and tack coated if directed by the ENGINEER. All joints shall be completely bonded. The surface of each course at all joints shall be smooth and shall not show any deviations in excess of 3/16 of an inch when tested with a 10-foot straightedge in any direction.

4. When paving under traffic the CONTRACTOR shall plan his daily surfacing operations on a schedule which will result in not more than one (1) day's operation of exposed longitudinal joints. The longitudinal joints shall not have a height greater than two (2) inches and shall not be left exposed longer than 24 hours.

F. Surface Tolerance:

1. Upon completion, the pavement shall be true to grade and cross section. Except at intersections or any changes of grade, when a 16 foot straight edge is laid on the finished surface parallel to the centerline of the roadway, the surface shall not vary from the edge of the straight edge more than 1/16-inch per foot. Areas that are not within this tolerance shall be brought to grade immediately following the initial rolling. After the completion of final rolling, the smoothness of the course shall be checked, and the irregularities that exceed the specified tolerances or that retain water on the surface shall be corrected by removing the defective work and replacing with new material as directed by the ENGINEER at the expense of the CONTRACTOR.

G. Manholes and Valve Covers:

1. Manhole frames and valve covers shall be adjusted prior to placing the surface course.

H. Compacted Thickness of HMAC Surface and Base Courses:

1. Surface Courses. The compacted thickness or depth of the asphaltic concrete surface course shall be as shown on the plans. Where the plans require a depth or thickness of the surface course greater than two inches compacted depth, same shall be placed in multiple courses of equal depth, each of which shall not exceed two inches compacted depth. If, in the opinion of the ENGINEER, an additional tack coat is considered necessary between any of the multiple courses, it shall be applied at the rate as directed.
2. Base Courses. The compacted thickness or depth of each base course shall be as shown on the plans. Where the plans require a depth or thickness of the course greater than 4 inches, same shall be accomplished by constructing multiple lifts of approximately equal depth, each of which shall not exceed these maximum compacted depths. If, in the opinion of the ENGINEER, an additional tack coat is considered necessary between any of the multiple lifts, it shall be applied as hereinbefore specified and at the rate as directed.

I. Pavement Thickness Tests:

1. Pavement Thickness Test. Upon completion of the work and before final acceptance and final payment shall be made, pavement thickness test shall be made by the ENGINEER or his authorized representative unless otherwise specified in the special provisions or in the plans. The number and location of tests shall be at the discretion of the OWNER. The cost for the initial pavement thickness test shall be at the expense of the ENGINEER. In the event a deficiency in the thickness of pavement is revealed during normal testing operations, subsequent tests necessary to isolate the deficiency shall be at the CONTRACTOR's expense. The cost for the additional coring test shall be at the same rate charged by commercial laboratories.

J. Price Adjustment for Roadway Density

1. The payment of the unit price will be adjusted for roadway density as outlined in the following table. The adjustment will be applied on a lot by lot basis for each lift. The adjustment will be based on the average of five density tests. The price adjustment will be applied to the entire asphalt concrete mix which includes the HMAC aggregate, the asphalt cement and the lime.

Average Density % of Lab Density	Percent of Contract Price To Be Paid
Above 95%	100%
94.0 to 94.99	96%
93.0 to 93.99	91%
92.0 to 92.99	85%
Less than 92.00	*

*This lot shall be removed and replaced to meet specification requirements as ordered by the ENGINEER. In lieu thereof, the CONTRACTOR and the ENGINEER may agree in writing that for practical purposes, the lot shall not be removed and will be paid for at 50% of the contract price.

PART 4 - MEASUREMENT AND PAYMENT

4.01 INCIDENTAL WORK:

- A. Prime coat, lime, and tack coat shall not be measured for direct payment, but shall be considered as subsidiary work pertaining to the placing of asphaltic mixtures of the type specified.

4.02 MEASUREMENT:

- A. Hot-mix asphalt concrete material shall be measured by the ton of 2,000

pounds or by the square yard of the type or types used in the completed and accepted work.

- B. Weight shall be determined by a certified scale approved by the OWNER and recorded serially numbered weight tickets, identifying the vehicle and presented to the ENGINEER's representative on the job.

4.03 PAYMENT:

- A. Work performed and materials furnished, as prescribed by this item, measured as provided herein, shall be paid at the unit bid price per ton or square yard for the type or types of hot mix asphalt concrete pavement shown on the proposal.
- B. Unit bid price shall be payment in full for quarrying; furnishing all materials; for all heating; mixing; hauling; cleaning existing base course or pavement; placing asphaltic mixtures; rolling and finishing; and for all labor, tools, equipment and incidentals necessary to complete the work, including the work and materials involved in the application of prime coat and tack coat.

******* END OF SECTION *******

02617 - SEAL COAT

PART 1 - GENERAL

1.01 GENERAL DESCRIPTION OF WORK:

- A. This item shall consist of a wearing surface composed of an application of asphaltic material, covered with aggregate, constructed on existing pavements or the prepared base course surface in accordance with these specifications. This item shall apply to a single or multiple course asphalt surface treatment, otherwise known as a seal coat.

PART 2 - PRODUCTS

2.01 BITUMINOUS MATERIALS:

- A. The bituminous material used for seal coating shall be the type and grade of asphalt cement, cutback and emulsified asphalts, performance-graded asphalt binders, and other miscellaneous asphalt materials as specified on the plans in accordance with the Texas Department of Transportation, 2014 Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges, Item 300 "Asphalts, Oils, and Emulsions".
- B. Contractor and/or supplier to provide all equipment necessary to transport, store, sample, heat, apply, and incorporate asphalts, oils, and emulsions.
- C. Construction requirements shall be in accordance with the Texas Department of Transportation, 2014 Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges, Item 300 "Asphalts, Oils, and Emulsions".

2.02 AGGREGATES FOR BITUMINOUS TREATMENTS:

- A. Aggregates used for seal coating shall be the type, grade, and Surface Aggregate Classification (SAC) as specified on the plans in accordance with the Texas Department of Transportation, 2014 Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges, Item 302 "Aggregates for Surface Treatments", paragraph 302.2. If no SAC is specified on the plans, furnish aggregate with a minimum B Surface Aggregate Classification.
- B. Aggregate Precoating shall be in accordance with the Texas Department of Transportation, 2014 Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges, Item 302 "Aggregates for Surface Treatments", paragraph 302.2.
- C. Equipment for precoating aggregates shall comply with the provisions of the Texas Department of Transportation, 2014 Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges, Item 302

PART 3 - EXECUTION

3.01 WEATHER LIMITATIONS

- A. A single course surface treatment shall not be applied when the air temperature is below 60° F and falling, but may be applied when the air temperature is above 50° F and rising. The air temperature shall be taken in the shade and away from artificial heat. No asphaltic material shall be placed when the temperature of the roadway surface is below 60° F, or when the general weather conditions, in the opinion of the ENGINEER, are not suitable.

3.02 EQUIPMENT

- A. All equipment shall be of a type approved by the ENGINEER. The ENGINEER may require the CONTRACTOR to remove or replace any equipment used in placing surface treatment materials that proves to be unsatisfactory.
- B. DISTRIBUTOR: The distributor shall be a self-propelled pressure type, equipped with an asphaltic material heater and a distributing pump capable of pumping the material at the specified rate through the distributor spray bar. The distributor spray bar shall be capable of fully circulating the asphaltic material. The distributor spray bar shall contain nipples and valves so constructed that the nipples will not become partially plugged with congealing asphaltic material, in order to prevent streaking or irregular distribution of asphaltic material. Distributor equipment shall include a tachometer, pressure gauges, volume measuring devices, and thermometer for reading the temperature of tank contents. A deflector plate shall be used at each end of the spray bar to provide a clean edge and minimize overlapping.

The distributor tank shall have been calibrated within three (3) years from the date it is first used on this project. The tank calibration procedure shall be in accordance with Test Method Tex-922-K, Part 1, and shall be signed and sealed by a registered professional engineer. Unless otherwise shown on the plans, the CONTRACTOR shall provide the tank calibration and shall furnish the ENGINEER an accurate and satisfactory calibration record prior to beginning the work. The ENGINEER may at any time verify calibration accuracy in accordance with Test Method Tex-922-K, Part II, and may perform the recalibration if the calibration is found to be in error.

- C. AGGREGATE SPREADER: A self-propelled continuous-feed aggregate spreader shall be used which will uniformly spread aggregate at the rate specified by the ENGINEER.
- D. ROLLERS: Approved rolling equipment shall be light pneumatic-tire rollers of the self-propelled type and shall be so designed such that a 12 ton load may be obtained by ballast loading. The roller shall be equipped with tires that will afford ground contact pressures to 90 psi or more. Individual tire inflation pressures shall be within 5 psi of each other. The operation load and tire air pressure shall be

within the range of the manufacture's chart. Flat Wheel Rollers shall conform to Section 2780. Pneumatic Tire Rollers shall conform to Section 2782.

- E. SWEEPERS: A rotary, self-propelled power broom shall be acceptable for sweeping existing pavement surfaces.

Vacuum sweepers or other approved equally capable equipment shall be suitable for removing loose aggregate from the compacted Seal Coat.

- F. OTHER: All storage tanks, piping retorts, booster tanks and distributors used in storage or handling asphaltic materials shall be kept clean and in good operation condition at all times. They shall be operated in such manner that there will be no contamination of the asphaltic material. Provide and maintain in good working order, a recording thermometer at the storage-heating unit at all times.

3.03 SURFACE PREPARATION

- A. Surface treatment operations shall not be started until the surface to be treated has been thoroughly cleared of any vegetation and compacted by approved rolling.
- B. Immediately prior to applying bituminous material, the surface to be treated shall be thoroughly cleaned of all dirt and loose material by sweeping with power brooms, hand brooms, compressed air, or other approved methods. All existing raised marking shall be removed daily, as the work progresses, and as approved by the ENGINEER. All vegetation found in the existing pavement shall be destroyed by use of an approved chemical.
- C. Unstable corrugated areas shall be removed and replaced with stable patching materials. Payment for the patching materials will be made at the contract unit price for the various items used unless a reconditioning item is included in the contract.
- D. Building paper shall be placed over all manholes, valve boxes, grates, etc., so as to protect the surfaces from asphaltic materials.

3.04 PRIME COAT

- A. Prime coat, when required, shall be applied to the surface to be treated in accordance with Section 2610.
- B. Surface treatment shall not be applied until prime coat has adequately cured as determined by the ENGINEER.

3.05 APPLICATION OF BITUMINOUS MATERIAL

- A. Bituminous material shall be applied by means of a pressure distributor in a uniform speed over the section to be treated and within a temperature range approved by the ENGINEER. In areas where the use of a distributor is not practical, the

material shall be applied by hand or by other methods approved by the ENGINEER. Areas that are deficient or excessive in the uniform required amount of bituminous material shall be corrected.

- B. The ENGINEER will select the temperature of application based on the temperature-viscosity relationship that will permit application of the asphalt within the limits recommended in the Item, "Asphalts, Oils, and Emulsions" of the Texas Department of Transportation Standard Specifications". The CONTRACTOR shall apply the asphalt at a temperature within 15° F of the temperature selected. The CONTRACTOR shall provide reliable and accurate means for determining asphalt temperature and shall assure that the aggregate distributor is properly calibrated to spread the specified application rate uniformly.
- C. The width of each application of asphaltic material shall be such to allow uniform application and immediate covering with aggregate. The contractor shall be responsible for uniform application of asphaltic material at the junction of distributor loads. Paper or other suitable material shall be used to prevent overlapping of transverse joints. Longitudinal joints shall match lane lines unless otherwise authorized by the ENGINEER. The application of asphaltic material will be measured as necessary to determine the rate of application.
- D. Aggregate shall be immediately and uniformly applied and spread in the same width as the application of asphaltic material. The entire surface shall then be broomed or raked as required by the ENGINEER.
- E. The aggregate shall be rolled for its width with a minimum of two (2) pneumatic tires rollers which shall be maintained in good repair and operating condition. Rolling shall begin as soon as sufficient aggregate is spread to prevent pick-up and shall begin longitudinally at the outside edge of the mat and progress toward the center of the mat, uniformly lapping each preceding pass by at least 2 tire widths of the roller. Rolling shall continue until no more aggregate can be worked into the surface.
- F. After all rolling, the finished surface shall be cleared of any surplus aggregate by the CONTRACTOR by sweeping or raking, as required by the ENGINEER. Until the work has been accepted, additional sweeping shall be required as often as necessary so that loose aggregate does not present a hazard to traffic.
- G. The bituminous distributor, when not spreading, shall be parked so that the spray bar or mechanism does not drop bituminous material on the surface of the traveled way or on the ground.
- H. The CONTRACTOR shall be responsible for the maintenance of the Seal Coat until the work is accepted by the ENGINEER. All holes or failures in the surface shall be repaired by use of additional asphalt and aggregate. All fat or bleeding surfaces shall be covered with approved cover material in such a manner that the asphaltic material will not adhere to or be picked up by the wheels of vehicles.

- I. Surplus materials (including roadway, gutter, sidewalks, etc.) shall be removed and disposed of off the project site by CONTRACTOR
- J. All parkways, private property, and driveways adjacent to the work shall be cleaned of loose aggregate and other debris as produced from Seal Coat operations.
- K. Protect and adjust existing water valve, water meters, and manhole covers so that they remain visible and serviceable. Unless listed as a separate bid item, these items shall be considered incidental to the work herein specified.
- L. Pavement buttons and fire hydrant markers must be protected from asphalt oil during sealing operation. After sealing operation, buttons must again be visible. Method for capping buttons is to be approved by ENGINEER. Unless listed as a separate bid item, these items shall be considered incidental to the work herein specified.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT:

- A. Asphalt Surface Treatment (Seal Coat) will be measured by the square yard (SY) of surface area of completed roadway, for the specified number of courses. Measurement will be from edge to edge of curb and gutter or edge of completed application.

4.02 PAYMENT

- A. Asphalt Surface Treatment will be measured as set forth above and paid for per square yard (SY) complete in place, which shall be full compensation for furnishing all materials, equipment, labor, tools, and incidentals necessary.

***** END OF SECTION *****

02620 - TACK COAT

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK:

- A. Apply asphaltic materials on completed base course after curing of prime coat, on existing pavement, on bituminous surfaces, or on portland cement concrete surface.

1.02 QUALITY CONTROL:

- A. Asphaltic materials supplied for tack coat shall be tested in accordance with applicable ASTM or AASHTO designation noted below.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Tack coat shall be composed of bituminous material of the type and grade specified in the plans or as specified by the ENGINEER.
- B. Unless otherwise specified, tack coat shall be one of the following grades:
 - 1. Penetrating Asphalt 85-100 or 120-150
 - 2. EA-CSS-1 or EA-10S (SS-1) Emulsified Asphalt
 - 3. AC-5 or AC-10 Asphalt

2.02 ASPHALT CEMENT (GRADES RC AND PENETRATING ASPHALT):

- A. Asphalt cement binders shall be uncracked petroleum asphalts and shall be carefully refined, by steam, vacuum, or solvent, from asphaltic or semi-asphaltic base crude petroleum at a temperature not to exceed 700 degrees F. Asphalt cements shall be free from thermal decomposition products and shall not be blended with any materials which have been subjected to cracking or produced from a crude petroleum sources other than that of the original material. The asphalt cement shall not contain residues from non-asphaltic sources. Asphalt cement shall not homogenous, free from water, and shall not foam when heated to 350 degrees F.
- B. Paving asphalt shall be classified by penetration or viscosity and shall conform to the requirements set forth in one of the following tables as designated by the ENGINEER. The CONTRACTOR may supply asphalt meeting the requirements of one of the following tables provided that he obtains prior approval of the ENGINEER and with the provision that once approval has been obtained, that the CONTRACTOR will remain with that grade throughout the project.

TABLE 02620-1

Specification Designation	AASHTO Test Method	ASTM Test Method	85 to 100	120 to 100
Flash Point (Open Cup) Min.	T48	D92	450	450
Penetration of Orig. Sample at 77°F	T49	D5	85 to 100	120 to 150
Thin-Film Oven Loss, Hours at 325°F, % Max.	T179	D1754	0.75	0.75
Test of Residue from Thin-Film Oven Test: % of Orig. Pen., Min.	T49	D5	50	50
Ductility at 77°F, cm. after Loss at 325°F, Min.	T51	D113	100	100
Solubility in CC14 Min.	T44*	None	99.5	99.5
Reaction to Spot Test	T102**	None	-0-	-0-

* Procedure No. 1 with CCl₄ substituted for CS₂.

** Using 85% Standard Naphtha Solvent and 15% xylene.

**TABLE 02620-2
REQUIREMENTS FOR SPECIFICATIONS FOR ASPHALT CEMENT
VISCOSITY GRADED AT 140°F**

	VISCOSITY GRADE			
	AC-5		AC-10	
	Min.	Max.	Min.	Max.
Viscosity, 60°C (140°F), poises	500	+100	1000	+200
Viscosity, 135C (275°F), Cs	200	-	250	-
Penetration 25C (77°F), 100g, 5 sec.	140	-	80	-
Flash Point, COC, C (F)	177(350)	-	219(425)	-
Solubility in trichlorethylene, %	99.0	-	99.0	-
Tests on residue from Thin film				
Oven Test:				
Loss on heating, percent	-	1.0	-	0.5
Viscosity, 60°C (140°F) poises	-	2000	-	2000
Ductility 25°C (77°F), 5cm per minute, cm ₁	100	-	75	-
Spot test (when and as specified) ₂				
with:				
Standard naphtha solvent	Negative for all grades			
Naphtha-Xylene solvent, % Xylene	Negative for all grades			
Heptane-Xylene solvent, % Xylene	Negative for all grades			

₁If ductility is less than 100, material will be accepted if ductility at 15.5°C (60°F) is 100.

₂The use of the spot test is optional. When it is specified, the ENGINEER shall indicate whether the standard naphtha solvent, the naphtha-xylene solvent, or the heptane-xylene solvent will be used in determining compliance with the requirement, and also, in the case of xylene solvents, the percentage of xylene to be used.

2.03 EMULSIFIED ASPHALTS:

- A. Emulsified asphalts shall be composed of a paving asphalt base uniformly emulsified with water and an emulsifying or stabilizing agent. They shall be homogeneous throughout. Emulsified asphalt shall be classified as rapid-setting, medium-setting, or slow-setting type in either anionic or cationic-emulsions.
- B. The emulsified asphalt shall conform to the requirements set forth in the following tables:

* The test requirement for settlement may be waived when the emulsified asphalt is used in less than 5 days' time; or the OWNER may require that the settlement test be run from the time the sample is received until it is used, if the elapse is less than 5 days.

** The 24-h (1-day) storage stability test may be used instead of the 5-day settlement test.

*** The demulsibility test shall be made within 30 days from date of shipment

- C. Unless otherwise specified, the various grades of emulsified asphalt shall be applied at temperatures within the limits specified below, the exact temperature to be determined by the ENGINEER. Emulsified asphalt shall be reheated, if necessary, but at not time after loading into a tank car or truck for transportation from the refinery to the purchaser shall the temperature of the emulsion be raised above 185 degrees F. During all reheating operations the emulsified asphalt shall be agitated to prevent localized overheating. Emulsified asphalt shall not be permitted to cool to a temperature of less than 40 degrees F.

TABLE 02620-5
APPLICATION TEMPERATURE
OF EMULSIFIED ASPHALT

<u>Grade</u>	<u>Mixing</u>	<u>Spraying</u>
<u>RS-1</u>	<u>Not Used</u>	<u>70-140°F</u>
<u>EA-HVRS, EA-CRS-2</u> <u>CRS-1</u>	<u>Not Used</u>	<u>125-185oF</u>
<u>EA-10S, EA-CCS-1</u>	<u>50-160°F</u>	<u>70-140°F</u>
<u>EA-CCS-1</u>	<u>50-160°F</u>	<u>70-140°F</u>

- D. At the time of delivery of each shipment of asphalt, the vendor supplying the material shall deliver to the purchaser certified copies of the test report which shall indicate the name of the vendor, type and grade of asphalt delivered, date and point of delivery, quantity delivered, delivery ticket number, and results of the above specified tests. The test report shall be certified and signed by an authorized representative of the vendor that the product delivered conforms to the specifications for the type and grade indicated.
- E. Until the certified test reports and samples of the material have been checked by the ENGINEER to determine their conformity with the prescribed requirements, the material to which such report relates and any work in which it may have been incorporated as an integral component will be only tentatively accepted by the ENGINEER. Final acceptance will be dependent upon the determination of the ENGINEER that the material involved fulfills the requirements prescribed therefor. The certified test reports and the testing required in connection with the reports will be at the expense to the Contracting Agency.

PART 3 - EXECUTION

3.01 PREPARATION OF SURFACE TO BE TREATED:

- A. Surface to be tacked shall be patched, cleaned and free of dirt, surface moisture, vegetation and any other deleterious materials or irregularities to provide a smooth, uniform surface.
- B. Unstable corrugated areas shall be removed and replaced with suitable patching materials. Patching shall be completed at no cost to the Owner.
- C. The edges of existing pavements adjacent to new surface shall be cleaned to permit adhesion of tack coat.

3.02 WEATHER LIMITATIONS:

- A. Tack coat shall not be applied on a wet surface; during wet weather; after sunset; or when the ambient temperature is below 40°F.

3.03 APPLICATION:

- A. Apply tack coat uniformly with a self-propelled, pressure distributor at a rate of 0.02 to 0.15 gallons per square yard as directed by the ENGINEER.
- B. Roll tack coat with a self-propelled pneumatic tired roller weighing not less than 4 tons without ballast, to evenly distribute asphaltic material. Each tire shall have a contact pressure of not less than 90 pounds per square inch.
- C. Rolling will not be required for emulsified asphalt tack coat.
- D. Rolling will not be completed at no cost to the Owner.
- E. Tack Coat shall be applied in such manner as to offer the least inconvenience to traffic and to permit one-way traffic without pickup or tracking.
- F. In no case shall be surface be tacked extend beyond what can be covered in the same day by surfacing courses.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT:

- A. Asphaltic material for tack coat will be measured at point of delivery on project in gallons at the applied temperature.

4.02 PAYMENT:

- A. Tack coat shall be paid at the contract unit price per gallon.
- B. When not listed as a separate contract pay item, tack coat shall be considered as incidental work, and the cost thereof shall be included in such contract pay item(s) as are provided in the proposal contract.

- C. Compensation, whether by contract pay item or incidental work will be for furnishing all materials, labor, equipment, tools and incidentals required for the work, all in accordance with the plans and these specifications.

***** END OF SECTION *****

02660 - CONCRETE CURB, CURB & GUTTER AND VALLEY GUTTER

PART 1 - GENERAL

1.01 GENERAL DESCRIPTION OF WORK:

- A. This work shall consist of the construction of concrete curb, concrete curb and gutter, concrete gutter or valley gutter, or combination thereof in compliance with these specifications, lines, grades, and details shown on the plans, or as directed by the ENGINEER.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Concrete and manufactured curb and gutter materials shall be subject to inspection and tests at plants and construction sites for compliance with quality requirements.
- B. Concrete curb and gutter or concrete valley gutter shall be constructed with concrete conforming to the provisions of Section 02614 - Portland Cement Concrete Paving, or Class "B" concrete conforming to the requirements of Section 03300 - Cast-In-Place Concrete.
- C. Preformed expansion Joint Filler shall conform to the requirements of AASHTO M-33 or M-153.
- D. Linseed Oil shall conform to the requirements of AASHTO D-260.
- E. Mineral Spirits shall conform to the requirements of AASHTO D-235.

2.02 FOUNDATION:

- A. Concrete curb and gutter or concrete valley gutter shall be placed on an approved foundation conforming to the requirements of the following Specifications:
 - 1. Section 02210 - Subgrade Preparation,
 - 2. Section 02260 - Flexible Base,
 - 3. Section 0223 - Roadway Excavation, Borrow, and Embankment.

PART 3 - EXECUTION

3.01 EXCAVATION:

- A. When required, excavation shall be made to the specified depth, and the base upon which the curb and gutter or valley gutter is to be placed shall be

compacted to a firm, even surface conforming to the requirements of Subsection 2.02 above.

- B. All soft and unacceptable material shall be removed and replaced with material approved by the ENGINEER in conformance with the requirements of Subsection 2.02 above.

3.02 FORMS:

- A. Forms shall be of wood or metal, straight, free from warp, and of such construction that there will be no interference to the inspection of grade or alignment.
- B. All forms shall extend for the entire depth of the curb and gutter and shall be braced and secured sufficiently so that no deflection from alignment or grade will occur during the placing of the concrete. Flexible forms shall be used in curved sections so that the top surface of the forms will form a smooth, continuous arc.

3.03 MIXING AND PLACING:

- A. Concrete shall be proportioned, mixed, and placed in accordance with the requirements of Section 02614 and Section 03300.
- B. Compaction of the concrete placed in forms shall be by vibration or other acceptable methods.
- C. Unless otherwise provided, the exposed surfaces of curbs and gutters shall be finished by belting or with wooden floats. Forms shall be left in place until the concrete has set sufficiently so that they can be removed without injury to the curb and gutter.

3.04 SECTIONS:

- A. Curb and gutter shall be constructed in sections having a uniform length of 20 feet, unless otherwise directed by the ENGINEER. Sections shall be separated by open joints 1/8 inch wide except at expansion joints.

3.05 EXPANSION JOINTS:

- A. Expansion joints shall be formed at the intervals shown on the plans using a performed expansion joints filler having a thickness of 3/4 inch.
- A. When the curb and gutter is constructed adjacent to or on concrete pavement, expansion joints, shall be located opposite or at expansion joints in the pavement.

3.06 CURING

- A. Immediately upon completion of the finishing, the curb and gutter shall be moistened and kept moist for 3 days, or the curb and gutter shall be cured by the use of membrane-forming material. The method and details of curing shall be subject to the approval of the ENGINEER.

3.07 SURFACE TREATMENT:

- A. The surface of concrete curb and gutter or concrete valley gutter shall be treated with a solution of Linseed Oil and Mineral Spirits in accordance with the applicable requirements of Section 03300 - Cast-In-Place Concrete.

3.08 BACKFILLING:

- A. After the concrete has set sufficiently, the spaces in front and back of the curb shall be refilled to the required elevation with material approved by the ENGINEER, and shall be thoroughly tamped in layers of not more than 6 inches.

3.09 SLIP-FORM CONCRETE CURB, CONCRETE CURB AND GUTTER OR CONCRETE VALLEY GUTTER:

- A. Any concrete curb or concrete curb and gutter, except on structures, may be placed using a slip form machine provided that the finished concrete curb or concrete curb and gutter is true to line and grade and the concrete is dense and of the required surface texture.
- B. The concrete shall be of a consistency that it will maintain the shape of the concrete curb or concrete curb and gutter section without support after slip forming.
- C. The top and face of the finished concrete curb or concrete curb and gutter shall be true an straight and the top surface of the concrete curb or concrete curb and gutter shall be of uniform width and free from humps, sags, or other irregularities.
- D. The forming portion of the slip form machine shall be readily adjustable vertically during the forward motion of the slip form machine to provide a variable height of concrete curb or concrete curb and gutter grade when necessary. A grade line gauge or pointer shall be attached to the slip form machine in such a manner that a continual comparison can be made between the concrete curb or concrete curb and gutter grade as indicated by the offset guidelines.
- E. Concrete shall be fed to the slip form machine at a uniform rate. The slip form machine shall be operated under sufficient uniform restraint to forward motion to produce a well compacted mass of concrete free from surface pits larger than 3/16 inch in diameter and requiring no further finishing, other than light brushing with a wet brush. Finishing with a brush application of grout will not be permitted.

- F. Transverse weakened plane and expansion joints shall be constructed at right angles to the line of the concrete curb, concrete curb and gutter, or concrete valley gutter.
- G. Expansion joints may be constructed by sawing through the concrete curb or concrete curb and gutter section to its full depth. The width of the cut shall be such as to admit the joint filler with a snug fit.
- H. The operations of sawing and inserting the joint filler shall be completed before curing the concrete. At the conclusion of the curing period the filler in each joint shall be checked for tightness of fit. The loose filler in any joint shall be mortared in place and cured.
- I. Excavation shall be as per Subsection 2.02 above.
- J. All remaining provisions of Subsection 2.02 above also apply, unless otherwise specified.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT:

- A. Curb and gutter, curb, and valley gutter shall be measured by the linear foot.
 - 1. Curb shall be measured along the front face of the section at the finished grade elevation.
 - 2. Combination curb and gutter will be measured along the face of the curb at the flowline of the gutter.
 - 3. Valley gutter will be measured along the flowline of the gutter.
- B. A deduction in length shall be made for drainage structures, such as catch basins or inlets, in the curb, gutter, or combination thereof.
- C. There will be no direct measurement or payment of materials used to construct curb and gutter, curb or valley gutter.
- D. Excavation or construction of embankment for foundation of curb, valley gutter, or combination curb and gutter will not be measured for payment.

4.02 PAYMENT:

- A. The accepted quantities of curb, valley gutter, and curb and gutter will be paid for at the contract unit bid price per linear foot for each kind and type specified complete in place.
- B. Foundation preparation by excavating or constructing embankment to the required subgrade elevation is considered incidental to the completion of the

work and no direct payment will be made therefore.

- C. Compensation will be for furnishing all materials, labor, equipment, tools and incidentals required for the work, all in accordance with the plans and these specifications.

****** END OF SECTION ******

02670 - MILLING

PART 1 - GENERAL

1.01 GENERAL DESCRIPTION OF WORK

A. The item shall consist of milling the existing pavement to a depth of 1" at the lip of gutter and transition it to match the existing pavement at a minimum width of 5 feet or as specified in the plans. The existing pavement to be milled will either be asphalt, concrete, or brick pavement.

PART 2 - PRODUCTS

2.01 EQUIPMENT

The equipment for removing the pavement surface shall be a self propelled milling machine or other approved equal that is capable of mechanically removing, in either one pass or two passes, the necessary pavement thickness in minimum width of 5 feet. The equipment shall be self-propelled with sufficient power, traction, and stability to maintain accurate depth of cut and slope. The machine shall be equipped with an integral loading and reclaiming process that immediately removes the material being cut from the surface of the roadway and discharges the cuttings into a truck in a single application or pass. The machine shall be equipped with a means to control dust created by the cutting action and shall have a manual system that allows for the depth of cut to be uniformly varied while the machine is in motion, allowing for cuts to be made flush to all inlets, manholes, or other obstructions within the paved area.

Adequate back-up equipment such as mechanical street sweepers, loaders, water, truck, etc., and personnel shall be readily available to keep the flying dust produced by the milling operations down to a minimum and to insure that all cuttings are removed from street surface daily.

Stockpiling of planned material will not be permitted on the project site unless designated by the Engineer.

PART 3 - EXECUTION

3.01 CONSTRUCTION METHODS

Milling should be conducted along all areas as outlined in the plans and as directed by the Engineer.

Milling of the pavement along any curb and gutter section should extend to a depth of 1 inch along the gutter face and taper to match the existing pavement at a minimum width of 5 feet.

In all situations where the existing HMAC surface contacts the curb face, the wedge milling shall include the removal of the existing asphalt covering the gutter up to and along the face of curb.

The wedge milling operations shall be performed in a continuous manner.

The machine shall be equipped with a manual system that allows for the depth of cut to be uniformly varied while the machine is in motion, allowing for cuts to be made flush to all inlets, manholes, or other obstructions within the paved area.

The milled surface shall provide a smooth surface, free from gouges, ridges, oil film, and other imperfections of workmanship and shall have a uniform textured appearance.

The material being cut from the surface of the roadway shall be immediately removed and discharged into a truck after a single pass.

Provision should be made to keep any dust caused as a result of the cutting operations down to a minimal.

PART 4 – MEASUREMENT AND PAYMENT

4.01 MEASUREMENT AND PAYMENT

A. Unless otherwise noted on the bid request, no additional compensation will be made for materials, equipment, or labor required by this item and shall be considered incidental to the other items included in this contract.

END OF SECTION

02780 - FLAT WHEEL ROLLING

PART 1 - GENERAL

1.01 GENERAL DESCRIPTION OF WORK:

- A. This work shall consist of the compaction of subgrade, embankment, flexible base, surface treatments and asphalt surfaces by the operation of approved power rollers as herein specified and as directed by the ENGINEER.

PART 2 - PRODUCTS

2.01 EQUIPMENT:

- A. Embankments and Flexible Bases
 - 1. Power rollers shall be of the 3-wheel, self-propelled type, weighing not less than 10 tons and shall provide a compression on the rear wheels of not less than 325 pounds per linear of wheel width. All wheels shall be flat.
 - 2. The rear wheels shall have a diameter of not less than 48 inches and each shall have a wheel width of not less than 20 inches.
- B. Surface Treatments and Pavements
 - 1. Power rollers shall be the 3-wheel or tandem, self-propelled type, weighing not less than 3 tons nor more than 6 tons. All wheels shall be flat.
 - 2. Rollers shall be equipped with an adequate scraping or cleaning device on each wheel.
 - 3. Rollers used to compact asphalt mixture shall be equipped with a water system which will keep all tires uniformly wet.
 - 4. In lieu of the rolling equipment specified, the CONTRACTOR may, upon written permission from the ENGINEER, operate other compacting equipment that will produce equivalent relative compaction in the same period of time as the specified equipment. If the substituted compaction equipment fails to produce the desired compaction within the same period of time as would be expected of the specified equipment, as determined by the ENGINEER, its use shall be discontinued.
 - 5. Rollers shall be maintained in good repair and operating condition and shall be approved by the ENGINEER.

PART 3 - EXECUTION

3.01 CONSTRUCTION METHODS:

- A. Subgrades, Embankments and Flexible Base

1. The subgrade or embankment layer or the base course shall be sprinkled if directed and rolling with a power roller shall start longitudinally at the sides and proceed towards the center, overlapping on successive trips by at least 1/2 the width of the rear wheel of the power roller.
 2. On superelevated curves, rolling shall begin at the low sides and progress toward the high sides. Alternate trips of the roller shall be slightly different in length.
 3. The rollers, unless otherwise directed, shall be operated at a speed between 2 and 3 miles per hour.
- B. Surface Treatments and Pavements
1. Rolling shall be done to produce a satisfactory surface as called for in surface treatment and pavement items.
 2. The sequence of work shall be as indicated for embankment layer or base course.
 3. The operating speed shall be determined by the CONTRACTOR.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT AND PAYMENT:

- A. No additional compensation will be made for materials, equipment or labor required by this item, but shall be considered incidental to the other items included in the contract.

***** END OF SECTION *****

02782 - PNEUMATIC TIRE ROLLING

PART 1 - GENERAL

1.01 GENERAL DESCRIPTION OF WORK:

- A. This work shall consist of the compaction of embankment, flexible base, surface treatments or pavements by the operation of approved pneumatic tire rollers.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS:

- A. When used on seal coats, asphaltic surface treatments and bituminous mixture pavements, the roller shall be self propelled and equipped with smooth tread tires with 45 psi tire pressure.
- B. The roller shall be so constructed as to be capable of being operated in both a forward and a reverse direction.
- C. When used on bituminous mixture pavements, the roller shall have suitable provisions for moistening the surface of the tires while operating.
- D. When turning is impractical or detrimental to the work and when specifically directed by the ENGINEER, the roller shall be of the self-propelled type.
- E. In lieu of the rolling equipment specified, the CONTRACTOR may operate other compacting equipment that will produce equivalent relative compaction in the same period of time as the specified equipment. If the substituted compaction equipment fails to produce the desired compaction within the same period of time, its use shall be discontinued.
- F. Rollers shall be maintained in good repair and operating condition and shall be approved by the ENGINEER.

2.02 LIGHT PNEUMATIC TIRE ROLLER:

- A. The light pneumatic tire roller shall consist of not less than 9 pneumatic tire wheels, running on axles in such manner that the rear group of tires will cover the entire gap between adjacent tires of the forward group and mounted in a rigid frame and provided with a loading platform or body suitable for ballast loading.
- B. The front axle shall be attached to the frame in such manner that the roller may be turned within a minimum circle.
- C. The pneumatic tire roller under working conditions shall have an effective rolling width of approximately 60 inches and shall be so designed that by ballast loading the total load be varied uniformly from 9,000 pounds or less to 18,000 pounds or more.

- D. The roller shall be equipped with tires that will afford ground contact pressures to 45 pounds per square inch or more. The operating load and tire air pressure shall be within the range of the manufacturer's chart. The roller under working conditions shall provide a uniform compression under all wheels.
- E. Individual tire inflation pressures shall be within +5 psi of each other.
- F. The pneumatic tire roller shall be drawn by either a suitable crawler type tractor, a pneumatic tired tractor, a truck of adequate tractive effort or may be of the self-propelled type and the roller, when drawn or propelled by either type of equipment, shall be considered a light pneumatic tire roller unit.

2.03 MEDIUM PNEUMATIC TIRE ROLLER (TYPE A):

- A. The medium pneumatic tire roller (Type A) shall consist of not less than 7 pneumatic tired wheels, running on axles in such manner that the rear group of tires will cover the entire gap between adjacent tires of the forward group and mounted in a rigid frame and provided with a loading platform or body suitable for ballast loading.
- B. The front axles shall be attached to the frame in such a manner that the roller may be turned within a minimum circle. The pneumatic tire roller, under working conditions, shall have an effective rolling width of approximately 84 inches and shall be so designed that, by ballast loading, the total load may be varied uniformly from 23,500 pounds or less to 50,000 pounds or more.
- C. The roller shall be equipped with tires that will afford ground contact pressures to 80 pounds per square inch or more. Individual tire inflation pressures shall be within +5 psi of each other.
- D. The operating load and tire air pressure shall be within the range of the manufacturer's chart.
- E. The pneumatic tire roller shall be drawn by either a suitable crawler type tractor, a pneumatic tired tractor, a truck of adequate tractive effort or may be of the self-propelled type.
- F. The roller, when drawn or propelled by any type of equipment, shall be considered a medium pneumatic tire roller unit.
- G. The power unit shall have adequate tractive effort to properly move the operating roller at variable uniform speeds up to approximately 5 miles per hour.

2.04 MEDIUM PNEUMATIC TIRE ROLLER (Type B):

- A. The medium pneumatic tire roller (Type B) shall conform to the requirements for Medium Pneumatic Tire Roller (Type A) as specified above, except that the roller shall be equipped with tires that will afford ground contact pressures to 90 psi or more.

PART 3 - EXECUTION

3.01 CONSTRUCTION METHODS:

- A. The embankment layer or the base course be sprinkled if directed and rolling with a pneumatic tire roller shall start longitudinally at the sides and proceed towards the center, overlapping on successive trips by at least 1/2 of width of the pneumatic tire roller.
- B. On super-elevated curves, rolling shall begin at the low sides and progress towards the high sides.
- C. Alternative trips of the roller shall be slightly different in length.
- D. The light pneumatic tire roller shall be operated at speeds between 2 and 6 miles per hour for asphalt surfacing work and all other work.
- E. The medium pneumatic tire roller shall be operated at speeds which produce a satisfactory product.
- F. Sufficient rollers shall be provided to compact the material in a satisfactory manner. When operations are so isolated from one another that 1 roller unit cannot perform the required compaction satisfactorily, additional roller units shall be provided.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT AND PAYMENT:

- A. No additional compensation will be made for materials, equipment or labor required by this item, but shall be considered subsidiary to the various items of the contract.

***** END OF SECTION *****

02784 - TAMPING ROLLING

PART 1 - GENERAL

1.01 GENERAL DESCRIPTION OF WORK:

- A. This work shall consist of the compaction of embankment by the operation of approved tamping rollers as herein specified and as directed by the ENGINEER.

PART 2 - PRODUCTS

2.01 EQUIPMENT:

- A. The tamping rollers shall consist of two metal rollers, drums or shells of 40 inches minimum diameter; each not less than 42 inches in length and unit mounted in a rigid frame in such a manner that each roller may oscillate independently of the other.
- B. Each roller, drum or shell shall be surrounded by metal studs with tamping feet projecting not less than 7 inches from the surface and spaced not less than 6 inches nor more than 10 inches, measured diagonally center to center and the cross sectional area of each tamping foot, measured perpendicularly to the axis of the stud, shall not be less than 5 nor more than 8 square inches.
- C. The roller shall be supplemented with cleaning teeth to provide self cleaning.
- D. The roller shall be so designed that, by ballast loading, the load on each tamping foot may be varied uniformly from 125 to 175 psi of cross sectional area. The load per tamping foot will be determined by dividing the total weight of the roller by the number of tamping feet in 1 row parallel to or approximately parallel to the axis of the roller.
- E. The compression to be provided at any time shall be as directed by the ENGINEER. The tamping roller shall be drawn by suitable power equipment of adequate tractive effort.
- F. Two tamping rollers, consisting of 4 cylinders, conforming to the above prescribed requirements, drawn by approved power equipment, shall be considered a roller unit.
- G. Where turning is impractical or detrimental to the work and when specifically directed by the ENGINEER, 1 tamping roller consisting of 2 cylinders, fastened to the front end of approved power equipment, shall be considered a roller unit.
- H. In lieu of the rolling equipment specified, the CONTRACTOR may, upon written permission from the ENGINEER, operate other compacting equipment that will produce equivalent relative compaction in the same period of time as the specified equipment. If the substituted compaction equipment fails to

produce the desired compaction within the same period of time as would be expected of the specified equipment, as determined by the ENGINEER, its use shall be discontinued.

- I. Rollers shall be maintained in good repair and operating condition and shall be approved by the ENGINEER.

PART 3 - EXECUTION

3.01 CONSTRUCTION METHODS:

- A. This work shall be done only when ordered by the ENGINEER.
- B. The embankment layer or the base course shall be sprinkled if directed and rolling with a tamping roller unit shall start longitudinally at the sides and proceed toward the center, overlapping on successive trips by at least 1/2 of the width of the tamping roller unit.
- C. On superelevated curves, rolling shall begin at the low sides and progress toward the high sides. Alternate trips of the unit shall be slightly different in length.
- D. The tamping roller unit, unless otherwise directed, shall be operated at a speed between 2 and 3 miles per hour.
- E. Sufficient roller shall be provided to compact the material in a satisfactory manner.
- F. The minimum number of rolling units shall be governed by the progress in placing the material to be compacted. The quantity of material placed per hour shall be determined by averaging the total quantity of material placed within any 1 working day.
- G. When operations are so isolated from one another that one roller cannot perform the required compaction satisfactorily, additional rollers shall be provided and operated as directed by the ENGINEER.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT AND PAYMENT:

- A. No additional payment will be made for the materials, equipment or labor required by this item, but shall be considered subsidiary to the various items included in the contract.

***** END OF SECTION *****

02786 - PROOF ROLLING

PART 1 - GENERAL

1.01 GENERAL DESCRIPTION WORK:

- A. This work shall consist of furnishing and operating heavy pneumatic tired compaction equipment for testing the compaction of embankment, subgrade or flexible base.
- B. Proof roll is to be used to locate unstable areas.

PART 2 - PRODUCTS

2.01 EQUIPMENT:

- A. The proof rolling equipment shall consist of not less than 4 pneumatic tired wheels, running on axles carrying not more than 2 wheels and mounted in a rigid frame and provided with loading platform or body suitable for ballast loading.
- B. All wheels shall be arranged so that they will carry approximately equal loads when operating on uneven surfaces.
- C. The proof roller under working conditions shall have a rolling width of from 8 feet to 10 feet and shall be so designed that, by ballast loading, the gross load may be varied uniformly from 25 tons to 50 tons.
- D. The tires shall be capable of operating under the various loads with variable air pressures up to 150 pounds per square inch. The operating load and tire pressure shall be within the range of the manufacturer's chart as directed by the ENGINEER.
- E. The proof roller shall be drawn by a suitable crawler type tractor or rubber tire tractor of adequate tractive effort or may be of self-propelled type. There shall be a sufficient quantity of ballast available to load the equipment to a maximum gross weight of 50 tons.
- F. Rubber tired tractive equipment shall be used on base courses.
- G. Other type tractive equipment may be used on embankment subgrade.
- H. The heavy pneumatic tire roller unit shall be capable of turning 180 degrees in the crown width.
- I. In lieu of the rolling equipment specified, the CONTRACTOR may, upon written permission from the ENGINEER, operate other equipment that will produce equivalent results as the specified equipment. If the substituted equipment fails to produce the desired results as would be expected of the specified equipment as determined by the ENGINEER, its use shall be discontinued.

PART 3 - EXECUTION

3.01 CONSTRUCTION METHODS:

- A. This work shall be done to proof all prepared subgrades and flexible base courses or as directed by the ENGINEER.
- B. On embankment compaction, each layer will be placed to specified thickness at optimum moisture and compacted with conventional equipment to comply with the requirements of the governing embankment item.
- C. Prior to placing the overlaying course, the layer shall be proof rolled as directed by the ENGINEER.
- D. When the operation of the proof rolling unit shows an area to be unstable or nonuniform, such area shall be brought to satisfactory stability and uniformity by additional compaction, by removal of unsuitable materials or replacement with suitable materials and recompaction.
- E. The surface tested shall then be checked for conformity with line and grade and any irregularities corrected.
- F. Roller shall be operated at speeds between 2 and 6 miles per hour or as directed by the ENGINEER.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT AND PAYMENT:

- A. No additional payment will be made for the materials, equipment or labor required by this item, but shall be considered subsidiary to the various items included in the contract.

***** END OF SECTION *****

03300 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 GENERAL DESCRIPTION OF WORK COVERED:

- A. Mixing, placing, finishing and providing all related services necessary to construct all cast-in-place concrete work indicated on plans.

1.02 QUALITY ASSURANCE:

- A. Comply with the latest published edition of the American Concrete Institute (ACI) and American Society of Testing and Materials (ASTM) standards and codes:
 - 1. ACI 315 - Manual of Standard Practice of Detailing.
 - 2. ACI 318 - Building Code Requirements for Reinforced Concrete.
 - 3. ACI 347 - Recommended Practice for Concrete Formwork.
 - 4. ASTM A36 - Structural Steel.
 - 5. ASTM C33 - Concrete Aggregates.
 - 6. ASTM C39 - Concrete Strength of Molded Concrete Cylinders.
 - 7. ASTM C94 - Ready-Mixed Concrete.
 - 8. ASTM C143- Slump of Portland Cement Concrete.
 - 9. ASTM C150- Portland Cement.
 - 10. ASTM C309- Liquid Membrane-Forming Compounds for Curing Concrete.
 - 11. ACI 304 - Recommended Practice for Measuring, Mixing, Transportation and Placing Concrete.
 - 12. ACI 301 - Specification for Structural Concrete for Building.
- B. Submit compliance submittals as specified in Division 1, including but not limited to the following: bar schedule, bar details, shop drawings including size and location of openings, waterstops, joint systems and curing method.
- C. Submit proposed concrete mix proportions to ENGINEER prior to placing concrete.

PART 2 - PRODUCTS

2.01 PORTLAND CEMENT:

- A. Type I, Type II or Type III conforming to ASTM C150 as modified by Texas State Department of Highways and Public Transportation, 1982 Standard Specifications.
- B. Type I or II cement may be used unless Type II is specified.
- C. Except when Type II specified, Type III may be used when the anticipated air temperature for the succeeding 12 hours will not exceed 60o F.
- D. Type III may be used in all pre-cast pre-stressed concrete except in piling when Type II cement is required for substructure concrete.
- E. All cement used in a monolithic placement shall be of the same type.
- F. May be either bagged or bulk. Partially set or caked cement will be rejected.
- G. All types of cements shall be "low-alkali" cements.

2.02 WATER:

- A. Clear, fresh, free from injurious amounts of oil, alkaline, acid or organic matter or other deleterious substances and shall not contain more than 1000 parts per million of chlorides as Cl nor more than 1000 parts per million of sulfates as SO₄.
- B. Water of known potable quality requires no testing. Other sources shall meet the requirements of AASHTO T-26.
- C. Water shall have a pH of not less than 4.5 or more than 8.5.

2.03 FINE AGGREGATE:

- A. Natural sand, manufactured sand or a combination of the two, with or without mineral filler.
- B. The sand, or mixture of sand, comprising a single fine aggregate, shall consist of clean, hard, durable, uncoated grains and shall be essentially free from clay lumps, salt or alkali, and other foreign material.
- C. The maximum permissible percentage, by weight, of deleterious substances shall not exceed the following:

Material removed by decantation	3.0%
Other deleterious substances such as coal, shale, coated grains and soft flaky particles	3.0%

An additional loss of 2% by decantation may be allowed, provided this new

additional loss is material of the same quality as specified for fine aggregate or mineral filler.

D. Gradation, percent of weight retained:

Sieve Size	% Retained
3/8 inch	0
No. 4	0 - 5
No. 8	0 - 20
No. 16	15 - 50
No. 30	35 - 75
No. 50	65 - 90
No. 100	90 - 100
No. 200	97 - 100

E. Fineness Modulus: for Grade 1 only - 2.3 minimum, 3.1 maximum.

F. Mineral filler:

1. May be added upon written authorization of ENGINEER.
2. Shall be stone dust or clean crushed sand, or other approved inert material.
3. Shall not exceed 5% of the fine aggregate.
4. Shall meet the following requirements:

Passing No. 30 sieve	95 to 100%
Passing No. 100 sieve	70 to 100%

2.04 COARSE AGGREGATE:

- A. Crushed stone, gravel, crushed gravel, crushed blast furnace slag or a combination of these.
- B. Gravel and crushed gravel shall consist of clean, hard durable particles, free from adherent coating, thin or elongated pieces, soft or disintegrated particles, dirt, organic or deleterious substances, salt or alkali, and other foreign material.
- C. Crushed stone shall consist of the clean, dust free product resulting from crushing of stone. There shall be no adherent coatings, clay, loam organic or deleterious substances, salt or alkali, and other foreign material.
- D. The maximum permissible percentage, by weight, of deleterious substances shall not exceed the following:

Material removed by decantation	1.0%
Shale, slate or other similar material	1.0%
Clay lumps	0.25%
Soft fragments	3.0%
Other deleterious substances, including friable, thin, elongated or laminated pieces	3.0%
The sum of all deleterious substances, exclusive of material removed by decantation, shall not exceed by weight	5.0%

E. Course aggregates shall have a percent wear of not more than 45 when tested in accordance with Test Method Tex-410-A.

F. Gradation, percent of weight retained on:

Grade No. 1 - Maximum Nominal Size 2 1/2 in. (63 mm)

Sieve	Percentage Retained
2 1/2 in.	0%
2 in.	0 - 20%
1 1/2 in.	15 - 50%
3/4 in.	60 - 80%
No. 4	95 -100%

Grade No. 2 - Maximum Nominal Size 1 1/2 in. (37.5 mm)

Sieve	Percentage Retained
2 in.	0%
1 1/2 in.	0 - 5%
3/4 in.	30 - 65%
3/8 in.	70 - 90%
No. 4	95 -100%

Grade No. 3 - Maximum Nominal Size 1 in. (25 mm)

Sieve	Percentage Retained
1 1/2 in.	0 - 5%
3/4 in.	10 - 40%
1/2 in.	40 - 75%
No. 4	95 - 100%

Grade No. 4 - Maximum Nominal Size 3/8 in. (9.5 mm)

Sieve	Percentage Retained
1/2 in.	0 - 5%
3/8	5 - 30%
No. 4	75 -100%

- G. Gradation Requirements - maximum size of aggregate for structural concrete shall not exceed three inches, and shall be reduced in size to meet the following conditions:
1. One-sixth of the least dimension between forms of that part of the structure in which concrete is to be placed; and
 2. Three-fourths of the clear space between reinforcement.
 3. The maximum size aggregate is defined as the clear space between the sides of the smallest square openings through which 95 percent of the weight of the aggregate can be passed.
 4. Unless otherwise noted or restricted by above Grade No. 2, gradation shall be used.

2.05 PIT-RUN AGGREGATE:

- A. Pit-run aggregate is the natural gravel and sand obtained from pits without the addition of other fine or coarse aggregates, and shall consist of hard, durable, uncoated pebbles or stone particles mixed with sand.
- B. Pit-run aggregate shall be free from lumps of clay and injurious amounts of dust, shale, soft or flaky particles, salt and alkali.
- C. Pit-run aggregate shall be well graded from course to fine when tested by standard laboratory methods and shall meet the following minimum requirements for percentages by weight:
- | | |
|--------------------------|------------|
| Retained on 1/4 in sieve | 55% to 60% |
|--------------------------|------------|
- D. Pit-run aggregate shall not be used for high-strength concrete of 3000 psi and above.
- E. Pit-run aggregate may be used only for concrete cushion, cradle and protection for pipe.

2.06 ADMIXTURES:

- A. Concrete admixtures shall comply with Section 03320.

2.07 REINFORCING STEEL:

- A. Reinforcing steel shall comply with Section 03330.

2.08 CURING MATERIALS:

- A. Liquid Membrane: white pigmented chlorinated rubber, ASTM C309.

- B. Liquid Membrane: resin base, clear compound, permitting application of paint, Servicised Product Corp. - Code 2802 or equal.
- C. Plastic Film: white pigmented, 0.00085" (minimum) thick.
- D. Burlap: jute fabric, lean, free of impurities.
- E. Surface Hardener: gray crystal, acidic fluosilicate base, slightly hygroscopic chemical surface hardener, SIKA Hardener, Sika Chemical Corp. or equal.

2.09 JOINT MATERIALS:

- A. Joint Sealer: hot poured, non-extruding, elastic, ASTM D1190.
- B. Preformed Expansion Joint Filler: non-extruding, bituminous fiber, ASTM D1751.

2.10 WATERSTOP:

- A. Polyvinyl chloride or rubber, centerbulb.
- B. Size to suit joints, minimum 6".

2.11 FORM MATERIALS:

- A. Use plywood, metal, metal framed plywood faced or other acceptable panel-typed material.
- B. Coat forms with non-bonding, non-staining commercial compounds.

2.12 MOISTURE BARRIER:

- A. Polyethylene sheet, minimum 8 mil., ASTM E154.

2.13 CONCRETE MIX DESIGN AND CONTROL:

- A. Submit not less than 10 days prior to the start of concreting operations, to the ENGINEER.
 - 1. Mix design, using a course aggregate factor acceptable to the Engineer.
 - 2. Sufficient samples of all materials to be incorporated into the mix for testing.
 - 3. Full description of the source of supply of each material component.
- B. Course aggregate factor:
 - 1. Not more than 0.82 when voids less than 48%.

- 2. Not more than 0.85 when voids exceed 48%.
- 3. Not less than 0.68.
- C. No changes or deviations from proportions or sources of supply without approval of ENGINEER.
- D. No concrete may be placed on the job site until the mix design has been approved by ENGINEER in writing to the CONTRACTOR.

2.14 CONCRETE QUALITY:

- A. Consistency:
 - 1. Mortar shall cling to the course aggregate.
 - 2. The aggregate shall not segregate during transport.
 - 3. The concrete and mortar shall show no free water when removed from the mixer.
- B. The consistency should allow the completion of all finishing operations with the addition of water to the surface.
- C. The concrete shall be uniform, workable, cohesive, possess satisfactory finishing qualities and be of the stiffest consistency that can be placed and vibrated into a homogenous mass.
- D. Excessive bleeding shall be avoided.

E. Slump requirements shall be as follows:

Structural Concrete	Avg. Slump	MaxSlump
(a) Cased Drilled Shafts and Thin-walled Sections (9 inches or less) . . .	4	5
(b) Slabs, Caps, Column, Pipers, Wall Sections Over 9 inches, etc.	3	4
(c) Slip Form Paving	1/2	2
(d) Underwater or Seal Concrete	5	6
(e) Rip-Rap, Curb, Gutter and Other Miscellaneous Concrete (As Specified by ENGINEER)		

NOTE: No concrete shall be permitted with slump in excess of the maximum shown. Any concrete mix failing to meet the above consistency requirements, although meeting the slump requirements shall be considered unsatisfactory; and the mix shall be changed to correct such unsatisfactory conditions.

F. The concrete shall comply with Table 1 below:

TABLE 1 - CLASSES OF CONCRETE

Class Of Concrete	Min.-Max. SX.Cement per C.Y.	Min. Comp. Strength 28-day psi ****	Min. Beam Strength 7-day psi (c)(4)	Max. Water Cement Ratio Item 2.1.1.	Coarse Aggr. No.
A	5.0	3000	500	6.5	2-3-4
B	4.0	2000	330	8.0	2-3-4
C*	6.0	3600	600	6.0	1-2-3**
D	3.0	1500	250	11.0	2-3-4
E	6.0	3000	500	7.0	2-3
F	6.5	4200	700	5.5	2-3
H***	6.5-8.0	As specified on plans	N.A.	5.5	3

*Entrained Air.

**No. 1 course aggregate may be used in foundations only (except cased drilled shafts).

***Prestressed Concrete.

****ASTM C 293 (Center Point)

2.15 GROUT

A. Non-Shrink:

1. Use pre-mixed non-shrink, Embeco Pre-Mixed Grout or Embeco Pre-Mixed Mortar by Master Builders Company or equal.
2. Keep water to a minimum for placing by the dry packing method.

B. Grout for Bonding:

1. 1 part cement to 1 1/2 parts sand by weight.
2. Keep water to a minimum.

PART 3 - EXECUTION

3.01 SUBGRADE:

- A. Insure subgrade is true to line and grade and compacted as specified.
- B. Fill and recompact any ruts or depressions.
- C. Check cross section with a template.
- D. Place moisture barrier or moisten subgrade prior to placing of concrete. Method to be approved by the ENGINEER.

3.02 FORMS:

- A. Provide forms for all concrete work including footings and base slabs.
- B. Construct forms so that completed concrete will conform to shapes, lines, grades and dimensions indicated and required.
- C. Forms shall be true, plumb and level with reasonably tight joints. Adequately support and brace forms.
- D. Place anchors, inserts, bolts, sleeves and other devices indicated or required for the various portions of all the work.
- E. Oil temporary forms with non-staining form oil before reinforcing steel is placed.
- F. Rough form finish as defined by ACI 301 permitted for concealed concrete.
- G. Smooth form finish as defined by ACI 301 permitted for concealed concrete.
- H. Provide 3/4 inch chamfer on exposed corners and edges, and 1-foot below ground level.

3.03 REMOVAL OF FORMS:

- A. Do not remove forms or supports until concrete has acquired sufficient strength to safely support its own weight and the superimposed loads.
- B. Remove formwork for columns, walls, beam sides and other parts not supporting the weight of the concrete as soon as the concrete has hardened sufficiently to resist damage from removal operations.
- C. Formwork for slabs, beam soffits and other parts supporting the weight of the concrete shall remain in place until the concrete has reached its specified 28-day strength.
- D. Protect concrete from damage prior to acceptance.
- E. Prohibit traffic until concrete is at least 10 days old.
- F. Cure areas previously covered by forms.

3.04 MIXING CONCRETE:

- A. Maintain all equipment, tools, and machinery used for hauling materials and performing any part of the work to insure completion of the work underway without excessive delays for repairs or replacement.
- B. Mixing shall be done in a mixer of adequate size and type to produce uniform distribution of the material throughout the mass.

- C. The mixer shall have a plate affixed showing the manufacturer's recommended operating data and it shall be operated within the speed and capacity limits stated thereon.
- D. The absolute volume of the concrete batch shall not exceed the rated capacity of the mixer.
- E. The entire contents of the drum shall be discharged before any materials are placed.
- F. Improperly mixed concrete will not be placed.
- G. The mixing time shall be in accordance with the recommendations of the mixer manufacturer.
- H. Transit Mix Concrete:
 - 1. Sufficient transit mix equipment shall be assigned exclusively to the project as required for continuous operation.
 - 2. Satisfactory evidence shall be furnished so that the delivery of concrete shall be continuous at regular and uniform intervals, without stoppage or interruption.
 - 3. Concrete shall not be placed on the job after a period of 1 hours after the cement has been placed in the mixer, with mixer turning; 30 minutes without mixer tuning.
- I. Continuous Volumetric Mix Concrete:
 - 1. A mobile, continuous, volumetric mixer of the rotating puddle type may be used for when approved by ENGINEER.
 - 2. Mixers shall be designed to receive all the concrete ingredients, including admixtures, required by the mix design in a continuous uniform rate and mix them to the required consistency before discharging.
 - 3. The mixers shall have adequate water supply and metering devices.
 - 4. Calibration of these mixers will be required.

3.05 PLACING CONCRETE:

- A. The minimum temperature of all concrete at the time of placement shall not be less than 50° F.
- B. Clean transporting equipment, reinforcing and embedded items before placing concrete.

- C. Batch trucks or paving equipment not permitted on prepared subgrade unless authorized by the ENGINEER based on actual job conditions.
- D. Place no concrete until after inspections of forms by ENGINEER.
- E. The maximum time interval between the addition of cement to the batch, and the placing of concrete in the forms shall not exceed the following:

Air or Concrete Temperature	Maximum Time
Non-agitated Concrete	
80° F or above (26.6° C)	15 minutes
35° F or 79° F (1.6 to 26.1° C)	30 minutes
Agitated Concrete	
90° F or above (32.2° C)	45 minutes
75° F to 89° F (23.9 to 31.6° C)	60 minutes
35° F to 74° F (1.6 to 23.3° C)	90 minutes

- F. Prevent segregation during placing.
- G. Consolidate flat work with one pass of mechanical vibrator moving parallel to centerlines. Unusual sections and widths may be hand puddled and finished.
- H. Place concrete continuously so that each pour unit will be monolithic in construction and will terminate at expansion, contraction or construction joint. Permit not more than 30 minutes between depositing adjacent batches.
- I. Place slab concrete over membrane waterproofing before waterproofing has become damaged or dirty.
- J. Concrete placement will not be permitted when impending weather conditions will impair the quality of the work.
- K. Slope horizontal surfaces of exterior concrete for drainage.
- L. Deposit concrete in forms in horizontal layers not deeper than 24 inches. Avoid inclined construction joints. Place each layer while preceding layer is still plastic to avoid cold joints.
- M. Consolidate concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI 309.
- N. Do not use vibrators to transport concrete inside of forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to penetrate placed layer of concrete and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. Limit vibration to time necessary to

consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.

3.06 PLACING CONCRETE IN WATER:

- A. Concrete shall be deposited in water only when specified on the plans or with written permission of the ENGINEER.
- B. The forms or cofferdams shall be sufficiently tight to prevent any water current passing through the space in which the concrete is deposited.
- C. Pump will not be permitted during the concrete placing, nor until it has set for at least 36 hours.
- D. The concrete shall be placed with a tremie, closed bottom-dump bucket or other approved method.
- E. The concrete shall not be allowed to fall freely though the water nor shall it be disturbed after it has been placed. Its surface shall be kept approximately level during placement.
- F. The tremie shall consist of a water-tight tube 14-inches or less in diameter. It shall be constructed so that the bottom can be sealed and opened after it is in place and fully charged with concrete. It shall be supported so that it can be easily moved horizontally to cover all the work area and vertically to control the concrete flow. The lower end of the tremie shall be submerged in the concrete at all times.
- G. Bottom-dump buckets used for underwater placing shall have a capacity of not less than one-half cubic yard. It shall be lowered gradually and carefully until it rests upon the concrete already placed and raised very slowly during the upward travel; the intent being to maintain still water at the point of discharge and to avoid agitating the mixture.
- H. The placing operations shall be continuous until the work is complete.
- I. Unless otherwise specified all concrete placed under water, except seal concrete, shall contain an additional sack of cement per cubic yard.

3.07 JOINTS:

- A. CONTRACTOR:
 - 1. Extend entirely across flat slabs at locations shown.
 - 2. Location where not shown; maximum spacing is:
 - a. Driveways: 10'.
 - b. Sidewalks: 4'.
 - c. Other flat slabs: 20 times slab thickness.

3. Saw depth not less than 1/4 slab thickness.,
- B. Expansion:
1. Install where shown on the plans.
 2. Location where not shown: all structures and features which project through, into or against slab.
 3. Install according to manufacturer's recommendations, set material securely before placing concrete.
 4. Install 1 inch width unless shown otherwise.
- C. Filling Joints:
1. Fill not later than 14 days after sawing.
 2. Fill immediately following cleaning.
 3. Fill to 1/8" of surface.
 4. Remove excess while material is still pliable.
 5. Refill low areas where necessary.
 6. Omit filling sidewalk joints.

3.08 FINISHING EXTERIOR FLAT WORK:

- A. Strike off and float as required.
- B. Check surface with ten foot straight edge, maximum variance allowed - 1/8".
- C. Drag concrete surface longitudinally with double thickness burlap drag after completion of straight edging unless noted otherwise.
- D. Use edger on edges of slab.
- E. Use hand finishing only when approved by ENGINEER.

3.09 FINISHING OTHER CONCRETE:

- A. Interior floors: smooth, steel-trowled finish; use edger on exposed edges. Grind smooth defects which would telegraph through applied finish flooring.
- B. Exterior walks and steps lightly broomed finish transverse to traffic flow; use edger on exposed edges.

C. Other Surfaces:

1. Remove fins, projections and loose material.
2. Clean surfaces of form oil.
3. Patch honeycomb, aggregate pockets, voids and holes as follows:
 - a. Chip out until sound concrete is exposed to minimum depth of 1 inch.
 - b. Prepare patching mortar with approximately two parts of normal Portland Cement, one part white cement, nine parts fine aggregate; vary proportions of aggregate as necessary to match color of adjacent concrete.
4. Fill holes left by form ties to within 1 inch of surface with non-shrink grout. Fill remainder with patching mortar specified hereinbefore.
5. Apply grout-cleaned finish to all exposed vertical surfaces. Wet surface and rub grout on surfaces with rubber or cork float. Scrape off excess grout and finish with brick rubbing or as approved by ENGINEER.

D. Coordinate required finish with ENGINEER.

3.10 CURING:

- A. CONTRACTOR shall inform the ENGINEER fully of the methods and procedures proposed for curing; shall provide proper equipment and material in adequate amounts; and shall have approval of the proposed method, equipment and material prior to placing concrete.
- B. All concrete shall be cured for a period of 4 curing days except as noted herein.

EXCEPTIONS TO 4-DAY CURING

<u>Description</u>	<u>Required Curing</u>
Upper Surfaces of Bridge Roadway, Median and Sidewalk Slabs and Top Slabs of Direct Traffic Culverts	8 Curing Days

A curing day is defined as a calendar day when the ambient temperature, taken in the shade away from artificial heat, is above 50 degrees Fahrenheit (10°C) for at least 19 hours, or the ambient temperature is 50 degrees or less; and if satisfactory provisions are made to maintain the temperature at all surfaces of the concrete above 40 degrees Fahrenheit (4.4°C) for the entire 24 hours.

- C. Form Curing: when forms are left in contact with the concrete, other curing methods shall not be required except for cold-weather protection.
- D. Water Curing: all exposed surfaces of the concrete shall be kept wet continuously for the required curing time. The water used for curing shall meet requirements for concrete mixing water.
1. Wet Mat:
 - a. Cotton mats shall be used for this curing method. The mats shall not be placed in contact with the concrete until such time that damage shall not occur to the surfaces
 - b. Damp burlap blankets made from 9-ounce stock may be placed on the damp concrete surface for temporary protection prior to the application of the cotton mats.
 - c. The mats may be placed dry and wetted down after placement.
 - d. Mat curing, except for continuous placements, shall commence not later than three hours after finishing of the roadway slab.
 - e. The mats shall be weighted down adequately to provide continuous contact with all concrete surfaces where possible.
 - f. The surfaces of the concrete shall be kept wet for the required curing time.
 - g. Surfaces which cannot be cured by contact shall be enclosed with mats, anchored positively to the forms, or to the ground, so that outside air cannot enter the enclosure. Sufficient moisture shall be provided inside the enclosure to keep all surfaces of the concrete wet.
 2. Water Spray. This method shall be accomplished by overlapping sprays or sprinklers, so that all unformed surfaces are kept continuously wet.
 3. Ponding. This method requires the covering of the surface with a minimum of two inches (5 cm) of clean granular material, kept wet at all times; or water to a minimum depth of one inch (2.5 cm). Satisfactory provisions shall be made to provide a dam to retain the granular material or water.
- E. Membrane Curing:
1. Unless otherwise shown on the plans, Type 2 membrane curing

compound may be used where permitted.

2. Membrane shall be applied in a single, uniform coating at the rate of coverage recommended by the manufacturer and as approved by the ENGINEER, but not less than nine gallons per 210-feet (.0038M3 63M) of area. Tests for acceptance shall be at this specified rate.
3. Membrane curing shall not be applied to dry surfaces; but shall be applied to horizontal surfaces just before free moisture has disappeared.
4. Formed surfaces and surfaces which have been given a first rub shall be dampened and shall be moist at the time of application of the membrane.

STRUCTURE UNIT DESCRIPTION	<u>REQUIRED</u>		<u>PERMITTED</u>	
	Water for Complete Curing	Membrane for Interim Curing	Water for Complete Curing	Membrane for Interim Curing
1. Upper surfaces of bridge roadway; median, and sidewalk slabs; top slabs of direct traffic culverts; top surface of any concrete unit upon which concrete is to be placed and bonded at a later interval (stub walls, risers, etc.). Other super-structure concrete (curbs wing-walls, parapet walls, etc.)	X	X (Resin Basin)		
2. Top surface of precast and/or prestressed piling	X	X		
3. All substructure concrete, culverts, box sewers, inlets, man-holes, retaining walls, riprap.			*X	*X

*Polyethylene sheeting or burlap polyethylene mats fastened to prevent outside air from entering shall be considered equivalent to water or membrane curing per this item.

5. When membrane is used for complete curing, the film shall remain unbroken for the minimum curing period specified. Membrane which is damaged shall be corrected immediately by reapplication of membrane.

3.11 TESTING:

- A. Furnish at least three cylinders or beams from each 40 cubic yard, or portion there of for test purposes unless otherwise directed by ENGINEER. Test one cylinder at 7 days, test second cylinder at 28 days and test third cylinder only if needed for confirmation of compression strength.

3.12 MISCELLANEOUS CONCRETE ITEMS:

- A. Filling-in: fill-in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Use non-shrink grout as herein specified, to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.
- B. Equipment bases and foundations: provide machine and equipment bases and foundations, as shown on drawings. Set anchor bolts for machines and equipment to template at correct elevations, complying with certified diagrams or templates of the manufacturer furnishing machines and equipment. Use non-shrink grout as shown on plans.
- C. Steel pan stairs: provide concrete fill for steel pan stair treads and landing and associated items. Cast-in safety inserts and accessories as shown on drawings. Screed, tamp and finish concrete surfaces as scheduled.
- D. Reinforced masonry: provide concrete grout for reinforced masonry lintels and bond beams where indicated on drawings and as scheduled. Maintain accurate location of reinforcing steel during concrete placement.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT:

- A. Cast-in-place concrete for the work shown on the plans shall be measured by the cubic yard as specified in the plans and contract.

4.02 PAYMENT:

- A. The accepted quantities of cast-in-place concrete shall be paid for at the unit bid price per cubic yard.
- B. The unit bid price shall be full compensation for furnishing, hauling, and mixing all concrete materials, including trial batches; placing, curing and finishing all concrete; for all grouting and joints; furnishing and placing all expansion and

construction joints, except as provided in the plans; furnishing and placing metal flashing strips and waterstops; and for all forms and false-work, labor, tools, equipment and incidentals necessary to complete the work.

- C. The preceding provisions for payment shall not be interpreted to provide payment for concrete in railing, piling, precast pre-stressed concrete units or other concrete items for which provision for payment is otherwise made in the contract.

***** END OF SECTION *****

03330 - REINFORCING STEEL

PART 1 - GENERAL

- 1.01 This work shall consist of the furnishing and placing of reinforcing steel, deformed and smooth, of the size and quantity indicated and in accordance with these specifications.

PART 2 - PRODUCTS

- 2.01 BARS:
- A. Bar reinforcement shall be deformed and shall conform to ASTM A 615, A 616, Grades 40, 60, or 75 and shall be open-hearth, basic oxygen or electric furnace new billet steel, unless otherwise indicated. Large diameter new billet steel (Nos. 14 and 18), Grade 75, will be permitted for straight bars only.
 - B. Where bending of bar sizes No. 14 or No. 18 of Grades 40 or 60 is required, bend testing shall be performed on representative specimens as described for smaller bars in the applicable ASTM specification. The required bend shall be 90 degrees at a minimum temperature of 60oF around a pin having a diameter of 10 times the nominal diameter of the bar and shall be free of cracking.
 - C. Spiral reinforcement shall be either smooth or deformed bars or wire of the minimum diameter indicated. Bars for spiral reinforcement shall comply with ASTM A 675, A 615 or A 617, Wire shall comply with ASTM A 82. The minimum yield strength for spiral reinforcement shall be 40,000 psi.
 - D. In cases where the provisions of this item are in conflict with the provisions of the ASTM Designation to which reference is made, the provisions of this item shall govern.
 - E. Report of chemical analysis showing the percentages of carbon, manganese, phosphorus and sulfur will be required for all reinforcing steel when it is to be welded, except for drill shafts. No tack welding will be allowed. All welding shall conform to the requirements of AWS D-1-72.
 - F. The nominal size and area and the theoretical weight (lbs.) of reinforcing steel bars covered by these specifications are as follows:

Bar Size Number	Nominal Diameter Inches	Nominal Area Square Inches	Weight Per Linear Foot
2	0.250	0.05	0.167
3	0.375	0.11	0.376
4	0.500	0.20	0.668
5	0.625	0.31	1.043
6	0.750	0.44	1.502
7	0.875	0.60	2.044
8	1.000	0.79	2.670
9	1.128	1.00	3.400
10	1.270	1.27	4.303
11	1.410	1.56	5.313
14	1.693	2.25	7.65
18	2.257	4.00	13.60

G. Smooth bars, larger than No. 4, may be steel conforming to the above or may be furnished in any steel that meets the physical requirements of ASTM A36.

H. Smooth, round bars shall be designated by size number through No. 4. Smooth bars above No. 4 shall be designated by diameter in inches.

2.03 WELDED WIRE FABRIC:

A. Wire for fabric reinforcement shall be cold-drawn from rods hot-rolled from open-hearth, basic oxygen or electric furnace billet. Wire shall conform to the requirements of the standard Specifications for Cold-Drawn Steel Wire for Concrete Reinforcement, ASTM A 82 or A496. Wire fabric, when used as reinforcement, shall conform to ASTM A 185 or A 497.

B. When wire is ordered by size numbers, the following relations between size number, diameter in inches and area shall apply unless otherwise indicated:

SIZE W NUMBER	NOMINAL DIAMETER (INCH)	NOMINAL AREA SQUARE (INCHES)
31	0.628	0.310
30	0.618	0.300
28	0.597	0.280
26	0.575	0.260
24	0.553	0.240
22	0.529	0.220
20	0.505	0.200
18	0.479	0.180
16	0.451	1.160
14	0.391	0.140
12	0.391	0.120
10	0.357	0.100

(contd.)

SIZE W NUMBER	NOMINAL DIAMETER (INCH)	NOMINAL AREA SQUARE (INCHES)
8	0.319	0.080
7	0.299	0.070
6	0.276	0.060
5.5	0.265	0.055
5	0.252	0.050
4.5	0.239	0.045
4	0.226	0.040
3.5	0.211	0.035
3	0.195	0.030
2.5	0.178	0.025
2	0.160	0.020
1.5	0.138	0.015
1.2	0.124	0.012
1	0.113	0.010
0.5	0.080	0.005

- C. When deformed wire is required, the size number shall be preceded by D and for smooth wire the prefix W shall be shown.

2.04 CHAIRS AND SUPPORTS:

- A. Chairs and Supports shall be steel, precast mortar or concrete blocks cast in molds meeting the approval of the ENGINEER of sufficient strength to position the reinforcement as indicated when supporting the dead load of the reinforcement, the weight of the workers placing concrete and the weight of the concrete bearing on the steel.
- B. Chairs shall be plastic coated when indicated.
- C. Chair types and uses shall be as follows:

Chair Types and Applicable Uses

Structural or Architectural Elements (columns, beams, walls, slabs) exposed to weather, not subjected to sand blasting water blasting or grinding.

Galvanized steel or steel chairs with plastic coated feet.

Structural or Architectural Elements exposed to weather and subject to sand blasting, water blasting or grinding.

Stainless steel chairs.

Structural or Architectural Elements not exposed to weather or corrosive conditions.

Uncoated steel chairs.

Slabs and grade beams cast on grade.

Steel chairs with a base with 9 inch² minimum area or sufficient area to prevent the chair from sinking into fill or sub-grade. Precast mortar or concrete blocks meeting the requirements of this item may be used.

2.05 BENDING:

- A. The reinforcement shall be bent cold, true to the shapes indicated. Bending shall preferably be done in the shop.
- B. Irregularities in bending shall be cause for rejection.
- C. Unless otherwise indicated, the inside diameter of bar bends, in terms of the nominal bar diameter (d), shall be as follows:
 - 1. Bends of 90 degrees and greater in stirrups, ties and other secondary bars that enclose another bar in the bend:

Bar Number	Grade 40	Grade 60
3, 4, 5	3d	4d
6, 7, 8	4d	5d

2. All bends in main bars and in secondary bars not covered above:

Bar Number	Grade 40	Grade 60	Grade 75
3 thru 8	6d	6d	--
9, 10	8d	8d	--
11	8d	8d	8d
14, 18	10d	10d	--

2.06 STORAGE:

- A. Steel reinforcement shall be stored above the surface of the ground upon platforms, skids or other supports and shall be protected as far as practicable from mechanical injury and surface deterioration caused by exposure to conditions producing rust.
- B. When placed in the work, reinforcement shall be free from dirt, paint, grease, oil or other foreign materials. Reinforcement shall be free from injurious defects such as cracks and laminations.
- C. Rust, surface seams, surface irregularities or mill scale will not be cause for rejection, provided the minimum dimensions, cross sectional area ad tensile properties of a hand wire brushed specimen meets the physical requirements for the size and grade of steel indicated.

2.07 SPLICES:

- A. No splicing of bars, except when indicated or specified herein, will be permitted without written approval of the ENGINEER.
- B. No substitution of bars will be allowed without the approval of the ENGINEER. Any splicing of substituted bars shall conform to Table 03330-1.
- C. Splices not indicated will be permitted in slabs no more than 15 inches in thickness, columns, walls and parapets, but not included for measurement, subject to the following:
 - 1. Splices will not be permitted in bars 30 feet or less in plan length.
 - 2. For bars exceeding 30 feet in plan length, the distance center to center of splices shall not be less than 30 feet minus 1 splice length, with no more than 1 individual bar length less than 10 feet.
 - 3. Splices not indicated, but permitted hereby, shall conform to Table 03330-1. The specified concrete cover shall be maintained at such splices and the bars placed in contact and securely tied together.

Table 03330-1

Minimum Lap Requirements

Bar Number	Grade 40	Grade 60
3	1 foot 0 inches	1 foot 0 inches
4	1 foot 2 inches	1 foot 9 inches
5	1 foot 5 inches	2 feet 2 inches
6	1 foot 9 inches	2 feet 7 inches
7	2 feet 4 inches	3 feet 5 inches
No. 8	3 feet 0 inches	4 feet 6 inches
No. 9	3 feet 10 inches	5 feet 8 inches
No. 10	4 feet 10 inches	7 feet 3 inches
No. 11	5 feet 11 inches	8 feet 11 inches

- D. Spiral steel shall be lapped a minimum of 1 turn. Bar No. 14 and No. 18 may not be lapped.
- E. Welding of reinforcing bars may be used only when indicated or as permitted herein. All welding operations, processes equipment, materials, workmanship and inspection shall conform to the requirements indicated. All splices shall be of such dimension and character as to develop the full strength of the bar being spliced.
- F. End preparation for butt welding reinforcing bars shall be done in the field, except Bar No. 6 and larger shall be done in the shop. Delivered bars shall be of sufficient length to permit this practice.
- G. For box culvert extensions with less than 1 foot of fill, the existing longitudinal bars shall have a lap with the new bars as shown in Table 03330-1.
- H. For box extensions with more than 1 foot of fill, a minimum lap of 6 inches will be required.
- I. Unless otherwise indicated, dowel bars transferring tensile stress shall have a minimum embedment equal to the minimum lap requirements shown in Table 03330-1.
- J. Shear transfer dowels shall have a minimum embedment of 12 inches.

PART 3 - EXECUTION

3.01 PLACING:

- A. Reinforcement shall be placed as near as possible in the position indicated. Unless otherwise indicated, dimensions shown for reinforcement are to the centers of the bars.

B. 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. In the plane of the steel perpendicular to the nearest surface of the concrete, bars shall not vary from plan placement by more than 1/4 inch.

C. Cover of concrete to the nearest surface of steel shall be as follows:

Item	Minimum Cover, (Inches)
1. Concrete cast against and permanently exposed to earth.	3
2. Concrete exposed to earth or weather:	
Bar No. 6 through 18 bars	2
Bar No. 5, W31 or D31 wire and smaller	1 1/2
3. Concrete not exposed to weather or in contact with ground:	
Slabs, walls, joists:	
Bar No. 14 and 18	1 1/2
Bar No. 11 and smaller	1
Beams, columns:	
Primary reinforcement, ties, stirrups, spirals	1 1/2
Shells, folded plate members:	
Bar No. 6 and larger	1
Bar No. 5, W31 or D31 wire, and smaller	1

D. Vertical stirrups shall always pass around the main tension members and be attached securely thereto. The reinforcing steel shall be spaced its required distance from the form surface by means of approved galvanized metal spacers, metal spacers with plastic coated tips, stainless steel spacers, plastic spacers or approved precast mortar or concrete blocks. For approval of plastic spacers on a project, representative samples of the plastic shall show no visible indications of deterioration after immersion in a 5 percent solution of sodium hydroxide for 120 hours.

E. All reinforcing steel shall be tied at all intersections, except that where spacing is less than 1 foot in each direction, alternate intersections only need by tied. For reinforcing steel cages for other structural members, the steel shall be tied at enough intersections to provide a rigid cage of steel. Mats of wire fabric shall overlap each other 1 full space as a minimum to maintain a uniform strength and shall be tied at the ends and edges.

- F. Where prefabricated deformed wire mats are specified or if the CONTRACTOR requests, welded wire fabric may be substituted for a comparable area of steel reinforcing bar plan, subject to the approval of the ENGINEER.
- G. A suitable tie wire shall be provided in each block, to be used for anchoring to the steel. Except in unusual cases and when specifically authorized by the ENGINEER, the size of the surface to be placed adjacent to the forms shall not exceed 2 1/2 inches square or the equivalent thereof in cases where circular or rectangular areas are provided. Blocks shall be cast accurately the thickness required and the surface to be placed adjacent to the forms shall be a true plane, free of surface imperfections.
- H. Reinforcement shall be supported and tied in such a manner that 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 measures are taken. Sufficient measurements shall be made during concrete placement to insure compliance with the above.
- I. No concrete shall be deposited until the ENGINEER has reviewed the placement of the reinforcing steel and all mortar, mud, dirt, etc., shall be cleaned from the reinforcement, forms workers' boots and tools.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT:

- A. The measurement of quantities of reinforcement furnished and placed will be based on the calculated weight of the steel actually placed as indicated, with no allowance made for added bar lengths for splices requested by the CONTRACTOR nor for extra steel used when bars larger than those indicated or with a higher grade of steel are substituted with the permission of the ENGINEER.
- B. Tie wires and supporting devices will not be included in the calculated weights.
- C. The calculated weight of bar reinforcement will be determined using the theoretical bar weight set forth in this item.
- D. Measurement required by a change in design will be computed as described above for the actual steel required to complete the work.

4.02 PAYMENT:

- A. The accepted quantities of reinforcing steel will be paid for at the contract unit bid price per pound complete in place.
- B. When not listed as a separate contract pay item, reinforcing steel shall be considered as incidental work, and the cost thereof shall be included in such

contract pay item(s) as are provided in the proposal contract.

- C. Compensation, whether by contract pay item or incidental work, will be for furnishing, bending, fabricating, welding and placing reinforcement, for all clips, blocks, metal spacers, ties, chairs, wire or other materials used for fastening reinforcement in place and for all tools, labor, equipment and incidentals necessary to complete the work.

***** END OF SECTION *****

09900 - REFLECTORIZED PAINTED PAVEMENT MARKINGS

PART 1 - GENERAL

1.01 GENERAL DESCRIPTION OF WORK:

- A. This work shall consist of furnishing and placing reflectORIZED painted pavement markings in substantial compliance with these specifications, the TMUTCD and the details shown on the plans or as directed by the ENGINEER.

PART 2 - PRODUCTS

2.01 REFLECTIVE GLASS SPHERES:

- A. The glass spheres shall not contain more than 30 percent (by weight) irregular shaped particles when tested by ASTM Designation: D 1155. Spheres shall be essentially free of sharp angular particles and particles showing milkiness or surface scarring or scratching. Spheres shall be water white in color.
- B. The spheres, when tested by the liquid immersion method at 25 C, shall show an index of refraction within the range of 1.50 to 1.98.
- C. The spheres shall be capable of being readily wet with water when tested according to SDHPT Test Method Tex-826-B.
- D. The spheres shall show no tendency toward decomposition, surface etching, change in retroreflective characteristics or change in color after 24 hours exposure (according to SDHPT Test Method Tex-833-B) to weak acids, weak alkali or 100 hours of weather-o-meter exposure.
- E. Spheres shall contain less than 1/4 of 1 percent moisture by weight.
- F. Spheres shall be manufactured from glass.
- G. Spheres shall be free of trash, dirt, etc.
- H. Spheres shall show no evidence of objectionable static electricity when flowing through a regular traffic bead dispenser.
- I. Sampling and Testing shall be in accordance with the latest applicable SDHPT Manual on Testing Procedures. Applicable test methods are, but are not limited to the following:
 - Tex-822-B
 - Tex-826-B
 - Tex-830-B
 - Tex-831-B
 - Tex-832-B
 - Tex-833-B

2.02 PAVEMENT MARKING PAINT:

A. Functional Requirements

1. All materials required to meet Federal, ASTM or SDHPT specifications must meet the specification as shown.

ASTM Designation: D 476, Type II

Federal Spec. TT-P-463A, Type I (March 3, 1961)

National Bureau of Standards-Chromatic Standard No. Sch.-30

Federal Spec. TT-P-403a

Federal MIL-C-429C, Type I (March 6, 1969)

ASTM D 362

ASTM D 740 (Reapproved 1974)

ASTM D 600

SDHPT Test Method Tex-806-B

SDHPT Test Method Tex-811-B

SDHPT Test Method Tex-814-B

2. The paint shall be homogenous, well ground to a uniform and smooth consistency and shall not skin nor settle badly nor cake, liver, thicken, curdle or gel in the container.
3. The paint, when applied to a bituminous pavement surface under normal field conditions at the required rate of .015 inch wet film thickness, shall have a maximum "no pickup" drying time of 15 minutes to prevent displacement or discoloration under traffic.
4. In preparation of the paint, the pigments shall be dispersed in the vehicle by appropriate methods so that a fineness reading of not less than 4 is obtained with a Hegman grind gauge.
5. Consistency viscosity as determined by the Stromer Viscosimeter at 25 C shall be from 85 to 100 K.U.
6. A thin film of paint spread on a glass plate and allowed to dry thoroughly shall not darken or show any discoloration when subjected to ultraviolet rays for a period of 5 minutes.

B. Material Requirements

1. Raw Materials

- a) The exact brands and types of raw materials used in the wet standards are listed for the purpose of facilitating the selection of parallel materials equal, not only in quality and composition but also in physical and chemical behavior after aging in the finished product.
- b) It shall be the responsibility of the CONTRACTOR to utilize materials that not only meet the individual raw material specification, but that also produce a coating that meets the specific formula requirements.

- c) Materials required to meet Federal and ADTM specifications must meet the specification as indicated.

2. Pigments

a) White

(1) Lead free zinc oxide: shall meet Federal specification TT-P-463A, Type I, March 3, 1961.

(2) Pure Titanium Dioxide, Rutile, Nonchalking: shall meet ASTM D 476, Type II.

b) Medium Chrome Yellow

(1) The luminescent factors of the pigment shall be within the limits listed below when tested before and after exposure.

	Minimum	Maximum
Initial	53	59.0
Final	45	--

In addition, the allowable change between the initial and final luminescent factors shall be no more than 9 units.

The initial x, y chromaticity color coordinates of the pigments shall be within the rectangle defined by the sets of coordinates shown below.

X	Y
0.490	0.455
0.511	0.433
0.514	0.480
0.535	0.458

The pigments shall be tested according to SDHPT Test Method Tex-810-B.

The color standard shall conform to the National Bureau of Standards Chromatic Standard No. Sch-30.

The formulation of the test enamel using the pigments to be tested is as follows:

Material

Medium Chrome Yellow 54.0

Long Oil Alkyd Resin (1)	31.5
4% Calcium Drier	0.6
6% Cobalt Drier	0.3
Anti-Livering Agent	0.1
Anti-Skinning Agent	0.2
Mineral Spirits (2)	13.3 (3)

(2) Alkyd Resin Solution meeting Federal specification TT-R-266D, Type I, Class A, November 17, 1971.

(3) Mineral Spirits shall conform to ASTM D 235, Type IV.

(4) The amount of mineral spirits may be varied slightly to produce the desired grinding consistency.

Two coats of pigments shall be required.

3. Inert

a) Talc, paint-grade magnesium silicate shall meet ASTM D 605.

b) Calcium Carbonate shall conform to the following:

CaCO ₃	Maximum 97.0 percent
H ₂ O	Maximum 0.4 percent
Specific Gravity	2.63-2.73

Weight retained on #325 Screen Maximum 0.75 percent

Color shall be equal to material listed in standard formula.

Substitution in standard formula shall not result in a viscosity variation greater than 4 K.U.

4. Resins

a) Chlorinated Paraffin shall conform to Federal Specification MIL-C-429C, Type I, May 6, 1969.

b) Chlorinated Rubber shall have a viscosity @ 15 C (20% solution with Toluene)* 406 cps.

c) Traffic paint alkyd resin solution shall conform to the following:

(1) General

Type: Pure, drying alkyd
Length: Medium

Type oil: Soya, linseed or tall. No mixture of 2

or more oils will be permitted.

Type Solvent: Toluene, ASTM D 362

Compatibility: Solution of 1 part 75 percent traffic alkyd and 5 parts toluene shall be clear.

A solution containing the equivalent of 150 grams of 5 cps. chlorinated rubber, 130 grams of 75% traffic alkyd, 200 grams of methyl ethyl ketone shall be clear, transparent and show no separation after 24 hours of storage in a 3/4 full test tube at 80 degrees + F. This rubber-alkyd-solvent solution shall produce a clear film upon drying.

(2) Solid Resin Basis

Percent Phthalic Anhydrides	33 to 37
Percent Oil Acids	48 to 55
Acid number, maximum	8.0
Ash residue, maximum	0.10 percent
Unsaponifiable, maximum	2.0 percent
Iodine number of fatty acids, minimum	115
Retractive Index of fatty acids, minimum	1.4660
(Tall oil alkyds), maximum	1.0

(3) 45 Percent Solids Basis*

Color: Gardner 1953 Standard - 9 maximum.

Drying Time: A wet film 3 mils thick shall set to touch in not more than 90 minutes.

(Driers: Based on the resin solids present, add the equivalent of 0.06 percent Cobalt (metal) and 1.0 percent lead metal)

* Toluene shall be used to reduce the resin solution to 45 percent solids and shall meet ASTM D 362.

(4) In addition to the above requirements, the traffic alkyd resin shall meet the following percent transmittance requirements when tested according to SDHPT Test Method Tex-814-B, utilizing methyl isobutyl ketone as primary solvent and methyl alcohol as precipitating agent.

Percent Transmittance	Minimum	Maximum
T1	10%	
T2		70%

Calculate volume in milliliters of precipitating agent as follows:

$$V1 = 91X$$

Where: V1 = volume of precipitating agent required for T1
 X = additional volume of precipitating agent
 Required for T2

5. Thinners

- a) Methyl Ethyl Ketone shall conform to ASTM D 740
- b) Aromatic Naphtha

Appearance clean, free of sediment
 Color water, white
 Boiling Range 360F - 415 F
 Kauri Butanol Value 88 minimum
 Specific Gravity, 25 C 0.884 - 0.894
 Flash Point F (TCC) 140 minimum

6. Additives and Chemicals

- a) Driers shall conform to ASTM D 600.
- b) The additives below must be supplied by the manufacturer, as listed:

(1) Thermolite 813
 Available from: M & T Chemicals, Inc.
 530 Exchange Bank & Trust Tower
 Dallas, Texas 75235

(2) Treated Bentonite Clay

- A. Bentone 34, N.L. Industries
- B. Claytone 40, Southern Clay Products

- c) Paint Formul

Formula: White Traffic Paint

Pounds

Traffic Alkyd, 75 Percent Solids	130	
Chlorinated Rubber, 5 cps., Hercules parlon S-5		150
Chlorinated Paraffin, Type I, Hercules, Chlorafin 40		75
Treated Bentonite Clay	5	
Titanium Dioxide, Rutile, Du Pont, R-900		200
Lead Free Zinc Oxide, ASARCO, A20-33		50
Talc, Nyltal 300	225	
Calcium Carbonate, T.W. Snowflake White		250

24% Lead Drier	3	
6% Cobalt Drier	2	
Thermolite 813, M&T Chemicals, Inc.		0.75
Aromatic Naphtha, SC-150	5	
Methyl Ethyl Ketone	245	
	1,340.75	

Grind particles: 4 minimum 8 maximum (SDHPT Test Method Tex 806-B)
 Gallon Weight + 0.05 lbs. of theoretical gallon weight
 Consistency: 85 to 100 K.U.
 Skinning: No skinning within 48 hours (SDHPT Test Method Tex-811-B)

Formula: Yellow Traffic Paint

Pounds

Traffic Alkyd, 75 Percent Solids	130	
Chlorinated Rubber, 5 cps., I.C.I. Alloprene X-5150		150
Chlorinated Paraffin, Type I, I.C.I., Cereclor 42		75
Treated Bentonite Clay	5	
Titanium Dioxide, Rutile, Du Pont, R-900	25	
Lead Free Zinc Oxide, ASARCO, A20-33		50
Medium Chrome Yellow, Du Pont, Y-469-D		157
Calcium Carbonate, T.W. Snowflake White		250
Talc, Nytal 300	250	
24% Lead Drier	3	
6% Cobalt Drier	2	
Thermolite 813, M&T Chemicals, Inc.		0.75
Aromatic Naphtha, SC-150	5	
Methyl Ethyl Ketone	250	
	1,370.75	

Grind particles: 4 minimum 8 maximum (SDHPT Test Method Tex 806-B)
 Gallon Weight + 0.05 lbs. of theoretical gallon weight
 Consistency: 80 to 100 K.U.
 Skinning: No skinning within 48 hours (SDHPT Test Method Tex-806-B)

PART 3 - EXECUTION

3.01 CONSTRUCTION METHODS:

- A. The CONTRACTOR shall use a crew experienced in the work of installing pavement markings and in the necessary traffic control for such operations on the roadway surface and shall supply all the equipment, personnel, traffic control and materials necessary for the placement of the pavement markings as indicated or as directed by the Engineer. All work shall conform to the current edition of the Texas Manual of

Uniform Traffic Control Devices (MUTCD).

- B. The pavement surface to receive the pavement markings shall be thoroughly cleaned of all dirt, organic growth or other material that will prevent adhesion of the paint to the roadway surface.
- C. The pavement markings shall be placed in the proper alignment with guides established on the roadway. Deviation from the alignment established shall not exceed 2 inches and in addition, the deviation in alignment of the markings being placed shall not exceed 1 inch per 200 feet of roadway nor shall any deviation be abrupt.
- D. When deemed necessary by the ENGINEER, the CONTRACTOR, at his expense, shall place any additional pilot markings required to facilitate the placement of the permanent markings in the alignment specified. Any and all additional markings placed on the roadway for alignment purposes shall be temporary in nature and shall not establish a permanent marking on the roadway.
- E. Materials used for pilot markings and equipment used to place such markings shall be approved by the ENGINEER.
- F. Paint markings on the roadway that are not in alignment or sequence as indicated shall be totally and completely removed by any effective method approved by the ENGINEER, except that grinding will not be permitted.
- G. Paint shall be applied at a rate of not less than 15 gallons nor more than 20 gallons per mile of solid 4 inch stripe. Application rate for solid 8 inch stripe shall be between 30 and 40 gallons per mile. (These rates yield wet film thickness from 15 to 20 mils.)
- H. Bead shall be applied to the paint markings at a uniform rate sufficient to achieve the retroreflective characteristics specified when observed in accordance with SDHPT Test Method Tex-828-B. All markings placed shall have uniform and distinctive retroreflective characteristics. Under no circumstances shall the bead application rate be less than 6 pounds of beads per gallon of paint applied to the road surface.
- I. Applied markings shall be protected from traffic until they have dried sufficiently so as not to be damaged or tracked by normal traffic movements.

3.02 EQUIPMENT:

- A. Paint striping equipment used to place 4 inch solid or broken lines shall have the capability of placing a minimum of 60,000 linear foot of marking per working day. Equipment used for placing markings in widths other than 4 inches shall have capabilities similar to 4 inch marking equipment and shall be capable of placing linear markings up to 8 inches in width in 1 pass.
- B. The equipment shall be maintained in satisfactory operating condition. Four inch marking equipment will be considered as unsatisfactorily maintained if it fails to have an average hourly placement rate of 7000 linear feet in any 5 consecutive working days of 7 hours or more.

- C. The equipment shall be equipped so that one 4 inch broken line and either 1 or 2 solid lines can be placed at the same time in alignment and spacing as indicated.
- D. The equipment shall be equipped with an automatic cutoff device (with manual operating capabilities) to provide clean, square marking ends and to provide a method of applying broken line in a stripe to gap ratio of 10 to 30. The length of the stripe shall not be less than 10 feet nor longer than 10.5 feet. The total length of the stripe-gap cycle shall not be less than 39.5 feet nor longer than 40.5 feet in variance from one cycle to the next nor shall the average total length of a cycle for a road mile of broken line exceed 40.5 feet or be less than 39.5 feet.
- E. The equipment shall be capable of placing lines of all widths with clean edges and of uniform cross section. Four inch lines shall be 4 inches plus or minus 1/8 inch. Eight inch lines shall be 8 inches minimum and 8 1/4 inches maximum in width.
- F. The equipment shall be equipped with an outrigger or outriggers as required to place edgelines as called for in the plans.
- G. The equipment shall be equipped with bead dispensers, 1 for each paint spray gun, placed on the equipment so that beads are applied to the paint almost instantly as the marking is being placed on the roadway surface. The bead dispensers shall be designed and aligned so that beads are applied uniformly to the entire surface of the marking. The bead dispensers shall be equipped with automatic cutoff controls, synchronized with the cutoff of the marking equipment. Paint pots or tanks shall be equipped with an agitator that will keep the paint thoroughly mixed and may be either a pressurized or nonpressurized type.

3.03 TOLERANCES FOR PLACING PAINT AND BEADS:

- A. The finished line shall be smooth, aesthetically acceptable and free from undue waviness.
- B. Painted lines shall be 4, 8, or 12 inches wide or as shown on the plans with a tolerance of plus or minus 1/8-inch and shall be placed at a minimum rate of 19.75 gallons per mile for a solid 4-inch line and 4.94 gallons per mile for a broken 4-inch line. Based on a 10-foot stripe and a 30-foot gap.
- C. Glass spheres shall be applied on the wet paint at a minimum rate of 6 pounds per gallon of paint.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT:

- A. Reflectorized painted pavement markings will be measured by the linear foot of 4-inch width.
- B. Symbols, letters or figures will be measured by the square foot.

4.02 PAYMENT:

- A. The accepted quantities of reflectorized painted pavement markings shall be paid for at the contract unit price per linear foot or square foot complete in place.
- B. When not listed as a separate contract pay item, reflectorized painted pavement markings shall be considered as incidental work, and the cost thereof shall be included in such contract pay item(s) as are provided in the proposal contract.
- C. Compensation, whether by contract pay item or incidental work will be for furnishing all materials, labor, equipment, tools and incidentals required for the work, all in accordance with the plans and these specifications.

****** END OF SECTION ******