

**BID AND CONTRACT DOCUMENTS, SPECIFICATIONS AND
CONSTRUCTION PLANS FOR**

***JOHN L TOMPKINS PARK
6100 PADRE BLVD.***

CITY OF SOUTH PADRE ISLAND



**DEPARTMENT OF PUBLIC WORKS
4601 PADRE BOULEVARD, SOUTH PADRE ISLAND, TEXAS 78597
TELEPHONE (956)-761-8159 - FAX (956)761-3898**

JULY 30, 2015

INVITATION TO BIDDERS

PROJECT: JOHN L TOMPKINS PARK
BID DATE: AUGUST 24, 2015
BID TIME: 3:00 P.M.
ENGINEER: ARMANDO GUTIERREZ, JR., P.E.
Telephone - (956)-761-8159
Fax - (956) 761-3898

Sealed Bids for the JOHN L TOMPKINS PARK, South Padre Island, Texas will be received by the City of South Padre Island, at the office of the City Secretary, located at 4601 Padre Boulevard, South Padre Island, Texas, until the time stated above. All bids will be publicly opened, read aloud, and tabulated thirty minutes after the time stated above.

All Bids must be on a Unit Cost basis for the Contract Work. Bids received after the stated time will not be accepted.

Copies of the above documents may be obtained at the office of the Department of Public Works in accordance with the Instructions to Bidders. There is no charge for the documents.

One (1) pre-bid conference will be conducted by the Owner on Wednesday, August 12, 2015 at 10:00 am. The pre-bid conference shall be conducted at City Hall, 2nd floor at 4601 Padre Blvd., South Padre Island, TX 78597.

Bid security in the amount of 5% of the bid submitted must accompany each bid in accordance with the Instructions to Bidders.

Statutory Bonds for performance of the contract and for payment of mechanics and materials will be required in an amount equal to 100% of the accepted bids.

The Owner reserves the right to hold all bids for 30 days from date of receipt without action, to reject any and all bids, to waive irregularities and to require statements or evidence of bidder's qualifications including financial statements.

INSTRUCTIONS TO BIDDERS

1. Proposal shall be submitted on the Bid form furnished. Fill in all blank spaces and all amounts must be in figures clearly marked.

It is the intent of the City of South Padre Island to award the contract for the work as deemed the most advantageous by the City of South Padre Island.

Proposals shall be signed with the name typed below the signature. Where the bidder is a Corporation, proposals shall be signed with the legal name of the Corporation followed by the name of the officer authorized to bind the Corporation to a contract. The completed form shall be without interlineation, alternation, or erasure. Seal bid documents in an envelope addressed to the office of the City Secretary, City of South Padre Island, 4601 Padre Blvd.,

South Padre Island, Texas, 78597, and clearly labeled with the full title of the project. The bidder's firm name shall appear on the outside of the envelope.

2. Certified or Cashier's check on a State or National Bank of State of Texas, or a Bidder's Bond from an acceptable Surety Company authorized to transact business in the State of Texas, in the total amount of not less than five percent (5%) of the maximum amount of the proposal payable without recourse to the City of South Padre Island, must accompany each proposal as a guarantee that if awarded the contract, the bidder will promptly enter into contract and execute required bonds on the forms provided. The Cashier's Check or envelope clearly marked and attached to the envelope containing the proposal. All bid securities will be returned thirty (30) days after bid opening.
3. The City of South Padre Island will require payment and performance bonds in the amount of 100% of the contract amount payable to the City of South Padre Island.
4. The bidder, before submitting the proposal, shall investigate and familiarize himself with existing conditions on the site, and be prepared to complete the work as indicated and specified.
5. Within thirty (30) days after the opening of the proposal, the City of South Padre Island will act upon them. The acceptance of the proposal will be in writing.
6. The successful bidder shall commence work within ten (10) days after receipt of written notice to proceed and shall progress therewith so that the work shall be completed in accordance with the terms of the contract documents within the time allowed after the date of the written notice to proceed.

PROPOSAL

The Bidder shall fill in all blanks with the required information.

TO: CITY OF SOUTH PADRE ISLAND
 4601 PADRE BOULEVARD
 SOUTH PADRE ISLAND, TEXAS 78597
 ATTN: CITY SECRETARY

GENTLEMEN:

The undersigned, as bidder, declares that the only person or parties interested in this proposal as principals are those named herein; that this proposal is made without collusion with any other person, firm or corporation; that I/we have examined the invitation to Bid, Instructions to Bidders, the Contract, the General and Supplementary Conditions, General Requirements and the Drawings and Specifications referred to therein; that I/we have visited the site and hereby offer to and will furnish all necessary equipment, appliances, tools, labor, supervision, insurance and other accessories and services required by said documents for the following work for the following sum of money:

John L Tompkins Park
 Bid Proposal Form

Base Bid					7/30/2015
ITEM No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
Site Drainage Improvements					
1	Retaining Wall complete	329	LF		
2	Site Grading per plan	1	LS		
3	8inch storm pipe complete in place	106	LF		
4	10inch storm pipe complete in place	283	LF		
5	12inch storm pipe complete in place	261	LF		
6	storm inlets type C graded top	6	EA		
7	storm headwalls	4	EA		
8	connection to TXDOT inlet	1	EA		
Subtotal					
Entrance and Parking Lot Improvements					
9	break existing TxDOT curb, new 6" concrete driveway, rebar, 3" limestone base, concrete radius returns and expansion joint	1	LS		
10	4-inchx6ft wide 3000psi concrete sidewalk with rebar on limestone base	720	SF		

11	TxDOT ADA Handicap ramps	2	EA		
12	parking lot 6inch stablized subgrade	1237	SY		
13	parking lot geogrid	1237	SY		
14	parking lot 8inch limestone base	1237	SY		
15	6ft wide concrete walkway with rebar, 6inch compacted subgrade, and 3inch limestone base	600	SF		
16	parking lot 6inch standard curb and gutter	303	LF		
17	parking lot 6inch standard curb	81	LF		
18	15ft concrete walkway apron	1950	SF		
19	ADA Handicap ramps	2	EA		
20	Handicap signs	2	EA		
21	Prime Coat (MC-30)	1237	SY		
22	parking lot 2inch HMAc type D	1237	SY		
23	parking lot striping	1	LS		
24	ADA Handicap pavement decal	2	EA		
				Subtotal	
Utilities					
25	8" PVC sewerline	128	LF		
26	8-10ft 48" fiberglass San MH	1	EA		
27	4" PVC sewerline	164	LF		
28	Cleanout	4	EA		
29	2" water tap and meter	1	LS		
30	2" PVC waterline	146	LF		
				Subtotal	
Buildings and Playground Equipment					
31	Toilet Building complete in place	1	LS		
32	Pump Building complete in place	1	LS		
33	Playground equipment #1	1	EA		
34	Playground equipment #2	1	EA		
35	Basketball court complete with goals	1	EA		
36	Park benches for Playground Eqt #2	5	EA		
37	5ft Aluminum Fencing	234	LF		
38	8ft Aluminum Gates	2	EA		
39	5ft Wood Fencing on retaining wall posts	238	LF		
40	5ft Wood Fencing with 4x4 posts	100	LF		
41	4-inch 3000psi concrete park walkways with rebar on 2" limestone base	2817	SF		
42	Bike rack and concrete pad	1	LS		
				Subtotal	
General and Miscellaneous					
43	SWPPP Construction entrance	1	LS		

44	Silt fencing	1470	LF		
45	Temporary Project Sign	1	EA		
46	Permanent Project Sign	1	EA		
47	removal of post and cable	1	LS		
48	Hauling of Salvage Material	225	CY		
49	Mobilization	1	LS		
				Subtotal	
				Base Bid Total	

Add -On Alternates					
#1	cover structure over playground eqpt#1	1	LS		
#2	cover structure over playground eqpt#2	1	LS		
#3	cover structure over basketball court	1	LS		

BASE BID

\$ _____

Bidder acknowledges receipt of the following addendum:

_____	Date _____
_____	Date _____
_____	Date _____

Bidder understands that the City of South Padre Island reserves the right to reject any and all bids, to waive any informalities, and to accept the proposed deemed to be in the best interest of the City of South Padre Island.

The Bidder agrees that this bid shall be good and may not be withdrawn for a period of thirty (30) calendar days after the scheduled closing time for receiving bids.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in written Notice to Proceed from the City of South Padre Island and to fully complete the project within the limits established by the Supplementary Conditions hereto attached and made a part hereof. Bidder further agrees to pay as liquidated damages the amount or amounts specified in the Supplementary Conditions. BIDDER EXPRESSLY ACKNOWLEDGES THAT HE READ AND FULLY UNDERSTANDS THE PROVISIONS FOR LIQUIDATED DAMAGES AS DESCRIBED IN ITEMS 8 AND 9 OF THE SUPPLEMENTARY CONDITIONS, AND; FURTHER BIDDER ACKNOWLEDGES HE IS IN FULL AGREEMENT THEREWITH.

The Bidder further agrees that from the compensation otherwise to be paid, the Owner may retain the sum which is indicated in the schedule set forth in Item 9 of the Supplementary Conditions for each calendar day after the completion date that the work at the time stipulated in Item 8 of the Supplementary Conditions of these documents. This sum is not to be construed in any sense a penalty.

Upon receipt of a written notice to the acceptance of this bid, Bidder will execute the formal contract agreement immediately, and shall deliver the Surety Bonds and Insurance as required by the Instruction to the Bidders.

Bid security as required by the Instructions to Bidder in sum of _____ (\$ _____) is hereto attached. The Bid security is to become the property of the City of South Padre Island in the event the Proposal is accepted by the City of South Padre Island and the contract and bond are not executed within the time above set forth, as liquidated damages for the delay and additional expense to the City of South Padre Island caused there by.

Respectfully submitted,

Signature: _____

(Print) By: _____

(Print) Title: _____

(Seal, if bid by a corporation)

Business Name

Business Address

Business Phone

STANDARD FORM OF AGREEMENT

As Adopted By
THE TEXAS SECTION OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS
October 7, 1971

Approved as to Legal Form by
Legal Counsel

STATE OF TEXAS
COUNTY OF CAMERON

THIS AGREEMENT, made and entered into this ____ day of _____, by and between the City of South Padre Island of the County of Cameron and State of Texas, acting through William DeLibero, City Manager thereunto duly authorized so to do, Party of the First Part, hereinafter termed OWNER, and _____ of the City of _____, County of Cameron, and State of Texas, Party of the Second Part, hereinafter termed CONTRACTOR.

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the Party of the First Part (OWNER), and under the conditions expressed in the bond bearing ever date herewith, the said Party of the Second Part (CONTRACTOR), hereby agrees with the said Party of the First Part (OWNER) to commence and complete the construction of certain improvements described as follows:

JOHN L TOMPKINS PARK

and all extra work in connection therewith, under the terms as stated in the General Conditions of the Agreement 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 and services necessary to complete the said construction, in accordance with the Notice to Contractors, prices stated in the Proposal attached hereto, and in accordance with the Notice to Contractors, General and Special Conditions of Agreement, Plans and other drawings and printed or written explanatory matter thereof, and the Specifications and addenda therefore, as prepared by

the City of South Padre Island Department of Public Works, herein entitled the ENGINEER, each of which has been identified by the CONTRACTOR and the ENGINEER, together with the CONTRACTOR'S written Proposal, the General Conditions of the Agreement, and the Performance and Payment bonds hereto attached; all of which are made a part hereof 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 the same within 45 calendar days after the date of the written notice to commence work, subject to such extensions of time as are provided by the General and Special Conditions of the contract.

The OWNER agrees to pay the CONTRACTOR in current funds the price or prices shown in the proposal, which forms a part of this contract, such payments to the subject to the General and Special Conditions of the contract.

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

CITY OF SOUTH PADRE ISLAND
Party of the First Part (OWNER)

Party of the Second Part (CONTRACTOR)

By: _____
William DeLibero

By: _____

ATTEST:

ATTEST:

PERFORMANCE BOND

STATE OF TEXAS
COUNTY OF _____

KNOW ALL MEN BY THESE PRESENTS: That _____
_____ Of the City of _____
County of _____, and State of _____, as
principal, and _____

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

WHEREAS, the Principal has entered into a certain written contract with the Owner, dated the __
_____ day of _____, 20____, to which contract is hereby referred to and
made a part hereof as fully and to the same extent as if copied a length herein.

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

“PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of (Article 5160 for
Public Work) (Article 5472d for Private Work)* of the Revised Civil Statutes of Texas as amended
and all liabilities, on this bond shall be determined in accordance with the provisions of said Article
to the same extent as if it were copied at length herein.”

Surety, for value received, stipulates and agrees that no charge, extension of time, alteration or
addition to the terms of the contract, or to the work performed thereunder, or the plans,
specifications, or drawings accompanying the same, shall in anyway 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 to the work to be performed thereunder.

*Not applicable for federal work. See “The Miller Act,” 40 U.S.C. S270.

Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition
to the terms of the contract, or to the work to be performed thereunder.

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

Principal _____

Surety _____

By _____

By _____

Title _____

Title _____

Address _____

Address _____

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

PAYMENT BOND

STATE OF TEXAS
COUNTY OF _____

KNOW ALL MEN BY THESE PRESENTS: That _____
_____ Of the City of _____
County of _____, and State of _____, as
principal, and _____
authorized under the laws of the State of Texas to act as surety on bonds for principals, are held
and firmly bound unto _____ (Owner), in the penal sum of _____
_____ Dollars (\$) for the payment whereof, the
said Principal and Surety bind themselves, and their heirs, administrators, executors, successors
and assigns, jointly and severally, by these presents:

WHEREAS, the Principal has entered into a certain written contract with the Owner, dated the __
_____ day of _____, 20____, to which contract is hereby referred to and
made a part hereof as fully and to the same extent as if copied a length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal
shall pay all claimants supplying labor and material to him or a subcontractor in the prosecution of
the work provided for in said contract, then, this obligation shall be void; otherwise to remain in full
force and effect;

“PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Article 5160 of
the Revised Civil Statutes of Texas as amended and all liabilities, on this bond shall be determined
in accordance with the provisions of said Article to the same extent as if it were copied at length
herein.”

Surety, for value received, stipulates and agrees that no charge, extension of time, alteration or
addition to the terms of the contract, or to the work performed thereunder, or the plans,
specifications, or drawings accompanying the same, shall in anyway 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 to the work to be performed thereunder.

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

Principal

Surety

By _____

By _____

Title _____

Title _____

Address _____

Address _____

The name and address of the Resident Agent of Surety is: _____

(SAMPLE FORM)
CERTIFICATE OF INSURANCE

TO: _____ Date _____
Project No. _____
Type of _____
Owner _____
Project _____
Address _____

THIS IS TO CERTIFY THAT _____

(Name and address of insured)

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

TYPE OF INSURANCE

	Policy No.	Effective	Expires	Limits of Liability
Workmen's Compensation				
Public Liability				1 Person \$ _____
Contingent Liability				1 Accident \$ _____
Property Damage				1 Person \$ _____
Builder's Risk				1 Accident _____
Automobile				
Other				

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

Locations Covered: _____

Descriptions of Operations Covered: _____

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

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

(Name of Insurer)

By _____

Title _____

GENERAL CONDITIONS OF THE AGREEMENT

1. GENERAL

It is the intent of these instructions, plans and specifications to provide guidance for the construction of this project.

2. REGULATIONS AND DISCREPANCIES

All applicable laws, ordinances, policy, rules, regulations and other directives of all authorities having jurisdiction over the projects shall apply to the contract throughout and will be deemed to be included in the contract the same as those written out in full. Discrepancies between regulations or conflicting parts of the Specifications shall be brought to the attention of and clarified by the ENGINEER before proceeding with any work. Proceeding with the affected work without instructions from the ENGINEER can result in the Contractor being responsible for taking the necessary steps in insure the work conforms to the governing regulation.

3. ENGINEER

Whenever the word "ENGINEER" is used in this contract with reference to the preparation, execution, and interpretation of plans, specifications, and contract documents, it shall be understood as referring to the City of South Padre Island Public Works Director.

4. INTERPRETATION OF PHRASES

Whenever the words "Directed", "Required", "Permitted", "Designated", "Considered Necessary", "Prescribed", or words of like importance are used, it shall be understood that the direction, requirements, permission, order, designation, or prescription, of the ENGINEER is intended and similarly, the words "Approval", "Acceptable", "Satisfactory", or word of like importance shall mean approved by or acceptable or satisfactory to the ENGINEER.

Whenever, in the specifications or drawings accompanying this agreement, the terms or description of various qualities relative to finish, workmanship, or other qualities of similar kind which cannot, from their nature, be specifically and clearly described and specified, but are necessarily described in general terms, then, in all such cases, any question of the fulfillment of said specifications shall be decided by the ENGINEER, and said work shall be done in accordance with his interpretations of the meanings of the words, terms, or clauses defining the character of the work.

5. EXHIBITS

All work shall be done and all materials finished in strict conformity with the appended advertisement, "Information for Bidder", "Proposal", "Supplementary General Conditions", "Agreement", "Bonds", "Insurance", specifications and plans all of which are hereto attached.

6. KEEPING OF PLANS AND SPECIFICATIONS ACCESSIBLE

The Contractor shall be furnished with three (3) copies of all plans, profiles, and specifications without expense to him, and shall keep one copy of the same constantly accessible on the work site.

7. QUANTITIES AND MEASUREMENTS

No extra or customary measurements of any kind will be allowed, but the actual length, area, solid, contents, number and weight only shall be considered, unless otherwise specifically provided.

8. LINE AND GRADE STAKING

All layout and construction staking shall be done by the Contractor from control points shown on the plans.

9. ENGINEER AND INSPECTION

It is agreed by the Contractor that the Owner shall be and is hereby authorized to appoint from time to time such engineers and inspectors as the said Owner may deem proper, to inspect the material furnished and the work done under this Agreement, and to see that the said material is furnished, and said work is done in accordance with the specifications therefore. The Contractor shall furnish all reasonable aid and assistance required by the engineers or inspectors for the proper inspection and examination of the work and all parts of the same. The Contractor shall furnish all reasonable aid and assistance required by the engineers or inspectors as appointed, when the same are consistent with the obligations of the Agreement and the accompanying specifications provided; however, should the Contractor object to any order by any subordinate engineer or inspector, the Contractor may within six (6) days make written appeal to the Director of Public Works for his decision.

10. DISCREPANCIES AND OMISSIONS

It is further agreed that it is the intent of this contract that all work must be done, all material must be furnished in accordance with the generally accepted practice, and the event of any discrepancies between the plans and specifications, or otherwise, or in the event of any doubt as to the meaning and intent of any portion of the contract, specifications or plans, the ENGINEER shall define which is intended to apply to the work.

11. LOSSES FROM NATURAL CAUSES

All loss or damage arising out of the nature of work to be done, or from the action of the elements, or from any unforeseen circumstances in the prosecution of the same, or from unusual obstructions or difficulties which may be encountered in the prosecution of the work, shall be sustained and borne by the Contractor at his own cost and expense.

12. ESTIMATED QUANTITIES

This agreement, including the specifications, plans, and estimates, is intended to show clearly all work to be done and material to be furnished under this contract at unit prices are approximate and are to be used only as a basis for estimating the probable cost of the work and for comparing the proposals offered for the work. It is understood and agreed that the actual amount of work to be done and material to be furnished under this contract may differ somewhat from these estimates, and that where the basis for payment under this contract is the unit price method, payment shall be for the actual amount of such work and material furnished.

Where payment is based on the unit price methods, the Contractor agree that he will make no claim for damages, anticipated profits or otherwise on account of any differences which may be found between the quantities of work actually done, the material actually furnished under this contract, and the estimated quantities contemplated and contained in the proposal; provided, however, that in case the actual quantity of any "Major Item" should become as much as 50% more than, or 50% less than the estimated or contemplated quantity for such items, then either parts of this Agreement, upon demand, shall be entitled to a revised consideration upon the portion of the work above or below 50% of the estimated quantity.

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

13. CHANGES AND ALTERATIONS

The Contractor further agrees that the OWNER may make such changes and alterations as the Owner may see fit, in the line, grade, form, dimensions, plans, or materials for the work herein contemplated, or any part therefore, either before or after the beginning of the construction, without affecting the validity of this contract and the accompanying bond.

If such changes or alterations diminish the quantity of the work to be done, they shall not constitute the basis for a claim for damages, or anticipated profits on the work that may be dispensed with. If they increase the amount of work, and the increased work can fairly be classified under the specifications, such increase shall be paid for according to the quantity

actually done and at the unit price established for such work under this contract; otherwise, such additional work shall be paid for as provided under Extra Work. In case the OWNER shall make such changes or alterations as shall make useless any work, then the OWNER shall recompense the Contractor used in said work, for any material or labor so used, and for any actual loss occasioned by such changes, due to actual expenses incurred in preparation for the work as originally planned.

14. EXTRA WORK

The term "Extra Work" as used in this contract shall be understood to mean and include all work that may be required by the ENGINEER and OWNER 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 are not covered by the Contractor's Proposal, except as provided under Change and alterations in Paragraph 14 herein above.

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 to pay the Contractor for performing said Extra Work shall then be determined by one or more of the following methods.

Method (A) - By agreed unit prices;

Method (B) - By agreed lump sum; or

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

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 foreman, timekeepers, mechanics, and laborers, and materials, supplies, teams, trucks, rentals on machinery and equipment, for the time actually employed or used on such Extra Work, plus actual transportation charges necessarily incurred, if the kind of equipment or machinery be not already at the jobsite, together with all power, fuel, lubricants, water and similar operating expenses; also, all necessary incidental expenses incurred directly on account of such Extra Work, including Social Security, Old Age Benefits, and other payroll taxes, and a ratable portion of premiums on Construction and Maintenance Bonds, Public Liability and Property Damages and Workmen's Compensation, and all other insurance as may be required by any law or ordinance, or directed by the ENGINEER, or by them agreed to. 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 Contactor. Unless otherwise agreed upon, the prices for the use of machinery and equipment shall be determined by using 90 percentage of the latest schedule of Equipment Ownership Expense adopted by the Associated General Contractors of America. Where practicable, the terms and prices for the use of machinery and equipment shall be incorporated in the Written Extra Work Order. The fifteen percent (15%) of the "actual field cost" to be paid the Contractor shall compensate him for his profit, overhead, general superintendence, and field office expenses, and all other elements of cost and expense not embraced within the "actual field cost" as herein defined, saved that where the Contractor's Camp or Field Office must be maintained primarily on account of such Extra Work, then the cost to maintain and operate the same shall be included in the "actual field cost".

No claim for Extra Work of any kind will be allowed unless ordered in writing by the ENGINEER. Notice is hereby given that all change orders must be executed in writing before the work is started; any extra work performed otherwise will be at the Contractor's risk. In case any orders or instructions, whether 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 such Extra Work. Should a difference of opinion arises as to what does or does not constitute Extra Work, or as to the payment therefore, and ENGINEER insists upon its performance, the Contractor shall proceed with the work after making written request for written order and shall keep an accurate account of the "actual field cost" therefore, as provided under Method (C).

15. PRELIMINARY APPROVAL

No Engineer, supervisor, or inspector shall have any power to waive the obligations of this contract for the furnishing by the Contractor of good material, and of his performing good work as herein described, and in full accordance with the plans and specifications. No failure or omission of any Engineer, supervisor, or inspector to condemn any defective work or material shall release the Contractor from the obligations to at once tear out, remove, and properly replace the same at any time prior to final acceptance upon the discovery of said defective work, or material; provided, however, that the ENGINEER, shall upon request of the Contractor, inspect and accept or reject any material furnished, and in event the material has been once accepted by the ENGINEER, such acceptance shall be binding on the OWNER, unless it can be clearly shown that such material furnished does not meet the specifications for this work.

16. DEFECTS AND THEIR REMEDIES

It is further agreed that the work or any part therefore, or any material brought on the ground for use in the work or selected for the same, shall be deemed by the ENGINEER as

unsuitable or not in conform it with the specifications, the Contractor shall, after receipt of written notice thereof from the ENGINEER, forthwith remove such material and rebuilt or otherwise remedy such work so that it shall be in full accordance with this contract.

17. TIME AND ORDER OF COMPLETION

It is the meaning and intent of this contract, except as otherwise provided or in the Supplementary and General Requirements Specifications, that the Contractor shall be allowed to prosecute his work at such times and seasons, in such order of precedence, and in such manner as shall be most conducive to economy of construction provided, however, that the order and time of prosecution shall be such that the work shall be substantially completed as a whole and in part, in accordance with this contract, plans and specifications and within the time of completion hereafter designated; provided, also, that when the OWNER is having other work done, either by contract or by his own force, the Department of Public Works may direct the time and manner of construction the work done under this contract, so that conflict will be avoided and the construction of the various works being done for the OWNER shall be harmonized.

The Contractor further agrees that he will commence within ten days after the date of the written Notice to proceed, and will progress therewith so that the work shall be substantially completed in accordance with the terms of the agreement as stated in the Proposal and Supplementary conditions. By term "substantially completed" it is meant that the structure has been made suitable for use or occupancy and is in condition to serve its intended purpose, but still may require minor miscellaneous work and adjustment.

18. EXTENSION OF TIME

Should the Contractor be unduly delayed in the completion of the work by any cause which the ENGINEER shall decide justifies the delay, then an extension of time will allowed for completing the work, sufficient to compensate for the delay, the amount of the extension to be determined by the Department of Public Works; provided, however, that the Contractor shall give the Public Works Director/ENGINEER notice in writing within ten days of the cause of such delay.

19. HINDRANCESS AND DELAYS

No charge shall be made by the Contractor for hindrances or delays from any cause (except where the work is stopped by of the OWNER) during the progress of any portion of the work embraced in this contract. In case said work shall be stopped by the act of the OWNER, then such expense as in the judgment of the ENGINEER is caused by such stopping of said work shall be paid by the OWNER to the Contractor.

20. PRICE FOR WORK

In consideration of the furnishing of all the necessary labor, equipment, and material, and the completion of all work by the Contractor, and on the completion of all work and delivery of all material embraced in this contract in full conformity with the specifications and stipulations herein contained, the OWNER agrees to pay the Contractor the prices set forth in the Proposal hereto attached, which has been made a part of this contract; and the Contractor hereby agrees to receive such prices in full furnishing all material and all labor required for the aforesaid work, also for all expenses incurred by him, and for well and truly performing the same and the whole thereof in the manner and according to this Agreement, the attached specifications, and requirements of the ENGINEER.

21. PARTIAL PAYMENT

The Contractor shall submit a written statement showing as completely as practicable the total value of the work he has accomplished up to and including the last day of the preceding month (said statement shall include the value of all sound materials delivered on the job site that are to be fabricated into the work and for which invoices are furnished to the ENGINEER on or before the third (3rd) day of each month).

The Department of Public Works shall then prepare a statement for partial payment to the Contractor on or before the tenth (10) day of each month.

The OWNER shall then pay the Contractor once a month the total amount of the statement (provided the Contractor has timely submitted his statement to the ENGINEER and timely submitted his payroll reports to the OWNER), less ten percent (10%) of the amount thereof, which ten percent (10%) shall be retained until final payments, and further less all previous payments, and further less or further sums that may be retained by the Owner under the terms of this Agreement and other Contract Documents, It is understood, however, that in case the whole work be near to completions and some unexpected and unusual delay occur due to no fault or neglect on the part of the Contractor, the OWNER may, upon written recommendation of the ENGINEER, pay a reasonable and equitable portion of the retained percentage to the Contractor; or, the Contractor at the OWNER'S option, may be relieved of the obligation to fully completed the work, and thereupon, the Contractor shall receive payment of the balance due him under the contract subject only to the conditions stated in Paragraph 24 hereof.

22. FINAL COMPLETION AND ACCEPTANCE

Within fifteen (15) days after the Contractor has given the ENGINEER written notice that the work has been completed, or substantially completed, the ENGINEER, and the OWNER shall inspect the work and within said time, if the work is found to be completed in accordance with the Plans and Specifications, the OWNER will issue the Contractor a

Certificate of Completion.

23. FINAL PAYMENT

Upon the issuance of the Certificate of Completion, the ENGINEER shall proceed to make final measurements and prepare final statement of the value of all work performed and materials furnished under the terms of the Agreement and shall certify same to the OWNER, who shall pay to the Contractor on or before the thirtieth (30th) day after the date of the Certificate of Approval has been issued, provided he has fully performed his contractual obligations under the terms of this contract; and said payment shall become due in any event upon said performance by the Contractor.

24. DELAYED PAYMENTS

Should the OWNER fail to make payment to the Contractor of the sum named in any partial or final statement, when payment is due, or should the ENGINEER fail to issue any statement on or before the date above provided, then the OWNER shall pay to the Contractor in addition to the sum shown as due by such statement, interest thereon at the rate of five percent (5%) per annum from date due as provided in Paragraphs 22 and 24, until fully paid, which shall fully liquidate any injury to the Contractor growing out of such delay in payment.

25. ENGINEER'S AUTHORITY AND DUTY

It is mutually agreed between the parties of this Agreement that the ENGINEER shall inspect all work included herein and give directions relative to the execution of the work.

The ENGINEER shall determine the amount, quality, acceptability, and fitness of the several kinds of work and materials which are to be paid for under this contract and shall decide all questions which may arise in relation to said work and this construction thereof. The ENGINEER'S estimates and decisions shall be final and conclusive, except as herein otherwise expressly provided. In any case any question shall arise between the parties hereto relative to said contract or specifications, the determination or decision of the ENGINEER shall be a condition precedent to the right of the Contractor to receive any money or payment for work under this contract affected in any manner or to any extent by such question.

The ENGINEER shall decide the meaning and intent of any portion of the specifications and of any plans or drawings where the same may be found obscure or be in dispute. Any differences or conflicts in regard to their work which may arise between the Contractor under this contract and other Contractors performing work for the OWNER shall be adjusted and determined by the ENGINEER.

26. CONTRACTOR'S DUTY

The Contractor shall give personal attention to the faithful prosecution and completion of this work and shall be present either in person or by duly authorized representative on the site of the work continually during its progress. The Contractor will make available emergency staff and telephone numbers for non-working hours in case of emergencies or other problems related to the project which must be taken care of immediately. The emergency staff representing the Contractor must respond within 30 minutes from notification.

27. CONTRACTOR'S AGENT

The Contractor during his absence from the work shall keep a competent superintendent or manager upon the work, fully authorized to act for him in his absence and to receive such orders as may be given for the proper continuance of the work. Notice to do any work, to alter work, to cease work which the Contractor is obligated to do; or concerning any imperfections in work or any material furnished when given to the superintendent or manager of the Contractor in charge of any operation of the work in the absence of the Contractor, provided any notice given under this paragraph shall be in writing.

28. CHARACTER OF EMPLOYEES

The Contractor agrees to employ only orderly, competent and skillful employees to do the work; and that whenever the ENGINEER shall inform him in writing that any person or persons on the work are, in his opinion, incompetent, unfaithful or disorderly, such man or men shall be discharged from the work and shall not again be employed on the same without the ENGINEER'S written consent.

29. CONSTRUCTION PLANT

The Contractor shall provide all labor, tools, equipment, machinery, and material necessary in the prosecution and completion of this contract where it is not otherwise specifically provided that the OWNER, shall furnish the same, and it is also understood that the OWNER shall not be held responsible for care, preservation, conservation, or protection of any material, tools or machinery or any part of the work until it is finally completed and accepted. It should be understood that the OWNER will not loan plant tools or equipment to the Contractor.

30. RIGHT OF ENGINEER TO MODIFY METHODS AND EQUIPMENT

If, at any time, the methods or equipment used by the Contractor are found to be inadequate to secure the quality of work or the rate or progress required under this contract, the ENGINEER may order the Contractor in writing to increase their safety or improve their character and efficiency, and the Contractor shall comply with such order.

If at any time the working force of the Contractor is inadequate for securing the progress

herein specified, the Contractor shall, if so ordered in writing increase his force or equipment, or both, to such an extent as to give reasonable assurance of compliance with the schedule of progress.

31. SANITATION

Necessary sanitary conveniences for use of laborers on the work, properly scheduled from public observation, shall be constructed and maintained by the Contractor in such manner and at such points as shall be approved by the ENGINEER and their use shall be strictly enforced.

32. CONTRACTOR'S BUILDINGS

The building of structures or other forms of protection will be permitted only at such places as the ENGINEER shall direct and the sanitary conditions of the grounds in or about such structures shall, at all times, be maintained in a manner satisfactory to the Department of Public Works and the ENGINEER.

33. PROTECTION AGAINST ACCIDENT TO EMPLOYEES AND THE PUBLIC

Contractor assumes the sole responsibility for the safety and protection of the premises, adjoining property, employees, pedestrian, vehicles, vehicle operators, and other persons and shall provide and maintain suitable signs, barricades, and at night shall also maintain warning lights, as will effectually warn pedestrians and vehicular traffic of any obstruction and safeguard the public and the work from injury or damage.

The Contractor shall be liable for and shall indemnify and save harmless the OWNER, its agents and employees from any and all claims for damages on account of his failure to fully protect the premises, vehicular traffic, all adjoining property, employees and other persons.

34. PROTECTION OF ADJOINING PROPERTY

The Contractor shall take proper means to protect the adjacent or adjoining property or properties in any way encountered and which might be injured or seriously affected by any process of construction, to be undertaken by this agreement, from any damages or injury by reason of said process of construction.

The Contractor shall be liable for and shall indemnify and save harmless the OWNER, its agents and employees from any and all claims for damages on account of his failure to fully protect the premises, all adjoining property, employees and other persons.

35. PROTECTION AGAINST CLAIMS SUBCONTRACTORS, LABORERS, MATERIALMEN AND FURNISHERS OF MACHINERY, EQUIPMENT AND SUPPLIES

The Contractor agrees that he will indemnify and save the OWNER harmless from all claims growing out of the lawful demands of subcontractors, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, power tools and all supplies, including commissary, incurred in the furtherance of the performance of this contract. When so desired by the OWNER, the Contractor shall furnish satisfactory evidence that all obligations of the nature hereinabove designated have been paid, discharged or waived. If the Contractor fails to do so, then the OWNER may pay unpaid bills, of which the OWNER has written notice direct and withhold from the Contractor's unpaid compensation a sum of money deemed reasonable sufficient to liquidate any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged, whereupon payments to the Contractor shall be resumed in full, in accordance with the terms of this contract, but in no event shall no provisions of this sentence be construed to impose any obligation upon the OWNER by either the Contractor or his Surety.

36. PROTECTION AGAINST ROYALTIES OR PATENTED INVENTION

The Contractor shall protect and save harmless the OWNER from all and every demand for damages, royalties or fees on any patented invention used by him in connection with the work done or material furnished under his contract; provided, however, that if any patented material, machinery, appliance, or invention is clearly specified in this contract, then, and in that event, the cost of procuring the rights of use and the legal release or indemnity shall be borne and paid by the OWNER, direct unless such cost is determined and directed to be included in the bid price at the time the proposal is submitted.

37. LAWS AND ORDINANCES

The Contractor shall, at all times, observe and comply with all Federal, State, and Local law, ordinances and regulations, which in any manner effect the contract of the work, shall be responsible for obtaining all necessary permits, such as buildings, plumbing, fire, tree, creek and etc. as required for the work, and shall indemnify and save harmless the OWNER against any claim arising from the violation of any such law and ordinance, whether by the Contractor or his employees. In case the OWNER is a body politic and corporate, the law from which it derives its powers, insofar as the same regulates the objects for which, or the manner in which, or the conditions under which, the OWNER may enter into contract, shall be controlling, and shall be considered as part of this contract, to the same effect as though embodied herein.

38. LIQUIDATED DAMAGES FOR DELAY

And the Contractor agrees that time is of the essence of this contract, and that for each day of delay beyond the date stated in the Supplementary Conditions for the completion of the work herein specified and contracted for, the OWNER may withhold permanently from the Contractor's total compensation the sum or amount stated in the Supplementary Conditions

as stipulated liquidated damages for such delay.

39. ASSIGNMENT AND SUBLETTING

The Contractor further agrees that he will retain personal control and will give his personal attention to the fulfillment of this contract and that he will not assign by Power of Attorney, or otherwise, nor sublet said contract without the written consent of the Owner, and that no part or feature of the work will be sublet to anyone objectionable to the ENGINEER or the OWNER. The Contractor further agrees that the subletting of any portion or feature of the work or materials required in the performance of this contract, shall not relieve the Contractor from his full obligations to the OWNER, as provided by this Agreement.

40. ABANDONMENT BY CONTRACTOR

In case the Contractor should abandon and fail or refuse to resume work within ten (10) days after written notification from the OWNER, or the the ENGINEER, or when such orders are consistent with this Contract, or with this Agreement, or with the Specifications hereto attached, then, and in that case, the Surety on the bond 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 the work, may be held for use on the work by the OWNER 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 15, 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 hereinbefore provided for, within ten (10) days after service of such notice, then the OWNER may provide for completion of the work in either of the following elective manners:

- (a) The OWNER may thereupon employ such force on men and use such machinery, equipment, tools, materials and supplies as said OWNER may deem necessary to complete the work and charge the expense of such labor, machinery, equipment, tools, materials, and supplies to said Contractor, and the expense so charged shall be deducted and paid by the OWNER out of such monies as may be due, or that may thereafter at any time become due to the Contractor under any by virtue of the Agreement. In case such expense is less than the sum which would have been payable under this contract, if the same has been completed by the Contractor, then said Contractor shall receive the

difference. In case such expense is greater than the sum which would have been payable under this contract, if the same had been completed by said Contractor, then the Contractor and/or Surety shall pay the amount of such expenses to the OWNER; or

- (b) The Owner 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 the 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 under this contract, such increase shall be charged to the Contractor, and the Surety shall be and main bound therefore. However, should the cost to complete any such contract prove to be less than what would have been the cost to complete under this contract, the contractor and/or his Surety shall be credited therewith.

When the work shall have been substantially completed the Contractor and his Surety shall be so notified and Certificates of Completion and Acceptance, as provided in Paragraph 23 hereinabove, shall be issued. A complete itemized statement of the contract accounts certified to by the Department of Public Works and the ENGINEER as being correct, shall then be prepared and delivered to the Contractor and his surety, whereupon the Contractor and/or his Surety, or the OWNER as the case may be, shall pay the balance due as reflected by said statement, within fifteen (15) days after the date of such Certificate of Completion.

In the event the statement of accounts shows that the cost to complete the work is less than that which would have been the cost to the OWNER had the work been completed by the Contractor and/or his Surety shall pay the balance shown to be due by them to the OWNER, 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 OWNER, within the time designated herein above, and there remains any machinery, equipment, tools, materials, or supplies on the site of the work, notice thereof, 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 of such notice, such property shall be held at the risk of the Contractor and his Surety subject only to the duty of the OWNER to exercise ordinary care to protect such property. After fifteen (15) days of said notice, the OWNER may sell such machinery, equipment, tools, materials, or supplies and apply the net sum derived from such sale to the credit of the Contractor and his Surety. Such sale may be made at either public or private sale, with or without notice, as the OWNER may elect. The OWNER shall release any machinery, on the work, and belong to persons other than the Contractor or his Surety, to their proper OWNERS.

41. BOND

It is further agreed by the parties to this contract that the Contractor will execute payment and performance bonds for the satisfactory performance of the work in accordance with this contract in the forms provides for this purpose, and it is agreed that this contract not be affect until such bonds are furnished to and approved by the OWNER.

42. TIME OF FILING CLAIMS

It is further agreed by both parties hereto that all questions or adjustment presented by the Contractor shall be in writing and filed with the Department of Public Works and the ENGINEER within a reasonable time after the ENGINEER has given any directions, orders, or instructions to which the Contractor desires to take exceptions. The Department of Public Works and the ENGINEER shall reply to such written exceptions by the Contractor and render his final decision in writing. In case the Contractor should appeal from the Department of Public Works and the ENGINEER'S decision, such appeal shall be filed with the ENGINEER and the OWNER in writing with ten (10) days after the date of the Department of Public Works and the ENGINEER'S final decision. It is further agreed that final acceptance of the work by the OWNER and the acceptance by the Contractor of the final payment shall be a bar to any claims by either party, except where noted otherwise in the Contract Documents.

END OF GENERAL CONDITIONS OF AGREEMENT

GENERAL REQUIREMENTS

A. GENERAL

The specifications contain detailed instructions and descriptions covering the major items of construction and workmanship necessary for building and completing the various units or elements of the project. The specifications are intended to be so written that only first class workmanship and finish of the best grade quality will result. The fact that these specifications may fail to be so complete as to cover all details will not relieve the Contractor of full responsibility for providing a completed project of high quality, first class finish and appearance and satisfactory for operation all within the apparent intent of the plans and specifications.

B. MATERIALS

These specifications are intended to be so written that only materials of the best quality and grade will be furnished. The fact that the specifications may fail to be sufficiently complete in some detail will not relieve the Contractor of full responsibility for providing materials of high quality. The specifications for materials set out the minimum standard of quality which the owner believes necessary to procure a satisfactory project. No substitutions will be permitted unless the Contractor has received written permission of the ENGINEER to make a substitution for the material which has been specified.

Where the term "Or Equal" or "Or Approval Equal" is used, it is understood that if a material, product or piece of equipment bearing the name so used is furnished, it will be approvable as the particular trade name was used for the purpose of establishing a standard of quality acceptable to the Owner. If a product of any other name is proposed for use, the Engineer's approval thereof must be obtained before the proposed substitute is procured by the Contractor. Wherever the alternate "Or Equal" is used, it is understood to mean "Or Approved Equal".

The manufacturer of each item of material and/or equipment shall furnish the Owner with a sworn statement that all material furnished by him under this contract complies with these specifications and all applicable ASTM, AWWA, ASA, and Federal Specification as set forth herein.

C. MANUFACTURER'S QUALIFICATIONS

All material and equipment furnished under this Contract shall be the product of manufacturers who are known to be skilled and who have been regularly engaged for a period of five years or more in the manufacture of each specified type of equipment, or its counterpart.

D. CHANGE OF LOCATION

No change of the alignment is contemplated. However, should a change be necessary due to difficulty in right-of-way, or other reasons, the Owner, reserved the right to make such change. Unless it can be clearly shown that such change will be allowed the Contractor, except as provided by unit prices applicable to such change.

E. HANDLING MATERIALS NOT APPROVED

The contractor shall remove from the site any materials found to be damaged and any materials not meeting the specifications shall be taken off the site. These materials shall be removed promptly, unless the Department of Public Works and the Engineer will accept the materials after repairing. Materials found to be damaged, or not acceptable to the Engineer, shall be removed if installed and then found to be damaged or not acceptable. Inspection before installation shall not relieve the contractor from any responsibility to furnish good quality materials.

F. SAFETY AND PROPERTY PROTECTION

1. Barricades, Guards and Safety Provision: To protect persons from injury and to avoid property damage, adequate barricades, construction signs, torches, red lanterns, and guards as required shall be placed and maintained during the progress of the construction work and until is it safe for traffic to use the roadway. When necessary, watchmen shall be provided to prevent accidents and no extra compensation will be allowed therefore. Rules and regulations of the local authorities respecting safety provisions shall be observed.
2. Property Protection: Trees, Fences, signs, poles, guy wires, and all other property shall be protected unless their removal is authorized, and any property damage shall be satisfactorily restored by the Contractor.

The Contractor shall make adequate provisions for the protection of permanent paving, both concrete and asphalt, from damage by construction equipment.

SUPPLEMENTARY CONDITIONS

The Supplementary Conditions are in addition to and do not void any portions of the General Conditions of the Agreement or other parts of the Contract Documents; however, wherever there is a direct conflict in meaning, these General Supplementary Conditions take precedence.

1. MATERIAL AND EQUIPMENT

It shall be clearly understood the responsibility for the protection and safekeeping of equipment and materials on the project site will be entirely that of the Contractor and that no claim shall be made against by reason of any act of another Contractor, an employee, or trespasser. It shall be further understood that should any occasion arise necessitating access to the sites occupied by these stored materials and equipment, the Contractor owning or responsible for the stored materials or equipment shall immediately moved same.

No materials or equipment may be placed upon any property until the OWNER has approved the location contemplated by the Contractor to be used for storage.

2. USE OF PREMISES AND REMOVAL OF DEBRIS

The Contractor expressly undertakes at his own expense;

- a. To take every prevention against injuries to persons or damage to property;
- b. To store his apparatus, materials, supplies and equipment in such orderly fashion at this site of the work as will not unduly interfere with the progress of his work or the work of any other Contractor;
- c. To clean up frequently and remove all refuse, scrap materials, and debris caused by his operations, to the end that all times the site of the work shall present a neat, orderly and workmanlike appearance.
- d. Before final payment, to remove all surplus materials, false work, temporary structures, including foundations thereof, plant of any description and debris of every nature resulting from his operations, and to put the site in a neat, orderly condition.

3. SAFETY REQUIRMENTS

Every reasonable and proper precaution shall be taken by the Contractor to insure the safety of the work and employed personnel, the public, and the adjacent property whether publicly or privately owned.

To protect persons from injury and to avoid property damage, barricades, signs, lanterns, or lights and guards as required shall be placed and maintained by the Contractor at the site and access way during the progress of the construction.

Rules and Regulations governing "Occupational Safety and Health Standards" as published by the Occupational Safety and Health Administration, Department of Labor, shall be observed for all operations and all work performed under this contract.

All costs involved in complying with the above requirements shall be borne by the Contractor.

4. DETOURS

The Contractor shall provide barricades, signs, lights or guards and any other items required to maintain properly marked detours around his operations.

All costs involved in complying with the above requirements shall be born on by the Contractor.

5. SCOPE, NATURE, AND INTENT OF SPECIFICATIONS AND PLANS

The specifications and plans are intended to supplement but not necessarily duplicate each other. Any work exhibited in the one and not in the other shall be executed as if it had been set forth in both.

Should anything necessary for a clear understanding of the work be omitted from the specifications and plans or should the requirements appear to be in conflict, the Contractor shall secure written instructions from the ENGINEER before proceeding with the construction affected thereby. It is understood and agreed that the work shall be performed according to the true intent of the contract documents.

All products specified by manufacturer's name shall be installed in accordance with manufacturer's printed instructions.

When equipment or material furnished by the Contractor cannot be installed as specified or as shown on the plans, the Contractor shall, without extra cost to the OWNER, make all modifications required to properly install the equipment or material. Such modifications shall be subject to the approval of the ENGINEER.

Dimensions and elevations shown on the plans shall be accurately followed even though they differ from scaled measurements. No work shown on the plans, the dimensions of which are not indicated, shall be executed until necessary dimensions have been obtained from the ENGINEER.

The general arrangement of all accessories and appurtenances shall be as indicated on the plans or as later furnished on approved shop drawings.

Reference to standard specifications of any technical society, organization, or association or to codes of local or state authorities shall mean the latest standard, code, specification or tentative specification adopted and published at the date of taking bids, unless specifically stated otherwise.

No attempt has been made in the specifications to segregate work to be performed by any trade or subcontract. Any segregation between the trades or crafts will be solely a matter for agreement between the Contractor and his employees and his subcontractors.

6. PERMITS AND FEES

The Contractor shall make applications for, secure and pay all costs for permits, inspection fees, licenses and deposits required for the work to be performed.

Each subcontractor shall bear the cost of permits and fees relative to work.

7. SUNDAY, HOLIDAY, AND NIGHT WORK

No work shall be done between the hours of 7:00p.m. and 7:00a.m. nor on Sundays or Legal Holidays without the written approval of the Owner in each case, except such work as may be necessary for the proper care, maintenance, and protection of work already done or of equipment or in case of emergency.

Any work necessary to be performed after or outside regular working hours, on Sundays, or Legal Holidays, shall be performed without additional expense to the OWNER.

8. TIME OF COMPLETION

Article 17 of the General Conditions of the Agreement shall be supplemented as follows.

The Contractor shall have substantially completed all construction work undertaken by him no later than forty-five (45) calendar days from the date of issuance or a written notice to proceed from the OWNER

9. LIQUIDATED DAMAGES

Article 38 of the General Conditions of the Agreement shall be supplemental as follows:

The Contractor agrees that time is of the essence on this contract and that for each calendar day of delay beyond the time established for completion of the work specified and contract for the OWNER may withhold permanently from the Contractor's compensation the sum of Two Hundred Dollars (\$200.00) as stipulated liquidated damages for delay.

10. PROGRESS SCHEDULES

Prior to beginning work, the Contractor shall furnish the Engineer with an anticipated progress schedule covering all the work to be performed under this contract. During construction, the Contractor shall revise the schedule periodically as requested to reflect as nearly as possible to actual construction operations. The Contractor shall also furnish the ENGINEER as soon as possible with a schedule showing ordering delivery dates of all equipment materials to be incorporated in the work; these dates shall be keyed to the proposed progress schedule for the work.

11. SUBCONTRACTING

- a. The Contractor may utilize the service of specialty subcontractors on those parts of the work which, under normal contracting practices, are performed by specialty subcontractors.
- b. The Contractor shall not award any work to any subcontractor without prior written approval of the ENGINEER, which approval will not be given until the Contractor submits to the Department of Public Works and the ENGINEER a written statement concerning the proposed award to the subcontractor, which statement shall contain such information as the Department of Public Works and the ENGINEER may require.
- c. The Contractor shall be as fully responsible to the OWNER for the acts and omissions of his subcontractors and of persons either directly or indirectly employed by them as he is for the acts and omissions of persons directly employed by him.
- d. The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the Contractor by the terms of the Notice to Bidders, General and Supplementary Conditions and other Contract Documents insofar as applicable to the work of subcontractors and to give the Contractor the same power as regards terminating any subcontract that the OWNER may exercise over the Contractor under provisions of the Contract Documents.
- e. The General Contractor will be responsible for and make good at is own expense any damage or injury to work done by subcontractors until final completion and final acceptance of all the work to be done.
- f. Nothing contained in this contract shall create any contractual relation between subcontractor and the OWNER.

12. INSPECTION AND TESTING

If Contract specifications, codes, or OWNER'S instructions require any work to be specially tested or approval, the Contractor shall give the ENGINEER a 24 hour notion of its readiness

for inspection and make all necessary thereof.

The Contractor shall finish at his expense all labor and assistance that may be needed by the Department of Public Works and the ENGINEER in performing any testing or supervision thereof.

13. MEASUREMENT AND PAYMENT

The total bid price of the contract shall cover all work shown on the contract drawings and required by the specifications and other contract documents. All costs in connection with the work, including furnishing of all materials, equipment, supplies, and appurtenances; providing all construction plant, equipment and tools; and performing of all necessary labor to fully complete the work, shall be included in the prices names "Proposal". No item that is required by the Contract Documents for the proper and successful completion of the work will be paid for outside of or in addition to prices submitted in the "Proposal". All work not specifically set forth as a pay item in the Proposal shall be considered a subsidiary obligation of the Contractor, and all costs in connection therewith shall be included in the prices names in the "Proposal".

14. PAYMENT WITHHELD

The Department of Public Works and the ENGINEER may withhold, or on account of subsequently discovered evidence, nullify the whole or a part of any certificate to such extent as may be necessary to protect the OWNER from loss on account of:

- a. Defective work not remedied.
- b. Claims filed or reasonable evidence indicating probable filing of claims.
- c. Failure of the Contractor to make payments when due to subcontractors or for materials or for labor.
- d. A reasonable doubt that the contract can be completed for the balance then unpaid.

15. DEFENSE OF SUITS

In case any action in court is brought against the OWNER, the Department of Public Works and the ENGINEER, or any officer or agent of either of them, for the failure, omission or neglect of the Contractor to perform any of the covenants, acts matters, or things by this contract undertaken; or for injury or damage caused by the alleged negligence of the Contractor of his subcontractors or his or their agents, or in connection with any claim based on lawful demands of subcontractors, workmen, materialmen, or suppliers; the Contractor shall indemnify and save harmless the OWNER, and the Department of Public Works and the ENGINEER and their officers and agents from all losses, damages, costs, expenses, judgments, or decrees arising out of such action.

16. GUARANTEE

The Contractor shall furnish the OWNER with a Maintenance Bond for a period of one (1) year to be effective from the date of issue of Certificate of Acceptance. This Maintenance Bond is for the guarantee for the work, performed to be free from defects due to faulty workmanship or materials installed on this project. Neither final acceptance nor finally payment nor any provision in the Contract Documents relieves or notifies the Contractor in writing that certain maintenance work needs to be done, and the Contractor does not do the maintenance work within a reasonable time, such time to be governed by the hazard or inconvenience to the public or the OWNER, the OWNER is to do, or to have such work done, and these charges will be paid for by the Contractor, under the Maintenance Bond provision.

17. DRAWINGS AND SPECIFICATIONS FURNISHED

The contractor will be furnished with three (3) sets of drawings and specifications without cost, additional copies will be paid for by the Contractor. The charges will be the actual cost of reproduction per set.

18. TESTING LABORATORY SERVICES

A recognized testing laboratory will be selected to perform the testing services.

Payment for Testing: The first shall be paid for by the OWNER.

Any re-testing required due to failing test will be paid for by the Contractor.

All tests shall be made when, according to the Contractor, the item is ready for testing.

19. INSURANCE AND BONDING REQUIREMENTS

The following bonding and issuance requirements shall be provided:

- A. A bid guarantee from each bidder equivalent to five percent of the bid price. The "bid guarantee" shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of his bid, execute such contractual documents as may be required within the time specified.
- B. A performance bond on the part of the Contractor for 100 percent of the contract price. A "performance bond" is one executed in connection with a contract to secure fulfillment to all the Contractor's obligations under such contract.
- C. A payment bond on the part of the Contractor for 100 percent of the contract price. A "payment bond" is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract.

D. The successful bidder, to whom the contract is awarded, will be required to carry the hereinafter listed types and amounts of insurance, which will protect the Owner, and furnish acceptable proof of payment to premiums thereon:

Comprehensive General			
Liability.....			\$1,000,000/\$1,000,000
Comprehensive Form			
Premises – Operations			
Explosion and Collapse Hazard			
Underground Hazard			
Products/Completed Operations Hazard			
Contractual Insurance			
Independent Contractors			
Personal Injury			
Property			
Damage.....			\$100,000
Builder’s Risk.....			\$ Amount of Contract
Workmen’s Compensation.....	In	Accordance	with Statutory Requirements
Broad	Form	Comprehensive	General
Liability.....		\$500,000/\$500,000	
Automobile Public Liability and Property Damage.....	In	Accordance	with Statutory Requirements

20. INDEMNITY

The “Contractor agrees to and shall indemnify and hold harmless the OWNER, its officers, agents, employees and Engineer from and against any and all claims, losses, damages, causes of action, suits and liabilities of every kind, including all expenses of litigation, court cost, and attorney’s fees, for injury to or death of any person, or for damage to any property, arising out of or in connection with the work done by the Contractor under this contract.”

END OF SUPPLEMENTARY CONDITIONS

TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS

Except where specifically noted otherwise in the contract documents, all provisions of pertinent items of the Texas Department of Transportation 2004 Standard Specifications for Construction of Highways, Streets and Bridges shall govern all work to be done under this Contract.

All work under this contract is to be in accordance with the Standards and Specifications for the Acceptance of Public Improvements for the ENGINEER.

If there is a conflict between TxDOT and City Specification, the more stringent shall control unless otherwise authorized by the ENGINEER.

Any conflicts between TxDOT or City Specification and the following Technical Specifications, the project's Technical Specification shall govern.

Copies of the City's Specification are available for review at the Public Works Department, or are available for purchase for \$25.00 per set.

PAYMENT

The City will pay the contractor ninety (90) percent upon completion of the work, and the remaining ten (10) percent upon final completion of all restoration and acceptance by the City of South Padre Island.

Payment for H.M.A.C. Overlay shall be all complete, in place, and includes Tack Coat.

Payment for Full Depth Reclamation shall be all complete, in place, and includes removal and disposal of existing materials, compaction of the subgrade and aggregate, prime coat, saw cutting, compaction, cement stabilization, and final grading. Portland Cement will be paid for separately, by the ton.

Payment for manhole adjustment/treatment shall be all complete, and includes all labor materials, equipment, tools and incidentals.

Payment for flexible base shall be complete, in place, and includes all labor, equipment, material, compaction, and final grading.

FLEXIBLE BASE TYPE B GRADE 2 OR 3 (CALICHE)

A. DESCRIPTION

The work covered by this section consists of the hauling, placing, spreading, sprinkling, shaping, and compaction of Flexible Base Material on the approval subgrade in accordance with specification requirements herein outlined and in conformity with the required lines, grades, and typical cross sections shown on the plans.

B. MATERIAL

Flexible Base:

The flexible base shall be Type B, Grade 2 or 3, Texas Department of Transportation, 2004, Standard Specification for Construction and Maintenance of Highways, Street, and Bridges, "Item 247 Flexible Base".

C. CONSTRUCTION METHODS

Immediately before placing the base material, the subgrade shall be check as to conformity with grade and section.

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. Material deposited upon the subgrade shall be spread and shaped the same day, unless otherwise directed by the Department of Public Works and the ENGINEER in writing. In the event inclement weather or other unforeseen circumstances render impractical the spreading of the material during the first 24-hour period. The material shall be scarified and spread as directed by the Department of Public Works and the ENGINEER. The material shall be sprinkled, if directed, and shall then be bladed, dragged and shaped to conform to typical section as shown on the plans. All areas and "nests" of segregated coarse or fine material shall be corrected or removed and replaced with well graded material, as directed by the Department of Public Works and the ENGINEER. If additional binder is considered desirable or necessary after the material is spread and shaped, it shall be furnished and applied in the amount directed by the Department of Public Works and 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.

The course shall be sprinkled as required and compacted to the extent necessary to provide not less than the present density as hereinafter specified in the Plans. In addition to the requirements specified for density, the full depth of flexible base shown on the plans shall be compacted to the extent necessary to remain firm and stable under construction equipment.

After each section of flexible base is completed, tests as necessary will be made by the Engineer. If the material fails to meet the density requirements, it shall be reworked as necessary to meet these requirements. 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. In that area on which pavement is to be placed, any deviation in excess of $\frac{1}{4}$ inch in cross section and in a length of 12 feet measured longitudinally shall be corrected by loosening, adding, or removing material, reshaping and recompacting by sprinkling and rolling. All irregularities, depressions, or weak spots which develop shall be corrected immediately by scarifying the areas affected, adding suitable by sprinkling and rolling. Should the base course, due to any reason or cause, lose the required stability, density, and finish before the surfacing is complete, it shall be recompact and refinished at the sole expense of the Contractor.

D. MEASUREMENTS

“Full Depth Repair” will be measured by the square yard, complete in place as planned, detailed, and specified.

Flexible Base will be measured by the ton, complete in place, as specified.

E. PAYMENT

This item will be paid for at the Contract Unit Price Bid for “Full Depth Repair” which prices shall include full compensation for all materials, equipment, tools, labor, and any incidentals necessary to complete the work.

Flexible Base will be paid for at the Contract Unit Price and shall include full compensation for all materials, equipment, labor and any incidentals necessary to complete the work.

FLEXIBLE BASE TYPE A GRADE I (CRUSHED LIMESTONE)

A. DESCRIPTION

This item shall govern the material placement and compaction of Crushed Limestone Base to the lines and grades that are shown on the construction drawings. Crushed Limestone Base thickness for various pavement types are shown on the plans.

B. MATERIAL

The Crushed Limestone material shall be Type A, Grade I Texas Department of Transportation, 2004, Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges, "Item 247 Flexible Base".

The Contractor shall not place crushed limestone on the road bed until the Department of Public Works and the ENGINEER has accepted the shaped and compacted subgrade.

The Contractor must maintain the roadbed free of holes, ruts and depressions and in condition to receive the crushed limestone.

The Contractor upon request shall provide certification that the material supplied meet the above requirements prior to delivery to the job site. Samples for testing of the material must be taken prior to the compaction operations.

C. CONSTRUCTION METHODS

The flexible base material shall be placed on the approved subgrade in courses not to exceed six (6) inches compacted depth. It shall be the responsibility of the contractor that the required amount of material be delivered and uniformly spread and shaped. All materials has been cut into the windows, it shall be sprinkled, spread, and rolled in proper sequence to prevent segregation and as necessary for required compaction.

The surface on completion shall be smooth and in conformity with typical sections and to the established lines and grades. Any deviation in excess of ¼ inch in cross-section and in length of 16 feet measured longitudinally shall be corrected.

Flexible base shall be compacted to an apparent dry density of not less that 98 percent of the maximum dry density as determined in accordance with ASTM Test method D698 (Standard Proctor). Tests for density will be made within 24 hours after compaction operations are completed. If the material fails to meet the density specified, it shall be reworked as necessary to meet the density required. Prior to placing any succeeding course of flexible base or surfacing on a previously completed course the density and moisture of the top three (3) inches of flexible base shall be checked and if the test show the density to be more than 2 percent below the specified compaction and moisture content, it shall be reworked as a necessary the density and moisture required.

The first density and depth test as a specific location will be made by commercial testing laboratory designated by the Owner and said tests shall be paid for the Owner. If the test fails, all other tests at the location shall be paid for by the Contractor, by deducting from the final payment.

D. MEASUREMENT & PAYMENT

This item "Full Depth Repair" will be measured by the square yard complete in place as planned and detailed on the cross-section. "Full Depth Repair", price shall include full compensation for all materials, for water required and for all equipment, tools, labor and incidentals necessary to complete the work to the required compaction.

HOT MIX ASPHALTIC CONCRETE PAVEMENT

A. DESCRIPTION

This item shall consist of a base course, a leveling-up course, a surface course, or any combination of these courses as shown on the plans, each to be composed of a compacted mixture of mineral aggregate and asphaltic material.

The pavement shall be constructed on the previously completed and approved subgrade, base, existing pavement, bituminous surface, or in the case of a bridge, on the prepared floor slab, as herein specified and in accordance with the details shown on the plans.

B. MATERIAL

Hot Mix Asphaltic Concrete, Type "D" (fine graded surface course). The hot mix asphaltic concrete shall conform to the requirements of the Texas Department of Transportation, 2004 Standard Specifications for Construction and maintenance of Highway, Streets, and Bridges, "Item 340 Dense-Graded Hot-Mix Asphalt". The successful bidder shall submit an asphalt mix design within ten (10) days upon award of contract to ENGINEER demonstrating that the hot mix asphaltic concrete to be used meets these specifications. The asphalt to be used shall be PG 64-22. Special Modifications to Standard Specification Item 2-340, for this project are as follows:

1. Asphalt Content. Asphaltic Material PG 64-22 shall form from a percent of the mixture by weight obtained from the approved Job Mix Formula (JMF).
2. Hveem Stability. Hveem stability shall not be less than 30.

C. CONSTRUCTION METHODS

Construction methods used in Hot Mix Asphaltic Concrete Pavement shall meet the requirements as set form in the Texas Department of Transportation, 2004 Standard Specifications for Construction and maintenance of Highway, Streets, and Bridges, "Item 340 Dense-Graded Hot-Mix Asphalt", with the following additions:

If the temperature of the asphaltic mixture of a load of any part of a load becomes less than 225°F or more than 350°F after being dumped from the mixer and prior to passing through the lay-down machine, all or any part of the load may be rejected.

1. Transporting Asphaltic Concrete. The asphaltic mixture, prepared as specified above, shall be hauled to the work in tight vehicles previously cleaned of all foreign material. The dispatching of the vehicles shall be arranged so that all material delivered may be placed, and all rolling shall be completed during daylight hours. In cool weather or for long hauls, canvas covers and insulating of the truck bodies may be required. The inside of the truck body may be given a light coating of oil, lime slurry, or other material satisfactory to the Department of Public Works

Director and/or the ENGINEER, if necessary, to prevent mixture from adhering to the body.

2. Placing

- a. Generally, the asphaltic mixture shall be dumped and spread on the approved prepared surface with specified spreading and finishing machine, in such manner that when properly compact the finished pavement will be smooth, of uniform density and will meet the requirements of the typical cross sections and the surface tests. Spreading machine must have electronic controls and be able to lay a minimum of 19 feet of asphalt per pass. During the application of asphaltic material, care shall be taken to prevent splattering of adjacent pavement, curb, gutter and structures.
- b. In placing a level-up course with the spreading and finishing machine, binder twine or cord shall be set to line and grade established by the Department of Public Works and the ENGINEER. If approved by the Department of Public Works and the ENGINEER, level-up courses may be spread with a motor grader.
- c. When the asphaltic mixture is placed in a narrow strip along the edge of an existing pavement, or used to level up small areas of an existing pavement or placed in small irregular areas where the use of a finishing machine is not practical, the finishing machine may be eliminated when authorized by the ENGINEER, provided a satisfactory surface can be obtained by other approved methods.
- d. Flush Structures. Adjacent to flash curbs, gutters, liners, and structures, the surface shall be finished uniformly high so that when compacted it will be slightly above the edge of the curb or flush structure.

3. Conditions for Placement. The asphaltic mixture when placed with a spreading and finishing machine shall not be placed when the air temperature is below 50°F and is falling, but it may be when the air temperature is above 50°F and is rising. The air temperature shall be taken in the shade away from artificial heat. It is further provided that the asphaltic mixture shall be placed only when the humidity, general weather conditions, temperature, and moisture conditions of the base, in the opinion of the ENGINEER, are suitable.

4. Compacting

- a. Rolling with the three-wheel and tandem rollers shall start longitudinally at the sides and proceed toward the center of the pavement, overlapping on successive trips by at least half the width of the rear wheel unless otherwise directed by the Department of Public Works and the ENGINEER. Alternative trips of the roller shall be slightly different in length. On super-elevated curves, rolling shall begin at the low side and progress toward the high side unless otherwise directed by the Department of Public Works and the ENGINEER. Rolling with pneumatic-tire roller shall be done as needed. Rolling shall be continued until not further compression can be obtained and all roller markers are eliminated. One tandem roller, one pneumatic-tire roller and at least one three-wheel roller as specified above shall be provided for each job. If the Contractor elects, he may substitute the three-axle tandem roller for the two-axle tandem roller but in no case shall less than three rollers be in use on each job. Additional rollers shall be provided if needed. The motion of the roller shall be slow enough at all times to avoid displacement of the mixture. If any displacement occurs, it shall be corrected at once by the use of rakes and of fresh mixtures when required. The roller shall not be allowed to stand on pavement which has not been fully compacted. To prevent adhesion of the surface mixture to the roller, the wheels shall be kept thoroughly moistened with water, but an excess of water will not be permitted. All rollers must be in good mechanical condition. Necessary precautions shall be taken to prevent the dropping of gasoline, oil, grease, or other foreign matter on the pavement, either when the rollers are in operation or when standing.

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 as the specified equipment. If the substituted compaction equipment fails to produce the desired compaction as would be expected of the specified equipment, as determined by the ENGINEER, its use shall be discontinued.

- b. Hand Tamping. The edges of the pavement along curbs, headers, and similar structures, and all places not accessible to the roller, or in such positions as will not allow thorough compaction may be compacted using lightly oiled tamps.
5. Opening to Traffic. The pavement shall be opened to traffic when directed by the Department of Public Works and the ENGINEER. The Contractor's attention is directed to the fact that all construction traffic allowed on pavement open to public will be subject to the laws governing traffic on Public Roads and Streets.

If the surface ravel or presents a rough appearance, it will be the Contractor's responsibility to correct this condition at his expense. A fog seal and/or sand seal will be applied.

6. Density Test. Acceptance of Sampling and Testing of Hot Mix Asphaltic Concrete (Compaction):

Hot Mix Asphaltic Concrete will be accepted for density on lot basis. A lot will consist of 5,000 square feet of paving area. One test shall be made for each lot.

Each lot of pavement will be accepted with respect to density, when the average field density is compacted between 91% and 97% as determined in accordance with ASTM D2041, and when no individual determination is less than 90% of the average laboratory density. Four field density determinations will be made for each lot. A Nuclear Gauge will be used to determine field density during laying of the HMAC. The densities shall be determined in accordance with ASTM D2950. The number of tests will be determined by this specification or by request of the ENGINEER. An asphalt sample specimen shall be provided to the testing laboratory for determining the maximum theoretical density and laboratory density.

If heating is necessary, the specimen shall be heated to the lowest temperatures required for proper preparation of the sample.

7. Surface Tests. Tests for conformity with the specified crowns and grade shall be made by the Contractor immediately after final rolling. Any variation exceeding the specified tolerances shall immediately be corrected by removing the defective work and replacing with new material, as directed by the ENGINEER. Any correction required shall be at the sole expense of the Contractor.

For surface course, the finished surface shall not vary more than ¼ inch (6.3mm), when tested with a 16 foot straightedge applied parallel with, or at right angles to the centerline.

The finished surfaces of hot mix asphaltic concrete shall not vary from the gradeline, elevations and cross sections shown on the plans by more than ¼ inch (6.3 mm). The Contractor shall correct pavement areas varying in excess of this amount by removing and replacing the defective work. Skin patching shall not be permitted for correction of low areas nor shall be permitted for correction of high areas.

8. Sampling Pavement. Samples for determination of thickness and density of completed pavements shall be obtained by the Owner. The size, number, and

locations of the samples will be as directed by the Department of Public Works and the ENGINEER.

All tests necessary to determine conformance with the specified requirements will be performed without cost to the Contractor; however, any required retests shall be performed at the Contractor's expense.

Upon delivery of the Hot Mix Asphaltic Concrete to the site, the Owner will hire a reputable commercial Testing Laboratory to sample the material and run laboratory tests to verify that the mixture conforms to project specifications (Gradation, Extraction, and Stability).

ADJUSTING MANHOLES CLEANOUTS, INLETS & WATER VALVE RISERS

A. DESCRIPTION

This item shall govern for the furnishing of materials and for adjusting manholes, cleanouts inlets or water valve risers where required by the plans. Manholes, cleanouts, inlets and water valve risers shall be adjusted to position and/or elevation as shown on the plans, or as ordered by the Department of Public Works and the ENGINEER and in accordance with these specifications.

B. MATERIALS

Manhole, cleanout, and inlet covers, water valve risers, and brick in good condition, removed in the process of adjustment, may be re-used. Additional materials needed shall be provided as needed.

Mortar for brick work shall be composed of one part Portland Cement and two parts clean, sharp mortar sand suitably graded for the purpose. Lime may be added to the mix but in no case shall it exceed 10% by weight of the total dry mix.

Bricks for Sanitary Sewer Manholes shall be concrete brick conforming to the requirements of ASTM Designation C 32, Grade NA or equal.

Concrete for inlets shall be 4000 psi (28 day compressive strength) concrete containing a minimum of 6 sacks of cement per cubic yard.

Reinforcing steel shall be deformed and shall conform to ASTM Designation A-615.

When prefabricated steel extension rings are furnished, the material shall be ASTM A36 or equal.

C. CONSTRUCTION

Existing manholes, cleanouts and water valve risers located within areas of base and sub-base construction shall be located and referenced; covers, and risers shall be removed carefully and stored by the Contractor. Rings, covers, plates, or grates broken in the process of removal and cleaning lost or stolen shall be replaced in kind by the Contractor at his expense. Manholes shall be broken down below subgrade elevation and covered with hatch covers prior to beginning excavation and subgrade preparation. If manholes are to be lowered the brick work shall be removed to a point where the corbell will not exceed 1" per course of brick, in order to obtain the proper diameter at the top for resetting the ring and cover. Upon completion of the flexible base, the manholes, and the water valves shall be located from the reference points and the top portion of the manhole rebuilt, and water valve risers reset so that they will be within ½ inch of the proposed asphalt surfacing.

When manholes are located within pavement areas to be overlaid with hot mix asphaltic concrete, the Contractor may, upon removal of the cast iron ring and adding concrete adjustment rings, provide prefabricated steel extension rings. They shall be either of the one-piece or two-piece type as necessary for the amount of adjustment. They will be installed in accordance with the manufacturer's instructions.

Inlets to be adjusted shall be broken down as necessary and rebuilt to the elevations as shown on the plans.

D. MEASUREMENT & PAYMENT

This item; "ADJUSTING MANHOLES CLEANOUTS, INLETS & WATER VALVE RISERS", will be measured and paid for under a per item basis. The unit price shall include full compensation for all materials, equipment, tools, labor, and incidentals necessary to complete the work to the required.

DETOUR, BARRICADE AND WARNING SIGNS

The Contractor shall place and maintain in good condition, standard barricades and warning signs at each end of the project and at other locations to maintain the safety of the public and employees.

All barricades and signs remaining in place at night and all points of hazard to traffic shall be illuminated by flares, flashers or both, as determined by the Department of Public Works and the ENGINEER.

Upon completion of the work, all signs and evidence thereof shall be removed by the Contractor.

All materials furnished and work performed under these provisions will not be paid for directly, but shall be considered as subsidiary work pertaining to the various bid items of the contract.

No direct payment shall be made to the Contractor for any temporary detours which may be needed during the construction of this project.

PRIME COAT

A. DESCRIPTION

“Prime Coat” shall consists of an application of asphaltic material on the completed base course and/or other approved areas in accordance with these specifications as directed by the Inspector.

B. MATERIALS

The asphaltic material for prime coat shall meet the requirement for Cut-Back Asphalt, MC-30, Item 300, “Asphalt, Oils, and Emulsions” of the Texas highway Department Standard Specifications 2004 Edition.

C. CONSTRUCTION METHODS

When, in the opinion of the Inspector, the area and/or base is satisfactory to receive the prime coat, the surface shall be cleaned by sweeping or other approved methods as directed by the Inspector. If directed by the Inspector, the surface shall be lightly sprinkled with water just prior to application of the asphaltic material. The asphaltic material shall be applied on the clean surface by an approved distributor at a rate not to exceed 0.2 and not below 0.1 gallons per square yard of surface, evenly, and smoothly, under a pressure necessary for proper distribution. During the application of prime coat, care shall be taken to prevent splattering of adjacent pavement, curb and gutter or structures.

Prime coat shall not be applied when the air temperature if below 60°F and falling, but may be applied when the air temperature is about 50°F and is rising; the air temperature being taken in the shade and away from artificial heat. Asphaltic material shall not be placed when general weather conditions, in the opinion of the Inspector, are not suitable.

D. MEASUREMENT & PAYMENT

The work performed and materials furnished as prescribed by this item will not be paid for separately. The cost of prime coat material, cleaning the area and/or base; for furnishing, heating, hauling, and distributing the prime coat as specified, for all freight involved and for all manipulations, labor, tool, equipment, and incidents necessary to complete the work shall be included in the unit price for “Hot Mix Asphaltic Concrete”.

TACK COAT

A. DESCRIPTION

“Tack Coat” shall consist of an application of asphaltic material on the existing pavement in accordance with these specifications as directed by the Inspector.

B. MATERIALS

The asphalt material for tack coat shall meet the requirement for Cut-Back Asphalt, RC-250, Item 3000, “Asphalt, Oils, and Emulsions” of the Texas Highway Department Standard Specifications 2004 Edition.

C. CONSTRUCTION METHODS

When, in the opinion of the Inspector, the existing pavement base is satisfactory to receive the tack coat, the surface shall be cleaned by sweeping or other approved methods as directed by the inspector. The asphaltic material shall be applied on the clean surface by an approved distributor at a rate not to exceed 0.11 or below 0.05 gallons per square yard of surface, evenly, and smoothly, under a pressure necessary for proper distribution. During the application of tack coat, care shall be taken to prevent splattering of adjacent curb and gutter or structures.

Tack coat shall not be applied when the air temperature is below 60°F and falling, but may be applied when the air temperature is about 50°F and is rising; the air temperature being taken in the shade and away from artificial heat. Asphaltic material shall not be placed when general weather conditions, in the opinion of the Inspector, are not suitable.

D. MEASUREMENT & PAYMENT

The work performed and materials furnished as prescribed by this item will not be paid for separately, the cost of tack coat material, cleaning the existing payment, furnishing, heating, hauling, and distributing the tack coat as specified, for all freight involved and for all manipulations, labor, tools, equipment, and incidentals necessary to complete the work shall be included in the unit price for “Hot Mix Asphaltic Concrete”.

FULL DEPTH RECLAMATION

1. **Description.** Mix and compact cement, water, and subgrade or base (with or without asphalt concrete pavement) in the roadway. All references to "Item #'s" refer to TxDOT specs.

2. **Materials.** Furnish uncontaminated materials of uniform quality that meet the requirements of the plans and specifications. Notify the Engineer of the proposed material sources and of changes to material sources. The Engineer will verify that the specification requirements are met before the sources can be used. The Engineer may sample and test project materials at any time before compaction. Use Tex-100-E for material definitions.

- A. **Cement.** Furnish hydraulic cement that meets the requirements of DMS-4600, "Hydraulic Cement," and the Department's Hydraulic Cement Quality Monitoring Program (HCQMP) Sources not on the HCQMP will require testing and approval before use.
- B. **Flexible Base.** Furnish base material that meets the requirements of Item 247, "Flexible Base," for the type and grade shown on the plats, before the addition of cement.
- C. **Water.** Furnish water free industrial waste and other objectionable material.
- D. **Asphalt.** When permitted for curing purposes, furnish asphalt or emulsion that meets the requirements of Item 300, "Asphalt, Oils, and Emulsions," as shown on the plans or directed.
- E. **Mix Design.** The Engineer will determine the target cement content and optimum moisture content to produce a stabilized mixture that meets the strength requirements shown on the plans. The mix will be designed in accordance with Tex-120-E or will be based on prior experience with the project materials. When treating existing materials, limit the amount of asphalt concrete pavement to no more than 50% of the mix unless otherwise shown on the plans or directed.

3. **Equipment.** Provide machinery, tools, and equipment necessary for proper execution of the work. Provide rollers in accordance with Item 210, "Rolling." Provide proof rollers in accordance with Item 216, "Proof Rolling," when required.

A. **Cement Storage Facility.** Store cement in closed, weatherproof containers.

B. **Cement Slurry Equipment.** Use slurry tanks equipped with agitation devices to slurry cement on the project or other approved location. The Engineer may approve other slurring methods. Provide a pump for agitating the slurry when the distributor is not equipped with an agitator. Equip the distributor truck with an approved sampling device.

C. **Pulverization Equipment.** Provide pulverization equipment that:

- cuts and pulverizes material uniformly to the proper depth with cutters that will plane to a uniform surface over the entire width of the cut,
- provides a visible indication of the depth of cut at all times, and

- uniformly mixes the materials.

4. Construction. Construct each layer uniformly, free of loose or segregated areas and with the required density and moisture content. Provide a smooth surface that conforms to the typical sections, lines, and grades shown on the plans or as directed.

A. Pulverization. Pulverize or scarify existing material after shaping so

that 100% passes a 2-1/2 in. sieve. If the material cannot be uniformly processed to the required depth in a single pass, excavate and windrow the material to expose a secondary grade to achieve processing to plan depth.

B. Application of Cement. Uniformly apply cement using dry placement unless otherwise shown on the plans. Add cement at the percentage required. Apply cement only on an area where mixing, compacting, and finishing can be completed during the same working day.

1 Dry Placement. Before applying cement, bring the prepared roadway to approximately optimum moisture content. When necessary, sprinkle in accordance with Item 204, "Sprinkling." Distribute the required quantity of dry cement with approved equipment. Minimize dust and scattering of cement by wind. Do not apply cement when wind conditions, in the opinion of the Engineer, cause blowing cement to become dangerous to traffic or objectionable to adjacent property owners.

2 Slurry Placement. Mix the required quantity of cement with water, as approved. Provide slurry free of objectionable materials and with a uniform consistency that can be easily applied. Agitate the slurry continuously. Apply slurry within 2 hours of adding water and when the roadway is at a moisture content drier than optimum. Distribute slurry uniformly by making successive passes over a measured section of the roadway until the specified cement content is reached

C. Mixing. Thoroughly mix the material and cement using approved equipment. Mix until a homogeneous mixture is obtained. Sprinkle the treated materials during the mixing operation, as directed, to maintain optimum mixing moisture. Spread and shape the completed mixture in a uniform layer. After mixing, the Engineer will sample the mixture at roadway moisture and test in accordance with Tex-101-E, Part III, to determine compliance with the gradation requirements in Table 1.

Table 1. Gradation Requirements Minimum % Passing

SIEVE SIZE	BASE	SUBGRADE
1-3/4 in.	100	100
3/4 in.	85	85
No. 4	--	60

1
0
0

6
0

D. **Compaction.** Compact the mixture in one lift using density control unless otherwise shown on the plans. Complete compaction within 2 hours after the application of cement. Sprinkle or aerate the treated material in accordance with Item 204, "Sprinkling," to adjust the moisture content during compaction so that it is within 2.0 percentage points of optimum as determined by Tex-120-E. Determine the moisture content of the mixture at the beginning and during compaction in accordance with Tex-103-E. Adjust operations as required. Begin rolling longitudinally at the sides and proceed towards the center, overlapping on successive trips by at least one-half the width of the roller unit. Offset alternate trips of the roller. Operate rollers at a speed between 2 and 6 MPH, as directed. Remove areas that lose required stability, compaction, or finish. Replace with cement-treated mixture at the Contractor's expense.

1. **Ordinary Compaction.** Roll with approved compaction equipment, as directed. Correct irregularities, depressions, and weak spots immediately by scarifying the areas affected, adding or removing treated material as required, reshaping, and recompacting.
2. **Density Control.** Compact to at least 95% of the maximum density determined in accordance with Tex-120-E. The Engineer will determine roadway density in accordance with Test Method Tex-115-E and will verify strength in accordance with Tex-120-E. Remove material that does not meet density requirements. Remove areas that lose required stability, compaction, or finish. Replace with cement-treated mixture and compact and test in accordance with density control methods. The Engineer may accept the section if no more than 1 of the 5 most recent density tests is below the specified density and the failing test is no more than 3 pcf below the specified density.

E. **Finishing.** Immediately after completing compaction, clip, skin, or tight-blade the surface of the cement treated material with a maintainer or subgrade trimmer to a depth of approximately 1/4 in. Remove loosened material and dispose of it at an approved location. Roll the clipped surface immediately with a pneumatic-tire roller until a smooth surface is attained. Add small increments of water as needed during rolling. Shape and maintain the course and surface in conformity with the typical sections, lines and grades shown on the plans or as directed. Finish grade of constructed subgrade in accordance with Section 132.3.F.I, "Grade Tolerances." Finish grade of constructed base in accordance with Section 247.4.D, "Finishing." Do not surface patch.

F. **Curing.** Cure for at least 3 days by sprinkling in accordance with Item 204, "Sprinkling," or by applying an asphalt material at the rate of 0.05 to 0.20 gal. per square yard, as shown on the plans or directed. Maintain the moisture content during curing at no lower than 2 percentage points below optimum. Do not allow equipment on the finished course during curing except as required for sprinkling, unless otherwise approved. Continue curing until placing another course or opening the finished section to traffic.

5. Measurement.

A. **Cement.** Cement will be measured by the ton (dry weight). When cement is furnished in

trucks, the-weight of cement will be determined on certified scales, or the Contractor must provide a set of standard platform truck scales at a location approved by the Engineer. Scales must conform to the requirements of Item 520, "Weighing and Measuring Equipment."

When cement is furnished in bags, indicate the manufacturer's certified weight. Bags varying more than 5% from that weight may be rejected. The average weight of bags in any shipment, as determined by weighing 10 bags taken at random, must be at least the manufacturer's certified weight.

Cement slurry will be measured by the ton (dry weight) of the cement used to prepare the slurry at the job site or from the minimum percent dry solids content of the slurry, multiplied by the weight of the slurry in tons delivered.

B. Cement Treatment. Cement treatment will be measured by the square yard of surface area. The dimensions for determining the surface area are established by the widths shown on the plans and lengths measured at placement.

6. Payment. The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid in accordance with Section 5.A, "Cement," or Section 5.B, "Cement Treatment."

Furnishing and delivering new base will be paid for in accordance with Item 247.6.B, "Flexible Base (Roadway Delivery)." Mixing, spreading, blading, shaping, compacting, and finishing new or existing base material will be paid for under Section 6.B, "Cement Treatment." Removal and disposal of existing asphalt concrete pavement will be paid for in accordance with pertinent Items of Article 4.2, "Changes in the Work."

Sprinkling, rolling, and necessary proof-rolling, will not be paid for directly but will be subsidiary to this Item, unless otherwise shown all the plans.

Where subgrade is constructed under this Contract, correction of soft spots in the subgrade or existing base will be at the Contractor's expense. Where subgrade is not constructed under this Contract, correction of soft spots in the subgrade or existing base will be in accordance with pertinent Items or Article 4.2, "Changes in the Work."

Asphalt used solely for curing will not be paid for directly, but will be subsidiary to this Item. Asphalt placed for the purpose of curing and priming will be paid for under Item 310, "Prime Coat."

A. Cement. Cement will be paid for at the unit price bid for "Cement." This price is full compensation for materials, delivery, equipment, labor, tools, and incidentals.

B. Cement Treatment. Cement treatment will be paid for at the unit price bid for "Cement Treatment (Existing Material)," "Cement Treatment (New Base)," or "Cement Treatment (Full Depth Reclamation)," for the depth specified. No additional payment will be made for thickness or width exceeding that shown on the plans. This price is full compensation for shaping existing material, loosening, mixing, pulverizing, providing cement, spreading, applying cement, compacting, finishing, curing, curing materials, blading, shaping and

maintaining shape, replacing mixture, disposing of loosened materials, Processing, hauling, preparing secondary subgrade, water, equipment, labor, tools, and incidentals.

Portland Cement Concrete Pavement:

(A) Description: This section regulates pavements composed of Portland cement concrete, constructed on a prepared subgrade in conformance with these standards and specifications, and in close conformance with the lines, grades, thickness, and typical cross-sections shown on the approved engineering plans, or as subsequently approved by the Director of Public Works.

(B) Materials:

(1) Concrete: In general, ready-mixed concrete meeting the requirements of ASTM Specification C94, "Specifications for ready-mixed concrete" shall have the following:

Cement 520 pound (5½ bag) minimum

Water/Cement Ratio 5.5 gallons per 94 lb. sack of cement

Air Content 6.5 % (± 1.5 %) by volume

Fine Aggregate No less than 35% nor more than 45% of the total weight of the aggregate in each cubic yard.

Coarse Aggregate ¾ inch, 1 inch, or 1½ inch maximum, but not greater than 1/4 the depth of the slab.

Slump No less than 1¼ inches nor more than 3 inches for machine placed concrete. No less than 2 inches nor more than 4 inches for hand placed concrete.

Compressive Strength 7 day -- 3,000 psi minimum
28 day -- 4,000 psi minimum

An admixture to produce the required rate of hardening at various temperatures may be required by the Director of Public Works under the following circumstances:

Over 80 degrees F Type D water-reducing admixture

Between 40 and 80 degrees F Type A water-reducing admixture

Under 40 degrees F Additional cement and/or calcium chloride. Calcium Chloride, if used, shall not exceed one (1) percent by weight of the cement and shall meet the requirements of ASTM Specification D98.

(2) Steel: Tiebars, where used, shall be deformed and shall meet the requirements of ASTM Specifications A15 (billet steel) or A16 (rail steel), except that rail steel shall not be used for tiebars that are to be bent and re-straightened during construction.

(3) Joint Material: In general, preformed fillers or inserts shall meet the requirements of ASTM Specifications D1751 or D1752. Preformed fillers or inserts shall be of rectangular X-section and non-corrodible and shall be furnished in a single piece for the full length of each joint, unless otherwise approved by the Director of Public Works.

(4) Curing Material: Material for curing concrete shall meet the requirements of the following specifications:

Liquid Membrane-Forming Compound	ASTM C309
Waterproof Paper	ASTM C171
Polyethylene Sheeting	ASTM C171
Burlap Cloth	AASHO M182
Cotton Mats	AASHO M73

(C) Mixing and Hauling: Ready-mixed concrete shall meet the requirements of ASTM Specification C94, "Specifications for Ready-Mixed Concrete." The concrete plant shall have a current "Certificate of Conformance for Concrete Production Facilities," issued by the National Ready-Mixed Concrete Association.

(D) Forming:

(1) Setting Forms: The subgrade or base under the forms shall be compacted and cut to grade so that the forms, when set, will be at the required elevation. Forms shall be of such cross-section and strength, and so secured, as to resist the pressure of the concrete when placed, and the impact and vibration of any equipment which they support, without springing or settlement. The method of connection between the sections shall be such that the joints shall not move in any direction. The maximum deviation of the top surface shall not exceed 1/8 inch in ten (10) feet, or the inside face not more than 1/4 inch in ten (10) feet from a straight line. The contractor shall check and correct alignment and grade elevations of the forms immediately before placing the concrete. When any form has been disturbed or any grade has become unstable, the form shall be re-set and re-checked. Forms shall be capable of being removed without excessive damage to the concrete pavement.

(2) Slipform Paving: As an alternative to using fixed forms, a slipform paver may be used, providing the surface of the pavement does not exceed the required tolerance. If any traffic is allowed to use the prepared subgrade or base, the subgrade or base shall be checked and corrected immediately ahead of placing the concrete.

(E) Placing, Finishing, and Texturing:

(1) Placing: The concrete shall be deposited on the subgrade or base so as to require as little rehandling as possible. Necessary hand spreading shall be done with shovels, not rakes. Workmen shall not be allowed to walk in the plastic concrete with boots or shoes coated with earth or foreign substances. Placing shall be continuous between transverse joints without the use of intermediate bulkheads.

(2) Strike-Off, Consolidation, Finishing, and Texturing: The sequence of operations shall be the strike-off and consolidation, joint forming and floating, straight edging, and texturing.

(a) The pavement shall be struck off and consolidated with a mechanical finishing machine, vibrating screed, or hand finishing methods when approved by the Director of Public Works. A slipform paver may also be used.

(b) The concrete shall be adequately consolidated; however, vibrators shall not be operated longer than ten (10) seconds in any one location.

(c) After the pavement has been struck off and consolidated, and joints formed, it shall be scraped with a ten (10) foot long straight-edge having a handle to permit operation from the edge of the pavement. Any excess water and laitance shall be removed from the surface of the pavement. The straight-edge shall be operated at ninety (90) degrees to the transverse joints and shall be moved forward one-half of its length after each pass. Irregularities shall be corrected by adding or removing concrete. All disturbed places shall again be straight-edged. The use of wood floats shall be kept to a minimum; they may only be used in areas not accessible to finishing equipment and for compacting concrete in the vicinity of formed joints.

(d) In general, adding water to the surface of the concrete to assist in finishing operations shall not be permitted. If the Director of Public Works should permit it, it shall be applied as a fog

spray with approved spray equipment.

(e) A burlap bag or broom shall be used for texturing. If a burlap drag is used, it shall be at least three (3) feet wide, and long enough to cover the entire pavement width. It shall be kept clean and saturated while in use. It shall be laid on the pavement surface and dragged in the direction in which the pavement is being placed. If a broom is used, brooming shall generally be parallel to transverse joints if these are formed, and at ninety (90) degrees to the direction of paving if transverse joints are sawed.

(f) Before texturing is completed, and before the concrete has taken its initial set, the slab, curb, and formed joints shall be finished with an edger, as reflected on the approved engineering plans.

(F) Curing: Concrete shall be cured by protecting it against loss of moisture, rapid temperature change, and mechanical injury for at least three (3) days after placement. White liquid membrane-forming compound, waterproof paper, white polyethylene sheeting, moist curing, or a combination of these, as reflected on the approved engineering plans, may be used.

(1) Generally, white liquid membrane-forming compound shall be used, and it shall be applied to the pavement surface immediately after the completion of the texturing operation. The compound shall also be applied to the pavement edges immediately after the forms have been removed. An application rate of one (1) gallon per two hundred (200) square feet shall be used.

(2) The compound shall be kept agitated to prevent the pigment from settling.

(3) The contractor shall have the equipment needed for adequate curing available before commencing concrete placement.

(G) Pavement Protection: The contractor shall be responsible for concrete placed during rain or low temperatures. Any concrete damaged by rain or low temperatures shall be removed and replaced at the contractor's expense.

(H) Joints: Contraction joints, expansion joints, and longitudinal joints shall be placed as indicated on the approved engineering plans. Transverse construction joints shall be used as required. Transverse joints shall extend continuously through the pavement and curb. Longitudinal joints are those joints parallel to the construction lane.

(1) Transverse Contraction Joints: Transverse contraction joints shall consist of weakened planes made by forming or sawing grooves in the surface of the pavement. They shall be equal to at least one fourth the depth of the slab.

(a) Formed transverse contraction joints shall be made by:

(i) Installing an approved insert in the plastic concrete. The insert shall be installed at ninety (90) degrees to, and within 1/8 inch of the pavement surface, or

(ii) Depressing an approved tool or device into the plastic concrete. The tool or device shall remain in place until the concrete has attained its initial set, and then shall be removed without disturbing the adjacent concrete.

(b) Sawed transverse contraction joints shall be made by sawing grooves having a 1/4 inch maximum width in the surface of the pavement. After each joint is sawed, the adjacent concrete surface shall be cleaned. Sawing of the joints shall begin as soon as the concrete has hardened sufficiently to permit sawing without excessive raveling.

(c) All joints shall be sawed before uncontrolled shrinkage cracking occurs. If necessary, the sawing operations shall be carried on both day and night, regardless of weather conditions. A standby saw shall be available in the event of a breakdown. The sawing of any joint shall be omitted if a crack

occurs at or near the joint location before the time of sawing. In general, all joints shall be sawed in sequence. All contraction joints in lanes adjacent to previously constructed lanes shall be sawed before uncontrolled cracking occurs. If extreme conditions make it impractical to prevent erratic cracking by timely sawing, contraction joints shall be formed before initial set of the concrete as provided above.

(d) The length between transverse contraction joints shall not exceed fifteen (15) feet, and in no case shall be less than ten (10) feet. Transverse contraction joints shall be placed at every catch basin, inlet, or manhole in the line of pavement.

(2) Transverse Construction Joints: Transverse construction joints shall be used only when approved by the Director of Public Works whenever the placing of concrete is suspended and initial set may occur.

(3) Expansion Joints: The preformed joint filler shall be held in a vertical position. An approved installing bar or other device shall be used to ensure proper grade and alignment during placing and finishing of the concrete. Finished joints shall not deviate in horizontal alignment more than one-quarter (1/4) inch from a straight line. If preformed joint fillers are assembled in sections, there shall be no off-sets between adjacent units. No plugs of concrete shall be permitted anywhere within the expansion space.

(4) Longitudinal Hinge Joints: Longitudinal hinge joints shall consist of weakened planes made by forming or sawing grooves in the surface of pavement, equal to at least one-third of the depth of the slab.

(a) Formed longitudinal hinge joints shall be made in the same manner as formed transverse contraction joints (see Section 2.08(H)(1) above).

(b) Sawed longitudinal hinge joints having a 1/4 inch maximum width shall be made by sawing grooves after the concrete has hardened. In general, the joint shall be sawed before use by any construction traffic or before opening, if construction traffic does not use the pavement.

(c) Whenever the width between forms of pavement under construction is greater than thirteen and one-half (13.5) feet, longitudinal joints shall be constructed so as to divide the pavement into strips.

(I) Testing:

(1) Air Testing: The air content shall be measured by the pressure method or by the volumetric method. One air content determination shall be made for each one hundred (100) cubic yards of concrete placed, or upon the direction of the Director of Public Works, to ensure the required air content is obtained; however, in no case shall less than two (2) checks be made daily.

(2) Test Specimens: The contractor shall furnish the concrete necessary for casting test cylinders. An independent testing laboratory designated by the contractor and approved by the Director of Public Works shall fabricate and test specimens. The results shall be reported to the Director of Public Works.

(3) Pavement Thickness: Before final acceptance of the pavement, its thickness shall be determined by coring at intervals not less than one hundred (100) lineal feet in each pavement lane. The length of a core shall be determined to the nearest 0.1 inch in accordance with ASTM Specification C174.

(a) When the measurement of the core is deficient in thickness by more than 0.25 inch, but not more than 1.0 inch from the required thickness, two (2) additional cores will be taken from the area represented. The additional cores will be taken at a distance of twenty-five (25) feet from the original core to determine the affected area.

(b) If the measurement of any core is less than the specified thickness by more than 1.0 inch, the actual thickness of the pavement in this area will be determined by taking exploratory cores at ten

(10) foot intervals parallel to the centerline in each direction from the affected location until a core is found which is not deficient by more than 1.0 inch. In determining the area deficient in thickness more than 1.0 inch, each exploratory core shall represent an area having a length of ten (10) feet and a width equal to the lane or average pour width.

(c) Pavement deficient in thickness more than 1.0 inch from the specified thickness shall be removed and replaced at the contractor's expense. Areas found to be deficient by more than 0.25 inch, but less than 1.0 inch shall be evaluated by the Director of Public Works. If, in his judgment, the deficient areas warrant removal, they shall be removed and replaced with concrete of the thickness shown on the approved engineering plans at the contractor's expense.

(d) The cost of the coring will be borne by the contractor.

(J) Surface Tolerance: The finished surface of the pavement shall be tested for smoothness by use of a ten (10) foot long straight-edge placed parallel to the centerline of the pavement in each wheel lane. Ordinates measured from the face of the straight-edge to the surface of the pavement shall at no place exceed 1/4 inch. Areas that do not meet the required surface accuracy shall be clearly marked out, and the contractor shall:

(1) Grind down any areas higher than 1/4 inch but not higher than 1/2 inch above the correct surface.

(2) Correct any areas lower than 1/4 inch, but not lower than 1/2 inch below the correct surface by grinding down the adjacent high areas.

(3) When the deviation exceeds 1/2 inch from the correct surface, the pavement slab shall be broken out and replaced for a length, width, and depth which will allow the formation of a new slab of the required quality in no way inferior to the adjacent undisturbed pavement.

(K) Opening to Traffic: The Director of Public Works shall decide when the pavement is to be opened to traffic. In general, the pavement shall not be opened to traffic, including construction traffic, but with the exception of sawing equipment, until seven (7) days after the placing of the concrete, or until the compressive strength of job-site cured six (6) inch by twelve (12) inch cylinders (ASTM Specification C31) averages three thousand (3,000) psi, whichever is longer.

(L) Specification: Except as they may be otherwise superseded by these standards and specifications, the specifications for the preparation and construction of Portland cement concrete pavement shall conform to the requirements of the following sub-sections of the Texas Department of Transportation's Standard Specifications for Construction of Highways, Streets, and Bridges(1993 edition):

Division III, Surface Courses or Pavement

Item	360	Concrete Pavement
Item	361	Full-Depth Repair of Existing Concrete Pavement
Item	368	Terminal Anchorage Lugs (Concrete Pavement)

Division IV, Structures

Item	420	Concrete Structures
Item	421	Portland Cement Concrete
Item	433	Joints, Sealants, and Fillers
Item	437	Concrete Admixtures
Item	440	Reinforcing Steel

Division V, Incidental Construction

Item 526 Membrane Curing