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Budget/Planning

Specifications and Contract Documents for

HARBOR PARK PROJECT

CITY OF ARANSAS PASS TEXAS

Department of Commerce, Coastal Energy Impact Program and Governors Budget and Planning Office, State of Texas - Grant Nº NA-80-AA-D-CZ024

J.M. ATTAWAY - MAYOR
JOE T. BUCKMASTER
ROBERT WATSON
TOMMY KNIGHT
BILL HOWE

ALLEN LAWRENCE Jr. - ATTORNEY
ALBERT HOLGUIN - CITY MANAGER

IAISMITH ENGINEERS, INC.
CONSULTING ENGINEERS
CORPUS CHRISTI, TEXAS

SB
482
.A3
S64
1980

1707

CHANGE ORDER NO. ONE

JOB # 1707

PROJECT DESCRIPTION HARBOR PARK PROJECT
CITY OF ARANSAS PASS, TEXAS

DATE June 7, 1980

OWNER VERMILLION CONSTRUCTION COMPANY

CONTRACTOR

CHANGE	ADD	DEDUCT
Item No. 1:		
Deduct Bid Item No. 10 (Landscaping), complete	--	$16,420.47
Item No. 2:		
Deduct Bid Item No. 9 (Fish Cleaning Tables), complete	--	605.00
Item No. 3:		
Reduce Bid Item No. 6 (2" PVC Water), partial 300 LF @ $2.25	-	675.00
Item No. 4:		
Change Time of completion from 180 working days to 100 working days.	--	--
Total Deduct This Change Order		$17,700.47

CONTRACT PRICE	$	130,304.57
THIS CHANGE ORDER	$	17,700.47
NEW CONTRACT PRICE	$	112;604.10

NAISMITH ENGINEERS, INC. By: Steven J. Gilliland

CONTRACTOR Vermillion Construction Co By: James L. Moon

OWNER City of Aransas Pass, Texa By: Illegible

ADDENDUM NO. ONE to the Plans, Contract Documents and Specifications

Addendum Date: May 15, 1980

Bid Date: June 16, 1980

PROJECT

HARBOR PARK PROJECT
GRANT NO. NA-80-AA-D-CZ024

Owner: City of Aransas Pass
Naismith Engineers, Inc. - Consulting Engineers

Item No. 1

Delete 1 of 6, Proposal, insert attached Proposal page 1 of 6. This page changed to agree with last page of Proposal, contract to be awarded in terms of working days. See ATTACHMENT 1.

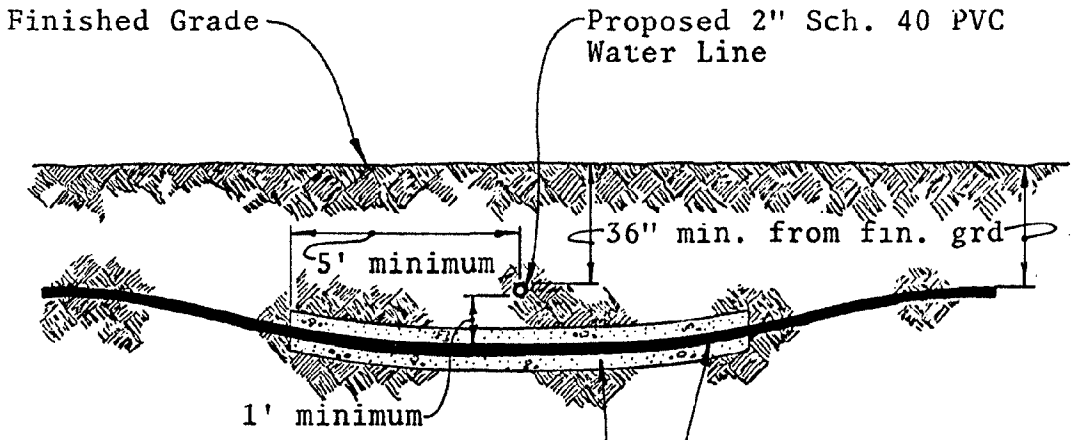
Item No. 2

Add to requirements of "Excavation", Bid Item 1, Concrete backfill of electrical conduit where conduit crosses new 2" water line. See ATTACHMENT 2.

Item No. 3

Add to paragraph C.Walls, item 1. Restroom Facility, SPECIAL CONSTRUCTION, p. SCON - 1, the following:

Finish - Concrete block walls,
exterior, 2 coats Briner's "Acrakote",
interior, 1 coat concrete block filler and 2 coats Briner's "Duratile".



NOTE: Detail typical where electrical conduit crosses new water line - See Plan Sheet 2.

ATTACHMENT 2, ADDENDUM 1, HARBOR PARK PROJECT
GRANT NO. NA-80-AA-D-CZ024

Specifications and Contract Documents for

HARBOR PARK PROJECT

CITY OF ARANSAS PASS TEXAS

Department of Commerce, Coastal Energy Impact Program and Governors Budget and Planning Office, State of Texas - Grant Nº NA-80-AA-D-CZ024

J.M. ATTAWAY - MAYOR
JOE T. BUCKMASTER
ROBERT WATSON
TOMMY KNIGHT
BILL HOWE

Property of CSC Library

ALLEN LAWRENCE Jr. - ATTORNEY
ALBERT HOLGUIN - CITY MANAGER

U.S. DEPARTMENT OF COMMERCE NOAA
COASTAL SERVICES CENTER
2234 SOUTH HOBSON AVENUE
CHARLESTON, SC 29405-2413

OCT 1 1997

NAISMITH ENGINEERS, INC.
CONSULTING ENGINEERS
CORPUS CHRISTI, TEXAS

1707

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ADVERTISEMENT FOR BIDS

The City of Aransas Pass, Texas will receive sealed bids for construction of HARBOR PARK PROJECT, Grant No. NA-80-AA-D-CZ024, Aransas Pass, Texas 78336, until JUNE 16, 1980 7:00 P.M. C.D.S.T. at which place and time all bids will be publicly opened and read aloud.

Contract documents are on file at the office of the City Manager, City of Aransas Pass, Texas, Wheeler Avenue, Aransas Pass , Texas 78336. Copies may be obtained from Naismith Engineers, Inc., 109 North Chaparral Street, Corpus Christi, Texas 78401. Plan deposit is $30.00.

Bidders must submit a certified check or bank draft payable to the order of the City of Aransas Pass, or a satisfactory bid bond executed by the bidder and an acceptable surety, in an amount equal to five percent (5%) of the total bid, as a guaranty that the bidder will enter into a contract within ten (10) days after notice of award of contract to him.

Bids may be held for a period not exceeding thirty (30) days for the purpose of review. The City of Aransas Pass reserves the right to reject any or all bids or to waive any informalities in the bidding.

/s/
Margaret Stovall - City Secretary

INSTRUCTIONS TO BIDDERS

1. General: This project consists of constructing the HARBOR PARK PROJECT for the City of Aransas Pass, Texas as shown on the plans and required by the specifications. The contractor will provide all necessary labor, materials, equipment and supervision as required.

2. Receipt and Opening of Bids: The City of Aransas Pass, Texas (herein called the "OWNER"), invites bids on the form attached hereto, all blanks of which must be appropriately filled in. Bids will be received by the Owner at the City Hall, Aransas Pass, Texas at the date and time indicated in the Advertisement for Bids, and then publicly opened and read aloud. The envelopes containing the bids must be sealed, addressed to the City of Aransas Pass, Texas and designated as Harbor Park Project for the City of Aransas Pass, Texas.

The Owner may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within 30 days after the actual date of the opening thereof.

3. Preparation of Bid: Each bid must be submitted on the prescribed form. All blank spaces for bid prices must be filled in, in ink or typewritten, in both words and figures.

Each bid must be submitted in a sealed envelope bearing on the outside the name of the bidder, his address, and the name of the project for which the bid is submitted. If forwarded by mail the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in the bid form.

4. Telegraphic Modification: Any bidder may modify his bid by telegraphic communication at any time prior to the scheduled closing time for receipt of bids, provided such telegraphic communication is received by the Owner prior to the closing time, and provided further, the Owner is satisfied that a written confirmation of the telegraphic modification over the signature of the bidder was mailed prior to the closing time. The telegraphic communication should not reveal the bid price but should provide the addition or subtractions or other modifications so that the final prices or terms will not be known by the Owner until the sealed bid is opened. If written confirmation is not received within two days from the closing time, no consideration will be given to the telegraphic modification.

5. Method of Bidding: The Owner invites the following bid:

Proposal for construction of
HARBOR PARK PROJECT
GRANT NO. NA-80-AA-D-CZ024

Proposal will be on unit price basis as indicated by the proposal form.

6. Qualificarions of Bidder: The Owner may make such investigation as deemed necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein. Conditional bids will not be accepted.

7. Bid Security: Each bid must be accompanied by cash, certified check of the bidder, or a bid bond, duly executed by the bidder as principal and having as surety thereon a surety company approved by the Owner, in the amount of 5% of the bid. Such cash, checks or bid bonds will be returned to all except the three lowest bidders within three days after the opening of bids, and the remaining cash, checks, or bid bonds will be returned promptly after the Owner and the accepted bidder have executed the contract, or, if no award has been made within 45 days after the date of the opening of bids, upon demand of the bidder at any time thereafter, so long as he has not been notified of the acceptance of his bid.

8. Liquidated Damages for Failure to Enter into Contract: The successful bidder, upon his failure or refusal to execute and deliver the contract and bonds required within 10 days after he has received notice of the acceptance of his bid, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the security deposited with his bid.

9. Time of Completion and Liquidated Damages: Bidder must agree to commence work on or before a date to be specified in a written "Notice to Proceed" of the Owner and to fully complete the project within the number of working days as shown on his Proposal. Bidder must agree also to pay as liquidated damages the sum of $25.00 for each consecutive working day thereafter as hereinafter provided in the General Conditions.

10. Conditions of Work: Each bidder must inform himself fully of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract. Insofar as possible the contractor, in carrying out his work, must employ such method or means as will not cause any interruptions of or interference with the work of any other contractor.

11. Addenda and Interpretations: No interpretations of the meaning of the plans, specifications or other pre-bid documents will be made to any bidder orally.

Every request for such interpretation should be in writing addressed to Naismith Engineers, Inc., 109 N. Chaparral, Corpus Christi, Texas 78401, and to be given consideration must be received at least five days prior to the date fixed for the opening of bids. Any and all such interpretations any any supplemental instructions will be in the form of written addenda to the specifications which, if issued, will be mailed by certified mail with return receipt requested to all prospective bidders (at the respective addresses furnished for such purposes), not later than three days prior to the date fixed for the opening of bids. Failure of any bidder to receive any such addendum or interpreation shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the contract documents.

12. Security for Faithful Performance: Simultaneously with his delivery of the executed contract, the Contractor shall furnish surety bonds as security for faithful performance of this contract and for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract, as specified in the General Conditions included herein. The surety on such bonds shall be a duly authorized surety company satisfactory to the Owner.

13. Power of Attorney: Attorneys-in-fact who sign bid bonds or contract bonds must rile with each bond a certified and effectively dated copy of their power of attorney.

14. Notice of Special Conditions: Attention is particularly called to those parts of the contract documents and specifications which deal with the Special Conditions of the Agreement.

15. Laws and Regulations: The bidder's attention is directed to the fact that all applicable State laws, municipal ordinances,and the rulesand regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full.

16. Method of Award - Lowest Qualified Bidder: If at the time this contract is to be awarded, the lowest base bid submitted by a responsible bidder does not exceed the amount of funds then estimated by the Owner as available to finance the contract, the contract will be awarded on the base bid only. If such bid exceeds such amount, the Owner may reject all bids or may award the contract on the base bid combined with such deductible alternates as produces a net amount which is within the available funds.

17. Obligation of Bidder: At the time of the opening of bids each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the plans and contract documents :(including addenda). The failure or omission of any bidder to examine any form, instrument or document shall in now way relieve any bidder from any obligation in respect to his bid.

18. State Sales Tax: The bidder is reminded that the Owner is a municipality and no State Sales Tax should be included in his prices.

-oOo-

PROPOSAL

June 16, 1980
Date

Proposal of Vermillion Construction Co. (hereinafter called "Bidder")

a corporation, organized and existing under the laws of the State of Texas,

a partnership, or an individual doing business as _____

_____.

TO: The City of Aransas Pass
Aransas Pass, Texas (hereinafter called "Owner")

Gentlemen:

The Bidder, in compliance with your invitation for the bids for the construction of HARBOR PARK PROJECT, together with all appurtenances, having examined the plans and specifications with related documents and the site of the proposed work, and being familiar with all the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies, and to construct the project in accordance with the contract documents, within the time set forth therein, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the contract documents, of which this proposal is a part.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in written "Notice to Proceed" of the Owner and to fully complete the project within the number of working days as shown on this proposal. Bidder further agrees to pay as liquidated damages, the sum of $25.00 for each consecutive calendar day thereafter.

Bidder acknowledges receipt of the following addenda:

Addenda No. 1

_____

Item No.	Est. Qty. & Unit	Description
1	LS	Excavation, including Dredging, Site grading, Ditchwork, backfill, sloping, complete in place to grades shown in plan.

12,500.00 — Unit Price
12,500.00 — Total Price

Twelve thousand five hundred dollars no cents.
Written Figure for Unit Price

2	4650 SY	Subgrade preparation, 7" Cement Stabilized Base, complete in place.

5.75 — Unit Price
26,737.50 — Total Price

Five dollars and seventy-five cents.
Written Figure for Unit Price

3	4650 SY	Single Course Asphalt Seal, complete in place.

1.95 — Unit Price
9,067.50 — Total Price

One dollar and ninety-five cents.
Written Figure for Unit Price

4	4400 SY	1½" Hot Mix Asphalt Concrete Paving, complete in place.

4.00 — Unit Price
17,600.00 — Total Price

Four dollars and no cents.
Written Figure for Unit Price

Item No.	Est. Qty. & Unit	Description
5	280 LF	6" PVC Sanitary Sewer, including connection to existing Manhole, 6" pipe, excavation, backfill, complete in place.

5.10 — Unit Price

1,428.00 — Total Price

Five dollars and ten cents. — Written Figure for Unit Price

6	750 LF	2" PVC Water Line, including connection to existing line, excavation, 2" pipe and fittings, connection to restroom facility, extension to fish clean area, and backfill, complete in place.

2.25 — Unit Price

1,687.50 — Total Price

Two dollars and twenty-five cents. — Written Figure for Unit Price

---

7	210 LF	Erosion Control Bulkhead, including tieback, cap, anchor, sealing strips, weep holes, backfill, and all appurtenances, complete in place.

95.00 — Unit Price

19,950.00 — Total Price

Ninety-five dollars and no cents. — Written Figure for Unit Price

Item No.	Est. Qty. & Unit	Description
8	LS	Restroom Facility, including concrete slab, block walls, timber framing, fiberglass roof, plumbing fixtures and pipe, complete in place.

23,458.60 — Unit Price
23,458.60 — Total Price
Twenty-three thousand four hundred fifty-eight dollars and sixty cents. — Written Figure for Unit Price

---

9	LS	Fish Cleaning Tables, including concrete slab, tables, supporting posts, $\frac{1}{2}$" sch. 40 galvanized water supply, fittings, and faucet, complete in place.

605.00 — Unit Price
605.00 — Total Price
Six hundred five dollars and no cents. — Written Figure for Unit Price

---

10	LS	Landscaping including post and rope barrier, picnic tables, concrete anchor footings, complete in place.

16,420.47 — Unit Price
16,420.47 — Total Price
Sixteen thousand four hundred twenty dollars and forty-seven cents. — Written Figure for Unit Price

---

Item No.	Est. Qty. & Unit	Description
11	1 EA	Concrete manhole, including excavation, dewatering, shoring, concrete, reinforcing, ring, cover, 6" PVC pipe connections, and backfill, complete in place.

850.00
Unit Price

850.00
Total Price

Eight hundred fifty dollars and no cents.
Written Figure for Unit Price

TOTAL - BID ITEMS 1-11 $ 130,304.57

The Bidder understands that Grant Funds available for the Harbor Park Project total $125,000.00. Should the Bid exceed construction funds available from the total Grant, the Owner reserves the right to reduce or eliminate items from the project at the unit price stated in the Bid (Proposal). Bid items shall be reduced/eliminated in the following order, until a contract amount within the available funds is reached:

1.) Item 10, Landscaping (LS)
2.) Item 9, Fish Cleaning Tables (LS)
3.) Item 6, 2" PVC Water Line (LF)
4.) Item 8, Restroom Facility (LS)
5.) Item 5, 6"PVC Sanitary Sewer (LF)
6.) Item 7, Erosion Control Bulkhead (LF)

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

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

The bidder agrees that his bid shall be good and may not be withdrawn for a perio of 45 calendar days after the scheduled closing time for receiving bids.

Upon receipt of written notice of the acceptance of this bid, bidder will execute the formal contract attached within 10 days and deliver a Surety Bond or Bonds as required by Paragraph 29 of the General Conditions. The bid security attached in the sum of 5% of total aggregate bid.
($_____) is to become the property of the Owner in the event the contract and bond are not executed within the time set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby.

The undersigned agrees to complete the work required by Bid Items 1 through 11 within 180 working days from the date designated by a Notice to Proceed.

Respectfully submitted,

VERMILLION CONSTRUCTION CO.

By: James T. Moon
(Title)
James T. Moon, Vice-President

(SEAL - if bid is by a corporation)

Drawer 159

Fulton, Texas 78358
(Business Address and Zip Code)

Aetna
LIFE & CASUALTY

BID BOND

THE ÆTNA CASUALTY AND SURETY COMPANY
Hartford, Connecticut 06115

KNOW ALL MEN BY THESE PRESENTS,

That we, Vermillion Construction Co., Inc.

as Principal, hereinafter called the Principal, and

THE ÆTNA CASUALTY AND SURETY COMPANY, of Hartford, Connecticut, a corporation duly organized under the laws of the State of Connecticut, as Surety, hereinafter called the Surety, are held and firmly bound unto

City of Aransas Pass, Texas

as Obligee, hereinafter called the Obligee, in

the sum of five per cent of total aggregate bid Dollars

($), for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for Harbor Park Project

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this 16 day of June, 19 80.

Clara Trahan
(Witness)

Vermillion Construction Co., Inc.
(Principal) (Seal)

James T. Moon
James T. Moon, Vice-President (Title)

THE ÆTNA CASUALTY AND SURETY COMPANY

(Witness)

By J. D. Morgan
J. D. Morgan (Attorney-in-Fact)

AIA DOCUMENT A310
BID BOND
FEBRUARY 1970 ED.
THE AMERICAN INSTITUTE OF ARCHITECTS

(S-1869-G) 10-70

CAT. 227641
PRINTED IN U.S.A.

STANDARD FORM OF AGREEMENT

STATE OF Texas

COUNTY OF San Patricio

THIS AGREEMENT, made and entered into this 4th day of August, 19 80, A.D., by and between The City of Aransas Pass of the County of San Patricio, and State of Texas, acting through The Mayor thereunto duly authorized so to do, Party of the First Part, hereinafter termed OWNER, and Vermilion Construction Company of the City of Fulton, County of Aransas 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 conditions expressed in the bond bearing even 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:

HARBOR PARK PROJECT, Grant No. NA-80-AA-D-CZ024

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 to complete the said construction, in accordance with the conditions and prices stated in the Proposal attached hereto, and in accordance with all the General Conditions of the Agreement, and in accordance with the plans which include all maps, plats, blue prints, and other drawings and printed or written explanatory matter thereof, and the specifications therefor, as prepared by Naismith Engineers, Inc., herein entitled the Engineer, each of which has been identified by the endorsement of the CONTRACTOR and the ENGINEER thereon, together with the CONTRACTOR'S written Proposal, the General Conditions of the Agreement, and the Performance Bond hereto attached; all of which are made a part thereof and collectively evidenced 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 him, unless otherwise noted in the Proposal, and to substantially complete same within 100 working days after the date of the written notice to commence work.

The OWNER agrees to pay the CONTRACTOR in current funds for the performance of the contract in accordance with the Proposal submitted therefor, subject to additions and deductions, as provided in the General Conditions of the Agreement, and to make payments on account thereof as provided therein.

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

City of Aransas Pass

Party of the First Part (OWNER)

Vermillion Construction Company

Party of the Second Part (CONTRACTOR)

-oOo-

PERFORMANCE BOND
(PUBLIC WORK)

(As required by Chapter 93 of the Regular Sessions of the 56th Legislature of Texas)

THE STATE OF TEXAS

COUNTY OF Nueces

KNOW ALL MEN BY THESE PRESENTS: That we (1) Vermillion Construction Company

a (2) Corporation of Fulton, Aransas County, Texas

hereinafter called Principal and (3) Aetna Casualty & Surety Company of Hartford,

State of Connecticut, hereinafter called the Surety, are held and firmly bound unto

(4) City of Aransas Pass of Aransas Pass, Texas hereinafter

called Owner, in the penal sum of One hundred twelve thousand six hundred four and 10/100 ($ 112,604.10)

Dollars in lawful money of the United States, to be paid in (5) San Patricio County

for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered into a certain contract with (6) City of Aransas Pass, Texas

the Owner, dated the 4 day of August, A.D., 19 80, a copy of which is hereto attached and made a part hereof for the construction of:

Harbor Park Project

(herein called the "work").

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform the work in accordance with the plans, specifications and contract documents during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without notice to the Surety and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which the Owner may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED FURTHER, that if any legal action be filed upon this bond venue shall lie San Patricio County, State of Texas and that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extensions of time, alteration or addition to the terms of the contract or to the work or to the specifications.

IN WITNESS WHEREOF, this instrument is executed in six counterparts, each one of which shall be deemed an original, this the 4 day of August, A. D., 19 80.

ATTEST:

Clara Tamburini
(Principal) Secretary

(Seal)

Vermillion Construction Company
Principal

By James S. Moon

DRAWER 159, Fulton, TX 78358
Address

C. E. Beck
Witness as to Principal

Box 934 Fulton Tx 78358
Address

ATTEST:

C. E. Beck
(Surety) Secretary

(Seal)

C. E. Beck
Witness as to Surety

Box 934 Fulton Tx 78358
Address

Aetna Casualty & Surety Company
Surety

By J. D. Morgan
Attorney-in-Fact

925 Nueces Bldg., P. O. Box 465
Corpus Christi, Texas 78403
Address

NOTE: Date of Bond must not be prior to date of Contract.

(1) Correct name of Contractor
(2) A Corporation, a Partnership or an Individual, as case may be
(3) Correct name of Surety
(4) Correct name of Owner
(5) County or Parish and State
(6) Owner
(7) If Contractor is Partnership, all partners should execute bond

PAYMENT BOND
(PUBLIC WORK)

(As required by Chapter 93 of the Acts of the Regular Session of the 56th Legislature of Texas)

THE STATE OF TEXAS

COUNTY OF Nueces

KNOW ALL MEN BY THESE PRESENTS: That we (1) Vermillion Construction Company

a (2) Corporation of Fulton, Aransas County, Texas

hereinafter called Principal and (3) Aetna Casualty & Surety Company

of Hartford State of Connecticut, hereinafter called

the Surety, are held and firmly bound unto (4) City of Aransas Pass, Texas

of Aransas Pass, San Patrcio County, Texas, hereinafter called Owner, and unto all persons, firms, and corporations who may furnish materials for, or perform labor upon the building or improvements hereinafter referred to in the penal sum of One hundred twelve thousand six hundred four and 10/100 ($112,604.10) Dollars in lawful money of the United States, to be paid in (5) San Patrtcio County, Texas, for the payment of which sum well and truly to be made, we bind ourselves, our heairs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered into a certain contract with (6) City of Aransas Pass, Texas

the Owner, dated the 4 day of August, A.D. 19 80, a copy of which is hereto attached and made a part hereof for the construction of:

Harbor Park Project

NOW, THEREFORE, the condition of this obligation is such that, if the Principal shall promptly make payment to all claimants as defined in Article 5160 Revised Civil Statutes of Texas, 1925, as amended by House Bill 344, Acts 56th Legislature, Regular Session, 1959, effective April 27, 1959, supplying labor and materials in the prosecution of the work provided for in said Contract, then this obligation shall be null and void, otherwise it shall remain in full force and effect.

This bond is made and entered into solely for the protection of all claimants supplying labor and material in the prosecution of the work provided for in said Contract, and all such claimants shall have a direct right of action under the bond as provided in Article 5160, Revised Civil Statutes of Texas, 1925, as amended by House Bill 344, Acts 56th Legislature, Regular Session, 1959.

PROVIDED FURTHER, that if any legal action be filed upon this bond, venue shall lie San Patricio County, State of Texas and that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any wise 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 or to the specifications.

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

IN WITNESS WHEREOF, this instrument is executed in six counterparts, each one of which shall be deemed an original, this the 4 day of August, A.D., 19 80.

Vermillion Construction Company
Principal

ATTEST:

(Principal) Secretary

By James L. Moore

(Seal)

Drawer 159, Fulton, Tx 78358
Address

C. L. Rice
Witness as to Principal

Box 934 Fulton Tx 78358
Address

ATTEST:

(Surety) Secretary

(Seal)

Aetna Casualty & Surety Company
Surety

By J. D. Morgan
Attorney-in-Fact

925 Nueces Bldg.
P. O. Box 465
Corpus Christi, Texas 78403
Address

C. E. Beck
Witness as to Surety

Box 934 Fulton Texas 78358
Address

NOTE: Date of Bond must not be prior to date of Contract.

(1) Correct name of Contract
(2) A Corporation, a Partnership or an Individual, as case may be
(3) Correct name of Surety
(4) Correct name of Owner
(5) County or Parish and State
(6) Owner
(7) If Contractor is Partnership, all partners should execute bond

Certificate of Insurance

acord

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES LISTED BELOW.

NAME AND ADDRESS OF AGENCY

J. D. MORGAN COMPANY
P. O. BOX 465
CORPUS CHRISTI, TEXAS 78403

NAME AND ADDRESS OF INSURED

VERMILLION CONSTRUCTION COMPANY
P. O. DRAWER 158
FULTON, TEXAS 78358

COMPANIES AFFORDING COVERAGES

COMPANY LETTER A — AETNA INSURANCE COMPANY
COMPANY LETTER B — AETNA CASUALTY & SURETY COMPANY
COMPANY LETTER C
COMPANY LETTER D
COMPANY LETTER E

This is to certify that policies of insurance listed below have been issued to the insured named above and are in force at this time.

COMPANY LETTER	TYPE OF INSURANCE	POLICY NUMBER	POLICY EXPIRATION DATE	Limits of Liability in Thousands (000)	EACH OCCURRENCE	AGGREGATE
	GENERAL LIABILITY					
	[X] COMPREHENSIVE FORM			BODILY INJURY	$ 500,000	500,000
	[X] PREMISES—OPERATIONS			PROPERTY DAMAGE	$ 200,000	200,000
	[X] EXPLOSION AND COLLAPSE HAZARD					
	[X] UNDERGROUND HAZARD					
A	[X] PRODUCTS/COMPLETED OPERATIONS HAZARD [X] CONTRACTUAL INSURANCE [X] BROAD FORM PROPERTY DAMAGE [X] INDEPENDENT CONTRACTORS [X] PERSONAL INJURY	CG030708	7/25/81	BODILY INJURY AND PROPERTY DAMAGE COMBINED	$	$
				PERSONAL INJURY		$
	AUTOMOBILE LIABILITY			BODILY INJURY (EACH PERSON)	$ 250,000	
	[X] COMPREHENSIVE FORM [X] OWNED [X] HIRED [X] NON-OWNED	CG030708	7/25/81	BODILY INJURY (EACH ACCIDENT)	$ 500,000	
				PROPERTY DAMAGE	$ 100,000	
				BODILY INJURY AND PROPERTY DAMAGE COMBINED	$	
	EXCESS LIABILITY			BODILY INJURY AND PROPERTY DAMAGE COMBINED	$	$
	[ ] UMBRELLA FORM [ ] OTHER THAN UMBRELLA FORM					
	WORKERS' COMPENSATION and EMPLOYERS' LIABILITY			STATUTORY		
B		18CT30096CAA	7/25/81		$ 100,000 (EACH ACCIDENT)	
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES

State of Texas - All Operations
Harbor Park Project Grant No NA-80-AA-D-CZ-024

Cancellation: Should any of the above described policies be cancelled before the expiration date thereof, the issuing company will endeavor to mail ~~10~~ days written notice to the below named certificate holder, but failure to mail such notice shall impose no obligation or liability of any kind upon the company.

NAME AND ADDRESS OF CERTIFICATE HOLDER:

CITY OF ARANSAS PASS, TEXAS
Aransas Pass, Texas

DATE ISSUED: 8/4/80

J. D. Morgan
AUTHORIZED REPRESENTATIVE
J. D. Morgan

ACORD 25 (Ed. 11-77)

THE ÆTNA CASUALTY AND SURETY COMPANY
Hartford, Connecticut 06115

POWER OF ATTORNEY AND CERTIFICATE OF AUTHORITY OF ATTORNEY(S)-IN-FACT

KNOW ALL MEN BY THESE PRESENTS, THAT THE ÆTNA CASUALTY AND SURETY COMPANY, a corporation duly organized under the laws of the State of Connecticut, and having its principal office in the City of Hartford, County of Hartford, State of Connecticut, hath made, constituted and appointed, and does by these presents make, constitute and appoint J. D. Morgan - -

of Corpus Christi, Texas , its true and lawful Attorneys-in-Fact, with full power and authority hereby conferred to sign, execute and acknowledge, at any place within the United States, or, if the following line be filled in, within the area there designated . the following instrument(s):

by his sole signature and act, any and all bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any and all consents incident thereto not exceeding the sum of FIVE HUNDRED THOUSAND ($500,000.00) DOLLARS -

and to bind THE ÆTNA CASUALTY AND SURETY COMPANY, thereby as fully and to the same extent as if the same were signed by the duly authorized officers of THE ÆTNA CASUALTY AND SURETY COMPANY, and all the acts of said Attorneys-in-Fact, pursuant to the authority herein given, are hereby ratified and confirmed

This appointment is made under and by authority of the following Standing Resolutions of said Company which Resolutions are now in full force and effect:

VOTED That each of the following officers: Chairman, Vice Chairman, President, Any Executive Vice President, Any Senior Vice President, Any Vice President, Any Assistant Vice President, Any Secretary, Any Assistant Secretary, may from time to time appoint Resident Vice Presidents, Resident Assistant Secretaries, Attorneys-in-Fact, and Agents to act for and on behalf of the Company and may give any such appointee such authority as his certificate of authority may prescribe to sign with the Company's name and seal with the Company's seal bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any of said officers or the Board of Directors may at any time remove any such appointee and revoke the power and authority given him.

VOTED That any bond, recognizance, contract of indemnity, or writing obligatory in the nature of a bond, recognizance, or conditional undertaking shall be valid and binding upon the Company when (a) signed by the Chairman, the Vice Chairman, the President, an Executive Vice President, a Senior Vice President, a Vice President, an Assistant Vice President or by a Resident Vice President, pursuant to the power prescribed in the certificate of authority of such Resident Vice President, and duly attested and sealed with the Company's seal by a Secretary or Assistant Secretary or by a Resident Assistant Secretary, pursuant to the power prescribed in the certificate of authority of such Resident Assistant Secretary; or (b) duly executed (under seal, if required) by one or more Attorneys-in-Fact pursuant to the power prescribed in his or their certificate or certificates of authority.

This Power of Attorney and Certificate of Authority is signed and sealed by facsimile under and by authority of the following Standing Resolution voted by the Board of Directors of THE ÆTNA CASUALTY AND SURETY COMPANY which Resolution is now in full force and effect:

VOTED: That the signature of each of the following officers: Chairman, Vice Chairman, President, Any Executive Vice President, Any Senior Vice President, Any Vice President, Any Assistant Vice President, Any Secretary, Any Assistant Secretary, and the seal of the Company may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing Resident Vice Presidents, Resident Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such power of attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding upon the Company in the future with respect to any bond or undertaking to which it is attached.

IN WITNESS WHEREOF, THE ÆTNA CASUALTY AND SURETY COMPANY has caused this instrument to be signed by its Secretary , and its corporate seal to be hereto affixed this 25th day of June , 19 75.

THE ÆTNA CASUALTY AND SURETY COMPANY

By B I Radding
Secretary

State of Connecticut }
County of Hartford } ss. Hartford

On this 25th day of June , 19 75 , before me personally came B. I. RADDING to me known, who, being by me duly sworn, did depose and say: that he is Secretary of THE ÆTNA CASUALTY AND SURETY COMPANY, the corporation described in and which executed the above instrument; that he knows the seal of said corporation, that the seal affixed to the said instrument is such corporate seal; and that he executed the said instrument on behalf of the corporation by authority of his office under the Standing Resolutions thereof.

Mary J. Kingston
My commission expires March 31, 19 80 Notary Public

CERTIFICATE

I, the undersigned, Assistant Secretary of THE ÆTNA CASUALTY AND SURETY COMPANY, a stock corporation of the State of Connecticut DO HEREBY CERTIFY that the foregoing and attached Power of Attorney and Certificate of Authority remains in full force and has not been revoked; and furthermore, that the Standing Resolutions of the Board of Directors, as set forth in the Certificate of Authority, are now in force.

Signed and Sealed at the Home Office of the Company, in the City of Hartford, State of Connecticut. Dated this 16 day of June 19 80

By
Assistant Secretary

GENERAL CONDITIONS OF AGREEMENT

The "General Conditions of Agreement" shall be those contained in the "Standard Forms of Agreement between Owner and Contractor" , as adopted by the Texas Section, American Society of Civil Engineers, 1971 Revision, as follows on the succeeding pages G-1 through G - 14.

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GENERAL CONDITIONS OF AGREEMENT

1. DEFINITIONS OF TERMS

1.01 OWNER, CONTRACTOR AND ENGINEER. The OWNER, the CONTRACTOR and the ENGINEER are those persons or organizations identified as such in the Agreement and are referred to throughout the Contract Documents as if singular in number and masculine in gender. The term ENGINEER means the ENGINEER or his duly authorized representative. The ENGINEER shall be understood to be the ENGINEER of the OWNER, and nothing contained in the Contract Documents shall create any contractual or agency relationship between the ENGINEER and the CONTRACTOR.

1.02 CONTRACT DOCUMENTS. The Contract Documents shall consist of the Notice to Contractors (Advertisement), Special Conditions (Instructions to Bidders), Proposal, signed Agreement, Performance and Payment Bonds (when required), Special Bonds (when required), General Conditions of the Agreement, Technical Specifications, Plans, and all modifications thereof incorporated in any of the documents before the execution of the agreement.

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

1.03 SUB-CONTRACTOR. The term Sub-Contractor, as employed herein, includes only those having a direct contract with the CONTRACTOR and it includes one who furnishes material worked to a special design according to the plans or specifications of this work, but does not include one who merely furnishes material not so worked.

1.04 WRITTEN NOTICE. Written notice shall be deemed to have been duly served if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered mail to the last business address known to him who gives the notice.

1.05 WORK. The CONTRACTOR shall provide and pay for all materials, supplies, machinery, equipment, tools, superintendence, labor, services, insurance, and all water, light, power, fuel, transportation and other facilities necessary for the execution and completion of the work covered by the contract documents. Unless otherwise specified, all materials shall be new and both workmanship and materials shall be of a good quality. The CONTRACTOR shall, if required, furnish satisfactory evidence as to the kind and quality of materials. Materials or work described in words which so applied have a well known technical or trade meaning shall be held to refer to such recognized standards.

1.06 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 or 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 not covered by the CONTRACTOR'S Proposal, except as provided under "Changes and Alterations", herein.

1.07 WORKING DAY. A "Working Day" is defined as any day not including Saturdays, Sundays or any legal holidays, in which weather or other conditions, not under the control of the CONTRACTOR, will permit construction of the principal units of the work for a period of not less than seven (7) hours between 7:00 a.m. and 6:00 p.m.

1.08 CALENDAR DAY. "Calendar Day" is any day of the week or month, no days being excepted.

1.09 SUBSTANTIALLY COMPLETED. By the term "substantially completed" is meant that the structure has been made suitable for use or occupancy or the facility is in condition to serve its intended purpose, but still may require minor miscellaneous work and adjustment.

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2. RESPONSIBILITIES OF THE ENGINEER AND THE CONTRACTOR

2.01 OWNER-ENGINEER RELATIONSHIP. The ENGINEER will be the OWNER'S representative during construction. The duties, responsibilities and limitations of authority of the ENGINEER as the OWNER'S representative during construction are as set forth in the Contract Documents and shall not be extended or limited without written consent of the OWNER and ENGINEER. The ENGINEER will advise and consult with the OWNER, and all of OWNER'S instructions to the CONTRACTOR shall be issued through the ENGINEER.

2.02 PROFESSIONAL INSPECTION BY ENGINEER. The ENGINEER shall make periodic visits to the site to familiarize himself generally with the progress of the executed work and to determine if such work generally meets the essential performance and design features and the technical and functional engineering requirements of the Contract Documents; provided and except, however, that the ENGINEER shall not be responsible for making any detailed, exhaustive, comprehensive or continuous on-site inspection of the quality or quantity of the work or be in any way responsible, directly or indirectly, for the construction means, methods, techniques, sequences, quality, procedures, programs, safety precautions or lack of same incident thereto or in connection therewith. Notwithstanding any other provision of this agreement or any other Contract Document, the ENGINEER shall not be in any way responsible or liable for any acts, errors, omissions or negligence of the CONTRACTOR, any subcontractor or any of the CONTRACTOR'S or subcontractor's agents, servants or employees or any other person, firm or corporation performing or attempting to perform any of the work.

2.03 PAYMENTS FOR WORK. The ENGINEER shall review CONTRACTOR'S applications for payment and supporting data, determine the amount owed to the CONTRACTOR and approve, in writing, payment to CONTRACTOR in such amounts; such approval of payment to CONTRACTOR constitutes a representation to the OWNER of ENGINEER'S professional judgment that the work has progressed to the point indicated to the best of his knowledge, information and belief, but such approval of an application for payment to CONTRACTOR shall not be deemed as a representation by ENGINEER that ENGINEER has made any examination to determine how or for what purpose CONTRACTOR has used the moneys paid on account of the Contract price.

2.04 INITIAL DETERMINATIONS. The ENGINEER initially shall determine all claims, disputes and other matters in question between the CONTRACTOR and the OWNER relating to the execution or progress of the work or the interpretation of the Contract Documents and the ENGINEER'S decision shall be rendered in writing within a reasonable time. Should the ENGINEER fail to make such decision within a reasonable time, appeal to arbitration may be taken as if his decision had been rendered against the party appealing.

2.05 OBJECTIONS. In the event the ENGINEER renders any decision which, in the opinion of either party hereto, is not in accordance with the meaning and intent of this contract, either party may file with the ENGINEER within thirty days his written objection to the decision, and by such action may reserve the right to submit the question so raised to arbitration as hereinafter provided.

2.06 LINES AND GRADES. Unless otherwise specified, all lines and grades shall be furnished by the ENGINEER or his representative. Whenever necessary, construction work shall be suspended to permit performance of this work, but such suspension will be as brief as practicable and the CONTRACTOR shall be allowed no extra compensation therefor. The CONTRACTOR shall give the ENGINEER ample notice of the time and place where lines and grades will be needed. All stakes, marks, etc., shall be carefully preserved by the CONTRACTOR, and in case of careless destruction or removal by him or his employees, such stakes, marks, etc., shall be replaced at the CONTRACTOR'S expense.

2.07 CONTRACTOR'S DUTY AND SUPERINTENDENCE. The CONTRACTOR shall give adequate attention to the faithful prosecution and completion of this contract and shall keep on the work, during its progress, a competent superintendent and any necessary assistants. The superintendent shall represent the CONTRACTOR in his absence and all directions given to him shall be as binding as if given to the CONTRACTOR.

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The CONTRACTOR is and at all times shall remain an independent contractor, solely responsible for the manner and method of completing his work under this contract, with full power and authority to select the means, method and manner of performing such work, so long as such methods do not adversely affect the completed improvements, the OWNER and ENGINEER being interested only in the result obtained and conformity of such completed improvements to the plans, specifications and contract.

Likewise, the CONTRACTOR shall be solely responsible for the safety of himself, his employees and other persons, as well as for the protection of the safety of the improvements being erected and the property of himself or any other person, as a result of his operations hereunder. Engineering construction drawings and specifications as well as any additional information concerning the work to be performed passing from or through the ENGINEER shall not be interpreted as requiring or allowing CONTRACTOR to deviate from the plans and specifications, the intent of such drawings, specifications and any other such instructions being to define with particularity the agreement of the parties as to the work the CONTRACTOR is to perform. CONTRACTOR shall be fully and completely liable, at his own expense, for design, construction, installation and use, or non-use, of all items and methods incident to performance of the contract, and for all loss, damage or injury incident thereto, either to person or property, including, without limitation, the adequacy of all temporary supports, shoring, bracing, scaffolding, machinery or equipment, safety precautions or devices, and similar items or devices used by him during construction.

Any review of work in process, or any visit or observation during construction, or any clarification of plans and specifications, by the ENGINEER, or any agent, employee, or representative of either of them, whether through personal observation on the project site or by means of approval of shop drawings for temporary construction or construction processes, or by other means or method, is agreed by the CONTRACTOR to be for the purpose of observing the extent and nature of work completed or being performed, as measured against the drawings and specifications constituting the contract, or for the purpose of enabling CONTRACTOR to more fully understand the plans and specifications so that the completed construction work will conform thereto, and shall in no way relieve the CONTRACTOR from full and complete responsibility for the proper performance of his work on the project, including but without limitation the propriety of means and methods of the CONTRACTOR in performing said contract, and the adequacy of any designs, plans or other facilities for accomplishing such performance. Deviation by the CONTRACTOR from plans and specifications that may have been in evidence during any such visitation or observation by the ENGINEER, or any of his representatives, whether called to the CONTRACTOR'S attention or not shall in no way relieve CONTRACTOR from his responsibility to complete all work in accordance with said plans and specifications.

2.08 **CONTRACTOR'S UNDERSTANDING.** It is understood and agreed that the CONTRACTOR has, by careful examination, satisfied himself as to the nature and location of the work, the conformation of the ground, the character, quality and quantity of the materials to be encountered, the character of equipment and facilities needed preliminary to and during the prosecution of the work, the general and local conditions, and all other matters which can in any way affect the work under this contract. No verbal agreement or conversation with any officer, agent or employee of the OWNER or ENGINEER either before or after the execution of this contract, shall affect or modify any of the terms or obligations herein contained.

2.09 **CHARACTER OF WORKMEN.** The CONTRACTOR agrees to employ only orderly and competent men, skillful in the performance of the type of work required under this contract, to do the work; and agrees that whenever the ENGINEER shall inform him in writing that any man or men 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 work without the ENGINEER'S written consent.

2.10 **CONTRACTOR'S BUILDINGS.** The building of structures for housing men, or the erection of tents 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 ENGINEER.

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2.11 SANITATION. Necessary sanitary conveniences for the use of laborers on the work, properly secluded 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.

2.12 SHOP DRAWINGS. The CONTRACTOR shall submit to the ENGINEER, with such promptness as to cause no delay in his own work or in that of any other Contractor, four checked copies, unless otherwise specified, of all shop and/or setting drawings and schedules required for the work of the various trades, and the ENGINEER shall pass upon them with reasonable promptness, making desired corrections. The CONTRACTOR shall make any corrections required by the ENGINEER, file with him two corrected copies and furnish such other copies as may be needed. The ENGINEER'S approval of such drawings or schedules shall not relieve the CONTRACTOR from responsibility for deviations from drawings or specifications, unless he has in writing called the ENGINEER'S attention to such deviations at the time of submission, nor shall it relieve him from responsibility for errors of any sort in shop drawings or schedules. It shall be the CONTRACTOR'S responsibility to fully and completely review all shop drawings to ascertain their effect on his ability to perform the required contract work in accordance with the plans and specifications and within the contract time.

Such review by the ENGINEER shall be for the sole purpose of determining the sufficiency of said drawings or schedules to result in finished improvements in conformity with the plans and specifications, and shall not relieve the CONTRACTOR of his duty as an independent contractor as previously set forth, it being expressly understood and agreed that the ENGINEER does not assume any duty to pass upon the propriety or adequacy of such drawings or schedules, or any means or methods reflected thereby, in relation to the safety of either person or property during CONTRACTOR'S performance hereunder.

2.13 PRELIMINARY APPROVAL. The ENGINEER shall not have the 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 the ENGINEER to discover, object to or condemn any defective work or material shall release the CONTRACTOR from the obligations to fully and properly perform the contract, including without limitations, the obligation 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.

Any questioned work may be ordered taken up or removed for re-examination, by the ENGINEER, prior to final acceptance, and if found not in accordance with the specifications for said work, all expense of removing, re-examination and replacement shall be borne by the CONTRACTOR, otherwise the expense thus incurred shall be allowed as EXTRA WORK, and shall be paid for by the OWNER; provided that, where inspection or approval is specifically required by the specifications prior to performance of certain work, should the CONTRACTOR proceed with such work without requesting prior inspection or approval he shall bear all expense of taking up, removing, and replacing this work if so directed by the ENGINEER.

2.14 DEFECTS AND THEIR REMEDIES. It is further agreed that if the work or any part thereof, or any material brought on the site of the work for use in the work or selected for the same, shall be deemed by the ENGINEER as unsuitable or not in conformity with the specifications, the CONTRACTOR shall, after receipt of written notice thereof from the ENGINEER, forthwith remove such material and rebuild or otherwise remedy such work so that it shall be in full accordance with this contract.

2.15 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 thereof, either before or after the beginning of the construction, without affecting the validity of this contract and the accompanying Performance and Payment Bonds.

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

3. GENERAL OBLIGATIONS AND RESPONSIBILITIES

3.01 KEEPING OF PLANS AND SPECIFICATIONS ACCESSIBLE. The ENGINEER shall furnish the CONTRACTOR with an adequate and reasonable number of copies of all plans and specifications without expense to him, and the CONTRACTOR shall keep one copy of the same constantly accessible on the work, with the latest revisions noted thereon.

3.02 OWNERSHIP OF DRAWINGS. All drawings, specifications and copies thereof furnished by the ENGINEER shall not be reused on other work, and, with the exception of the signed contract sets, are to be returned to him on request, at the completion of the work. All models are the property of the OWNER.

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

3.04 RIGHT OF ENTRY. The OWNER reserves the right to enter the property or location on which the works herein contracted for are to be constructed or installed, by such agent or agents as he may elect, for the purpose of inspecting the work, or for the purpose of constructing or installing such collateral work as said OWNER may desire.

3.05 COLLATERAL CONTRACTS. The OWNER agrees to provide by separate contract or otherwise, all labor and material essential to the completion of the work specifically excluded from this contract, in such manner as not to delay the progress of the work, or damage said CONTRACTOR, except where such delays are specifically mentioned elsewhere in the Contract Documents.

3.06 DISCREPANCIES AND OMISSIONS. It is further agreed that it is the intent of this contract that all work must be done and all material must be furnished in accordance with the generally accepted practice, and in the event of any discrepancies between the separate contract documents, the priority of interpretation defined under "Contract Documents" shall govern. In the event that there is still any doubt as to the meaning and intent of any portion of the contract, specifications or drawings, the ENGINEER shall define which is intended to apply to the work.

3.07 EQUIPMENT, MATERIALS AND CONSTRUCTION PLANT. The CONTRACTOR shall be responsible for the care, preservation, conservation, and protection of all materials, supplies, machinery, equipment, tools, apparatus, accessories, facilities, all means of construction, and any and all parts of the work, whether the CONTRACTOR has been paid, partially paid, or not paid for such work, until the entire work is completed and accepted.

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3.08 DAMAGES. In the event the CONTRACTOR is damaged in the course of the completion of the work by the act, neglect, omission, mistake or default of the OWNER, or of the ENGINEER, or of any other CONTRACTOR employed by the OWNER upon the work, thereby causing loss to the CONTRACTOR, the OWNER agrees that he will reimburse the CONTRACTOR for such loss. In the event the OWNER is damaged in the course of the work by the act, negligence, omission, mistake or default of the CONTRACTOR, or should the CONTRACTOR unreasonably delay the progress of the work being done by others on the job so as to cause loss for which the OWNER becomes liable, then the CONTRACTOR shall reimburse the OWNER for such loss.

3.09 PROTECTION AGAINST ACCIDENT TO EMPLOYEES AND THE PUBLIC. The CONTRACTOR shall at all times exercise reasonable precautions for the safety of employees and others on or near the work and shall comply with all applicable provisions of Federal, State, and Municipal safety laws and building and construction codes. All machinery and equipment and other physical hazards shall be guarded in accordance with the "Manual of Accident Prevention in Construction" of the Associated General Contractors of America except where incompatible with Federal, State, or Municipal laws or regulations. The CONTRACTOR shall provide such machinery guards, safe walkways, ladders, bridges, gangplanks, and other safety devices. The safety precautions actually taken and their adequacy shall be the sole responsibility of the CONTRACTOR, acting at his discretion as an independent contractor.

3.10 PERFORMANCE AND PAYMENT BONDS. Unless otherwise specified, it is further agreed by the parties to this Contract that the CONTRACTOR will execute separate performance and payment bonds, each in the sum of one hundred (100) percent of the total contract price, in standard forms for this purpose, guaranteeing faithful performance of the work and the fulfillment of any guarantees required, and further guaranteeing payment to all persons supplying labor and materials or furnishing him any equipment in the execution of the Contract, and it is agreed that this Contract shall not be in effect until such performance and payment bonds are furnished and approved by the OWNER.

Unless otherwise approved in writing by the OWNER, the surety company underwriting the bonds shall be acceptable according to the latest list of companies holding certificates of authority from the Secretary of the Treasury of the United States.

Unless otherwise specified, the cost of the premium for the performance and payment bonds shall be included in the CONTRACTOR'S proposal.

3.11 LOSSES FROM NATURAL CAUSES. Unless otherwise specified, all loss or damage to the CONTRACTOR arising out of the nature of the work to be done, or from the action of the elements, or from any unforeseen circumstance 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.

3.12 PROTECTION OF ADJOINING PROPERTY. The said CONTRACTOR shall take proper means to protect the adjacent or adjoining property or properties in any way encountered, which might be injured or seriously affected by any process of construction to be undertaken under this Agreement, from any damage or injury by reason of said process of construction; and he shall be liable for any and all claims for such damage on account of his failure to fully protect all adjoining property. The CONTRACTOR agrees to indemnify, save and hold harmless the OWNER and ENGINEER against any claim or claims for damages due to any injury to any adjacent or adjoining property, arising or growing out of the performance of the contract; but any such indemnity shall not apply to any claim of any kind arising out of the existence or character of the work.

3.13 PROTECTION AGAINST CLAIMS OF SUB-CONTRACTORS, LABORERS, MATERIALMEN AND FURNISHERS OF MACHINERY, EQUIPMENT AND SUPPLIES. The CONTRACTOR agrees that he will indemnify and save the OWNER and ENGINEER harmless from all claims growing out of the lawful demands of sub-contractors, 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

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nature hereinabove designated have been paid, discharged or waived. If the CONTRACTOR fails so to do, then the OWNER may at the option of the CONTRACTOR either pay directly any unpaid bills, of which the OWNER has written notice, or withhold from the CONTRACTOR'S unpaid compensation a sum of money deemed reasonably 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 the provisions of this sentence be construed to impose any obligation upon the OWNER by either the CONTRACTOR or his Surety.

3.14 PROTECTION AGAINST ROYALTIES OR PATENTED INVENTION. The CONTRACTOR shall pay all royalties and license fees, and shall provide for the use of any design, device, material or process covered by letters patent or copyright by suitable legal agreement with the patentee or owner. The CONTRACTOR shall defend all suits or claims for infringement of any patent or copyright rights and shall indemnify and save the OWNER and ENGINEER harmless from any loss on account thereof, except that the OWNER shall defend all such suits and claims and shall be responsible for all such loss when a particular design, device, material or process or the product of a particular manufacturer or manufacturers is specified or required by the OWNER; provided, however, if choice of alternate design, device, material or process is allowed to the CONTRACTOR, then CONTRACTOR shall indemnify and save OWNER harmless from any loss on account thereof. If the material or process specified or required by the OWNER is an infringement, the CONTRACTOR shall be responsible for such loss unless he promptly gives such information to the OWNER.

3.15 LAWS AND ORDINANCES. The CONTRACTOR shall at all times observe and comply with all Federal, State and local laws, ordinances and regulations, which in any manner affect the contract or the work, and shall indemnify and save harmless the OWNER and ENGINEER against any claim arising from the violation of any such laws, ordinances, and regulations whether by the CONTRACTOR or his employees, except where such violations are called for by the provisions of the Contract Documents. If the CONTRACTOR observes that the plans and specifications are at variance therewith, he shall promptly notify the ENGINEER in writing, and any necessary changes shall be adjusted as provided in the contract for changes in the work. If the CONTRACTOR performs any work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the ENGINEER, he shall bear all costs arising therefrom. 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.

3.16 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, or sublet said contract without the written consent of the ENGINEER, 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.

3.17 INDEMNIFICATION. The CONTRACTOR shall defend, indemnify and hold harmless the OWNER and the ENGINEER and their respective officers, agents and employees, from and against all damages, claims, losses, demands, suits, judgments and costs, including reasonable attorneys' fees and expenses, arising out of or resulting from the performance of the work, provided that any such damages, claim, loss, demand, suit, judgment, cost or expense:

(1) Is attributable to bodily injury, sickness, disease or death or to injury to or destruction of tangible property (other than the work itself) including the loss of use resulting therefrom; and,

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(2) Is caused in whole or in part by any negligent act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any one of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.

The obligation of the CONTRACTOR under this Paragraph shall not extend to the liability of the ENGINEER, his agents or employees arising out of the preparation or approval of maps, drawings, reports, surveys, Change Orders, designs or specifications, or the giving of or the failure to give directions or instructions by the ENGINEER, his agents or employees, provided such giving or failure to give is the primary cause of the injury or damage.

3.18 INSURANCE. The CONTRACTOR at his own expense shall purchase, maintain and keep in force such insurance as will protect him from claims set forth below which may arise out of or result from the CONTRACTOR'S operations under the Contract, whether such operations be by himself or by any Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

(1) Workmen's compensation claims, disability benefits and other similar employee benefit acts;

(2) Claims for damages because of bodily injury, occupational sickness or disease, or death of his employees, and claims insured by usual bodily injury liability coverages;

(3) Claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees, and claims insured by usual bodily injury liability coverages; and

(4) Claims for damages because of injury to or destruction of tangible property, including loss of use resulting therefrom.

3.18.1 CERTIFICATE OF INSURANCE. Before commencing any of the work, CONTRACTOR shall file with the OWNER valid Certificates of Insurance acceptable to the OWNER and the ENGINEER. Such Certificates shall contain a provision that coverages afforded under the policies will not be cancelled until at least fifteen days' prior written notice has been given to the OWNER.

The CONTRACTOR shall also file with the OWNER valid Certificates of Insurance covering all sub-contractors.

4. PROSECUTION AND PROGRESS

4.01 TIME AND ORDER OF COMPLETION. It is the meaning and intent of this contract, unless otherwise herein specifically provided, 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 the time of prosecution shall be such that the work shall be substantially completed as a whole and in part, in accordance with this contract, the plans and specifications, and within the time of completion designated in the Proposal; provided, also, that when the OWNER is having other work done, either by contract or by his own force, the ENGINEER may direct the time and manner of constructing 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 shall submit, at such times as may reasonably be requested by the ENGINEER, schedules which shall show the order in which the CONTRACTOR proposes to carry on the work, with dates at which the CONTRACTOR will start the several parts of the work, and estimated dates of completion of the several parts.

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4.02 EXTENSION OF TIME. Should the CONTRACTOR be delayed in the completion of the work by any act or neglect of the OWNER or ENGINEER, or of any employee of either, or by other contractors employed by the OWNER, or by changes ordered in the work, or by strikes, lockouts, fires, and unusual delays by common carriers, or unavoidable cause or causes beyond the CONTRACTOR'S control, or by any cause which the ENGINEER shall decide justifies the delay, then an extension of time shall be allowed for completing the work, sufficient to compensate for the delay, the amount of the extension to be determined by the ENGINEER, provided, however, that the CONTRACTOR shall give the ENGINEER prompt notice in writing of the cause of such delay.

4.03 HINDRANCES AND DELAYS. No claims shall be made by the CONTRACTOR for damages resulting from hindrances or delays from any cause (except where the work is stopped by order of 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 stoppage of said work shall be paid by the OWNER to the CONTRACTOR.

5. MEASUREMENT AND PAYMENT

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

5.02 ESTIMATED QUANTITIES. This agreement, including the specifications, plans and estimate, is intended to show clearly all work to be done and material to be furnished hereunder. Where the estimated quantities are shown for the various classes of work to be done and material to be furnished under this contract, they are approximate and are to be used only as a basis for estimating the probable cost of the work and for comparing the proposals offered for the work. It is understood and agreed that the actual amount of work to be done and material to be furnished under 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 done and the material furnished.

Where payment is based on the unit price method, the CONTRACTOR agrees 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 20% more than, or 20% less than the estimated or contemplated quantity for such items, then either party to this Agreement, upon demand, shall be entitled to a revised consideration upon the portion of the work above or below 20% 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 (5) per cent of the total contract cost, computed on the basis of the proposal quantities and the contract unit prices.

Any revised consideration is to be determined by agreement between the parties, otherwise by the terms of this Agreement, as provided under "Extra Work."

5.03 PRICE OF WORK. In consideration of the furnishing of all the necessary labor, equipment and material, and the completion of all work by the CONTRACTOR, and on the completion of all work and of the 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. The CONTRACTOR hereby agrees to receive such prices in full for furnishing all material and all labor required for the aforesaid work, also for all expense incurred by him, and for well and truly performing the same and the whole thereof in the manner and according to this Agreement.

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5.04 PARTIAL PAYMENTS. On or before the 10th day of each month, the CONTRACTOR shall prepare and submit to the ENGINEER for approval or modification a statement showing as completely as practicable the total value of the work done by the CONTRACTOR up to and including the last day of the preceding month; said statement shall also include the value of all sound materials delivered on the site of the work that are to be fabricated into the work.

The OWNER shall then pay the CONTRACTOR on or before the 15th day of the current month the total amount of the approved statement, less 10 per cent of the amount thereof, which 10 per cent shall be retained until final payment, and further less all previous payments and all further sums that may be retained by the OWNER under the terms of this Agreement. It is understood, however, that in case the whole work be near to completion and some unexpected and unusual delay occurs due to no fault or neglect on the part of the CONTRACTOR, 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 complete the work and, thereupon, the CONTRACTOR shall receive payment of the balance due him under the contract subject only to the conditions stated under "Final Payment."

5.05 USE OF COMPLETED PORTIONS. The OWNER shall have the right to take possession of and use any completed or partially completed portions of the work, notwithstanding the time for completing the entire work or such portions may not have expired but such taking possession and use shall not be deemed an acceptance of any work not completed in accordance with the Contract Documents. If such prior use increases the cost of or delays the work, the CONTRACTOR shall be entitled to such extra compensation, or extension of time, or both, as the ENGINEER may determine.

The CONTRACTOR shall notify the ENGINEER when, in the CONTRACTOR'S opinion, the contract is "substantially completed" and when so notifying the ENGINEER, the CONTRACTOR shall furnish to the ENGINEER in writing a detailed list of unfinished work. The ENGINEER will review the CONTRACTOR'S list of unfinished work and will add thereto such items as the CONTRACTOR has failed to include. The "substantial completion" of the structure or facility shall not excuse the CONTRACTOR from performing all of the work undertaken, whether of a minor or major nature, and thereby completing the structure or facility in accordance with the Contract Documents.

5.06 FINAL COMPLETION AND ACCEPTANCE. Within ten (10) 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 be found to be completed or substantially completed in accordance with the Contract Documents, the ENGINEER shall issue to the OWNER and the CONTRACTOR his Certificate of Completion, and thereupon it shall be the duty of the OWNER within ten (10) days to issue a Certificate of Acceptance of the work to the CONTRACTOR or to advise the CONTRACTOR in writing of the reason for non-acceptance.

5.07 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 after the 30th day, and before the 35th day, after the date of the Certificate of Completion, the balance due the CONTRACTOR under the terms of this Agreement, 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. Neither the Certificate of Acceptance nor the final payment, nor any provision in the Contract Documents, shall relieve the CONTRACTOR of the obligation for fulfillment of any warranty which may be required.

5.08 PAYMENTS WITHHELD. The OWNER may, on account of subsequently discovered evidence, withhold or nullify the whole or part of any certificate to such extent as may be necessary to protect himself from loss on account of:

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(a) Defective work not remedied.
(b) Claims filed or reasonable evidence indicating probable filing of claims.
(c) Failure of the CONTRACTOR to make payments properly to subcontractors or for material or labor.
(d) Damage to another contractor.
(e) Reasonable doubt that the work can be completed for the unpaid balance of the contract amount.
(f) Reasonable indication that the work will not be completed within the contract time.

When the above grounds are removed or the CONTRACTOR provides a Surety Bond satisfactory to the OWNER, which will protect the OWNER in the amount withheld, payment shall be made for amounts withheld because of them.

5.09 **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, 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 six (6) per cent per annum, unless otherwise specified, from date due as provided under "Partial Payments" and "Final Payments," until fully paid, which shall fully liquidate any injury to the CONTRACTOR growing out of such delay in payment, but the right is expressly reserved to the CONTRACTOR in the event payments be not promptly made, as provided under "Partial Payments," to at any time thereafter treat the contract as abandoned by the OWNER and recover compensation, as provided under "Abandonment of Contract," unless such payments are withheld in accordance with the provisions of "Payments Withheld."

6. EXTRA WORK AND CLAIMS

6.01 **CHANGE ORDERS:** Without invalidating this Agreement, the OWNER may, at any time or from time to time, order additions, deletions or revisions to the work; such changes will be authorized by Change Order to be prepared by the ENGINEER for execution by the OWNER and the CONTRACTOR. The Change Order shall set forth the basis for any change in contract price, as hereinafter set forth for Extra Work, and any change in contract time which may result from the change.

In the event the CONTRACTOR shall refuse to execute a Change Order which has been prepared by the ENGINEER and executed by the OWNER, the ENGINEER may in writing instruct the CONTRACTOR to proceed with the work as set forth in the Change Order and the CONTRACTOR may make claim against the OWNER for Extra Work involved therein, as hereinafter provided.

6.02 **MINOR CHANGES:** The ENGINEER may authorize minor changes in the work not inconsistent with the overall intent of the Contract Documents and not involving an increase in Contract Price. If the CONTRACTOR believes that any minor change or alteration authorized by the ENGINEER involves Extra Work and entitles him to an increase in the Contract Price, the CONTRACTOR shall make written request to the ENGINEER for a written Field Order.

In such case, the CONTRACTOR by copy of his communication to the ENGINEER or otherwise in writing shall advise the OWNER of his request to the ENGINEER for a written Field Order and that the work involved may result in an increase in the Contract Price.

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

6.03 **EXTRA WORK:** It is agreed that the basis of compensation to the CONTRACTOR for work either added or deleted by a Change Order or for which a claim for Extra Work is made shall be determined by one or more of the following methods:

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Method (A)—By agreed unit prices; or
Method (B)—By agreed lump sum; or
Method (C)—If neither Method (A) nor Method (B) be agreed upon before the Extra Work is commenced, then the CONTRACTOR shall be paid the "actual field cost" of the work, plus fifteen (15) percent.

In the event said Extra Work be performed and paid for under Method (C), then the provisions of this paragraph shall apply and the "actual field cost" is hereby defined to include the cost to the CONTRACTOR 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, together with all power, fuel, lubricants, water and similar operating expenses, also all necessary incidental expenses incurred directly on account of such Extra Work, including Social Security, Old Age Benefits and other payroll taxes, and, a rateable proportion of premiums on Performance and Payment Bonds and Maintenance Bonds, Public Liability and Property Damage and Workmen's Compensation, and all other insurance as may be required by any law or ordinance, or directed by the OWNER, or by them agreed to. The ENGINEER may direct the form in which accounts of the "actual field cost" shall be kept and the records of these accounts shall be made available to the ENGINEER. The ENGINEER or OWNER may also specify in writing, before the work commences, the method of doing the work and the type and kind of machinery and equipment to be used; otherwise these matters shall be determined by the CONTRACTOR. Unless otherwise agreed upon, the prices for the use of machinery and equipment shall be determined by using 100 per cent, unless otherwise specified, of the latest schedule of Equipment Ownership Expense adopted by the Associated General Contractors of America. Where practicable the terms and prices for the use of machinery and equipment shall be incorporated in the Written Extra Work Order. The fifteen (15%) per cent of the "actual field cost" to be paid the CONTRACTOR shall cover and compensate him for his profit, overhead, general superintendence and field office expense, and all other elements of cost and expense not embraced within the "actual field cost" as herein defined, save that where the CONTRACTOR'S Camp or Field Office must be maintained primarily on account of such Extra Work; then the cost to maintain and operate the same shall be included in the "actual field cost."

No claim for Extra Work of any kind will be allowed unless ordered in writing by the ENGINEER. In case any orders or instructions, either oral or written, appear to the CONTRACTOR to involve Extra Work for which he should receive compensation or an adjustment in the construction time, he shall make written request to the ENGINEER for written order authorizing such Extra Work. Should a difference of opinion arise as to what does or does not constitute Extra Work, or as to the payment therefor, and the 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" thereof, as provided under Method (C). The CONTRACTOR will thereby preserve the right to submit the matter of payment to arbitration, as hereinbelow provided.

6.04 TIME OF FILING CLAIMS. It is further agreed by both parties hereto that all questions of dispute or adjustment presented by the CONTRACTOR shall be in writing and filed with the ENGINEER within thirty (30) days after the ENGINEER has given any directions, order or instruction to which the CONTRACTOR desires to take exception. The ENGINEER shall reply within thirty (30) days to such written exceptions by the CONTRACTOR and render his final decision in writing. In case the CONTRACTOR should appeal from the ENGINEER'S decision, any demand for arbitration shall be filed with the ENGINEER and the OWNER in writing within ten (10) days after the date of delivery to CONTRACTOR of 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.

6.05 ARBITRATION. All questions of dispute under this Agreement shall be submitted to arbitration at the request of either party to the dispute. The parties may agree upon one arbiter, otherwise, there shall be three, one named in writing by each party, and the third chosen

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by the two arbiters so selected; or if the arbiters fail to select a third within ten (10) days, he shall be chosen by a District Judge serving the County in which the major portion of the project is located, unless otherwise specified. Should the party demanding arbitration fail to name an arbiter within ten (10) days of the demand, his right to arbitrate shall lapse, and the decision of the ENGINEER shall be final and binding on him. Should the other party fail to choose an arbiter within ten (10) days, the ENGINEER shall appoint such arbiter. Should either party refuse or neglect to supply the arbiters with any papers or information demanded in writing, the arbiters are empowered by both parties to take ex parte proceedings.

The arbiters shall act with promptness. The decision of any two shall be binding on both parties to the contract. The decision of the arbiters upon any question submitted to arbitration under this contract shall be a condition precedent to any right of legal action. The decision of the arbiter or arbiters may be filed in court to carry it into effect.

The arbiters, if they deem the case demands it, are authorized to award the party whose contention is sustained, such sums as they deem proper for the time, expense and trouble incident to the appeal, and if the appeal was taken without reasonable cause, they may award damages for any delay occasioned thereby. The arbiters shall fix their own compensation, unless otherwise provided by agreement, and shall assess the cost and charges of the arbitration upon either or both parties. The award of the arbiters must be made in writing.

7. ABANDONMENT OF CONTRACT

7.01 ABANDONMENT BY CONTRACTOR. In case the CONTRACTOR should abandon and fail or refuse to resume work within ten (10) days after written notification from the OWNER, or the ENGINEER, or if the CONTRACTOR fails to comply with the orders of the ENGINEER, when such orders are consistent with the Contract Documents, then, and in that case, where performance and payment bonds exist, the Sureties on these bonds shall be notified in writing and directed to complete the work, and a copy of said notice shall be delivered to the CONTRACTOR.

After receiving said notice of abandonment the CONTRACTOR shall not remove from the work any machinery, equipment, tools, materials or supplies then on the job, but the same, together with any materials and equipment under contract for the work, may be held for use on the work by the OWNER or the Surety on the performance bond, or another contractor in completion of the work; and the CONTRACTOR shall not receive any rental or credit therefor (except when used in connection with Extra Work, where credit shall be allowed as provided for under Section 6, Extra Work and Claims), it being understood that the use of such equipment and materials will ultimately reduce the cost to complete the work and be reflected in the final settlement.

Where there is no performance bond provided or in ease 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:

7.01.1 The OWNER may thereupon employ such force of 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 expense so charged shall be deducted and paid by the OWNER out of such moneys as may be due, or that may thereafter at any time become due to the CONTRACTOR under and by virtue of this Agreement. In case such expense is less than the sum which would have been payable under this contract, if the same had 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 his Surety shall pay the amount of such excess to the OWNER; or

7.01.2 The OWNER under sealed bids, after five (5) days notice published one or more times in a newspaper having 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 any increase in cost to the OWNER under the new contract as compared to what would have been the cost under this contract, such increase shall be charged to the CONTRACTOR and the Surety shall be and remain bound therefor. However, should the cost to complete any such new 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.

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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 5.06 hereinabove, shall be issued. A complete itemized statement of the contract accounts, certified to by the ENGINEER as being correct, shall then be prepared and delivered to the CONTRACTOR and his Surety, whereupon the CONTRACTOR and/or his Surety, 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 under the terms of this contract; or when 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 hereinabove, and there remains any machinery, equipment, tools, materials or supplies on the site of the work, notice thereof, together with an itemized list of such equipment and materials, shall be mailed to the CONTRACTOR and his Surety at the respective addresses designated in this contract, provided, however, that actual written notice given in any manner will satisfy this condition. After mailing, or other 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 from the date 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, equipment, tools, materials, or supplies, which remain on the work, and belong to persons other than the CONTRACTOR or his Surety, to their proper owners. The books on all operations provided herein shall be open to the CONTRACTOR and his Surety.

7.02 **ABANDONMENT BY OWNER.** In case the OWNER shall fail to comply with the terms of this contract, and should fail or refuse to comply with said terms within ten (10) days after written notification by the CONTRACTOR, then the CONTRACTOR may suspend or wholly abandon the work, and may remove therefrom all machinery, tools and equipment, and all materials on the site of work that have not been included in payments to the CONTRACTOR and have not been wrought into the work. And thereupon the ENGINEER shall make an estimate of the total amount earned by the CONTRACTOR, which estimate shall include the value of all work actually completed by said CONTRACTOR (at the prices stated in the attached proposal where unit prices are used), the value of all partially completed work at a fair and equitable price, and the amount of all Extra Work performed at the prices agreed upon, or provided for by the terms of this contract, and a reasonable sum to cover the cost of any provisions made by the CONTRACTOR to carry the whole work to completion and which cannot be utilized. The ENGINEER shall then make a final statement of the balance due the CONTRACTOR by deducting from the above estimate all previous payments by the OWNER and all other sums that may be retained by the OWNER under the terms of this Agreement and shall certify same to the OWNER who shall pay to the CONTRACTOR on or before thirty (30) days after the date of the notification by the CONTRACTOR the balance shown by said final statement as due the CONTRACTOR, under the terms of this Agreement.

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SUPPLEMENTAL GENERAL CONDITIONS

In addition to the General Conditions as included herein, the Contractor and each Subcontractor shall comply with the following Federal laws and all applicable standards, orders, or regulations issued pursuant thereto:

(NOTE: Grantee shall be the City of Aransas Pass, Texas)

1. The Copeland "Anti-Kickback" Act, as amended (18 USC 874) as supplemented in Department of Labor regulations (41 CFR Chapter 60).

2. Nondiscrimination, Title VI of the Civil Rights Act of 1964 (P.L. 88-352), as amended, (42 USC 2000d) and the requirements imposed by the Regulations of the Department of Commerce (15 CFR Part 8) issued pursuant to that Title. In accordance therewith no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the Grantee receives Federal financial assistance and will immediately take any measures necessary to effectuate this agreement.

3. The Flood Disaster Protection Act of 1973 (P.L. 93-234), as amended. The Grantee will fulfill any flood insurance requirements under this Act and any regulations issued thereunder by the U.S. Department of Housing and Urban Development or which may be issued by NOAA.

4. Architectural Barriers Act (P.L. 90-480), 42 USC 4151, as amended, and the regulations issued or to be issued thereunder, prescribing standards for the design and construction of any building or facility intended to be accessible to the public or which may result in the employment of handicapped persons therein.

5. Rehabilitation Act of 1973, 29 USC 794, Executive Order 11914. No otherwise qualified handicapped individual shall, solely be reason of his/her handicap, be denied the benefits of, be excluded from participation in, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

6. The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646, as amended), 15 CFR Part 916.

7. The National Environmental Policy Act of 1969 (P.L. 90-190); the National Historic Preservation Act of 1966 (80 Stat 915, 16 USC 470); and Executive Order No. 11593 of May 31, 1971.

8. Equal Employment Opportunity, Executive Order 11246, as amended by Executive Order 11375, and as supplemented in Department of Labor regulations (41 CFR Chapter 60).

The Grantee shall cause or require to be inserted in full in any construction contract or subcontract for more than $10,000, or modification thereof, as defined in the rules and regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with assistance provided under this Agreement, the following equal opportunity clause:

During the performance of this contract, the contractor agrees as follows:

a. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to, the following: Employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

b. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

c. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union of workers' representatives of the contractor's commitment under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

d. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

e. The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his/her books, records, and accounts by NOAA and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

f. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be cancelled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or Federally assisted construction contract procedures authorized in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

g. The contractor will include the portion of the sentence immediately preceding paragraph a. and the provisions of paragraphs a. through g. in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1975, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as NOAA may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by NOAA, the contractor may request the United States to enter into such litigation to protect the interest of the United States.

The Grantee further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally-assisted construction work: provided, that if the Grantee so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The Grantee agrees that it will assist and cooperate actively with NOAA and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor; that it will furnish NOAA and the Secretary of Labor such information as they may require for the supervision of such compliance; and that it will otherwise assist NOAA in the discharge of its primary responsibility for securing compliance.

The Grantee further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and Federally assisted construction contracts pursuant to the executive order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by NOAA or the Secretary of Labor pursuant to Part II, Subpart D of the executive order. In addition, the Grantee agrees that if it fails or refuses to comply with these undertakings, NOAA may take any or all of the following actions: Cancel, terminate, or suspend the grant in whole or in part; refrain from extending any further assistance to the Grantee under the program with respect to which the failure or refusal occurred until satisfactory assurance of future compliance has been received from such Grantee; and refer the case to the Department of Justice for appropriate legal proceedings.

9. Certification of Nonsegregated Facilities as required by the May 9, 1967, Order (32 F.R. 7439, May 19, 1967) on Elimination of Segregated Facilities, by the Secretary of Labor. Prior to the award of any construction contract or subcontract exceeding $10,000, the Grantee shall require the prospective prime contractor and each prime contractor shall require each subcontractor to submit the following certification:

By the submission of this bid, the bidder, offeror, applicant or subcontractor certifies that he/she does not maintain or provide for his/her employees any segregated facilities at any of his/her establishments, and that he/she does not permit

his/her employees to perform their services at any location, under his/her control where segregated facilities are maintained. He/she certifies further that he/she will not maintain or provide for his/her employees any segregated facilities at any of his/her establishments, and that he/she will not permit his/her employees to perform their services at any location, under his/her control, where segregated facilities are maintained. The bidder, offeror, applicant, or subcontractor agrees that a breach of this certification is a violation of the Equal Opportunity clause in this contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color or national origin, because of habit, local custom, or otherwise. He/she further agrees that (except where he/she has obtained identical certifications from proposed subcontractors for specific time periods) he/she will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity clause; that he/she will retain such certifications in his/her files; and that he/she will forward the following notice to such proposed subcontractors (except where the proposed subcontractors have submitted identical certifications for specific time periods):

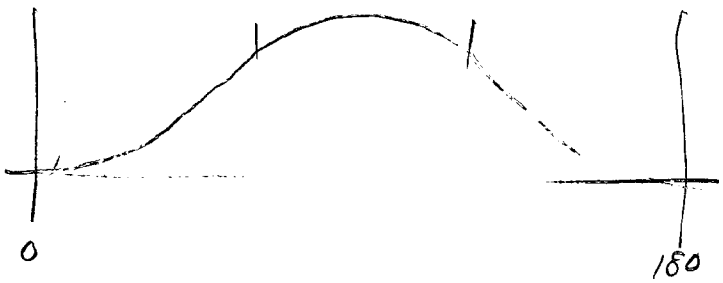
NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENT FOR CERTIFICATIONS OF NONSEGREGATED FACILITIES

A Certification of Nonsegregated Facilities, as required by the May 9, 1967, Order (32 F.R. 7439, May 19, 1967) on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted prior to the award of a subcontract exceeding $10,000 which is not exempt from the provisions of the Equal Opportunity clause. The Certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

NOTE

The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

10. The Clean Air Act, as amended, 42 USC 1857 et seq., the Federal Water Pollution Control Act, as amended, 33 USC 1251 et seq. and the regulations of the Environmental Protection Agency with respect thereto, at 40 CFR Part 15, as amended from time to time.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In compliance with said regulations, the Grantee shall cause or require to be inserted in full in all contracts, subcontracts, and subgrants in excess of $100,000 funded with assistance provided under this Agreement, the following requirements:

a. A stipulation by the contractor or subcontractors that any facility to be utilized in the performance of any contract or subcontract is not listed on the List of Violating Facilities issued by the Environmental Protection Agency (EPA) pursuant to 40 CFR 15.20.

b. Agreement by the contractor to comply with all the requirements of section 114 of the Clean Air Act, as amended, (42 USC 1857 et seq.) section 308 of the Federal Water Pollution Control Act, as amended, (33 USC 1318) relating to inspection, monitoring, entry, reports, and information, as well as all other requirements specified in said section 114 and section 308, and all regulations and guidelines issued thereunder.

c. A stipulation that as a condition for the award of the contract prompt notice will be given of any notification received from the Director, Office of Federal Activities, EPA, indicating that a facility utilized or to be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

d. Agreement by the contractor that he/she will include or cause to be included the criteria and requirements in paragraph (1) through (4) of this section in every nonexempt subcontract and requiring that the contractor will take such action as the Government may direct as a means of enforcing such provisions.

In no event shall any amount of the assistance provided under this Agreement be utilized with respect to a facility which has given rise to a conviction under section 113(c)(1) of the Clean Air Act or section 309(c) of the Federal Water Pollution Control Act.

11. The Contractor shall construct, erect, and maintain in good condition during construction, a sign satisfactory to NOAA identifying the project and indicating the fact that NOAA is participating in the development of the project. See page SGC - 7

HARBOR PARK PROJECT

A Project Funded By The Coastal Energy Impact Program

U.S. DEPARTMENT OF COMMERCE
Juanita M. Kreps, Secretary

National Oceanic and Atmospheric Administration

Office of Coastal Zone Management

SGC-7
-oOo-

Enclosure 1 to Attachment B
Grant No. NA-80-AA-D-C7024

SPECIAL CONDITIONS

1. General: The following special conditions of agreement are a part of this contract.

2. Coordination with City: All work under this contract shall be coordinated with the City's staff through the designated inspector.

3. Payment: Payment for all work under this contract will be on the basis of the quoted unit-prices for work complete in place, with prices as shown on the Proposal.

4. City of Aransas Pass Regulations: The Contractor shall familiarize himself with all pertinent regulations of the City of Aransas Pass and all work shall conform to these regulations, as well as the detailed specifications for the work. The Contractor shall have the approval of the City's Inspector before beginning cement stabilization work or before beginning pavement work.

5. Traffic Control: The Contractor shall furnish all traffic control necessary to the satisfactory completion of his work. This will include signs, barricades, lights, flagmen and whatever other devices and workmen may be necessary. This shall include traffic control necessary to protect stabilized base, seal coat, or freshly placed hot-mix asphaltic concrete from damage. Traffic control shall be in accordance with the "Uniform Traffic Control Devices for Streets and Highways" published by the U. S. Department of Transportation. Copies of this manual are available from the Department of Transportation, Washington, D. C., at a cost of $3.50.

6. Safety Regulations: The Contractor shall be responsible for his own men and for the sub-contractor's men, if any. He shall provide all necessary barricades, warning lights and flagmen necessary for safety while the work is in progress.

7. Insurance: Insurance shall be carried in the minimum amounts and type as required in the General Conditions of Agreement. The Contractor will be required to file a certificate of insurance with the City before a notice to proceed is issued.

8. Site Inspection: The Contractor shall visit the sites of the work and thoroughly inform himself of the conditions in this area.

9. Water : The Contractor will furnish such water as may be necessary to complete this project. Water will be available at a point within 1/2 mile of the limit of the project. The City will supply a loading hose, valve , and meter for the use of the Contractor. Contractor will pay the required fee for setting the meter and shall pay for all water used at published City rate.

10. Access to Private Property: Insofar as is possible the Contractor shall assure continued access to private property abutting his work. Where interruption in access is necessary, it shall be the Contractor's duty to so inform the property owners affected in a manner approved by the City's inspector. Scheduling of Contractor's work shall take into account provision for access to abutting properties.

11. Performance and Payment Bonds: Separate performance and payment bonds in an amount equal to 100% of the Contract will be required.

12. Layout: The Contractor shall lay out the work from alignment and bench makr stakes furnished by the Owner. Stakes disturbed or destroyed shall be replaced at the Contractor's expense.

13. Quality of Articles, Materials and Equipment: Articles, materials, and equipment to be incorporated into the work under this contract shall be new and unused.

14. Workmanship: Workmanship shall be of the highest type and shall be performed by mechanics skilled in their trade.

15. Plant: The Contractor agrees to keep available sufficient plant to meet the requirements of the work. The plant shall be in satisfactory operating condition and capable of safely,and efficiently performing the work as set forth in the specifications and the plant shall be subject to inspection by the Owner at all times.

16. Protection of Property:

A. Protect existing valve boxes, yard faucets, etc., which are to remain.
B. Preserve in operating condition all active utilities traversing or adjoining the project site.
C. Active utilities and their appurtenances which are damaged by the Contractor shall be replaced in original condition at no cost to the Owner.
D. Burn no materials or debris on the site.
E. Replace all driveways, drainage structures or other improvements to original conditions.

17. Access to the Work: Provide for access to the work at all times for the Owner, Engineers and their authorized representatives.

18. Laboratory Control: The City will supply and pay for the services of an independent testing laboratory to make tests necessary during construction of this project. The Contractor will notify the inspector or, if so directed, the testing laboratory, in adequate time to obtain required tests.

19. Permits, Conditions, and Instructions: The Contractor's attention is particularly directed to the conditions and requirements of the attached Department of the Army, Corps of Engineers Permit No. 1366 and Texas Department of Water Resources Certification. The Contractor shall, on behalf of the City of Aransas Pass, Texas, notify the District Engineer of the U. S. Army Corps of Engineers of the dates of commencement and completion of the work.

Application No. 13663

Name of Applicant City of Aransas Pass

Effective Date 21 AUG 1979

Expiration Date (If applicable) 31 December 1984

DEPARTMENT OF THE ARMY
PERMIT

Referring to written request dated 20 April 1979 for a permit to:

(X) Perform work in or affecting navigable waters of the United States, upon the recommendation of the Chief of Engineers, pursuant to Section 10 of the Rivers and Harbors Act of March 3, 1899 (33 U.S.C. 403);

(X) Discharge dredged or fill material into waters of the United States upon the issuance of a permit from the Secretary of the Army acting through the Chief of Engineers pursuant to Section 404 of the Federal Water Pollution Control Act (86 Stat. 816, P.L. 92-500);

( ) Transport dredged material for the purpose of dumping it into ocean waters upon the issuance of a permit from the Secretary of the Army acting through the Chief of Engineers pursuant to Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (86 Stat. 1052; P.L. 92-532);

City of Aransas Pass
P.O. Drawer X
Aransas Pass, Texas 78336

is hereby authorized by the Secretary of the Army:

to dredge, construct a bulkhead and backfill

~~the~~ Channel to Aransas Pass

~~a~~ location on the south end of Bigelow Street near the Aransas Pass Turning Basin at Aransas Pass, Texas,

~~in accordance~~ with the plans and drawings attached hereto which are incorporated in and made a part of this permit (on drawings: give file number or other definite identification marks.) in four sheets entitled "PROPOSED EROSION CONTROL BULKHEAD IN ARANSAS COUNTY, ARANSAS PASS, TEXAS, NEAR ARANSAS PASS TURNING BASIN,".

~~subject~~ to the following conditions:

I. General Conditions:

a. That all activities identified and authorized herein shall be consistent with the terms and conditions of this permit; and that any activities not specifically identified and authorized herein shall constitute a violation of the terms and conditions of this permit which may result in the modification, suspension or revocation of this permit, in whole or in part, as set forth more specifically in General Conditions j or k hereto, and in the institution of such legal proceedings as the United States Government may consider appropriate, whether or not this permit has been previously modified, suspended or revoked in whole or in part.

b. That all activities authorized herein shall, if they involve, during their construction or operation, any discharge of pollutants into waters of the United States or ocean waters, be at all times consistent with applicable water quality standards, effluent limitations and standards of performance, prohibitions, pretreatment standards and management practices established pursuant to the Federal Water Pollution Control Act of 1972 (P.L. 92-500, 86 Stat. 816), the Marine Protection, Research and Sanctuaries Act of 1972 (P.L. 92-532, 86 Stat. 1052), or pursuant to applicable State and local law.

c. That when the activity authorized herein involves a discharge during its construction or operation, of any pollutant (including dredged or fill material), into waters of the United States, the authorized activity shall, if applicable water quality standards are revised or modified during the term of this permit, be modified, if necessary, to conform with such revised or modified water quality standards within 6 months of the effective date of any revision or modification of water quality standards, or as directed by an implementation plan contained in such revised or modified standards, or within such longer period of time as the District Engineer, in consultation with the Regional Administrator of the Environmental Protection Agency, may determine to be reasonable under the circumstances.

d. That the discharge will not destroy a threatened or endangered species as identified under the Endangered Species Act, or endanger the critical habitat of such species.

e. That the permittee agrees to make every reasonable effort to prosecute the construction or operation of the work authorized herein in a manner so as to minimize any adverse impact on fish, wildlife, and natural environmental values.

f. That the permittee agrees that he will prosecute the construction or work authorized herein in a manner so as to minimize any degradation of water quality.

g. That the permittee shall permit the District Engineer or his authorized representative(s) or designee(s) to make periodic inspections at any time deemed necessary in order to assure that the activity being performed under authority of this permit is in accordance with the terms and conditions prescribed herein.

h. That the permittee shall maintain the structure or work authorized herein in good condition and in accordance with the plans and drawings attached hereto.

i. That this permit does not convey any property rights, either in real estate or material, or any exclusive privileges; and that it does not authorize any injury to property or invasion of rights or any infringement of Federal, State, or local laws or regulations nor does it obviate the requirement to obtain State or local assent required by law for the activity authorized herein.

j. That this permit may be summarily suspended, in whole or in part, upon a finding by the District Engineer that immediate suspension of the activity authorized herein would be in the general public interest. Such suspension shall be effective upon receipt by the permittee of a written notice thereof which shall indicate (1) the extent of the suspension, (2) the reasons for this action, and (3) any corrective or preventative measures to be taken by the permittee which are deemed necessary by the District Engineer to abate imminent hazards to the general public interest. The permittee shall take immediate action to comply with the provisions of this notice. Within ten days following receipt of this notice of suspension, the permittee may request a hearing in order to present information relevant to a decision as to whether his permit should be reinstated, modified or revoked. If a hearing is requested, it shall be conducted pursuant to procedures prescribed by the Chief of Engineers. After completion of the hearing, or within a reasonable time after issuance of the suspension notice to the permittee if no hearing is requested, the permit will either be reinstated, modified or revoked.

k. That this permit may be either modified, suspended or revoked in whole or in part if the Secretary of the Army or his authorized representative determines that there has been a violation of any of the terms or conditions of this permit or that such action would otherwise be in the public interest. Any such modification, suspension, or revocation shall become effective 30 days after receipt by the permittee of written notice of such action which shall specify the facts or conduct warranting same unless (1) within the 30-day period the permittee is able to satisfactorily demonstrate that (a) the alleged violation of the terms and the conditions of this permit did not, in fact, occur or (b) the alleged violation was accidental, and the permittee has been operating in compliance with the terms and conditions of the permit and is able to provide satisfactory assurances that future operations shall be in full compliance with the terms and conditions of this permit; or (2) within the aforesaid 30-day period, the permittee requests that a public hearing be held to present oral and written evidence concerning the proposed modification, suspension or revocation. The conduct of this hearing and the procedures for making a final decision either to modify, suspend or revoke this permit in whole or in part shall be pursuant to procedures prescribed by the Chief of Engineers.

l. That in issuing this permit, the Government has relied on the information and data which the permittee has provided in connection with his permit application. If, subsequent to the issuance of this permit, such information and data prove to be false, incomplete or inaccurate, this permit may be modified, suspended or revoked, in whole or in part, and/or the Government may, in addition, institute appropriate legal proceedings.

m. That any modification, suspension, or revocation of this permit shall not be the basis for any claim for damages against the United States.

n. That the permittee shall notify the District Engineer at what time the activity authorized herein will be commenced, as far in advance of the time of commencement as the District Engineer may specify, and of any suspension of work, if for a period of more than one week, resumption of work and its completion.

o. That if the activity authorized herein is not started on or before the first day of July 19 84 (one year from the date of issuance of this permit unless otherwise specified) and is not completed on or before thirty-first day of December, 1984 (three years from the date of issuance of this permit unless otherwise specified) this permit, if not previously revoked or specifically extended, shall automatically expire.

p. That this permit does not authorize or approve the construction of particular structures, the authorization or approval of which may require authorization by the Congress or other agencies of the Federal Government.

q. That if and when the permittee desires to abandon the activity authorized herein, unless such abandonment is part of a transfer procedure by which the permittee is transferring his interests herein to a third party pursuant to General Condition t hereof, he must restore the area to a condition satisfactory to the District Engineer.

r. That if the recording of this permit is possible under applicable State or local law, the permittee shall take such action as may be necessary to record this permit with the Register of Deeds or other appropriate official charged with the responsibility for maintaining records of title to and interests in real property.

s. That there shall be no unreasonable interference with navigation by the existence or use of the activity authorized herein.

t. That this permit may not be transferred to a third party without prior written notice to the District Engineer, either by the transferee's written agreement to comply with all terms and conditions of this permit or by the transferee subscribing to this permit in the space provided below and thereby agreeing to comply with all terms and conditions of this permit. In addition, if the permittee transfers the interests authorized herein by conveyance of realty, the deed shall reference this permit and the terms and conditions specified herein and this permit shall be recorded along with the deed with the Register of Deeds or other appropriate official.

II. Special Conditions: (Here list conditions relating specifically to the proposed structure or work authorized by this permit):

The following Special Conditions will be applicable when appropriate:

STRUCTURES IN OR AFFECTING NAVIGABLE WATERS OF THE UNITED STATES:

a. That this permit does not authorize the interference with any existing or proposed Federal project and that the permittee shall not be entitled to compensation for damage or injury to the structures or work authorized herein which may be caused by or result from existing or future operations undertaken by the United States in the public interest.

b. That no attempt shall be made by the permittee to prevent the full and free use by the public of all navigable waters at or adjacent to the activity authorized by this permit.

c. That if the display of lights and signals on any structure or work authorized herein is not otherwise provided for by law, such lights and signals as may be prescribed by the United States Coast Guard shall be installed and maintained by and at the expense of the permittee.

d. That the permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the authorized structure or work, shall, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the waterway to its former conditions. If the permittee fails to comply with the direction of the Secretary of the Army or his authorized representative, the Secretary or his designee may restore the waterway to its former condition, by contract or otherwise, and recover the cost thereof from the permittee.

e. Structures for Small Boats: That permittee hereby recognizes the possibility that the structure permitted herein may be subject to damage by wave wash from passing vessels. The issuance of this permit does not relieve the permittee from taking all proper steps to insure the integrity of the structure permitted herein and the safety of boats moored thereto from damage by wave wash and the permittee shall not hold the United States liable for any such damage.

MAINTENANCE DREDGING:

a. That when the work authorized herein includes periodic maintenance dredging, it may be performed under this permit for ten years from the date of issuance of this permit (ten years unless otherwise indicated);

b. That the permittee will advise the District Engineer in writing at least two weeks before he intends to undertake any maintenance dredging.

DISCHARGES OF DREDGED OR FILL MATERIAL INTO WATERS OF THE UNITED STATES:

a. That the discharge will be carried out in conformity with the goals and objectives of the EPA Guidelines established pursuant to Section 404(b) of the FWPCA and published in 40 CFR 230;

b. That the discharge will consist of suitable material free from toxic pollutants in other than trace quantities;

c. That the fill created by the discharge will be properly maintained to prevent erosion and other non-point sources of pollution; and

d. That the discharge will not occur in a component of the National Wild and Scenic River System or in a component of a State wild and scenic river system.

DUMPING OF DREDGED MATERIAL INTO OCEAN WATERS:

a. That the dumping will be carried out in conformity with the goals, objectives, and requirements of the EPA criteria established pursuant to Section 102 of the Marine Protection, Research and Sanctuaries Act of 1972, published in 40 CFR 220-228.

b. That the permittee shall place a copy of this permit in a conspicuous place in the vessel to be used for the transportation and/or dumping of the dredged material as authorized herein.

This permit shall become effective on the date of the District Engineer's signature.

Permittee hereby accepts and agrees to comply with the terms and conditions of this permit.

Albert Holguin, City Mgr. — 8-17-79

PERMITTEE — DATE

CITY OF ARANSAS PASS

BY AUTHORITY OF THE SECRETARY OF THE ARMY:

21 AUG 1979

Marcos De La Rosa

MARCOS DE LA ROSA
Chief, Permit Branch
FOR COLONEL JAMES M. SIGLER
DISTRICT ENGINEER,
U.S. ARMY, CORPS OF ENGINEERS

DATE

Transferee hereby agrees to comply with the terms and conditions of this permit.

TRANSFEREE — DATE

TEXAS DEPARTMENT OF WATER RESOURCES
1700 N. Congress Avenue
Austin, Texas

TEXAS WATER DEVELOPMENT BOARD
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May 16, 1979

Re: Request for Certification
City of Aransas Pass
Aransas Pass Turning Basin

Mr. Steven F. Hiltpold, P.E.
Naismith Engineers, Inc.
P. O. Box 3099
Corpus Christi, TX 78404

Dear Mr. Hiltpold:

This is in response to your letter of May 9, 1979, requesting certification according to the provisions of PL 92-500, Section 404. We certify that construction of approximately 210 feet of bulkhead and excavation of approximately 100 cubic yards of material adjacent to the existing boat launch ramp, Aransas Pass Turning Basin, Aransas County,

will not cause violation of established Texas Water Quality Standards.

We believe there is reasonable assurance, subject to the qualifications and requirements checked on the attached pages, that the activity that you have proposed will be conducted in a manner that will not violate applicable water quality standards. This agency has not held a public hearing on this matter and the views of the public are not known. In making this certification, we limit it to those water quality considerations under the jurisdiction of this agency according to the various statutes which this agency administers.

Our review of this matter has been almost exclusively a review of the information you have furnished. No review of property rights has been made nor has any review been made as to the location of property lines, and especially, no review has been made as to the distinction between public and private ownership, and this certification may not be used in any way with regard to questions of ownership.

We appreciate your cooperation in this matter, and if we can be of additional assistance, please let us know.

Sincerely yours,

Harvey Davis
Executive Director

J. C. Newell
by J. C. Newell, P.E.

RECEIVED
MAY 17 1979
NAISMITH ENGINEERS, INC.
Job. No. 1707

Attachment
ccs: Texas Department of Water Resources District 12
United States Army Corps of Engineers, Galveston
Texas Parks and Wildlife Department
United States Environmental Protection Agency
General Land Office
United States Fish and Wildlife Service, Corpus Christi

Attachment 1
Request for Certification
City of Aransas Pass
Aransas Pass Turning Basin

[X] 1. The work must be done with the minimum production of turbidity in the waters where the work is taking place.

[ ] 2. Spoil must be placed in spoil areas approved by the United States Army Corps of Engineers and Texas Parks & Wildlife Department in such a manner as to minimize the runoff of spoil or highly turbid waters into adjacent waters.

[X] 3. The discharge of oil, gasoline, or other fuel or materials capable of causing pollution arising from your operations is prohibited.

[ ] 4. Natural shoreline configurations shall be restored as much as possible to their former state.

[ ] 5. Pipelines are to be inspected periodically for leakage. Should leaks be discovered, pumping must stop until leaks are repaired.

[ ] 6. Provision must be made for containment of any spillage which would occur during loading or unloading operations, and for prevention of the discharge or leakage of chemical products or other contaminants into State waters.

[X] 7. Sanitary wastes are to be retained for disposal onshore in some legal manner.

[ ] 8. The arrangement of the constructed dock and its appurtenance shall be such that shoreside waste receiving and treating facilities can be added to serve boat customers for both sanitary wastes and other wastes as may in the future be required. Provision of these facilities is not by this letter required, but arrangements and/or space shall be such that they can be added conveniently.

[ ] 9. Notify the Texas Department of Water Resources district office in prior to commencement of the project.

[ ] 10. It should be noted that this portion of is environmentally sensitive, therefore, precautions for minimizing any degradation of water quality are recommended.

[ ] 11. Liquid decanted from the spoil disposal area shall be returned to the channel being dredged.

[ ] 12. The name of the person in charge of the operation of the dredge shall be supplied to the Texas Department of Water Resources district office in prior to initiation of the project.

[ ] 13. Future draining of the spoil disposal area shall comply with all provisions applied to the initial project operations.

Attachment 1 (Continued)
Request for Certification

[ ] 14. Signs shall be posted on either side of the waterway including ownership and emergency telephone numbers.

[ ] 15. Should development of this lease require dredging at some future date, the Company must apply to this agency for further certification.

[ ] 16. This project is being recertified according to the provisions indicated. This certification expires at the end of the period covered by the applicable United States Army Corps of Engineers permit.

[ ] 17. Materials resulting from the destruction of the existing structure must be removed from the water and disposed of in some legal manner.

[X] 18. Fill must be placed behind the bulkhead in such a manner as to minimize the runoff of turbid water to State waters.

[ ] 19. The dredged material shall be placed in an adequately leveed disposal area with controlled spillways.

[X] 20. During construction, adequate erosion control methods shall be used in order to minimize runoff and consequent elevations of turbidity in State waters.

[ ] 21. Areas devegetated during construction shall be replanted to the extent practicable after project completion, to avoid excessive erosion and the runoff of turbid waters to waters of the State.

[X] 22. All dredged material shall be placed on land.

TECHNICAL SPECIFICATIONS

HARBOR PARK PROJECT

EXCAVATION, EMBANKMENT AND PREPARATION OF SUBGRADE FOR ROADWAYS

1. Description: The work covered by this section of the specification consists of furnishing all plant, labor, equipment, supplies, and materials, and in performing operations in connection with the excavation; excavation for drainage structures and side ditches; construction of embankment, shoulders, and gutters; preparation for subgrade including spot reinforcement; and grading including all hauling, wetting, rolling, and other operations pertaining thereto for roadways, complete, in strict accordance with this section of the specifications and the applicable drawings, and subject to the terms and conditions of the contract.

2. Applicable Standard: The following standard of American Association of State Highway Officials forms a part of this specification.

T99-57 Standard Method of Test for the Compaction and Density of Soil.

3. Definitions:

A. General Excavation:
General excavation consists of excavating and grading for roadways, including gutters and ditches; excavating all unsuitable material, regardless of character, from the subgrade; and disposing of all excavated materials, as specified, and in conformity with the lines, grades, cross sections, and dimensions shown on drawings. General excavation shall include any excavation or grading along the roadway required to produce in place, complete with the materials necessary for embankment and fills, and to replace unsatisfactory materials from other excavation or grading operations.

B. Embankment:
This item consists of placing in embankments and in miscellaneous backfills, including the backfills around structures, the materials excavated under the items unclassified excavation, classified excavation, all in accordance with the specified requirements and in conformity with the lines, grades, cross sections, and dimensions shown on the drawings.

C. Subgrade Preparation:
This item consists of the dressing, shaping, wetting, and compacting as required, of the subgrade to the full width of the roadbed in accordance with the specified requirements, and in conformity with the lines, grades, and cross sections shown on the drawings.

D. Ditches:
The items "ditches" shall be interpreted to mean all gutters, side ditches, diversion ditches, and outlet and other ditches in connection with surface drainage, whether the excavation is dry or wet.

E. Shoulders for Roads and Paved Areas:
This item consists of constructing shoulders in accordance with the specified requirements, and in conformity with the lines, grades, and cross sections shown on the drawings.

4. Utilization of Excavated Materials: All suitable material removed from the excavations shall be used, insofar as practicable, in the formation of embankment, subgrade, shoulders, slopes, bedding, and for such other purposes as directed by the Engineer. No excavated material shall be wasted without the authorization of the Engineer. Material authorized to be wasted shall be disposed of as directed by the Engineer, and in such manner as not to obstruct the flow characteristics of any stream or to impair the efficiency or appearance of any structure. No excavated material shall be deposited at any time in a manner that may endanger a partly finished structure by direct pressure, by overloading banks contiguous to the operations or that may in any other way be detrimental to the complete work.

5. Excavation of Ditches and Gutters: Ditches and gutters shall be cut accurately to the cross-section and grades indicated by the drawings. All roots, stumps and other foreign matter in the sides and bottoms of ditches and gutters shall be cut to conform to the slope, grade, and shape of the section shown. Care shall be taken not to excavate ditches and gutters below the grade indicated. Any excessive ditch and gutter excavation shall be backfilled to grade either with suitable thoroughly compacted material, or with suitable stone or cobble stone to form an adequate gutter paving, as directed by the Engineer. The Contractor shall maintain all ditches and gutters excavated under this specification free from detrimental quantities of leaves, sticks, and other debris until final acceptance of the work. All suitable material excavated from ditches and channel changes, except material shown on the drawings to be placed in dikes, shall be placed in embankments unless otherwise directed. No excavated material shall be deposited within a distance of 3 feet or more from the edge of a ditch, as shown on the drawings.

6. Existing Service Lines and Utility Structures: All existing service lines and utility structures uncovered or encountered during all classes of excavation, and during all operations incident to all grading work, construction of embankments, and backfilling shall be safeguarded and protected from damage, and supported if necessary, as specified or indicated on the drawings, or as directed by the Engineer.

7. Preparing Ground Surface For Embankment: Sloped ground surfaces, steeper than one vertical to four horizontal, on which embankment is to be placed, shall be plowed, steeped, or broken up in such manner that the embankment material will bond with the existing surface, as directed or approved by the Engineer. Where so directed by the Engineer, the surface as prepared, shall be wetted and compacted.

8. Embankment Material: Embankments and backfill shall be constructed of suitable material free from muck, trees, tree boles, stumps, standing or matted roots, and rubbish.

9. Formation of Embankments:

A. Earth:
Embankments shall be formed of approved material, placed in horizontal layers. Earth or friable materials shall be placed in successive layers of loose material not more than eight inches in depth. Each layer shall be spread uniformly by the use of a

road machine or other approved device and rolled with an approved tamping or three-wheeled power roller until thoroughly compacted to 95 percent of maximum density obtained at optimum moisture content, except for the upper six inches or subgrade as provided in "Subgrade Preparation". Where rock is to be incorporated in fills or portions of fills composed largely of earth for friable materials, the rock shall be reduced to six inch maximum size. The upper layer containing rock shall be covered with a layer of earth or other approved material, not less than six inches in compacted depth, to provide a satisfactory subgrade having no rock six inches or larger within six inches of the finished subgrade. The number of rollers used shall be proportioned to the rate at which embankment material is placed, but shall in no case be less than one roller, maintained in normal operation for each 150 cubic years or less of material placed per hour.

10. Subgrade Preparation: After the subgrade has been shaped to line and grade, and cross-section, it shall be rolled with an approved power roller weighing not less than ten tons, until thoroughly compacted, as determined by the Engineer. This operation shall include a reshaping and wetting required along with the rolling of the subgrade, to obtain proper compaction. All soft or otherwise unsuitable materials shall be removed and replaced with suitable material from excavation or bottom, or with the materials specified for spot subgrade reinforcement, as approved by the Engineer. All boulders or ledge stone encountered in the excavation shall be removed or broken off to a depth of not less than six inches below the subgrade. The resulting area and all other low sections, holes, or depressions shall be brought to the required grade with material approved by the Engineer, and the entire subgrade shaped to line, grade, and cross-section and thoroughly compacted as herein provided. Subgrade compaction shall be extended to include the shoulders for a distance of at least one foot beyond edges of the base course, or pavement. Except as otherwise provided, the upper six inches of subgrade in every area shall be compacted to 95 percent of the maximum density obtained at optimum moisture content.

11. Finishing Slopes and Surfaces: The surface of all areas of earth and other materials shall be finished to a reasonable smooth and compact surface substantially in accordance with the surface lines and cross-sections shown, or the elevations indicated, on the drawings, or as directed by the Engineer. The degree of finish for grading slopes shall be that ordinarily obtainable from either blade-grader or scraper operations, or by hand-shovel operations, as the Contractor may elect, subject to the approval of the Engineer. When so specified,

the accuracy of finish obtained by the use of the templates and stringline or hand-raking methods will be required in the case of shoulders, gutters, and similar areas. All gutters and ditches shall be so finished that they will drain readily. The surface of areas to be turfed shall be finished to a smoothness suitable for the application of turfing materials.

12. Subgrade and Embankment Protection: During construction, embankments and excavations shall be kept shaped and drained. Ditches and drains along the subgrade shall be maintained in such manner as to drain effectively at all times. Where ruts of two inches or more in depth occur in the subgrade, the subgrade shall be brought to grade, reshaped if required, and recompacted prior to the placing of base course or surfacing. The storage or stock-piling of materials on the subgrade will not be permitted. No base course surfacing, or pavement shall be laid until the subgrade has been checked and approved, and in no case shall the base course, surfacing, or pavement be placed on a muddy subgrade.

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CEMENT STABILIZED BASE

General: Cement stablized base shall be constructed in accordance with Texas Highway Department Special Specification Item 2152, "Soil-Cement Base Course (Portland Cement)", a copy of which is attached and made a part of this section. Minor changes have been made to adopt this Special Specification to the specific requirements of this project.

Quantities and Density:

a) Thickness:
Final compacted thickness of the cement stabilized base shall be not less than 7 inches.

b) Density:
Minimum of 95% of Standard Proctor density at optimum moisture content.

c) Cement:
Portland Cement shall be applied at the rate of 13#/cu. ft. of compacted base, or 68.25#/sq. yd. of surface area for a 7" thick base, (198#/lineal foot of base 26 feet wide).

d) Seal:
Shall be by application of Asphalt Surface Treatment, Single Course-Seal Coat.

Curing: The surface of the cement stabilized base shall be kept moist by sprinkling until the cure (seal coat) is applied. Care shall be taken to avoid fracturing or disturbing the compacted base material during sprinkling or seal coat operations.

Measurement and Payment: Cement stabilized base will be measured by the square yard of surface area of completed and accepted work and paid for on the basis of the unit price bid for this work. This will include all materials, labor, equipment and all other items. Width of the base shall be as shown on the plans.

Additional Information: To assist the Contractor in planning his work to meet these specifications, copies of notes made by the project engineer on a job using similar specifications are available from the office of the Engineer.

Weight Tickets: The Contractor shall furnish to the Owner's inspector weight tickets for each load of bulk cement delivered to the job site.

TEXAS HIGHWAY DEPARTMENT
SPECIAL SPECIFICATION
SOIL - CEMENT BASE COURSE (PORTLAND CEMENT)

1. Description: This item shall consist of a base course composed of a combination of soil (dune sand) and Portland Cement uniformly mixed, moistened, compacted in accordance with this specification, and shaped to conform to sections, lines and grades as shown on the plans.

2. Materials:

(1) Portland Cement:
Cement shall be Type I of a standard brand of Portland Cement and shall conform to the requirements of ASTM designation C-150.

Cement may be delivered in bulk where adequate bin storage, batching and weighing equipment is provided. All other cement shall be delivered in bags on which shall be marked plainly the name of the manufacturer and the type of cement. Similar information shall be provided in the bills of lading accompanying each shipment of packaged or bulk cement. In general, bags shall contain 94 pounds net. All bags shall be in good condition at time of delivery.

Bags varying more than 5 percent from the specified weight may be rejected and if the average weight of bags in any shipment, as shown by weighing 50 bags taken at random, is less than 94 pounds, the entire shipment may be rejected.

All cement shall be properly protected against dampness, and no cement will be accepted which has become caked.

All cement shall be sampled and tested in accordance with the standard ASTM methods prescribed in the governing specifications.

Cement remaining in bulk storage at the mill, for a period greater than six months after completion of the tests may be retested and rejected if it fails to conform to any of the requirements of these specifications.

The Engineer shall be notified upon receipt of shipments of cement in order that he may witness the opening of the bag. Failure to comply with this requirement may be cause for the rejection of the entire shipment.

(2) Water:
Water shall be free from substances deleterious to the hardening of the soil-cement mixture and shall be approved by the Engineer. Water from the City water system is acceptable.

(3) Soil:
The soil shall consist of the dune sand series, free from vegetation or other objectionable matter. (Existing base and pavement materials are to be included in the stabilized base).

(4) Asphaltic Material: The asphaltic material shall be of the type and grade shown on the plans and shall conform to the requirements for the grade specified as described in the Item "Asphalt, Oils, and Emulsions".

3. Equipment:

(1) General:
All equipment necessary to properly prosecute, perform and complete this work shall be on the project prior to beginning the work and shall be maintained in a satisfactory condition at all times.

The soil-cement base shall be constructed with a traveling mixing plant and auxiliary equipment that will produce results as outlined in this specification. The traveling mixing-plant may be either a single-pass traveling mixing plant or a multiple-pass traveling mixing plant. Blade mixing will not be permitted.

The equipment provided by the Contractor shall be operated by experienced and capable workmen and shall be that necessary to provide a soil-cement base course meeting the requirements herein specified.

(2) Cement Spreaders:
If bulk cement is used, it shall be uniformly spread with a cement spreader made especially for spreading cement. The proportioning and distributing devices shall be positive in action and capable of necessary adjustments in quantity of cement spread and width of lane. The cement spreader shall spread cement uniformly and to an accuracy of one-twentieth (1/20) of the required quantity per square yard as shown on the plans or established by the Engineer and shall be approved by the Engineer.

(3) Rollers: (other methods giving equal results are acceptable)
Crawler type tractors, equipped with street plates, shall be used for all compaction of the soil-cement mixture except surface compaction.

Self-propelled pneumatic tired rollers conforming to the Item "Rolling" (Pneumatic Tire), except for tires, shall be used for surface compaction.

(4) Pneumatic Tires:
All pneumatic tired equipment used in finishing the soil-cement mixture, such as the motor grader, the water distributor, the spike-tooth harrow tractor, the pneumatic roller and the asphalt distributor, shall have smooth tires and in no case shall the tread be such as to damage the surface of the soil-cement mixture or cause non-uniformity of compaction. In lieu of tires with well worn treads, mechanical removal of objectionable treads may be necessary to satisfy this requirement.

(5) Water Distributors:
The Contractor shall furnish and operate approved sprinkler equipped with positive and rapidly working cut-off valves and approved spray bars which will insure the distribution of water in a uniform and controlable rate of application.

(6) Spiketooth Harrow:
A spiketooth harrow operating from a hydraulic lift on a small pneumatic tired tractor shall be used for removing compaction planes, mixing water in the soil-cement mixture surface, plus other uses.

(7) Scales and Measuring Equipment:
Where materials are specified to be measured or proportioned by weight equipment shall conform to the requirements of the item, "Weighing and Measuring Equipment".

4. Construction Methods:

(1) General:
The primary requirement of this specification is to secure a completed course of soil (dune sand) containing a uniform Portland Cement mixture, free from loose or segregated areas, of uniform density and moisture content, well bound and compacted for its full depth with a smooth surface suitable for placing surface courses. In general, the following procedure shall be followed:

(a) The soil to be processed shall be brought to accurate section, line and grade as determined by the Engineer and, on the day immediately preceding soil-cement processing, shall be thoroughly wetted. The soil shall then be reshaped to accurate section, line, and grade.

(b) Portland Cement in the required amount shall be uniformly spread over the prepared section.

(c) The Portland Cement shall be uniformly mixed with the soil throughout the required width and depth of the base course. Multiple passes shall be made if required to give a uniform mix.

(d) Water shall be uniformly added as needed and incorporated into the mixture in the amount required to attain the optimum moisture content.

(e) After thorough and uniform mixing of soil, cement and water, the mixture shall be immediately compacted for full depth and in one continuous operation.

(f) After compaction is completed, the surface shall be shaped, water added uniformly as needed, and further compacted and finished to the required section, line and grade.

(g) After the soil-cement mixture has been surface finished, it shall be immediately protected by an asphaltic material cover and sanded as directed by the Engineer.

(2) Preparation of Roadway for Processing: The roadway shall be bladed to required section, line and grade. On the day immediately preceding soil-cement processing, water, in the specified quantity, shall be added with water distributors (or other methods approved by the Engineer) and uniformly mixed full depth with the raw soil. The soil shall then be accurately bladed and shaped to required section, line and grade.

(3) Application of Portland Cement: Approval of section, line and grade by the Engineer will be necessary prior to spreading cement.

The specified quantity of Portland Cement for the full depth treatment of soil shall be uniformly spread over the surface in a single application, and in a manner satisfactory to the Engineer.

If a bulk cement spreader is used, it shall be positioned by string lines during spreading to insure a uniform distribution of cement.

Cement shall be applied only to such an area that all the operations specified in paragraphs 4 (3) and 4 (5), inclusive, can be continuous and all but final surface finish completed within six (6) hours after the beginning of cement mixing. Cement shall be applied only to such areas that can be completed as herein specified, including asphalt curing, within the daylight hours of the same day. No cement shall be applied to the loose soil unless the subgrade immediately beneath will support, without displacement, the compaction herein specified. No cement shall be applied when the percentage of moisture in the soil cement mixture during initial mixing operations or when the percentage of moisture will not permit a uniform and intimate mixture of soil and cement.

No equipment, except that used in spreading and mixing, will be allowed to pass over the freshly spread cement until it is mixed with the soil.

Any cement displaced outside the base course lines by spreading or mixing equipment shall be reclaimed to the section by pulling it back inside with hand rakes.

(4) Mixing and Processing:
Unless otherwise shown on the plans, either method mentioned in Item 3 (1), above, and described under (a) and (b), below, may be used at the option of the Contractor.

(a) Multiple-Pass Traveling Mixing Plant: After the cement has been applied it shall be dry-mixed with the soil. Mixing shall continue until the cement has been sufficiently blended with the soil to prevent the formation of cement balls where water is applied. Any mixture of soil and cement that has not been compacted and finished shall not remain undisturbed for more than 30 minutes.

immediately after the dry mixing of soil and cement is complete, water as necessary to reach optimum moisture content in the soil-cement mixture shall be uniformly applied and incorporated into the mixture. Sprinkling equipment and water supply provided shall be adequate to insure continuous application of the required amount of water to sections being processed within 3 hours of application of the cement. Proper care shall be exercised to insure proper moisture distribution at all times. After the last increment of water has been added, mixing shall continue until a thorough and uniform mix has been obtained.

(b) Single - Pass Traveling Mixing Plant (After the cement has been applied it shall be sufficiently dry-mixed with the soil to prevent the formation of cement balls when water is applied).

The mixer shall be provided with means for visibly and accurately gaging the water application. The water shall be applied uniformly through a pressure spray bar.

After cement is spread, mixing operations shall proceed as follows:

The mixer shall, in one continuous operation, mix the air-dry soil and cement full depth, add the required moisture uniformly, thoroughly moist-mix the soil, cement and water, spread the completed soil cement mixture evenly over the machined processed width of the soil-cement base and leave in a loose condition ready for immediate compaction.

The soil and cement mixture shall not remain undisturbed, after mixing and before compacting, for more than 30 minutes.

When, using either method (a) or (b) above, any of the operations after the initial application of water to this soil-cement mixture is interrupted for more than thirty (30) minutes for any reason, or when the uncompacted soil-cement mixture is wetted by rain so that the average moisture content exceeds the tolerance given below at the time of final compaction, the entire section shall be reconstructed in accordance with this specification at the contractor's own expense. All material along longitudinal or transverse construction joints, not properly compacted, shall be removed and replaced with properly moistened and mixed soil-cement which shall be compacted to specified density.

When water application and mixing is completed, the percentage of moisture in the mixture on a basis of dry weight, shall not vary from the optimum moisture content established by the Engineer for the soil-cement mixture by more than one-tenth (10%). This optimum moisture shall be that prevaling in the moist soil-cement at the time of compaction and shall be determined in the field by a moisture-density test, THD Test No. Tex-113-E, on representative samples of soil-cement mixture obtained from the road being processed toward the conclusion of moist mixing operations.

(5) Compaction and Finishing: The soil-cement mixture shall be compacted immediately after the completion of mixing operations by the use of crawler type tractors equipped with street plates. The tractors shall be routed over the section in such a manner that there is an equal number of applications of the tracks to all areas being compacted so that all areas will receive equal compactive effort. Compaction shall continue until the entire depth and width of soil-cement mixture is uniformly compacted to the specified density. The rate of operation and number of crawler type tractors shall be sufficient to compact uniformly the section being processed for the specified width and depth within two (2) hours.

After the soil-cement mixture, excepting the top mulch, is compacted, moisture shall be uniformly applied as needed and thoroughly mixed in with a spiketooth harrow or equal. The surface shall then be reshaped to the required section, line and grade, and then lightly scarified to loosen any imprint left by the compacting or shaping equipment. The resulting surface shall then receive an initial finish by thoroughly rolling with a pneumatic-tired roller. Following initial rolling a motor grader shall be used to "clip", "skin", or "tight blade" the top of the soil-cement base to a depth of approximately 1/4 inch. All loosened soil-cement from this operation shall be removed from the surface. The surface shall then receive a final finish by compacting with the pneumatic foller, adding small increments of moisture as needed druing rolling. When directed by the Engineer, surface finishing methods may be varied from this procedure provided a dense, uniform surface, free of surface compaction planes, is produced. The moisture content of the surface material must be maintained at its specified optimum during all finishing operations. Surface compaction and finishing shall be done in such a manner as to produce, in not longer than two (2) hours, a smooth, closely knit surface, free of cracks, ridges or loose material, conforming to the section, line and grade as shown on the plans.

At all places inaccessible to rollers and/or finishing equipment, the mixture shall be thoroughly compacted by hand tamping and shaped and finished by hand methods.

At the end of the day, or in case of unavoidable interruption of operations that would form a joint in the base course a transverse header shall be placed in such manner that the end of the base course can be satisfactirily compacted and shaped. On resuming operations, the header shall be removed and if the exposed edge of the base course is not approximately vertical, or if necessary to secure a satisfactory riding surface at the joint, the edge of the base course shall be cut back to leave a vertical face or as necessary to secure a satisfactory riding surface. All base course material removed shall be replaced by the Contractor at his own expense.

The density of the soil-cement base course shall be determined by the Engineer after each day's construction. Any portion which has a density of five (5) percent or more below that specified or which has not properly hardened after a suitable time interval, shall be removed and replaced to meet this specification at the expense of the contractor.

Tests will be made of the thickness of the soil-cement base course as the work progresses, and if the required thickness is not being secured the contractor shall make such adjustment in his operations as are necessary to obtain the thickness required.

5. Curing, Protection and Cover: After the base course has been finished as specified herein, it shall be immediately protected against rapid drying by applying asphaltic material of the type and grade specified at the rates as shown on the plans or as necessary, in the opinion of the Engineer, to completely seal the surface and fill all voids. Immediately prior to application of the asphaltic material, the base course shall be wetted, by the use of water distributors, so that all voids in the soil-cement mixture are filled with water but without free water standing on the surface. The asphaltic material shall be applied while the surface of the soil-cement base is wet so that undue asphalt penetration will be avoided. (The specified seal coat will serve as the curing coat mentioned).

It shall be the responsibility of the contractor to protect this asphaltic curing coat against picking up under traffic by sanding the surface. The bituminous curing coat shall remain in place for the proposed additional asphalt surface treatment, unless otherwise directed by the Engineer.

Any finished portion of the soil-cement base adjacent to construction, which is traveled by equipment used in constructing an adjoining section, shall be covered with at least six (6) inches of earth to prevent equipment from marring the surface of the completed work.

6. Weather Limitation: During seasons of probable freezing temperatures, no cement shall be applied unless the temperature is at least forty (40°) degrees Fahrenheit in the shade and rising. It is understood that the contractor is responsible for the quality of the finished base course under any weather condition.

7. Opening to Traffic: The contractor will not be permitted to drive heavy equipment over completed portions of the base course except that pneumatic-tired equipment including that required to haul cement and water; may be permitted after the surface has hardened sufficiently to prevent the equipment marring the surface, provided protection and cover specified in paragraph (5) are not injured. The decision on early use of the new soil-cement base course will be made by the Engineer. The soil-cement base course may be opened to all traffic after seven (7) days.

8. Maintenance: The contractor shall be required to maintain at his own expense the entire roadway within the limits of his contract in good condition satisfactory to the Engineer from the time he first starts work until all work shall have been completed. Maintenance shall include immediate repairs of any defect that may occur in the base course after the cement has been applied, which work shall be done by the contractor at his own expense and repeated as often as may be necessary to keep the area continuously intact. Repairs are to be made in a manner to insure restoration of a uniform surface and durability of the part repaired. Faulty work shall be replaced for the full depth of treatment. Any low area shall be remedied by replacing the material for the full depth of treatment rather than adding a thin layer of soil-cement on the completed work.

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ASPHALT SURFACE TREATMENT

One Course - Seal Coat

1. Description: This specification shall govern for a wearing surface composed of a single application of asphalt, covered with aggregate, constructed on the prepared base course in accordance with the details on the plans and the requirements of this specification.

One course surface treatment shall not be applied when the air temperature is below 50° F. and is falling, and it may be applied when the air temperature is above 40° F and rising, the temperature being taken in the shade and away from artificial heat. No asphalt shall be placed when general weather conditions, in the opinion of the Engineer, are not suitable.

2. Asphalt: The asphalt shall meet the requirements of Texas Highway Department Specifications (1972) and shall be AC-5.

3. Aggregate: The natural limestone rock asphalt aggregate shall consist of sound and durable particles of natural or blended limestone rock asphalt containing an average of 4 to 8 percent of asphalt and 92 to 96 percent limestone practically free from sulphates, iron pyrites, shale, clay, or other objectionable matter, and flux material. This aggregate mixture shall contain from 98.0 to 98.5 percent natural or blended limestone rock asphalt and 1.5 to 2.0 percent flux rock asphalt and shall meet the following grade requirements.

Grade 4 (1972 Texas Highway Department Specifications)

4. Construction Methods: The surface of the base shall be cleaned of dirt, dust, or other deleterious matter by sweeping or other approved methods. The surface shall be lightly sprinkled just prior to application of asphalt.

All storage tanks, piping, retorts, booster tanks, and distributors used in storing or handling asphalt shall be kept clean and in good operating condition at all times, and they shall be operated in such manner that there will be no contamination of the asphalt with foreign material. The Engineer will select the temperature of application between 275° and 325° F (not exceeding 350°F) and the Contractor shall apply the asphalt at a temperature within 15° of the temperature selected.

Attention is directed to the fact that the flash point for cut-back asphalt is approximately 80° F. The utmost care shall be taken to prevent open flames from coming in contact with the cut-back asphalt or the gasses of same. The Contractor shall be responsible for any fires or accidents which may result from heating the cut-back asphalt.

No traffic or hauling will be permitted over the freshly applied asphalt. The surface shall next be uniformly covered with aggregate by means of an acceptable spreading machine. The entire surface shall then be broomed and thoroughly rolled with a three wheeled, self-propelled roller, weighing not less than three (3) tons nor more than six (6) tons.

After the work has been completed as specified above, there should be a slight excess of aggregate on the surface. The asphalt and aggregate shall be applied at the approximate rate indicated on plans within the limits of the following schedule, as directed by the Engineer:

Gallons of Asphalt	Aggregate
Single Course - 0.30 per square yard	Cubic yard to square yards - 1:100

The Contractor shall be responsible for the maintenance of the surface and the distribution of the excess aggregate until the work is accepted by the Engineer. The maintenance work shall consist of keeping all holes or failures in the asphalt repaired by use of additional asphalt and necessary aggregate. The surface of the seal coat shall be broomed to remove excess aggregate or sand prior to placing of hot-mix asphaltic concrete.

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HOT MIX ASPHALTIC CONCRETE PAVEMENT

1. General Description: Hot Mix Asphaltic Concrete Pavement shall be produced, transported and applied in accordance with the 1972 "Standard Specifications for Road and Bridge Construction" of the Texas State Highway Department; Item 340, paragraphs 340.1 to 340.6 inclusive.

2. Specific Requirements:

   a. Seal Coat:
   Seal coat shall be applied to the limits shown on the plans. (See Specification Section "Seal Coat")

   b. Tack Coat:
   Apply at a rate of 0.05 gallons per square yard as determined by surface characteristics and approved by the Engineer. If surface of seal coat is acceptable, tack coat may be omitted.

   c. Aggregate:
   Shall be a crushed limestone.

   d. Asphaltic Material:
   Shall be of such grade and from such source known to produce asphaltic concrete meeting these specifications. Grade and source are subject to the approval of the Engineer.

   e. Paving mixture - grading of mineral aggregate:
   Shall be Type "D" (Fine Graded Surface Course)

   f. Thickness:
   Minimum 1½" after compaction.

   g. Density and Stability:
   1) Stability -Not less than 35 test method THD Bulletin C-14
   2) Density -Optimum 95, Minimum 93, Maximum 96, all percent; test method ASTM D 2041-71.

   h. Rolling and Compacting:
   Shall be adequate to produce the minimum density specified, and shall comply with the requirements of Item 210.1-210.3 and Item 213.1-213.3 of the Texas State Highway Department specifications previously referenced.

3. Maintenance during Construction: The contractor shall be required to maintain at his own expense the entire pavement within the limits of his contract in good condition satisfactory to the Engineer from the time he first starts work until all work shall have been completed. Maintenance shall include immediate repairs of any defect that may occur in the asphaltic concrete surface, which work shall be done by the contractor at his own expense and repeated as often as may be necessary to keep the area continuously intact. Repairs are to be made in a manner to insure restoration of a uniform surface and durability of the part repaired. Faulty work shall be replaced. Some damage to the surface by turning traffic is anticipated, and such damage shall be repaired by the Contractor at his expense.

4. Measurement and Payment: Measurement of Hot Mix Asphaltic Concrete Pavement will be square yards of pavement surface complete in place and accepted by the Engineer. Payment will be based on the unit price quoted in the Proposal. The Contractor shall furnish to the Engineer weight tickets showing the total tonnage of hot-mix material delivered to the job site and incorporated into the work.

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SANITARY SEWERS

1. Description: This specification shall govern for the furnishing, excavating, laying or placing, and backfilling, shoring, dewatering and other operations necessary for the installation of all sanitary sewer pipes of the various dimensions as may be used. The Contractor shall take all necessary precautionary measures to insure the proper protection and repair of all existing water, sewer and gas pipes, and telephone and electric conduits, etc., the removal of all trees, roots, and anything which may be encountered in making the excavations to the lines and grades shown on the plans and as staked by the Engineer. The plans indicate underground utilities where such information was available to the Engineer. However, the Contractor shall locate and protect all underground utilities.

2. Materials: Sewer pipe shall meet all the requirements of the applicable specification section.

3. Excavation. Pipe sewers shall be built in a trench, the width of which at the top of the pipe shall not exceed the external diameter of the bell of the pipe, plus eight (8") inches. A greater width may be permitted by the Engineer when necessary to sheet the trench. The ground shall be excavated in the open trench to the width, depth, and in the direction necessary for the proper construction of the pipe sewer according to the plans, except where tunneling is considered necessary or proper by the Engineer.

The width of existing surface structures to be removed, such as pavement, sidewalks, driveways, curb, curb and gutter, etc., shall not be in excess of that specified for trench width at the top of the pipe, except as permitted or authorized by the Engineer to conform to adjacent markings or joints in the structure.

The excavation of the trench shall not advance more than two hundred (200') feet ahead of the completed pipe work, except where, in the opinion of the Engineer, it is necessary.

Where trench has been excavated below grade, selected fill material shall be used to bring the trench to the required grade and shall be thoroughly compacted by means of mechanical tamps.

The Contractor shall do no tunneling except upon written permission from the Engineer. If permitted, the tunnel shall be of such height and width as the Engineer may direct, and shall be excavated in conformity with a cross-section approved by him in writing.

4. Dewatering: The Contractor shall make such provisions for dewatering excavations as are necessary to complete the construction required in a safe and workmanlike manner, allowing for adequate protection of adjacent properties and inspection of the construction. The Contractor shall file with the Engineer his proposed method for dewatering.

5. Bracing and Shoring: The sides of all trenches shall be securely held by bracing and sheeting which, if not ordered left in place, may be removed in units when the level of the backfilling has reached the elevation necessary to properly protect the pipe work and adjacent property. When, in the opinion of the Engineer, sheeting or shoring cannot be safely removed, it shall be left in place. Timber left in place shall be cut off at least 2' below the ground surface. No separate payment will be made for sheeting or shoring left in place.

6. Foundations: If the foundation is good firm earth, the earth shall be shaped or pared to give full support to the lower third of each pipe and, if necessary to secure a proper bearing for the pipe, a layer of fine gravel or other suitable material shall be placed. The same means of securing a firm foundation shall be adopted in case the excavation has been made deeper than necessary.

The Contractor shall protect the pipe from flotation until backfill is placed and consolidated.

7. Pipe Laying: Trenches shall be kept free from water until the pipe has been satisfactorily laid.

Each pipe shall be laid to the line and grade given by the Engineer in such manner as to form a close concentric joint with the adjoining pipe and prevent sudden off-sets of the flow line. Joints shall be made in the manner specified by the manufacturer.

The interior of the sewer shall, as the work progresses, be cleared of all dirt and superfluous materials of every description. On small pipe sewers, where cleaning after laying may be difficult, a swab or drag shall be kept in the pipe line and pulled forward past each joint immediately after its completion.

"T" or "Y" branches or junctions shall be installed at the places shown on plans or designated by the Engineer.

8. Joints: Joints shall be made in accordance with the requirements of the pipe specifications. Where sewer line is within 10' of a City water system line, all sewer joints shall be of a pressure type equivalent to those used in water main construction wherever such joint is within this 10' area.

9. Backfilling: All trenches and excavations shall be backfilled immediately after the pipes are laid therein, unless other protection of the pipe line is directed. The backfilling material shall be selected and deposited with special reference to the future safety of the pipe. Selected excavated material free from rock or other debris shall be placed in six (6") inch layers and each layer carefully watered and tamped about the pipe up to a level at least one (1') foot above the top of the pipe. The remainder of the backfilling of the trench shall be carried on in a manner to completely fill the trench, watering and tamping where in the opinion of the Engineer, such procedure is necessary. Mechanical compaction will be required where the trench is under existing pavement or where it is within 50' of existing structures.

Where backfilling is carried out in areas where concrete cradle or protection has been installed, no backfilling will be permitted until authorized by the Engineer.

Walking or working on the completed sewer pipe, except as may be necessary in tamping the backfill, shall not be permitted until the trench has been backfilled to a height of at least one (1') foot over the top of the sewer pipe.

Methods of backfill may be changed with written consent of the Engineer, depending on the type of backfill material and moisture content.

10. Order of Construction: The construction of all sewer pipe lines shall begin at the lower or outlet end, or at the low point in the line. When construction involves the building of the main sewer pipe lines having one or more laterals or tributary lines, the construction of the laterals or tributary lines shall not be started until the main sewer has been complete to the point where the lateral or tributary line connects with the main sewer line. Sewer appurtenances shall be constructed as soon as the sewer which they serve is constructed to their locations. The postponing of the construction of appurtenances until the sewer line has been completed, or the construction of appurtenances in advance of the construction of the sewer line, will not be permitted. All connections to existing sewers shall be done in a manner acceptable to the Engineer.

11. Delivery: Sewer pipe and other materials delivered to the job site in advance of their sue shall be stored in a manner satisfactory to the Engineer. All defective sewer pipe or material shall be removed from the site of the work. If sewer pipe is placed along side the line of construction, it shall be done in such manner as to prevent any unnecessary inconvenience to the public or interfere with adjacent property, and after permission of the Engineer.

12. Stoppers or Bulkheads: The dead end of all sewers, wyes, tees, etc., shall be closed with approved clay stoppers cemented in place when shown on the plans or required by the Engineer.

Tight fitting stoppers or bulkheads shall be securely placed in or across the end of all sewer lines when construction is stopped temporarily, or at the end of a day's work. Such closures need not be water tight.

13. Rejection of Pipe: Pipe shall be subject to inspection by the City and rejection on account of any visible cracks, thin spots, evidence of shipping damage or other damage.

All rejected pipe shall be removed from the job site and replaced by the Contractor with pipe which meets the requirement of the specifications.

14. Borings: Where any information pertaining to the character of the subsurface formations to be encountered in the excavation work is needed by the Contractor, he shall make such borings at his own expense, and it is expressly understood that the Owner does not assume any responsibility for any subsurface formations to be encountered along the trenching or other excavations.

15. Pumping, Bailing, and Drainage: The Contractor shall immediately remove any surface or seepage water or water from the sewer pipe lines, drains, trenches, ditches, or other surfaces which may accumulate during the progress of the work by providing the necessary ditches, temporary drain lines or by pumping, bailing, or any other means to attain the desired relief. The contractor shall have available at all times during the progress of the work, such pumps and other equipment as is necessary to do the work herein required. All equipment must be maintained in good working condition during the process of completing the work so bid.

16. Concrete Cushion, Cradle, or Protection: Concrete cradle, cushion or protection where required shall be constructed as shown on the plans. Where a conditions arises, which requires the installation of such concrete cushions or cradle or protection not shown on the plans, such installation shall be made only on the written instructions of the Engineer; such instructions shall designate the location, shape, type and manner of construction. Where concrete cradle or cushion is constructed beneath the sewer pipe, the subgrade shall be prepared to the dimensions and form as shown on the plans. Concrete cradle, cushion, or protection shall be placed in a dry trench unless in the opinion of the Engineer, such a method is not practicable. Where the concrete is placed in a wet trench, the work shall be done strictly as directed or approved by the Engineer.

17. Disposal of Excavated Materials: Excavated materials, so far as needed and of a suitable and acceptable character, shall be piled adjacent to the excavation to be used as backfill as required. All excavated material that is unsuitable for backfilling purposes or which is an excess of the amount required or needed to satisfactorily complete the backfill, shall be disposed of by the Contractor. The character and suitability of all backfill material shall meet the approval of the Engineer. Desirable top soil, or sod, etc., shall be carefully piled separately from the other excavated material so that it can be replaced in this original position when required. Excavated material shall be handled at all times in such manner as to cause a minimum of inconvenience to public properties adjacent to or along the line of the work. In parkways and easements, where it is necessary to deposit excavated materials on lawns during the progress of the work, care shall be taken to prevent damage to such lawns. Where damage is done to such lawns, all expense of replacing the lawn shall be borne by the Contractor.

18. Removal and Replacement of Sod, Shrubbery, Plants, Etc. Where it is necessary to remove the sod, shrubbery, plants, etc., in order to make any excavation for this work, such areas as are backfilled shall have the same sod, plants or shrubbery, of the same kind and in good condition, same shall be furnished by the Contractor at his expense. The sod, where required to be removed, shall be removed in squares cut out with a sharp spade or other satisfactory tool; the square shall be of such size that it may be conveniently handled without breaking. Such sod shall be removed in layers of not less than four (4") inches depth, and shall be stored and given proper attention to protect the sod from drying out, pending the time of replacement.

If trees and plants shall be removed, this work shall be done in the approved manner as required protection of roots, branches, etc. When backfilling is complete, the trees and plants shall be replaced in their original position or as near such position as possible.

19. Protection of Trees, Plants, Shrubbery, Etc. Where trees, plants, shrubbery, etc., are adjacent to the line of work, the Contractor shall protect all such trees, plants, or shrubbery by wooden boxes, frames, or guards of sufficient strength to prevent any injury from machinery, trucks, or workmen during the prosecution of the work.

20. Infiltration: Refer to Specification Section "Tests".

21. Removal of Existing Culverts and Mailboxes: Existing culverts and mailboxes in the line of proposed construction shall be carefully removed by the Contractor. Culvert pipe shall be replaced to original line and grade. Mailboxes shall be reset in original condition and location.

22. Cleanup and Final Grading: Drainage ditches, valleys, and other existing surface drainage improvements disturbed by trench excavation shall be regraded to existing grades and alignment. Following backfill completion the ROW shall be cleaned of trash and left in as good a condition as existed before construction. No material shall be burned on the construction site.

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PVC FOR GRAVITY SANITARY SEWER

1. General: This specification designates general requirements for unplasticized polyvinyl chloride (PVC) gravity sewer pipe with integral wall bell and spigot joints for the conveyance of domestic sewage.

2. Materials: Pipe shall be unplasticized polyvinyl chloride (PVC) plastic gravity sewer pipe made from clean, virgin, approved Type 1 Grade 1 PVC compound conforming to ASTM Resin Specification D-1784. It shall be a product manufactured and sold specifically for municipal sanitary sewer service.

3. Joints: Joints for PVC pipe and fittings shall be compression rubber gasket joints conforming to the material and performance requirements of ASTM D-1869.

Pipe bells shall be integral with the wall section. Joints shall be sealed with rubber rings.

4. Wall Thickness: The ratio of outside diameter to pipe wall thickness shall not be less than 35.0 for any size pipe required.

5. Fittings: Fittings and accessories required shall be manufactured and furnished by the pipe supplier. They shall conform to the material and performance requirements of the pipe, and shall have joint configurations identical to that of the pipe.

6. Stiffness: Minimum pipe stiffness at 5% deflection shall be 46 for all sizes when calculated in accordance with ASTM D2412. Testing to determine in place deflection for all line segments averaging 8 feet depth, or greater, will be performed by the Contractor in the presence of the Engineer.

7. Special Requirements: For pipe and joints to be placed with 10' of a City water system line, as shown on the plans, a pressure-type joint equivalent to those used in water line construction is required. The manufacturer shall submit evidence to the Engineer that the material he proposes to furnish meets these requirements and the requirements of the Texas Department of Health Resources.

PVC - GSS

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MANHOLES

1. Description: This specification shall govern for the furnishing of all materials and the construction of manholes composed of concrete base and concrete or fiberglass reinforced plastic walls, as shown on the plans, and shall be constructed in conformity with the requirements of this specification and to the lines, grades, and dimensions shown on the plans or established by the Engineer.

2. Materials: Manholes for sanitary sewers may be constructed from Class N-30 concrete conforming to the requirements of "Reinforced Concrete Construction, or fiberglass reinforced plastic. Resin for fiberglass manholes shall be unsaturated isophthalic polyester and shall meet as a minimum the following tests:

Property	Test Method	Requirement
Acid Number	ASTM D465-59	Maximum = 15
Hydroxyl Number		Maximum = 30
Solids Content	ASTM D1259-61	Maximum = 50%
Flexural Strength	ASTM D790-70	Minimum, 10,000 psi

The following requirements are determined when testing the resin without any reinforcing material included.

Flexural E-modulus	ASTM D790-70	Minimum 4000,00 psi
Elongation at Rupture	ASTM D790-70	Minimum 2-1/2%
Heat Distortion Temperature	ASTM D648-61	Minimum 167° F
Weight Change after 28 Days Storing in Distilled Water	ASTM D570-63	Maximum + 150 mg/sample
Surface Hardness (Barcol)	ASTM D2583-67	Minimum 80% of Resin Normal

Reinforcement shall be fiberglass mat, continuous roving, chopped roving and/or roving fabric. Fiberglass shall be Type "E" and have a finish compatable with the resin used. Fillers shall not degrade the resin chemical resistant properties. Additives, catalyst, and promoters may be added as required but shall not affect the strength or durability of the manhole.

Laminate: (Cured composite including glass fiber reinforcement). Cured laminate will meet the following conditions.

Properties	Test Method	Requirement
Glass Content (% by weight)	ASTM D2584-68	20 to 70%
Compressive Strength	D695-69	Min. 12,000 psi
Flexural Strength	D790-70	Min. 12,000 psi
Flexural E-Modulus	ASTM D790-70	Min. 700,000 psi
Surface Hardness	ASTM D2583-67	Min. 80% of Resin's Normal Value

Reinforcing steel, as called for on the Plans shall conform to requirements of "REINFORCED CONCRETE CONSTRUCTION". All manhole rings and covers for streets and alleys shall have a clear opening of no less than $22\frac{1}{2}$", a height of 5", and a minimum weight for ring and cover of 298 pounds. The seating surface of the ring shall be machined to secure a snug fit. See "MANHOLE RING AND COVER".

3. Excavation: The Contractor shall do all necessary excavation for the construction or installation of the various manholes. Such excavations shall be of sufficient size as to permit the proper installation of the manhole base and wall forms, and allow room for the stripping of such forms. Manufacturers recommendations for site preparation and working space shall be followed where fiberglass reinforced plastic manholes are to be installed in the sewer pipe trench. Care shall be taken to insure that the excavation is not carried to a greater depth than required. If it becomes necessary to shore the walls of the excavated area, such shoring shall be of two inch material. Shoring shall be braced in such a manner as to insure support of the walls and in addition permit the construction or installation of the manhole itself without necessitating the removal of any shoring until such time as the entire manhole is completed. No shoring shall be left or backfilled around unless authorized by the Engineer. Shoring shall remain in place for a minimum 24 hours after concrete work has been completed.

4. Fiberglass Reinforced Plastic Manholes: The fiberglass reinforced composite manhole shall be filament wound and constructed of isophthalic polyester resin, glass fiber reinforcement, and natural graded sand. The manhole will be manufactured in two pieces and factory joined to form a single, complete manhole. The top manhole section shall consist of a concentric, dome shaped reducer, the reducer will have a 22½ inch interior diameter manway opening expanding to a 48 inch diameter base in a vertical distance of 18 inches. The reducer will have a 4 inch vertical waterstop around the manway opening, and a 5 inch horizontal collar for the construction of a masonry or concrete adjustment collar. The bottom section shall consist of a 48 inch interior diameter pipe. Sections shall be joined at the factory with resin and glass reinforcement and shall be watertight.

The manhole shall be able to withstand a 16,000 pound vertical dynamic wheel load (H-20), lateral forces from earth loading, and ground water, without damage.

5. Concrete Manholes: Concrete shall be Class N-30 concrete as set forth herein. Where formed concrete is to be used, the forms shall be constructed of either wood or metal. If wood is to be used, such wood materials shall be of the standard type as used for such construction. The forms shall be built true to line and grade, and shall conform to the dimensions as shown on the details of manholes in the plans. All inserts and openings shall be formed so that the concrete will not be injured during the process of stripping the forms. The forms shall be so braced and tied to prevent any spreading or bulging in the forms and shall meet the approval of the Engineer prior to placing concrete. All forms shall be clean and sprinkled prior to placing of concrete. The forms shall remain in place for a minimum of twenty-four hours before being stripped and all forms shall be removed within a maximum time of seven days after completion of the concrete work. All reinforcing steel, if required, shall be as shown on the plans. Steel bars shall be of the size and length specified, and shall be placed as shown on the plans. The bottom of the manholes shall be carefully formed and the invert shall be smoothly finished. All pipes shall be cut to fit the inside surface of the walls.

6. General Construction Methods: All metal stops and other metal items shall be installed as the work progresses, to such points as where these installations shall be made, as shown on manhole details in the plans. All manhole work shall be completed and finished in a careful and workmanlike manner, special care being given to sealing the joints around all pipe that extend through the wall of the manhole. After finishing of walls has been completed, the bottom of the manhole shall be completed by installing sufficient additional concrete to shape or form the bottom of the manhole to conform with the requirements as shown on the plans. Where old manholes are to be adjusted to meet new lines and grades, all old masonry or concrete shall be thoroughly cleaned and wetted before joining any new masonry or concrete to it. All work on manholes shall be done in a good and workmanlike manner and in conformity with the usual practice used on such work. All materials for adjusting old manholes shall conform to the requirements set out in these specifications for manhole work.

7. Backfilling: The backfilling around the outside of manholes shall commence as soon as the concrete has been allowed to cure the required time and the forms and shoring have been removed. Such backfill shall be placed in layers of not more than six inches and shall be thoroughly tamped before the next layer is installed. It is anticipated that the backfilling shall be either hand or mechanically tamped. Regardless of method used, care must be exercised to insure that the backfill is thoroughly compacted.

8. Drop Manholes: Drop manholes shall consist of constructing a standard sanitary sewer manhole with one standard drop connection on one side only, as shown in the detail plans. All materials used in the drop connection shall conform to the requirements of the pertinent specification.

MANHOLE RING AND COVER

1. Description: This specification shall govern for the furnishing and placing of manhole rings and covers.

2. Materials: The castings for manhole rings and covers shall be as detailed on the plans. They shall be grey-iron castings boldly filleted at angles and the arrises shall be sharp and perfect. The castings shall be true to pattern, form, and dimensions, free from cracks, sponginess, blow holes, or other pouring faults affecting their strength and value for the service intended. Surface of the castings shall be free from burnt or sand and shall be reasonably smooth. Runners, risers, fins, and other cast-on pieces shall be removed from the surfaces.

3. Construction Methods: The manhole rings and covers shall be carefully placed to lines and grades shown on the plans or as altered by the Engineer.

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PRESSURE WATER PIPE INSTALLATION

Description: This item includes all labor, equipment and material necessary to install pressure water line.

Inspection:

1. Inspection of Material at Delivery Point:
When received from the carrier at the time of unloading, the Contractor shall inspect all pipe and accessories for loss or damage in transit. No shipment of material should be accepted by the Contractor unless proper exceptions are made on the receipt obtained by the carrier, at the time of delivery, as to loss and/or damage.

2. Field Inspection of Material and Workmanship:
All laying, jointing, testing for defects and for leakage under pressure shall be performed in the presence of the Engineer or his authorized inspector, and shall be subject to his approval before acceptance.

3. Dispostion of Defective Material:
All material found during the progress of the work to have cracks, flaws, or other defects will be rejected by the Engineer or his authorized inspector, and the Contractor shall promptly remove such defective material from the site of the work.

Contractor's Responsibility for Material:

1. Responsibility for Material Furnished by Contractor:
The Contractor shall be responsible for all material furnished by him. All such material which is defective in manufacture or has been damages after delivery shall be replaced by the Contractor at his expense.

2. Responsibility for Safe Storage:
The Contractor shall be responsible for the safe storage of all material furnished to or by him and accepted by him until it has been incorporated in the completed project.

Handling of Pipe and Accessories:

1. Handling and Care:
Pipe and accessories shall, unless contrary instructions are received from the Engineer, be unloaded at the point of delivery, hauled to, and distributed at the site of the project by the Contractor. They shall at all times be handled with care to avoid damage. Whether moved by hand, skidways or hoists, material shall not be dropped or bumped against pipe or accessories already on the ground or against any other object on the ground.

2. Distribution at Site Work:
In distributing material at the site of the work each piece shall be unloaded opposite or near the place where it is to be laid in the trench.

3. Materials Kept Clean:
The interior of all pipe and accessories shall be kept free from dirt and foreign matter at all times.

Alignment and Grade:

1. General:
All pipe shall be laid and maintained to the required lines and grades. Fittings and valves shall be at the required locations and with joints centered, spigots home and all valve stems plumb.

2. Protecting Underground and Surface Structures:
Temporary support, adequate protection and maintenance of all underground and surface utility structures, petroleum products transmission lines, and other obstructions encountered in the progress of the work shall be furnished by the Contractor at his own expense under the direction of the Engineer.

3. Obstruction Caused by Other Utility Structures:
Where the grade or alignment of the pipe is obstructed by existing utility or transmission structures such as conduits, ducts or pipes, the obstruction shall be permanently supported, relocated, removed or reconstructed by the Contractor in cooperation with Owners of such utility or transmission structures.

4. Deviation with Engineer's Consent:
No deviation shall be made from the required line or grade except with the written consent of the Engineer.

5. Subsurface Explorations:
Whenever necessary to determine the locations of existing underground utility structures not already located, the Contractor, after an examination of available records and upon the written order of the Engineer, shall make all explorations and excavation for such purpose.

Protection:

1. Trench Maintenance:
The trench shall be maintained free from water, true to line with vertical walls below the top of the pipe, and the bottom of the trench shall be so excavated as to give a bearing along the entire length of the pipe.

2. Bells and Joints:
At bells or joints the trench shall be excavated to sufficient extra width and depth to allow every point of the joint to be reached for making the joints.

3. Rocks, Boulders, etc.:
Should rocks, boulders or other unsuitable soil condition be encountered in the trench, the same shall be removed to a depth of six (6") inches below the grade line and the trench refilled with earth or other approved material up to the original grade line. The earth or other approved material shall be tamped and made to conform to the grade line.

4. Correction of Faulty Grade:
Any part of the trench excavated below grade shall be corrected with thoroughly compacted material approved by the Engineer.

5. Pipe Foundation on Unstable Soil:
When the bottom uncovered at sub-grade is soft and, in the opinion of the Engineer, cannot support the pipe, a further depth shall be excavated and refilled to the pipe foundation grade as required herein, or other means shall be employed as required by the Engineer.

6. Braced and Sheeted Trenches:
Wherever necessary to prevent caving, trench excavation in sand, gravel, sandy soil, or other unstable material shall be adequately sheeted and braced. Where sheeting and bracing are used, the trench width shall not be less than the pipe diameter plus 12". As backfill is placed, the sheeting shall be withdrawn in increments not exceeding one foot and the void left by the withdrawn sheeting shall be filled and compacted.

7. Highway and Railroad Crossings:
The Contractor shall not cross railroads or highways until required permits have been granted and all crossings shall be made strictly in accordnace with any rules governing the crossings of said railroads or highways and in accordance with all agreements made between the Owner and the owners of such railroads or roads.

8. Barricades, Guards and Safety Provisions:
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 it is safe for traffic to use the trenched roadway. Whenever required, watchmen shall be provided to prevent accidents. Rules and regulations of the local authorities regarding safety provisions shall be observed.

9. Traffic and Utility Controls:
Excavations for pipe laying operations shall be conducted to cause the least interruption to traffic. The Contractor shall provide suitable bridges at street and driveway crossings where traffic must cross open trenches.

10. Maintenance of Flow of Water Courses:
Adequate provision shall be made for the flow of water courses encountered during construction. The structures which may have been disturbed shall be satisfactorily restored by the Contractor.

11. Property Protection:
Trees, fences, poles, and all other property shall be protected unless their removal is authorized. Any property damaged shall be satisfactorily restored by the Contractor. (Refer to Section, "Trench Excavation and Backfill").

12. Interruption of Utility Services:
No valve, switch or other control on existing utility systems shall be operated for any purpose by the Contractor without approval of the Engineer and the Utility Company. All consumers affected by such operations shall be notified by the Contractor as directed by the Engineer and utility company before the operations and advised of the probable time when service will be restored.

Lowering Pipe and Accessories into Trench:

1. General:
Proper implements, tools, and facilities satisfactory to the Engineer shall be provided and used by the Contractor for the safe and efficient execution of the work. All pipe, fittings, valves, and accessories shall be carefully lowered into the trench by means of derrick, ropes, or other suitable equipment in such manner as to prevent damage to pipe and fittings. Under no circumstances shall pipe or accessories be dropped or dumped into the trench.

2. Inspection of Pipe and Accessories:
The pipe and accessories shall be inspected for defects prior to lowering into trench. Any defective, damaged or unsound pipe shall be repaired or replaced.

3. Pipe Kept Clean:
All foreign matter or dirt shall be removed from the interior or pipe before lowering into position in the trench. Pipe shall be kept clean by means approved by the Engineer during and after laying.

Blocking:

1. General:
The ends of all lines and changes in direction shall be thoroughly blocked by means of poured concrete, which shall be as detailed on the plans. All blocking shall be poured against undistrubed soil. If the Contractor has cut ditch beyond the end of the pipe shall extend the block one half the width of the trench into each side wall of the trench and thoroughly compace earth behind the block. Minimum thickness of the blocking shall be as shown on plans, and reinforcing may be required by the Engineer if the block is not poured against undisturbed earth.

Backfill: After the pipe has been laid and laying approved by the Engineer, the trench shall be backfilled with material free from rocks or boulders or other unsatisfactory materials. (Refer to Section "Trench Excavation and Backfill).

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REINFORCED CONCRETE CONSTRUCTION

1. Description: Concrete shall be composed of fine and coarse aggregates, Portland Cement, water and such other ingredients or admixtures as may be specified herein, which when mixed and hardened, will have the required strength and durability.

2. General Construction Requirements:

A. Before starting work the Contractor shall inform the Engineer fully as to the methods of construction he proposes to follow and as to the amount and character of equipment he proposes to use, the adequacy of which shall be subject to the approval of the Engineer.

3. Materials:

A. Cement:
Type I Portland Cement, the composition, making, handling and storage shall conform with ASTM C-150. Type III (High Early strength) cement may be used if approved by the Engineer. Cement which has become damp, lumpy, or otherwise affected so as to reduce its strength, shall not be used in the work.

B. Aggregates:
Natural aggregates shall be of proven quality and suitable for use in the specified classes of concrete. Materials from unproved or questionable sources or approved materials intended for special usage, if submitted for approval by the Engineer, shall be tested at the expense of the Contractor.

C. Natural Aggregates:
Fine and coarse aggregates shall comply with ASTM C-33, except that aggregates which by actual test and service records are shown to produce concrete of the required quality may be approved by the Engineer. Maximum size of coarse aggregate shall be 1-1/2", or as indicated on the structural drawings.

D. Water:
Water used in mixing concrete shall be clean and free from organic substances and deleterious matter.

E. Admixtures:
Except for an approved air-entrainment averaging 3% but not exceeding 5%, no other admixtures shall be used without the approval of the Engineer.

F. Reinforcing Steel:
Reinforcing steel shall be deformed, intermediate grade, new billet stock, and shall conform with ASTM A-615 - 68 Grade 60 except #3 or smaller bars may be ASTM A-615-68 Grade 40 except that stirrups, ties or spirals may be structural grade plain rods. Wire mesh shall conform with ASTM A-185.

The Contractor shall furnish mill certificates for all reinforcing steel used in the work, if requested by the Engineer. No reinforcing steel produced in a foreign country will be allowed on the job site. Any foreign steel accidently delivered to the job site must be immediately removed.

G. Metal Accessories:
Metal accessories shall be spacers, chairs, ties, and other approved devices necessary for properly assembling spacing, and supporting the reinforcement in place and shall be provided with the reinforcing steel. All metal accessories bearing on surfaces that are to be exposed shall be galvanized or plastic coated.

H. Expansion Joint Material:
Expansion joint material shall be premolded saturated felt, or other approved material as indicated on the drawings.

4. Proportioning and Mixing Concrete: Concrete may be proportioned and mixed on the job, dry-batched for mixing on the job, or procured from a "transit-mixed" concrete plant.

If "transit-mixed", the mixing and transporting operations shall conform with ASTM C-94. Mixing water shall not be added after a truck has left the plant except by permission of the Engineer or his representative. No concrete shall be used in the work which has been held longer than one hour in a mixer truck, unless otherwise approved in writing.

If dry-batched to the job site, the batching plant operations shall conform with ASTM C-94. Transportation of the dry materials shall be performed in such a manner as to prevent loss, segregation or contamination of ingredients.

If job-proportioned and mixed, the aggregates shall be stock-piled separately and handled in such manner as to prevent the inclusion of any foreign materials. Except for emergency hand-mixing under approved conditions, all concrete shall be machine mixed in an approved type mixer for a minimum period of 1-1/2 minutes in a drum rotating at a peripheral speed of about 200 feet per minute.

Aggregates shall be proportioned by weight unless a satisfactory volumetric method of measurement is approved by the Engineer. The use of fractional sacks of cement will not be permitted unless the cement is proportioned by weight. Water shall be measured by an accurate measuring device which can be adjusted to compensate for variations in the free moisture content of the aggregates.

Retamping of partially hardened concrete or mortar will not be permitted.

Concrete shall be proportioned so as to include the minimum amount of water to obtain workable mix in accordance with the limits prescribed as follows:

Natural - Aggregate Concrete - 5" Maximum Slump

Min. Strength at 28 day psi	Maximum Aggregate Size	Min. Cement Content 94# Sack/cu/yd.	Max. Tot. Wtr. gal/sack of cement	Noted As:
2000	3/4"	4.5	7.5	NS-20
2000	1-1/2"	4.0	8.0	N -20
2500	3/4"	4.75	7.0	NS-25
2500	1-1/2"	4.5	7.25	N -25
3000	3/4"	5.50	6.25	NS-30
3000	1-1/2"	5.0	6.5	N -30
3500	3/4"	6.5	6.0	NS-35
3500	1-1/2"	6.0	6.0	N -35
4000	1-1/2"	6.5	6.0	N -40

For slumps higher than five inches, such additional cement shall be added as is necessary to produce the required strength.

5. Testing Laboratory Services:

A. Independent Laboratory: A recognized Independent Testing Laboratory will be selected by the Owner to perform the following services at the expense of the Owner:

(1) Make and test concrete cylinders at the frequency of one set of three specimens per 50 cubic yards of concrete for each class placed or a fraction thereof per day's pour.

B. Inspection and Tests:
All inspections and tests to be performed in accordance with applicable ASTM Standards. In the event the laboratory determines deviations from specifications, the Engineer and Contractor shall be notified immediately. Written reports covering all inspections and testing operations shall be furnished promptly to the Engineer and Contractor.

C. Consultations:
In addition to the foregoing functions, the Testing Laboratory shall be considered available to consult with the Contractor and sub-contractors, in respect to the design, proportioning and mixing of concrete. The Contractor shall cooperate with the Testing Laboratory so that the functions of the laboratory may be properly performed.

6. Forms: Forms shall be built mortar-tight and of material sufficient in strength to prevent bulging between supports and shall be set and maintained to the lines designated until the concrete is sufficiently hardened to permit form removal. During the elapsed time between the building of the form and the placing of the concrete, the forms shall be maintained in a manner to eliminate warping and shrinking. All details of form construction shall be subject to the approval of the Engineer, and permission to place concrete will not be given until all such work is complete to his satisfaction. The Contractor is responsible for the structural adequacy of the forms and safe use thereof.

If, at any stage of the work, the forms show signs of bulging or sagging, that portion of the concrete causing such condition shall be immediately removed if necessary, and the forms shall be re-set and securely braced against further movement.

Timber forms for exposed concrete surfaces which are required to be surface finished in accordance with these specifications, shall be face lined with an approved type of form lining material such as masonite or plywood or equal. If desired by the Contractor, facing for such surfaces may be constructed of three-fourths (3/4") inch thick plywood backed by adequate studs and wales, and in this case form lining will not be required.

Forms or form lumber to be re-used shall be maintained clean and in good condition as to accuracy, shape, strength, rigidity, tightness and smoothness of surface. Any lumber which is split, warped, bulged, marred, or has defects that may produce work inferior to that resulting from using new material shall not be re-used.

Studs shall not be less than two (2) inches by four (4") inches nominal section and shall be spaced center to center not more than twenty (20) times the actual thickness of the facing lumber. Wherever practicable, studs shall be capped at the top with a plate of not less than two (2") inches by six (6") inches nominal size, carefully selected as to straightness. All joints in plates shall be scabbed at least four (4') feet each way to provide continuity.

Wales shall be spaced at such intervals as to hold forms securely to the designated lines. All wales shall be scabbed at least four (4') feet on each side of joints to provide continuity. A row of wales shall be placed within six (6") inches of the bottom of each placement.

Forms shall be rigidly braced to prevent movement while placing the concrete. All face form material shall be fasterned to all studs and shall have true horizontal and vertical joints. Facing material on horizontal and other surfaces shall be placed with parallel and square joints.

Molding specified for chamfer strips or other uses shall be made of redwood, cypress, or pine materials of such grade that will not split when nailed and which can be maintained to a true line without warping. The molding shall be mill cut and dressed on all faces. Unless otherwise provided forms shall be filleted at all sharp corner and edges with triangular chamfer strips. The strips shall be three-fourths (3/4") inch measured on the sides.

Forms for railing and ornamental work shall be constructed to standards equivalent to first class mill work. All moldings, panel-work, and bevel strips shall be straight and true with nearly mitered joints and of such design that the finished work shall be true, sharp, and clean cut.

All forms shall be so constructed as to permit removal without damage to the concrete. Particular and special care must be exercised in framing forms for copings, offsets, railings, and all ornamental work, so that there will be no damage to or marring of the concrete when the forms are removed. If desired by the Contractor, the forms may be given a slight draft to permit ease of removal.

Metal form ties of an approved type shall be used to hold forms in place. Such ties shall be of a type especially designed for use in connection with concrete work, and they shall have provisions to permit ease of removal of the metal as hereinafter specified. The use of wire form ties will not be permitted except for minor or special form areas where the use of rigid type metal ties would be impracticable.

All metal appliances used inside of forms to hold them in correct alignment shall be removed to a depth of at least one-half (1/2") inch from the surface of the concrete and shall be so constructed that the metal may be removed without undue injury to the surface by chipping or spalling. Such devices, when removed, shall have a smooth opening in the concrete surface. Burning off of rods, bolts, or ties will not be permitted.

Metal ties shall be held in place by devices attached to wales. Each device shall be capable of developing the strength of the tie.

Pipe spreaders will not be permitted.

Metal and wooden spreaders which are separate from the forms shall be entirely removed as the concrete is being placed.

Where wire ties are used, all wires, upon removal of the forms, shall be cut back at least one-half (1/2") inch from the face of the concrete with a sharp chisel or nippers.

All cavities produced by the removal of ties shall be carefully cleaned and completely filled with 43-tempered sand cement mortar mixed in proportion of one to three, and the concrete shall be left smooth and even.

For narrow walls and other locations where access to the bottom of the forms is not readily attainable otherwise, adequate clean-out openings shall be provided.

At the time of placing concrete, the forms shall be clean and entirely free from all chips, dirt, sawdust, and other extraneous matter.

The facing of all forms shall be treated with oil before concrete is placed. In hot weather, both sides of face forms may be required to be treated with oil to prevent warping and to secure tight joints. The oil must be applied before the reinforcement is placed. The oil used for this purpose shall be a light, clear oil which will not discolor or otherwise injuriously affect the concrete surface.

In general, all forms shall be thoroughly wetted before the concrete is placed therein.

The foregoing specifications for "forms" as regards design, mortar-tightness, filleted corner, beveled projections, bracing, alignment, removal, re-use, oiling, and wetting, shall apply with equal force to metal forms.

The metal used for forms shall be of such thickness that the forms will remain true to shape. All bolt and rivet heads on the facing side shall be countersunk. Clamps, pins, or other connecting devices shall be designed to hold the forms rigidly together and to allow removal without injury to the concrete. Metal forms which do not present a smooth surface or line up properly, shall not be used. Special care shall be exercised to keep metal free from rust, grease, or other foreign material, such as will tend to discolor the concrete.

Except as hereinafter provided, forms for surfaces required to be finished shall be removed when the concrete has aged not less than one-halr (1/2) nor more than two (2) curing days after the concrete is placed.

Forms and falsework for the portions of structures which do not require surface finish may be removed when the concrete has reached a compressive strength of 2500# psi.

7. Construction Joints: The joint formed by placing concrete in direct contact with concrete that has attained its initial set shall be deemed a construction joint. When concrete in a structure or a portion of a structure is specified to be placed monolithic, the term monolithic shall be interpreted to mean that the manner and sequence of concrete placing shall be such that construction joints will not be incurred. Construction joints shall be of the type and spacing shown on the plans. Additional joints shall not be provided without written authorization from the Engineer. Any additional construction joints shall be of the type and spacing shown on the plans.

Unless otherwise provided, construction joints shall be square and normal to the forms. Bulkheads shall be provided in the forms of all joints except horizontal joints.

The top surface of a concrete placement which terminates at a horizontal construction joint shall have the surface cement film removed and shall be thoroughly roughened as soon a practicable after the concrete has attained initial set. The surface at bulkheads shall be roughened as soon as the bulkhead forms are removed.

Before joining plastic concrete to concrete that has already set, the surface of the concrete in place shall be free from all loose material, laitance, dirt, or foreign matter; shall be washed and scrubbed clean with stiff brooms and thoroughly drenched with water until saturated, and shall be kept wet until the plastic concrete has been placed. Immediately prior to the placing of additional concrete, all forms shall be drawn tight against the concrete in place, and the surface of the concrete in place shall be flushed with a coating of grout mixed in the proportions of one part to two parts of sand.

If shown on the plans construction joints shall be provided with concrete keyways, reinforcing steel dowels and/or metal flashing strips. The method of forming keys in keyed joints shall be such as to permit the easy removal of forms without chipping, breaking or damaging the concrete in any manner.

8. Reinforcement:

A. Fabrication:
Reinforcement shall be accurately formed to the dimensions indicated on the drawings. All bars shall be bent cold and shall not be straightened in a manner which will injure the material. Reinforcement and metal accessories shall be fabricated and placed in accordance with the provisions of the "Manual of Standard Practice for Detailing Reinforced Concrete". Recommended size hooks shall be used, and all splices shall be lapped thirty diameters except bottom bars may be lapped six (6") inches at supports.

B. Cleaning:
Metal reinforcement before being placed shall be free from scale, heavy rust, and other coatings which would reduce the bond.

C. Placing:
Reinforcement shall be accurately positioned and, unless otherwise shown or specified, shall be secured against displacement by using, at intersections, annealed iron wires of not less than #18-gauge or suitable metal clips. It shall be supported by metal chairs spacers, or hangers.

All spacing of bars shall be as shown on the drawings.

9. Depositing Concrete:

A. General:
No concrete shall be placed until the forms and other conditions are approved by the Engineer, and until all pipes, conduits, sleeves, thimbles, hangers, anchors, flashing and other work required to be placed in the concrete have been properly installed.

B. Temperature:
Concrete shall not be placed when the temperature is 45° F, or less, and falling. It may be placed when the temperature is 40° F, or more and rising, provided there is not reason to expect a drop in temperature to below 45° F, within twelve (12) hours of the conclusion of the pour.

C. Cleaning:
(1) Hardened concrete and foreign materials shall be removed from the inner surfaces of mixing and conveying equipment before any concrete is mixed.

(2) Before depositing concrete, forms shall be thoroughly wetted and all debris removed.

D. Removal of Water:
Water shall be removed from the space to be occupied by concrete and any continuous flow of water shall be diverted to a sump or removed by pumping.

E. Handling:
Concrete shall be deposited in the forms as rapidly as practicable by methods which will provent the loss or separation of the ingredients. It shall be deposited as nearly as practicable in its final position and in such a manner as to maintain a plastic surface which is approximately horizontal.

F. Compacting:
Concrete, during and immediately after depositing, shall be thoroughly compacted by means of approved mechanical vibrators.

G. Depositing Continuously:
Concrete shall be deposited continuously, or in layers of such thickness that no concrete will be deposited against concrete which has hardened. If a section cannot be placed continuously, construction joints may be located at points as provided for in the drawings or approved by the Engineer. Before depositing new concrete against old, the forms shall be retightened, the hardened surfaces cleaned and covered with a coating of mortar or neat cement grout.

H. Curing:
Concrete shall be moist cured for at least four (4) days in a manner approved by the Engineer. A Liquid or inert chemical surface curing agent or other means of curing concrete may be used. On horizontal surfaces, cotton mats kept thoroughly wet may be used.

I. Defective Work:
Any defective work discovered after the forms have been removed shall be repaired immediately. If the surface of the concrete is bulged, uneven or shows excess honeycombing or form marks, which defects, in the opinion of the Engineer, cannot be repaired satisfactorily, the entire section shall be removed and replaced. In repairing honeycombed areas, all loose material shall be removed before the repair work is started. No extra compensation will be allowed for the extra work or materials involved in repairing or replacing defective concrete.

J. Rubbed Finish:
Rub surfaces while concrete is still green. Remove fins, projections, level off-sets; repair damaged places. Wet surfaces thoroughly; keep in that condition until work in each section is completed. Rub surfaces with cement or carborundum bricks; water, until hollows, lines, form marks, surplus materials have been removed; leave surface finish uniformly smooth; wash clean. Rubbed finish is required for exterior concrete walls, curbs, extended finish six (6") inches below finished grade. Do not use mortar or grout in rubbing.

K. Finishing, Horizontal Surfaces:

(1) Dusting of wearing surfaces with dry materials is not permitted. In preparation for finishing, strike off floor slabs true to required level at or below elevations or grade of finished floors, as indicated. Build floors level, except where drains occur, in which case pitch floors thereto, as required.

(2) Steel Trowled Finish: Tamp concrete with special tools to force aggregate away from surface; screed with straight edges, finish with wood float to present reasonably true, uniform surface; steel trowel. Remove excess water. If necessary for filling voids, apply cement, fine aggregate, in proportion of one to two concrete, trowel in.

10. Concrete Not Meeting Strength Requirements: Concrete testing below ninety-five (95%) percent of the specified minimum compressive strength shall be removed and replaced at the Contractor's expense.

EXCAVATION AND PLACING FILL

1. General: The Contractor shall excavate, by means of hydraulic dredging, or other means, the area shown on the plans and designated by "Limits of Dredging", to the grades as shown on the plans.

2. Specific Requirements: It is understood that the Contractor has verified the amount and character of material to be excavated prior to submitting his proposal for the work. Dredged or excavated spoil may be placed in back of the bulkhead area or in the area designated on the Plans. Spoil areas shall be diked and returned water flow controlled by weirs to reduce siltation and turbidity in adjacent waters to the lowest practicable level. If the concrete bulkhead has been placed prior to dredging or excavation operations, it shall be protected against damage due to construction of dikes, handling of discharge line and placing of spoil.

Where the plans require a finished elevation of 4.0 feet (bottom of the channel area), no area will be accepted as completed if the elevations is above -4.0 feet or below -6.0 feet. No dredging closer to the alignment of the concrete bulkhead than shown on the plans will be acceptable. If such an area is accidentally excavated, it shall be backfilled by the contractor to the plan limits. If adequate compaction of such backfill cannot be obtained, in the judgement of the Engineer, using excavated material, the use of other materials giving adequate compaction will be required.

Backfill shall be placed and compacted. The harbor bottom shall be restored to plan elevation in front of the new bulkhead. Fill material shall be dredged spoil as available. The Contractor shall load, haul, place and compact all fill necessary to meet the finished grades shown on the plans. Broken concrete or rock may be incorporated into the backfill. Timber and other debris shall be disposed of by the Contractor.

Fill under the roadway section shall be existing material and shall be placed prior to placing dredged or excavated spoil from the channel area.

3. Permit: A permit for this work has been obtained from the Department of the Army Corps of Engineers by the City of Aransas Pass, Texas. The Contractor shall, on behalf of the City of Aransas Pass, Texas, comply with all conditions of this permit applying to construction operations. This includes instructions as received from the Texas Department of Water Resources. Copies of these conditions and instructions as issued to the City of Aransas Pass, are included in specification section "Special Conditions," Item No. 19.

4. Payment: Payment for this work will be on the lump sum basis, as noted in the Proposal (Bid for Unit Price Contracts) complete in place, for all required excavation, diking, placing of fill and final grading. Partial payments on this item will be made based on the estimated total percentage completion of this bid item as of the date of the particular estimate for partial payment.

BULKHEAD CONSTRUCTION

1. General: The concrete bulkhead shall be constructed of reinforced concrete precast panels with cap, tie bakcs and anchors, and backfill, as detailed in the plans. Reinforced concrete shall meet all requirements of specification section "Reinforced Concrete Construction". Concrete shall be Class N-35. Reinforcing steel shall be ASTM A615-58 Grade 60.

2. Method of Construction : The Contractor shall remove all existing timber, concrete rubble, trash and debris which is along the alignment of the new bulkhead. Concrete panels may be set by jetting. Where subsurface conditions require, the alignment may be trenched with a backhoe before placing the concrete panels. Such trenching shall be no deeper than the toe elevation of the concrete panels and no wider than 24". All voids in front of and behind the concrete panels shall be filled and the fill compacted.

The new bulkhead shall be constructed to the dimensions and elevations shown on the plans. All tie back rods shall be tight. Exposed concrete on the face and top of the cap shall be rubbed.

Anchor blocks shall be set against undisturbed soil. Where this is not possible, backfill around and 10' in front of anchor block shall be carefully placed and compacted before backfill is brought up on the back side of the bulkhead.

3. Payment: Payment for this item will be per lineal foot of bulkhead, complete in place, as measured along the cap centerline. This will include precast concrete panels, cap, tie back rods, concrete anchor blocks and all associated work, complete in place.

EPOXY TREATMENT OF REINFORCING STEEL

1. General: All reinforcing steel incorporated into the bulkhead structural concrete (including precast concrete panels, cap, and anchor rods) shall be coated with catalyzed epoxy as noted below.

2. Materials: Reinforcing Steel - ASTM A615 new deformed bars, as specified. Epoxy Compound - "Bar Kote" as manufactured by Dewey Supply Co., or approved equal.

3. Treatment:

   A. New Reinforcing Steel - Reinforcing steel shall be dipped into epoxy and supported on racks until set. Any spots not coated in dipping shall be coated by brush or by pouring epoxy over the area. Steel shall be placed informs and concrete poured following this treatment. Care shall be taken to prevent damage to the coating by excessively rough handling. The Contractor is cautioned to avoid dripping epoxy on the interior of forms, as this will cause forms to bond to the concrete when placed.

   B. Anchor Rods - Anchor rods shall be treated the same as reinforcing steel. Brushing or pouring will be permitted in lieu of dipping.

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SPECIAL CONSTRUCTION

1. Restroom Facility (Bid Item No. 8):

A. Description: This specification shall govern for furnishing all materials and labor for the construction of the Restroom Facility as shown on the Plans and further described herein.

B. Concrete Slab: See REINFORCED CONCRETE CONSTRUCTION Specification.

C. Walls: Concrete block shall be Autoclave Lightweight masonry units, size as indicated on drawings. Masonry Cement shall be "Longhorn", "Alamo", or approved equal. Sand shall be sharp, clean, and well graded in size. Water shall be clean potable water, free from oil, soluble salts, acids, organic impurities, and deleterious materials. Horizontal and Vertical steel shall be placed as shown in Plan.

D. Timber Framing and Hardware: All framing members, including rafters, plates, and nailers to be of good quality 1" or 2" rough timber, penta treated. All hardware, including nails, bolts, and washers to be galvanized. Bolt, anchor, and nail sizes to be as indicated in Plan.

E. Roof: Roofing shall be standard 26" wide corrugated fiberglass "Glassteel" panels, available from W.G. Gower Company, Corpus Christi, fastened to roof framing with 1 3/4" aluminum nails with neoprene washers. Provide and install a continouos galvanized metal ridge, sealed to fiberglass panels.

F. Plumbing Fixtures and Piping: The Contractor shall furnish and install all fixtures and piping as shown on the Plans, and herein specified, including all connections, such as supply tubing, stops, and drains. Work shall meet or exceed City plumbing code requirements. Before being placed in position, all pipe, fittings, and equipment shall be carefully cleaned. Materials and equipment shall be maintained in a clean condition, and upon completion of final tests and acceptance shall be left in a clean condition.

(1.) Fixtures and Accessories: Fixtures shall be wall hung, complete with hardware, hookup to supply line, flush valves, and drain. Color shall be white. Fixtures and Accessories as specified or approved as equal by Engineer.

(a) Toilets: Shall be American Standard Water Saver AFWALL No. 2477.016, complete with seat;

(b) Urinal: Shall be American Standard LYNBROOK, No. 6535.033;

(c) Lavatories: Shall be American Standard REGALYN, No. 48607.016, cold water only, plug 2 faucet holes. Faucet shall be American Standard No. 2285.054;

(d) Shower: Provide and install 45° bent arm, American Standard No. 1444.017, and American Standard COLONYHEAD No. 1411.016, cold water only;

(e) Grab bars: Shall be HALL MACK 170 Series, one piece stainless steel, 1" O.D. heavy wall tubing. Provide and install 2-wall to floor bars, 1 toilet each restroom, 1-angle bar, right hand configuration, each shower;

(f) Tissue holders: Shall be SCOTT, Style #965, wall mounted, 3 required.

American Standard Fixtures available from Standard Plumbing Supply Co., Corpus Christi.

(2.) Piping, Supply and Drain:

(a) Water supply shall be Schedule 40 PVC. Install stop in each fixture supply line.

(b) Drain and vent piping shall be PVC in accordance with City code. Support piping in chase as required.

2. Fish Cleaning Tables (Bid Item 9):

A. Description: This specification shall govern for furnishing all materials and labor for the construction of the Fish Cleaning Tables as shown on the Plans and further described herein.

B. Concrete Slab: See REINFORCED CONCRETE CONSTRUCTION Specification.

C. Tables: Tables shall be constructed of 3/4" marine plywood and 2" or 4" finished lumber. All wood surfaces shall be primed and painted with 2 coats of an oil base paint, Briners or equal, color shall be white. All hardware, nails and fasteners, shall be galvanized. Tables shall be positioned so as to drain over the concrete bulkhead.

D. Water Supply: Extend $\frac{1}{2}$" schedule 40 galvanized risers, two per table, and securely fasten to table as shown in Plan. Complete supply with rough brass $\frac{1}{2}$" I.P.S. Compression faucet, threaded for hose connection.

3. Landscaping (Bid Item No. 10):

A. Description: This specification shall govern for furnishing all materials and labor for construction of the Landscaping items as shown on the Plans and further described herein.

B. Post and Rope Barrier: Post to be 8", treated to 20 lb. creosote retention, spaced a maximum of 10 feet on center, 8 feet long. Anchor each post with 2500 psi concrete as shown on the Plans. Extend 2" ships line, or salvaged line acceptable to the Engineer, through each post to complete barrier, knot line at every 50 feet to secure between posts.

C. Picnic Tables and Benches: Tables and benches shall be Landscape Structures No. 800, Available through Central Distributing Co., Institutional Division, San Antonio, Texas. Installation shall be according to manufacturer's recommendation. Provide 2 benches per table unit, anchor table and benches with 2500 psi concrete footing as shown on the Plans. Units shall be level in both directions. Paint all exposed steel (legs) with 2 coats Briner's Industrial Enamel, black.

SPECIAL CONSTRUCTION

1. Restroom Facility (Bid Item No. 8) :

A. Description: This specification shall govern for furnishing all materials and labor for the construction of the Restroom Facility as shown on the Plans and further described herein.

B. Concrete Slab: See REINFORCED CONCRETE CONSTRUCTION Specification.

C. Walls: Concrete block shall be Autoclave Lightweight masonry units, size as indicated on drawings. Masonry Cement shall be "Longhorn", "Alamo", or approved equal. Sand shall be sharp, clean, and well graded in size. Water shall be clean potable water, free from oil, soluble salts, acids, organic impurities, and deleterious materials. Horizontal and Vertical steel shall be placed as shown in Plan.

D. Timber Framing and Hardware: All framing members, including rafters, plates, and nailers to be of good quality 1" or 2" rough timber, penta treated. All hardware, including nails, bolts, and washers to be galvanized. Bolt, anchor, and nail sizes to be as indicated in Plan.

E. Roof: Roofing shall be standard 26" wide corrugated fiberglass "Glassteel" panels, available from W.G. Gower Company, Corpus Christi, fastened to roof framing with 1 3/4 " aluminum nails with neoprene washers. Provide and install a continouos galvanized metal ridge, sealed to fiberglass panels.

F. Plumbing Fixtures and Piping: The Contractor shall furnish and install all fixtures and piping as shown on the Plans, and herein specified, including all connections, such as supply tubing, stops, and drains. Work shall meet or exceed City plumbing code requirements. Before being placed in position, all pipe, fittings, and equipment shall be carefully cleaned. Materials and equipment shall be maintained in a clean condition, and upon completion of final tests and acceptance shall be left in a clean condition.

(1.) Fixtures and Accessories: Fixtures shall be wall hung, complete with hardware, hookup to supply line, flush valves, and drain. Color shall be white. Fixtures and Accessories as specified or approved as equal by Engineer.

(a) Toilets: Shall be American Standard Water Saver AFWALL No. 2477.016, complete with seat;

(b) Urinal: Shall be American Standard LYNBROOK, No. 6535.033;

(c) Lavatories: Shall be American Standard REGALYN, No. 48607.016, cold water only, plug 2 faucet holes. Faucet shall be American Standard No. 2285.054;

(d) Shower: Provide and install 45° bent arm, American Standard No. 1444.017, and American Standard COLONYHEAD No. 1411.016, cold water only;

(e) Grab bars: Shall be HALL MACK 170 Series, one piece stainless steel, 1" O.D. heavy wall tubing. Provide and install 2-wall to floor bars, 1 toilet each restroom, 1-angle bar, right hand configuration, each shower;

(f) Tissue holders: Shall be SCOTT, Style #965, wall mounted, 3 required.

American Standard Fixtures available from Standard Plumbing Supply Co., Corpus Christi.

(2.) Piping, Supply and Drain:

(a) Water supply shall be Schedule 40 PVC. Install stop in each fixture supply line.

(b) Drain and vent piping shall be PVC in accordance with City code. Support piping in chase as required.

2. Fish Cleaning Tables (Bid Item 9):

A. Description: This specification shall govern for furnishing all materials and labor for the construction of the Fish Cleaning Tables as shown on the Plans and further described herein.

B. Concrete Slab: See REINFORCED CONCRETE CONSTRUCTION Specification.

C. Tables: Tables shall be constructed of 3/4" marine plywood and 2" or 4" finished lumber. All wood surfaces shall be primed and painted with 2 coats of an oil base paint, Briners or equal, color shall be white. All hardware, nails and fasteners, shall be galvanized. Tables shall be positioned so as to drain over the concrete bulkhead.

D. Water Supply: Extend $\frac{1}{2}$" schedule 40 galvanized risers, two per table, and securely fasten to table as shown in Plan. Complete supply with rough brass $\frac{1}{2}$" I.P.S. Compression faucet, threaded for hose connection.

3. Landscaping (Bid Item No. 10):

A. Description: This specification shall govern for furnishing all materials and labor for construction of the Landscaping items as shown on the Plans and further described herein.

B. Post and Rope Barrier: Post to be 8", treated to 20 lb. creosote retention, spaced a maximum of 10 feet on center, 8 feet long. Anchor each post with 2500 psi concrete as shown on the Plans. Extend 2" ships line, or salvaged line acceptable to the Engineer, through each post to complete barrier, knot line at every 50 feet to secure between posts.

C. Picnic Tables and Benches: Tables and benches shall be Landscape Structures No. 800, Available through Central Distributing Co., Institutional Division, San Antonio, Texas. Installation shall be according to manufacturer's recommendation. Provide 2 benches per table unit, anchor table and benches with 2500 psi concrete footing as shown on the Plans. Units shall be level in both directions. Paint all exposed steel (legs) with 2 coats Briner's Industrial Enamel, black.

TESTS

The Owner will retain an independent Test Laboratory of its selection to make all tests and reports as required. Copies of all tests shall be furnished to the Engineer and to the Contractor. The following tests will be made:

1.	Concrete	-	One set of three cylinders for every 50 cubic yards poured.
2.	Cement Stabilized Base	-	One analysis of material to be used. One in-place density determination for every 500 square yards of base at locations as selected by the Engineer. Nuclear densitometer determination may be used.
3.	Asphaltic Concrete	-	Thickness, density, and stability as required.

Other tests as required to determine compliance with the specifications and plans will be made if necessary. Tests will be paid for by the City of Aransas Pass. If such tests indicate non-compliance with the specifications and plans, subsequent retesting shall be paid for by the Contractor.

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