

ADDENDUM NO. 4

CONSTRUCTION SPECIFICATIONS
FOR
UPPER EAST FORK CAVE CREEK CHANNEL
FCD CONTRACT NO. 90-54

Property of
Flood Control District of MC Library
Please Return to
2801 W. Durango
Phoenix, AZ 85009

CONSTRUCTION SPECIAL PROVISIONS

Prepared By:

NBS/LOWRY
2600 North 44th Street
Phoenix, Arizona 85008

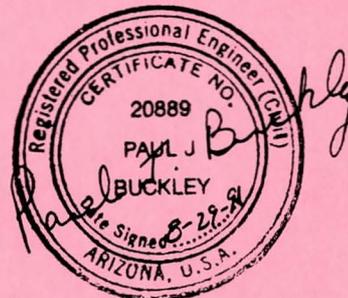
Prepared for:

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
and

Recommended By: Edward A. Raleigh Date: 8/29/91
Edward A. Raleigh, P.E., Chief
Engineering Division

Approved By: D. E. Sagramoso Date: 8/29/91
D.E. Sagramoso, P.E.
Chief Engineer and General Manager

SUPPLEMENTARY TO MARICOPA ASSOCIATION OF GOVERNMENTS UNIFORM STANDARD
SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION EDITION OF 1979 AND
REVISIONS AND SUPPLEMENTS THERETO.



A460.502

ADDENDUM NO. 4

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FCD CONTRACT NO. 90-54

CONSTRUCTION SPECIAL PROVISIONS

Prepared By:

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REVISIONS AND SUPPLEMENTS THERETO.



ADDENDUM NO. 4

August 29, 1991

FCD Contract No. 90-54

To Contract Documents

Title: Upper East Fork Cave Creek Channel

Owner: Flood Control District of Maricopa County

The above documents are herein modified. The provisions of said documents applicable to these modifications remain unchanged unless specifically indicated otherwise herein. This Addendum No. 4 forms a part of the Contract Documents and modifies them as follows:

TO PREVIOUS ADDENDA:

DELETE in its entirety Addendum No. 1, dated July 31, 1991.

TO THE CONSTRUCTION SPECIFICATIONS:

DELETE the entire "Construction Specifications" book dated July 3, 1991 and replace with "Revised Construction Specifications" book dated August 29, 1991.

TO THE DRAWINGS:

DELETE the following drawings:

C-2, C-3, C-9, W-3, W-4, W-5, SS-1, SS-2, SS-3, SS-4, and P-5.

and REPLACE with the following drawings, "Revised August 29, 1991":

C-2A, C-3A, C-9A, W-3A, W-4A, W-5A, SS-1A, SS-2A, SS-3A, SS-4A, and P-5A.

Sheets D-1 through D-6 - under the LEGEND, change the D note to read as follows: "Demolish, remove and dispose of building structure, foundation, walkway, pavement, abandoned utilities, and other private improvements."

Sheet D-1- All permanent fencing shown along Union Hills Drive shall be located 65' north of the Union Hills Drive monument line.

Sheet D-3- Install one (1) 3'-6" gate (per Detail C, Sheet D-7) in the Type "2" fencing on the south side of "B" Street, approximately 70 feet east of the "B" Street box culvert centerline. Exact location to be determined by the Engineer in the field.

Sheet D-7- All vertical end posts, line posts, and gate posts (where gate widths are 5'-0" or less), for both Type "1" and Type "2" fencing shall be 2-3/8" outside diameter HSSP (3.12 lbs/ft.) with 12" diameter x 3'-0" deep concrete set (2'-6" embedment of vertical post).

All vertical gate posts (where gate width exceeds 5'-0") for both Type "1" and Type "2" fencing shall be 2-7/8" outside diameter HSSP (4.64 lbs/ft.) with 12" diameter x 3'-6" deep concrete set (3'-0" embedment of vertical post).

Sheet C-11- Section A-A: INCLUDE 6" x 6" WW mesh, 8-gauge centered in slab.

Sheet C-3 - ADD note to Utopia Road box culvert upstream and downstream ends:
"Handrails per Detail L, Sheet C-9, Headwall and Wings."

Sheet C-8 - DELETE Detail G in its entirety.

Sheets W-1, W-2, and W-6

The Contractor shall provide adequate restraint against pressure forces for the existing water lines at all times during construction. Existing water lines that are exposed shall have continuous bottom and side support. The Contractor may elect to offset new water line relocations from existing to maintain continuous service until final tie-in.

Sheet W-6 - DELETE Construction Note 6, and REPLACE with the following:
"Existing water line shutdown for cut-in to be no longer than two hours. See the CONSTRUCTION SPECIAL PROVISIONS."

Sheet E-2 - MOVE location of lighting pedestal. New location shall be 70 feet east of the "B" Street box culvert centerline, and 40 feet south of the centerline of "B" Street.

Sheet P-2 - Detail 3: CHANGE depth of ABC from "4-inches" to "6-inches".

Sheet P-10- Pavement Structural Section D-1: Depth of 95% Compacted Native Subgrade shall be 8".

ADDENDUM NO. 3

DATE: AUGUST 20, 1991

FCD Contract No. 90-54

Page 1 of 1

To Contract Documents

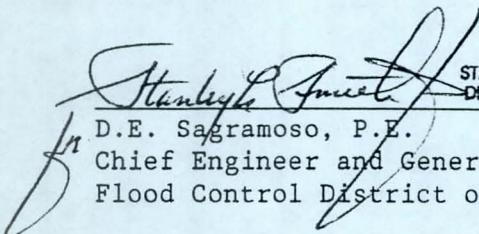
ENTITLED: UPPER EAST FORK CAVE CREEK CHANNEL

The above documents are herein modified. The provisions of said documents applicable to these modifications remain unchanged unless specifically indicated otherwise herein. This addendum forms a part of the contract documents and modifies them as follows:

TO INVITATION TO BID

Change BID OPENING DATE to read: September 11, 1991.

NOTE: The entire specification book will be replaced as Addendum No. 4. It is anticipated that this Addendum will be available on or before August 27, 1991.


STANLEY L. SMITH JR., P.E.
DEPUTY CHIEF ENGINEER


D.E. Sagramoso, P.E.
Chief Engineer and General Manager
Flood Control District of Maricopa County

DATE: AUGUST 2, 1991

FCD Contract No. 90-54

Page 1 of 1

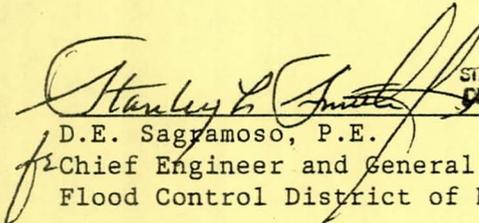
To Contract Documents

ENTITLED: UPPER EAST FORK CAVE CREEK CHANNEL

The above documents are herein modified. The provisions of said documents applicable to these modifications remain unchanged unless specifically indicated otherwise herein. This addendum forms a part of the contract documents and modifies them as follows:

TO INVITATION TO BID

Change BID OPENING DATE to read: August 27, 1991.


STANLEY L. SMITH JR., P.E.
DEPUTY CHIEF ENGINEER

D.E. Sagramoso, P.E.
Chief Engineer and General Manager
Flood Control District of Maricopa County

ADDENDUM NO. 1

July 31, 1991

FCD Contract No. 90-54

To Contract Documents

Title: Upper East Fork Cave Creek Channel

Owner: Flood Control District of Maricopa County

The above documents are herein modified. The provisions of said documents applicable to these modifications remain unchanged unless specifically indicated otherwise herein. This Addendum No. 1 forms a part of the Contract Documents and modifies them as follows:

TO THE BIDDING SCHEDULE:

REMOVE Page 10 of 27 and replace with Page 10R of 27.

TO SUPPLEMENTARY GENERAL CONDITIONS:

Page SGC 2

ADD the following paragraph:

"ACCESS THROUGH PRIVATE PROPERTY

Bidders must have approval from the Flood Control District of Maricopa County before entering into private property (i.e., Paradise Shadows Mobile Home Park) during the bidding time period."

Page SGC 4, Subsection 105.8, Paragraph 1

DELETE this paragraph and substitute the following:

"1. The Contractor shall set all project control, alignment staking, elevation control, and construction staking."

TO CONSTRUCTION SPECIAL PROVISIONS:

Page CSP-4 of 35, Item 4:

REVISE the entire paragraph as follows:

"4. The Contractor shall be allowed only one 2-week shut down for "B" Street improvements including the 36" sanitary sewer line. Within this 2-week period, "B" Street shall be completed sufficiently to handle two lanes of traffic for use by the residents. The Contractor shall use precast box sections for this box culvert. 6' high temporary fencing and temporary concrete barriers (per sheet P-2 of the Construction Drawings) shall be installed as approved by the Engineer until permanent fencing and guardrails are in place.

Page CSP-5 of 35, Item 5:

Change the maximum length of time required by the Contractor to pump Basin #1 dry from 36 hours to "72 hours".

ADD the following:

"The Contractor will be paid per hour of pumping. An estimated number of hours, assuming a 6400 gallon per minute (gpm) pumping rate, is pre-entered in the Bidding Schedule".

Page CSP-6 of 35, Item 14:

DELETE Item 14 and substitute the following:

"14. Utilities

- a. Existing utilities shown on the plans are approximated from the best available information provided by the various owners of the facilities and supplemented by visual surface features.
- b. Those utilities found to be in conflict with the work have been previously relocated or abandoned in place.
- c. Those utilities not in conflict with the work remain undisturbed.
- d. Prior to construction, it shall be the Contractor's responsibility to verify the accuracy and completeness of the utilities shown, and determine if any active utilities are in conflict with the work by calling Bluestake and contacting the subject utility agencies directly. The Contractor shall notify the Engineer immediately if any utility conflicts occur.
- e. The Contractor will be paid per unforeseen utility lines that are required to be capped. An estimated quantity is pre-entered in the Bidding Schedule."

ADD the following items:

"15. Use of precast box culvert sections in lieu of cast-in-place culverts is required at "B" Street. At all other locations in the plans where box culvert sections are shown, cast-in-place box culvert sections will be required as a basis for bidding. If the successful bidder would prefer to use factory precast box sections, the Engineer shall give consideration to the alternate. It shall be the responsibility of the Contractor to submit plans and calculations stamped by a registered professional engineer in the State of Arizona indicating the necessary modifications to the original construction plans to accommodate the precast box sections subject to approval by the Engineer. Any efforts to propose or design a pre-cast alternative are at the Contractor's sole risk and expense. If the Engineer does not approve the modified plans, the Contractor shall construct the culverts cast-in-place as indicated on the plans. All precast box culvert sections shall be manufactured according to ASTM Designation C-850 with the exceptions as noted in Specification 505.1 section of this document."

"16. The entire project perimeter shall be secured at the close of each work day by permanent fencing, 6' high temporary fencing, or 6' high existing fencing or walls."

DELETE Item 1 and substitute the following:

"1. Use of precast box culvert sections is required for the 'B' Street box culvert. Details for the box are contained within this addendum and within the requirements of Specification 505.1 of the Construction Special Provisions."

Page CSP-10 of 35, Section 205 - Roadway Excavation

ADD the following paragraph:

"The Engineer reserves the right to reject material from being transported to Buffalo Ridge Park site if, in their opinion, it will not be capable of sustaining future landscaping. Examples would be if the surplus excavated material has large quantities of oversized rocks, caliche, or other objectionable components. Material rejected by the Engineer shall be removed from the Basin #1 site at the Contractor's own expense and discretion. The unit price for excavation and removal of this rejected material shall be adjusted to match that of excavated surplus material in line item 215 of the Bidding Schedule."

Page CSP-12 of 35, Section 401 - Traffic Control

ADD the following to this section:

"A. The following shall be considered as "Major Streets":

Union Hills Drive

Beardsley Road

B. All traffic and/or traffic control devices on this project shall be provided, maintained and/or controlled as specified in the City of Phoenix TRAFFIC BARRICADE MANUAL, latest revision.

C. Permission to restrict City streets, sidewalks, and alleys (street closure permits) shall be requested as specified in Section III of the TRAFFIC BARRICADE MANUAL.

D. Unless otherwise provided for in the following "SPECIAL TRAFFIC REGULATIONS", all traffic on this project shall be regulated as specified in Section IV of the TRAFFIC BARRICADE MANUAL.

SPECIAL TRAFFIC REGULATIONS

Union Hills Drive, _____ and Beardsley Road

A minimum of two lanes (one each way) shall be maintained on paved surfaces, on each of the above-mentioned streets, at all times.

Special Residential/Business Access Requirement

The Contractor shall maintain access to all businesses and residents at all times, notify affected property owners of any restriction that will affect access 48 hours in advance and restore access as soon as possible. When access cannot be maintained, the Contractor shall provide alternate access, to be determined with the affected businesses/residents prior to any restriction."

Pages CSP-27 of 35 through CSP-29 of 35, Section 505.1:

CHANGE the last sentence of the second paragraph under A. General to read:

"Welded wire reinforcing for factory precast boxes shall be as indicated in Table 1 and Figure 1 of the ASTM Designation C-850."

DELETE Item 4 under E. Installation, and substitute the following:

"Backfill - The slurry shall consist of ABC, with one sack of cement per cubic yard of ABC."

CHANGE the first sentence under F. Wearing Surface - to read as follows:

"For "B" Street and if the precast option is chosen for Union Hills Drive, a minimum two (2) inch asphalt concrete type C-3/4 wearing surface shall be applied on top of the completed box culvert."

DELETE Table 1

Page CSP-34 of 35

DELETE this page.

Page CSP-35 of 35

REMOVE this page and replace with Page CSP-35R of 35.

DELETED

TO THE CONSTRUCTION DRAWINGS

Sheet D1:

All the permanent fencing shown along Union Hills Drive shall be located 65' north of the Union Hills Drive monument line.

Sheet D7:

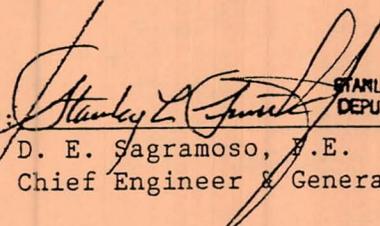
All vertical end posts and line posts for Type I and Type II fencing shall be 2-3/8" diameter HSSP (3.12 #1 ft) with 12" diameter x 3'-0" deep concrete set (2'-6" embedment of vertical post). Gate posts and sets shall remain as indicated on the drawings.

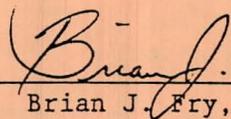
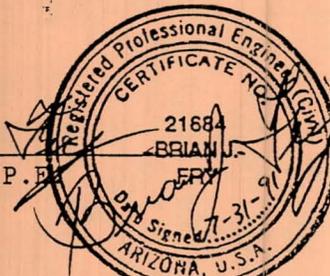
Sheets D4 and D5:

The "Block Wall by Others" noted on the drawings will NOT be in place for the entire project duration.

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

NBS/LOWRY ENGINEERS AND PLANNERS

By:  STANLEY L. SMITH JR., P.E.
DEPUTY CHIEF ENGINEER
D. E. Sagramoso, P.E.
Chief Engineer & General Manager

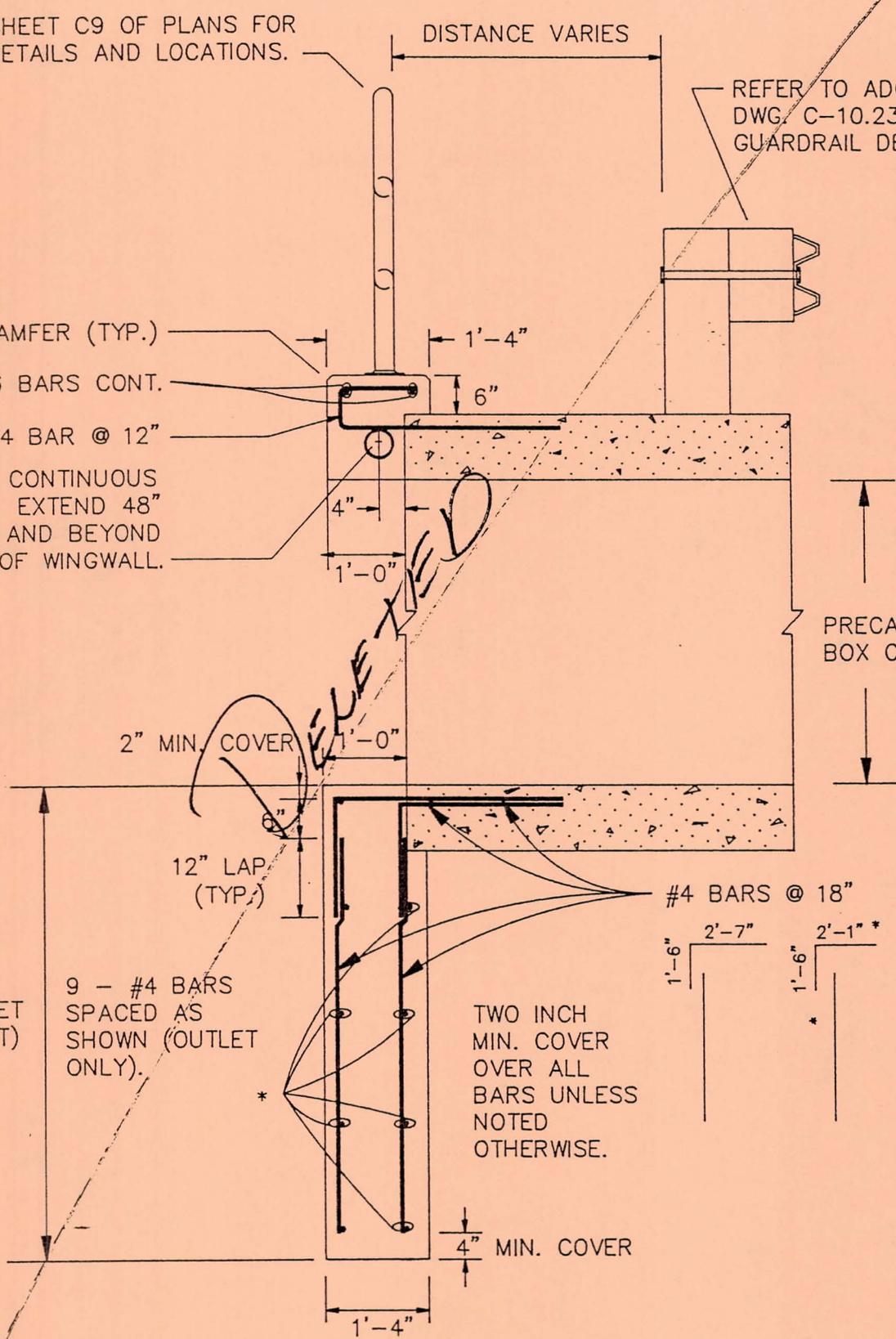
By:  Brian J. Fry, P.E.


REFER TO SHEET C9 OF PLANS FOR HANDRAIL DETAILS AND LOCATIONS.

DISTANCE VARIES

REFER TO ADOT STD. DWG. C-10.23 FOR GUARDRAIL DETAILS.

- 3/4" CHAMFER (TYP.)
- 2 - #6 BARS CONT.
- #4 BAR @ 12"
- 4" P.V.C. CONTINUOUS CONDUIT. EXTEND 48" THROUGH AND BEYOND EACH END OF WINGWALL.



PRECAST BOX CULVERT

6' FOR OUTLET (4' FOR INLET)

9 - #4 BARS SPACED AS SHOWN (OUTLET ONLY).

TWO INCH MIN. COVER OVER ALL BARS UNLESS NOTED OTHERWISE.

4" MIN. COVER

* NOTE: ELIMINATE THESE BARS ON INLET SIDE OF CULVERT.

FIGURE 2 - BOX ATTACHMENT DETAIL (AS REVISED PER ADDENDUM NO. 1)

BIDDING SCHEDULE

PROJECT: UEFCC Drainage Channel

CONTRACT: FCD 90-54

ITEM NO.	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT COST (IN WRITING) AND /100 DOLLARS	UNIT COST (NUMBERS)	EXTENDED AMOUNT
625b	Drop Sewer Connection	11	EA			
630a	6-inch Buried Line Valve	16	EA			
630c	12-inch Buried Line Valve	4	EA			
702	Decomposed Granite	2,284	TON			
745	12" PVC Pipe	880	LF			
800	Temporary Concrete Construction Barrier	400	LF			
802	Electrical	1	LS			
803	Capping Unforeseen Utility Lines	10	EA			
804	Pumping Basin No. 1 at 6400 gpm	144	HRS			

~~DELETED~~

TOTAL BID AMOUNT: _____

ATTENTION

ALL PROSPECTIVE BIDDERS

A.R.S. Sec. 34-201(A)(3) requires that every bid be accompanied by a certified check, cashier's check or surety bond in the amount of not less than a full five percent (5%) value of the bid.

Bid bonds for less than the full five percent (5%) value of the bid amount as required by ARS 34-201(A)(3) will not be accepted (such as the AIA Form of Bond). Those bids will therefore be considered nonresponsive.

Please take note and submit your bids accordingly.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
FCD CONTRACT 90-54

UPPER EAST FORK CAVE CREEK DETENTION BASIN NO. 4

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18. Drawings: Cover Sheet (1 sheet) Channel Plans (54 sheets) Sanitary Sewer Plans (21 sheets) Basin #1 Plans (3 sheets)	Separate



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
INVITATION TO BID

BID OPENING DATE: September 11, 1991

LOCATION:

This project is located east of Cave Creek Road between Beardsley Road and Union Hills Drive in the City of Phoenix, Arizona.

PROPOSED WORK:

Construct one (1) mile of channel, detention basin, box culverts, drainage structures, sanitary sewer, utility relocations, and appurtenant work. The above work shall be in accordance with the drawings and specified by the Construction Special Provisions.

BIDS:

SEALED BIDS for the proposed work will be received by the Flood Control District of Maricopa County, 3335 West Durango Street, Phoenix, Arizona 85009 until 2:00 PM (Phoenix time) on the above date and then publicly opened and read at 3335 West Durango Street, Phoenix, Arizona 85009. No bids will be received after the time specified for bid opening. All bids must be submitted on proposal forms furnished by the Flood Control District and included in the Proposal Pamphlet. The Board of Directors reserves the right to reject any and all bids and to waive any informality in any bid received.

ELIGIBILITY OF CONTRACTOR:

It is the policy of Flood Control District of Maricopa County to endeavor to ensure in every way possible that minority and women-owned business enterprises have every opportunity to participate in providing professional services, purchased goods, and contractual services without being discriminated against on the grounds of race, religion, sex, age, or national origin.

The bidder shall be required to certify that it is appropriately licensed as a Contractor in the State of Arizona for performing the before-mentioned type of work. Verification shall be on the form provided herein.

The bidder may be required to furnish an affidavit as evidence of previous satisfactory performance in the above-mentioned type of work.

CONTRACT TIME:

All work on this Contract is to be completed within two hundred ten calendar days of the date of Notice to Proceed.

MBE/WBE PARTICIPATION:

For this project, a goal of eighteen percent is desired for Minority/Women-Owned Business Enterprises. Instructions and required forms are included in the Minority and Women-Owned Business Enterprise Program Section.

PRE-BID CONFERENCE:

A pre-bid conference was held on Thursday, July 25, 1991 at 8:00 a.m. in the Durango conference room, 3335 West Durango Street, Phoenix, Arizona 85009.

A site inspection for the entire project reach from Union Hills Drive to Beardsley Road was held at 10:00 a.m., July 25, 1991. Those attending the inspection met at the vacant parcel of land located immediately northeast of the 26th Street and Union Hills Drive intersection. This inspection was the only opportunity for prospective bidders to inspect the Paradise Shadows Mobile Home Park reach of the project. This inspection addressed issues specific to the project site, and did not take the place of the preceding prebid conference. Thereafter, if any additional follow-up inspections are required for the remainder of the project reach, the prospective bidders shall make arrangements for such inspection through the Project Manager, John V. Berghian, at the Flood Control District.

Questions or items for clarification may be addressed to the Chief, Contracts Branch, in writing, at least ten (10) days prior to bid opening date. Where appropriate, any answers or clarifications affecting the cost may be addressed to all bidders in an addendum. Under no circumstances will verbal interpretations or clarifications be given to individual contractors.

PROJECT PLANS, SPECIAL PROVISIONS AND CONTRACT DOCUMENTS:

Plans and Construction Specifications may be obtained from Flood Control District of Maricopa County, 3335 West Durango Street, Phoenix, Arizona 85009 upon payment of \$45.00 by check, payable to the FLOOD CONTROL DISTRICT of MARICOPA COUNTY. This payment will not be refunded. Mail orders for project documents must include an additional \$10.00 for first class U.S. postage and handling. The total \$55.00 will not be refunded. Regardless of circumstances, we cannot guarantee mail delivery. Each bid must be accompanied by a Bid Bond, cashier's or certified check or postal money order equal to 5 percent (5%) of the bid, made payable to the FLOOD CONTROL DISTRICT OF MARICOPA COUNTY as a guarantee that if the work is awarded to the bidder, the bidder will within ten (10) days of receipt of the Proposal Acceptance, enter into proper contract and bond condition for the faithful performance of the work, otherwise, said amount may be forfeited to the said BOARD OF DIRECTORS as liquidated damages.

All bids are to be marked in accordance with Section 102.9 of the Uniform Standard Specifications and addressed to the Chief Engineer and General Manager, Flood Control District of Maricopa County, 3335 West Durango Street, Phoenix, Arizona 85009.

As provided for in the Agenda Information Form authorizing the Invitation to Bid.

PRINCIPLE ITEMS AND APPROXIMATE QUANTITIES

QUANTITY	UNIT	DESCRIPTION
12,200	CY	Compacted Fill
137,000	CY	Excavation (Basin #1)
126,700	CY	Channel Excavation
8,230	CY	Riprap Construction
10,430	SY	Subgrade Preparation
3,630	TON	Untreated Aggregate Base
1,620	TON	Asphaltic Concrete Pavement
3,640	SF	Asphalt Rubber Stress Absorbing Membrane
820	LF	Concrete Curb and Gutter
16,180	SF	Concrete Sidewalk and Driveway
3,470	LF	Chain Link Fence (Type 1)
4,900	LF	Chain Link Fence (Type 2)
1,630	CY	Concrete Class A, 3000 psi
71,312	LBS	Steel Grade 60
170	LF	6 Barrel Box 10'x4', Cast-in-Place
65	LF	2 Barrel Box 10'x5', Cast-in-Place
1	LS	5 Barrel Box 10'x10', Precast
1,150	LF	6-inch Buried Water Pipe
1,150	LF	8-inch Sewer Pipe
5,484	LF	36" R.G.R.C.P. Sanitary Sewer Pipe
28	EA	Manholes

PROPOSAL

TO THE BOARD OF DIRECTORS
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
PHOENIX, ARIZONA

Gentlemen:

The following Proposal is made for constructing Upper East Fork Cave Creek Channel, in the County of Maricopa, State of Arizona.

The following Proposal is made on behalf of

and no others. Evidence of authority to submit the Proposal is herewith furnished. The Proposal is in all respects fair and is made without collusion on the part of any person, firm, or corporation mentioned above, and no member or employee of the Board of Directors is personally or financially interested, directly or indirectly, in the Proposal, or in any purchase or sale of any materials or supplies for the work in which it relates, or in any portion of the profits thereof.

The Undersigned certifies that the approved Plans, Special Provisions, Forms of Contract, Bonds, and Sureties authorized by the Board of Directors and constituting essential parts of this Proposal, have been carefully examined and also that the site of the work has been personally inspected.

The Undersigned declares that the amount and nature of the work to be done is understood and that at no time will misunderstanding of the Plans, Construction Specifications, Special Provisions, or conditions to be overcome, be pled. On the basis of the Plans, Construction Specifications, Special Provisions, the Forms of Contract, Bonds, and Sureties proposed for use, the Undersigned proposes to furnish all the necessary machinery, equipment, tools, apparatus, and other means of construction, to do all the work and to furnish all the materials in the manner specified and to finish the entire project within the time hereinafter proposed and to accept, as full compensation therefore, the sum of various products obtained by multiplying each unit price, herein bid for the work or materials, by the quantity thereof actually incorporated in the complete project, as determined by the Engineer or Architect.

The Undersigned understands that the quantities mentioned herein are approximate only and are subject to increase or decrease and hereby proposes to perform all quantities of work, as either increased or decreased, in accordance with the provisions of the Specifications, at the unit price bid in the Bidding Schedule.

The Undersigned further proposes to perform all extra work that may be required on the basis provided in the Specifications and to give such work personal attention and to secure economical performance.

The Undersigned further proposes to execute the Contract Agreement and furnish satisfactory Bonds and Sureties within 10 calendar days of receipt of Notice of Proposal acceptance, **TIME BEING OF THE ESSENCE**. The Undersigned further proposes to begin work as specified in the Contract attached hereto, and to complete the work within 210 calendar days from the effective date specified in the Notice to Proceed, and maintain at all times a Payment and Performance Bond, approved by the Board of Directors, each in an amount equal to one hundred percent of the contract amount. This Bond shall serve not only to guarantee the completion of the work on the part of the Undersigned, but also to guarantee the excellence of both workmanship and material and the payment of all obligations incurred, said Bonds and Sureties to be in full force and effect until the work is finally accepted and the provisions of the Plans, Specifications, and Special Provisions fulfilled.

A Proposal Guaranty in the amount and character named in the Invitation to Bid is enclosed amounting to not less than five (5) percent of the total bid, which Proposal Guaranty is submitted as a guaranty of the good faith of the Bidder and the Bidder will enter into written contract, as provided, to do the work, if successful in securing the award thereof; and it is hereby agreed that if at any time other than as provided in the Proposal requirements and conditions the Undersigned should withdraw his Proposal, if the Proposal is accepted and there should be failure on the part of the Undersigned to execute the Contract and furnish satisfactory Bonds and Sureties as herein provided, the Flood Control District of Maricopa County in either of such events, shall be entitled and is hereby given the right to retain the said Proposal Guaranty as liquidated damages.

The Undersigned acknowledges receipt of the following addenda and has included their provisions in the proposal:

Addendum No.	<u>1</u>	Dated	<u>Deleted by Addendum 4</u>
Addendum No.	_____	Dated	_____
Addendum No.	_____	Dated	_____
Addendum No.	_____	Dated	_____
Addendum No.	_____	Dated	_____

The Undersigned has enclosed the required bid security to this Proposal.

BIDDING SCHEDULE

PROJECT: UEFCC Drainage Channel

CONTRACT: FCD 90-54

ITEM NO.	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT COST (IN WRITING) AND /100 DOLLARS	UNIT COST (NUMBERS)	EXTENDED AMOUNT
201	Clearing and Grubbing	1	LS			
211	Compacted Fill	12,200	CY			
215-1	Excavation Basin #1, Phase I & Phase II	137,000	CY			
215-2	Channel Excavation	126,700	CY			
220	Riprap Construction	8,230	CY			
301	Subgrade Preparation	10,430	SY			
310	Untreated Aggregate Base	3,630	TON			
321-1	Asphaltic Concrete Pavement	1,620	TON			
321-2	Asphalt Rubber Stress Absorbing Membrane	3,640	SF			
340-1	Concrete Curb and Gutter MAG Det. 220, Type A	820	LF			
340-2	Concrete Sidewalk and Driveway	16,180	SF			
340-3	Drainage Scupper	1	EA			
345-1	Adjust M.H. Frames & Covers	14	EA			
345-2	Adjust Valve Boxes	16	EA			
350-1	Remove Existing Improvements	1	LS			
350-2	Remove Existing Curb and Gutter	2,330	LF			
401-1	Detours	1	LS			

BIDDING SCHEDULE

PROJECT: UEFCC Drainage Channel

CONTRACT: FCD 90-54

ITEM NO.	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT COST (IN WRITING) AND /100 DOLLARS	UNIT COST (NUMBERS)	EXTENDED AMOUNT
401-2	Traffic Control - Uniformed Officer	120	HRS			
401-3	Temporary Concrete Construction Barrier	380	LF			
405	Survey Marker, Type B, MAG 120-1	1	EA			
415-1	Guardrail	580	LF			
415-2	Flared Breakaway Cable Terminal Assembly	4	EA			
420-1	Chain Link Fence (Type 1)	3,470	LF			
420-2	Chain Link Fence (Type 2)	4,900	LF			
420-3	Chain Link Fence Gate (Type 1)	30	EA			
420-4	Chain Link Fence Gate (Type 2)	3	EA			
420-5	Equestrian/Pedestrian/Maintenance Gate	8	EA			
420-6	Maintenance Gate	2	EA			
505-1	Concrete Class A, 3000 psi	1,630	CY			
505-2	Steel Grade 60	71,312	LBS			
505-3	Catch Basin, Type F, MAG Det. 535 & 537	2	EA			
505-4	Permanent Concrete Barrier per ADOT Std. C-10.10	150	LF			
505-5	10'x4' 6 Barrel Box (ADOT B-2-60) Cast-in-Place	170	LF			
505-6	10'x5' 2 Barrel Box (ADOT B-2-20) Cast-in-Place	65	LF			
507	10'x10' 5 Barrel Box Precast	1	LS			
520	Steel Handrail @ Wingwalls & Culverts	672	LF			

BIDDING SCHEDULE

PROJECT: UEFCC Drainage Channel

CONTRACT: FCD 90-54

ITEM NO.	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT COST (IN WRITING) AND /100 DOLLARS	UNIT COST (NUMBERS)	EXTENDED AMOUNT
610-1	6-inch Buried Ductile Iron Water Pipe and Fittings	258	LF			
610-2	12-inch Buried Ductile Iron Water Pipe and Fittings	220	LF			
610-3	6-inch Buried Water Pipe and Fittings Asbestos Cement Pipe	1,150	LF			
610-4	Fire Hydrant at Utopia	1	EA			
615-1	36" R.G.R.C.P. Sanitary Sewer Pipe (Phoenix S-885665)	5,484	LF			
615-2	8-inch Sewer Pipe and Fittings Vitrified Clay Pipe	1,150	LF			
615-3	8-inch Ductile Iron Sewer Pipe and Fittings	93	LF			
615-4	10-inch Ductile Iron Sewer Pipe and Fittings	349	LF			
618-1	18-inch Concrete Storm Drain	180	LF			
618-2	12" PVC Storm Sewer Pipe	880	LF			
618-3	36" Pipe Stubouts (MAG Det. 427)	3	EA			
618-4	48" Pipe Stubouts (MAG Det. 427)	1	EA			
618-5	Trash Racks (See Plans for Detail)	1	EA			
618-6	Flap Gate (Neenah R-5004-A5 or equal)	1	EA			
618-7	Slotted Drain (ADOT C-12-60)	60	LF			
625-1	Sewer M.H. Detail #16 (Phoenix S-885665)	2	EA			
625-2	Sewer M.H. Detail #16 (Watertight) (Phoenix S-885665)	2	EA			

BIDDING SCHEDULE

PROJECT: UEFC Drainage Channel

CONTRACT: FCD 90-54

ITEM NO.	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT COST (IN WRITING) AND /100 DOLLARS	UNIT COST (NUMBERS)	EXTENDED AMOUNT
625-3	Sewer M.H. Detail #15 (Phoenix S-885665)	7	EA			
625-4	Sewer M.H. Detail #14 & #15 (Phoenix S-885665)	3	EA			
625-5	48-inch Manhole	14	EA			
625-6	Drop Sewer Connection (8" and 10")	4	EA			
630-1	2-inch Buried Line Valve	7	EA			
630-2	6-inch Buried Line Valve	10	EA			
630-3	12-inch Buried Line Valve	2	EA			
630-4	12-inch Tapping Sleeve and Valve	2	EA			
702	Decomposed Granite	2,284	TON			
803	Electrical	1	LS			
801	Pumping Basin No. 1 at 6400 gpm	144	HRS			
802	4-inch Empty PVC Conduit	520	LF			

TOTAL BID AMOUNT: _____

IF BY AN INDIVIDUAL:

(NAME - TITLE)

(ADDRESS)

DATE _____

(PHONE)

IF BY A FIRM OR PARTNERSHIP:

(FIRM NAME)

(FIRM ADDRESS)

BY: _____
(NAME - TITLE)

DATE _____
(PHONE)

** Name and Address of Each Member:

** The name and post office address of each member of the firm or partnership must be shown.

IF BY A CORPORATION:

(CORPORATE NAME)

(CORPORATION ADDRESS)

BY: _____

DATE: _____

(PHONE)

TITLE: _____

* Incorporated under the Laws of _____

Names and Addresses of Officers:

(PRESIDENT)

(ADDRESS)

(SECRETARY)

(ADDRESS)

(TREASURER)

(ADDRESS)

* The name of the State under which the laws of the Corporation was chartered and names, title, and business address of the President, Secretary, and Treasurer must be shown.

SUBCONTRACTOR LISTING

As required in Section 102.6 of the Special Provisions, the following is a listing of Subcontractors and material suppliers that are to be used in the event the undersigned should enter into contract with the Owner. This is not an exhaustive or inclusive list.

(Signature) _____

SURETY BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____, as Principal, (hereinafter called the Principal), and the _____, a corporation duly organized under the laws of the State of _____, as Surety, (hereinafter called the Surety), are held and firmly bound unto the Flood Control District of Maricopa County as Obligee, in the sum of five percent (5%) of the total amount of the bid of Principal, submitted by him to the Flood Control District of Maricopa County, for the work described below, for the payment of which sum, well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, and administrators, successors and assigns, jointly and severally, firmly by these presents, and in conformance with A.R.S. Sec. 34-201(A)(3).

WHEREAS, the said Principal is herewith submitting its proposal for FCD Contract No. 90-54: Upper East Fork Cave Creek Channel.

NOW, THEREFORE, if the Flood Control District of Maricopa County shall accept the proposal of the Principal and the Principal shall enter into a contract with the Flood Control District of Maricopa County in accordance with the terms of such proposal and give such Bonds and Certificates of Insurance as specified in the Standard Specifications 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 into such contract and give such Bond and Certificates of Insurance, if the Principal shall pay to the Flood Control District of Maricopa County the sum of money set forth above as liquidated damages for failure of the Principal to enter into the contract, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this _____ day of _____, A.D., 1991.

Principal

Title

Witness:

Surety

Title

Witness:

VERIFICATION OF LICENSE

Pursuant to A.R.S. Sec. 32-1169, I hereby state that I hold a current contractor's license, duly issued by the office of the Registrar of Contractors for the State of Arizona, said license has not been revoked, that the license number is: _____; that my privilege license number (as required by A.R.S. Sec. 42-1305) is: _____; and that, if any exemption to the above licensing requirements is claimed;

(1) The basis for the claimed exemption is: _____ and;

(2) The names(s) and license number(s) of any general, mechanical, electrical, or plumbing contractor(s) to be employed on the work are:

IT IS UNDERSTOOD THAT THE FILING OF AN APPLICATION CONTAINING FALSE OR INCORRECT INFORMATION CONCERNING AN APPLICANT'S CONTRACTOR'S LICENSE OR PRIVILEGE LICENSE WITH THE INTENT TO VOID SUCH LICENSING REQUIREMENTS IS UNSWORN FALSIFICATION PUNISHABLE ACCORDING TO A.R.S. SEC. 13-2704.

DATE: _____ SIGNATURE OF LICENSEE: _____

COMPANY: _____

MINORITY AND WOMEN-OWNED BUSINESS ENTERPRISE PROGRAM

- A. The following conditions will apply in the calculation of the percentage attainment:
1. All MBE/WBE firms used in attainment of the goal must be certified with the Maricopa County Minority Business Office which is located in the Maricopa County Highway Department building, 3325 West Durango Street, Phoenix. In addition, only those firms certified at least seven calendar days prior to the bid opening will be considered in the attainment of the goal.
 2. Prime contractor subcontracts to MBE or WBE:
The MBE/WBE amount to be applied to the goal will be based on that portion (dollar value) of the contract that the MBE/WBE performs. For example, if a prime contractor subcontracts work amounting to \$100,000 of a contract for which the total project cost is \$1,000,000. the MBE/WBE participation will be credited as 10 percent.
 3. Prime Minority Contractor:
An MBE/WBE prime contractor will be credited with the MBE/WBE participation for that portion of the contract which they themselves perform plus that portions subcontracted to other MBE/WBE firms. For example, if an MBE/WBE prime contractor proposes to perform 50 percent of a project quoted at \$1,000,000 and subcontracts 25 percent to an MBE firm and 25 percent to a non-MBE/WBE firm, MBE/WBE participation will be credited as 75 Percent, or \$750,000.
 4. Minority-Non-Minority Joint Venture:
A joint venture consisting of MBE/WBE participation and non-MBE/WBE business enterprises, functioning as a prime contractor, will be credited with minority participation on the basis of the percentage of profit accruing to the MBE/WBE firm. For example, if a MBE/WBE and non-MBE/WBE joint venture proposes to perform 50 percent of a \$1,000,000 project and 50 percent of the joint venture profits (\$500,000) are to accrue to the MBE/WBE partner in the joint venture, MBE/WBE participation will be credited at 25 percent or \$250,000.
 5. Lower Tier Non-MBE/WBE Participation:
MBE/WBE subcontractors proposing to further subcontract to non-MBE/WBE contractors shall not have that portion of subcontracting activity considered when determining the percentage of MBE/WBE participation.

6. MBE/WBE Suppliers:

Any MBE/WBE supplier that manufactures or substantially alters the material or product it supplies will have that portion of activity considered when determining the percentage of MBE/WBE participation. Any MBE/WBE Wholesaler, Distributor, or Jobber that does not manufacture or substantially alter the materials or product it sells will be limited to 20 percent of the sale price when determining the percentage of MBE/WBE participation.

B. Required forms:

Two affidavits are included as part of this section. The MBE/WBE Participation Assurances Affidavit form must be completed and submitted with a bid. The Actual Minority/Women-owned Participation Affidavit must be completed and returned by the low bidder by 4:00 p.m. on the seventh calendar day after receipt of the Notice of Proposal Acceptance. The Affidavit will list the MBE/WBE participation by MBE/WBE firm name and the related dollar value of the MBE/WBE contract.

C. Requests for Pay:

Each Request for Pay must be accompanied by a Maricopa County Minority/Women-Owned Business Enterprise Program MBE/WBE Participation Report. The final pay request shall include a listing of total contract MBE/WBE participation.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
MINORITY/WOMEN-OWNED BUSINESS ENTERPRISE PROGRAM

MBE/WBE PARTICIPATION ASSURANCES
AFFIDAVIT

The undersigned, fully cognizant of the Flood Control District of Maricopa County MBE/WBE Program requirements and of the goal established, hereby certifies that in the preparation of this bid,

(the entity submitting the bid)

(CHECK ONE)

- ____ Will meet the established goal for participation by Minority/Women-Owned Business Enterprises.
- ____ Will provide the necessary documentation to Minority Business Office to establish that a good faith effort was made.
- ____ Will not participate in the MBE/WBE Program.

The bidder will specify its MBE/WBE participation on the Actual Participation Affidavit or provide documentation of its good faith efforts not later than 4:00 p.m., the seventh calendar day following receipt of Owner's Notice of Proposal Acceptance. If participation is "None", the Affidavit will be completed and returned with "None" so stated therein.

Name of Firm

Signature

Title

STATE OF ARIZONA)
) ss.
COUNTY OF MARICOPA)

Subscribed and sworn to before me this _____ day of _____, 1991
by _____.

Notary Public

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
MINORITY/WOMEN-OWNED BUSINESS ENTERPRISE PROGRAM
Actual Minority/Women-owned Participation

Name of Prime Contractor

FCD 90-54

Project Number

Contact Person

Total Amount of Contract

Street No.

City State Zip

<u>Minority/Women-owned Firm</u>	<u>Principal</u>	<u>Address</u>	<u>Type of Work</u>	<u>Subcontract Amount</u>
----------------------------------	------------------	----------------	---------------------	---------------------------

_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

The undersigned has entered into a formal agreement with the minority contractors/suppliers listed above in the execution of this contract with the Flood Control District of Maricopa County.

Signature

Title

Date

Copy to: Minority Business Office
Maricopa County Highway Department
3325 West Durango Street
Phoenix, Arizona 85009

FCD Contract No. 90-54

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MARICOPA COUNTY
MINORITY/WOMEN-OWNED BUSINESS ENTERPRISES PROGRAM

MBE/WBE PARTICIPATION REPORT
(To be attached with Request for Pay)

Date: _____

Contractor: _____

Contact Person: _____

Address: _____

Telephone: _____

Project: Upper East Fork Cave Creek Channel

Contract Number: 90-54

For Pay Period of: _____

Subcontractor: _____

Person to Contact: _____

Address: _____

Telephone Number: _____

Type of Firm: _____

Class of Work: _____

Subcontract Amount: _____

Amount Earned _____

(Commission) This Period: _____

Total Earned by This Subcontractor: _____

Total MBE/WBE Contract Goal, %: 18

Total Cumulative MBE/WBE

Participation on This Contract, %: _____

MBE/WBE subcontract payment made
during this reporting period (yes or no): _____

cc: Minority Business Office
Maricopa County Highway Building
3325 West Durango Street
Phoenix, Arizona 85009

CONTRACT AGREEMENT

THIS AGREEMENT, made and entered into this _____ day of _____, 1991, by and between FLOOD CONTROL DISTRICT OF MARICOPA COUNTY, hereinafter called the OWNER, acting by and through its BOARD OF DIRECTORS, and

_____ hereinafter called the CONTRACTOR.

WITNESSTH: That the said CONTRACTOR, for and in the consideration of the sum of _____ to be paid to him by the OWNER, in the manner and at the times hereinafter provided, and of the other covenants and agreements herein contained, hereby agrees for himself, heirs, executors, administrators, successors, and assigns as follows:

ARTICLE I - SCOPE OF WORK: The CONTRACTOR shall construct, and complete in a workmanlike and substantial manner and to the satisfaction of the Chief Engineer and General Manager, a project for the Flood Control District of Maricopa County, designated as FCD Contract 90-54; Upper East Fork Cave Creek Channel, and furnish at his own cost and expense all necessary machinery, equipment, tools, apparatus, materials, and labor to complete the work in the most substantial and workmanlike manner according to the Plans and Construction Specifications on file with the Flood Control District of Maricopa County, 3335 West Durango Street, Phoenix, Arizona, and such modifications of the same and other directions that may be made by the Flood Control District of Maricopa County as provided herein.

ARTICLE II - CONTRACT DOCUMENTS: The Construction Specifications (Invitation to Bid, Plans, Standard Specifications and Details, Special Provisions, Addenda, if any, Proposal, Affidavits, Performance Bond, Payment Bond, Certificates of Insurance, and Change Orders, if any,) are by this reference made a part of this Contract and shall have the same effect as though all of the same were fully inserted herein.

ARTICLE III - TIME OF COMPLETION: The CONTRACTOR further covenants and agrees at his own proper cost and expense, to do all work as aforesaid for the construction of said improvements and to completely construct the same and install the material therein, as called for by this agreement free and clear of all claims, liens, and charges whatsoever, in the manner and under the conditions specified within the time, or times, stated in the proposal pamphlet.

ARTICLE IV - PAYMENTS: For and in consideration of the faithful performance of the work herein embraced as set forth in the Contract Documents, which are a part hereof and in accordance with the directions of the OWNER, through its Engineer and to his satisfaction, the OWNER agrees to pay the said CONTRACTOR the amount earned, computed from actual quantities of work performed and accepted or materials furnished at the unit bid price on the Proposal made a part hereof, and to make such payment in accordance with the requirements of A.R.S. Sec. 34-221, as amended. The CONTRACTOR agrees to discharge its obligations and make payments to its subcontractors and suppliers in accordance with A.R.S. Sec. 32-1129.

ARTICLE V - TERMINATION: The OWNER hereby gives notice that pursuant to A.R.S. Sec. 38-511(A) this contract may be cancelled without penalty or further obligation within three years after execution if any person significantly involved in initiation, negotiation, securing, drafting or creating a contract on behalf of the OWNER is, at any time while the contract or any extension of the contract is in effect, an employer agent of any other party to the contract in any capacity or a consultant to any other party of the contract with respect to the subject matter of the contract. Cancellation under this section shall be effective when written notice from the Chief Engineer and General Manager of the OWNER is received by all of the parties to the contract. In addition, the OWNER may recoup any fee for commission paid or due to any person significantly involved in initiation, negotiation, securing, drafting or creating the contract on behalf of the OWNER from any other party to the contract arising as a result of the contract.

ARTICLE VI - NEGOTIATION CLAUSE: Recovery of damages related to expenses incurred by the CONTRACTOR for a delay for which the OWNER is responsible, which is unreasonable under the circumstances and which was not within the contemplation of the parties to the contract, shall be negotiated between the CONTRACTOR and the OWNER. This provision shall be construed so as to give full effect to any provision in the contract which requires notice of delays, provides for arbitration or other procedure for settlement or provides for liquidated damages.

ARTICLE VII - COMPLIANCE WITH LAWS: The CONTRACTOR is required to comply with all Federal, State and local ordinances and regulation. The CONTRACTOR's signature on this contract certifies compliance with the provisions of the I-9 requirements of the Immigration Reform Control Act of 1986 for all personnel that the CONTRACTOR and any subcontractors employ to complete this project. It is understood that the OWNER shall conduct itself in accordance with the provisions of the Maricopa County Procurement Code.

ARTICLE VIII - MBE/WBE PROGRAM: Flood Control District of Maricopa County will endeavor to ensure in every way possible that minority and women-owned business enterprises shall have every opportunity to participate in providing professional services, purchased goods, and contractual services to the Flood Control District of Maricopa County without being discriminated against on the grounds of race, religion, sex, age, or national origin.

ARTICLE IX - ANTI-DISCRIMINATION PROVISION: The CONTRACTOR agrees not to discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, or handicap and further agrees not to engage in any unlawful employment practices. The CONTRACTOR further agrees to insert the foregoing provision in all subcontracts hereunder.

IN WITNESS WHEREOF: Five (5) identical counterparts of this Contract, each of which shall for all purposes be deemed an original thereof, have been duly executed by the parties hereinabove named, on the date and year first above written.

PARTY OF THE FIRST PART

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
PARTY OF THE SECOND PART

BY: _____
Printed Name

BY: _____
CHAIRMAN, BOARD OF DIRECTORS

BY: _____
Signature

DATE: _____

Title
DATE: _____

Tax Identification Number

RECOMMENDED BY:

ATTEST:

CHIEF ENGINEER AND GENERAL MANAGER
FLOOD CONTROL DISTRICT OF
MARICOPA COUNTY

CLERK OF THE BOARD

DATE: _____

LEGAL REVIEW

Approved as to form and within the powers and authority granted under the laws of the State of Arizona to the Flood Control District of Maricopa County.

BY: _____
GENERAL COUNSEL, FLOOD CONTROL
DISTRICT OF MARICOPA COUNTY

DATE: _____

STATUTORY PAYMENT BOND PURSUANT TO TITLE 34
CHAPTER 2, ARTICLE 2, OF THE ARIZONA REVISED STATUTES
(Penalty of this bond must be 100% of the Contract amount)

KNOW ALL MEN BY THESE PRESENTS:

That, _____
(hereinafter called the Principal), As Principal, and _____

_____ a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ (hereinafter called the Surety), as Surety, are held and firmly bound unto the Flood Control District of Maricopa County, in the County of Maricopa, State of Arizona (hereinafter called the Oblige), in the amount of _____

_____ dollars (\$_____), for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with Flood Control District of Maricopa County, dated the ____ day of _____, 1991, for FCD Contract 90-54: Upper East Fork Cave Creek Channel, which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall promptly pay all monies due to all persons supplying labor or materials to him or his subcontractors in the prosecution of the work provided for in said contract, then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article 2, of the Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions of said Title, Chapter, and Article, to the extent as if it was copied at length herein.

The prevailing party or any party which recovers judgement on this bond shall be entitled to such reasonable attorney's fees as may be fixed by the court or a judge thereof.

Witness our hands this _____ day of _____, 1990.

AGENCY OF RECORD

AGENCY ADDRESS

BOND NUMBER.

PRINCIPAL SEAL

BY: _____

SURETY SEAL

BY: _____

POWER OF ATTORNEY SEAL

BY: _____

STATUTORY PERFORMANCE BOND PURSUANT TO TITLE 34
CHAPTER 2, ARTICLE 2, OF THE ARIZONA REVISED STATUTES
(Penalty of this bond must be 100% of the Contract amount)

KNOW ALL MEN BY THESE PRESENTS:

That, _____
(hereinafter called the Principal), As Principal, and _____

_____ a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ (hereinafter called the Surety), as Surety, are held and firmly bound unto the Flood Control District of Maricopa County, in the County of Maricopa, State of Arizona, in the amount of _____ dollars (\$ _____), for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with Flood Control District of Maricopa County, dated the ____ day of _____, 1990, for FCD Contract 90-54: Upper East Fork Cave Creek Channel, which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully perform and fulfill all the undertakings, covenants, terms, conditions and agreements of said contract during the original term of said contract and any extension thereof, with or without notice to the Surety, and during the life of any guaranty required under the contract, and shall also perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the Surety being hereby waived; then the above obligation shall be void, otherwise to remain in full force and effect;

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article 2, of the Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions of said Title, Chapter, and Article, to the extent as if it was copied at length herein.

The prevailing party in a suit on this bond shall be entitled to such reasonable attorney's fees as may be fixed by a judge of the court.

Witness our hands this _____ day of _____, 1991.

AGENCY OF RECORD

AGENCY ADDRESS

BOND NUMBER

POWER OF ATTORNEY

BY: _____

PRINCIPAL SEAL

BY: _____

SURETY SEAL

BY: _____

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

CERTIFICATE OF INSURANCE

CONTRACT FCD90-54

PROJECT TITLE UEFCC Channel

NAME AND ADDRESS OF INSURANCE AGENCY	INSURANCE COMPANIES AFFORDING COVERAGES	
	Company Letter	A
	Company Letter	B
	Company Letter	C
	Company Letter	D
	Company Letter	E
	Company Letter	F
NAME AND ADDRESS OF INSURED	Company Letter	D
	Company Letter	E
	Company Letter	F
	Company Letter	G

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	EXPIRATION DATE	LIMITS OF LIABILITY IN \$1,000 MINIMUM each occurrence	
	COMMERCIAL GENERAL <input checked="" type="checkbox"/> LIABILITY FORM <input checked="" type="checkbox"/> PREMISES OPERATIONS <input checked="" type="checkbox"/> CONTRACTUAL <input checked="" type="checkbox"/> BROAD FORM PROPERTY DAMAGE <input checked="" type="checkbox"/> EXPLOSION & COLLAPSE <input checked="" type="checkbox"/> PRODUCTS/COMPLETED OPERATIONS HAZARD <input checked="" type="checkbox"/> UNDERGROUND HAZARD <input checked="" type="checkbox"/> INDEPENDENT CONTRACTORS <input checked="" type="checkbox"/> PERSONAL INJURY			BODILY INJURY per person PROPERTY DAMAGE each occurrence	5,000 Combined Single Limit
	COMPREHENSIVE AUTO <input checked="" type="checkbox"/> LIABILITY & NON-OWNED			SAME AS ABOVE	
	<input type="checkbox"/> EXCESS LIABILITY			NECESSARY IF UNDERLYING NOT ABOVE MINIMUM	
	<input checked="" type="checkbox"/> WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY			STATUTORY each accident	\$100
	<input checked="" type="checkbox"/> OTHER The Flood Control District of Maricopa County, Maricopa County, and City of Phoenix shall be named as additional insureds.				
	<input type="checkbox"/> OTHER				

Except for Workers' Compensation Insurance, the Flood Control District of Maricopa County is added as an additional insured in respect to liability arising in any manner out of the performance of any contract entered into between the insured and the Flood Control District or liability arising out of any services provided or duty performed by any party as required by statute, law, purchase order, or otherwise required. It is agreed that any insurance available to the named insured shall be primary of other sources that may be available. It is further agreed that no policy shall expire, be cancelled, or materially changed to effect the coverage available to the District without thirty (30) days written notice to the District. THIS CERTIFICATE IS NOT VALID UNLESS COUNTERSIGNED BY AN AUTHORIZED REPRESENTATIVE OF THE INSURANCE COMPANY.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
 3335 West Durango Street
 Phoenix, Arizona 85009

DATE ISSUED _____

AUTHORIZED REPRESENTATIVE _____

It is further agreed that:

The Contractor hereby agrees to indemnify and save harmless the **Flood Control District of Maricopa County, Maricopa County, and the City of Phoenix**, or any of its departments, agencies, officers or employees, from and against all loss, expense, damage or claim of any nature whatsoever which is caused by any activity, condition or event arising out of the performance or nonperformance of any of the provisions of this Agreement. The **Flood Control District of Maricopa County, Maricopa County, and the City of Phoenix** shall in all instances be indemnified against all liability, losses and damages of any nature for or on account of any injuries to or death of persons or damages to or destruction of property arising out of or in any way connected with the performance or nonperformance of this Agreement, except such injury or damage as shall have been occasioned by the negligence of the **Flood Control District of Maricopa County, Maricopa County, and the City of Phoenix**. The above cost of damages incurred by the **Flood Control District of Maricopa County, Maricopa County, and the City of Phoenix** or any of its departments, agencies, officers or employees, or others aforesaid shall include in the event of an action, court costs, expenses for litigation and reasonable attorney's fees.

Firm

Date

Principal

Title

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

CONTRACT FCD 90-54

SUPPLEMENTARY GENERAL CONDITIONS

SPECIFICATIONS:

Except as otherwise required in these Supplementary General Conditions and the Construction Special Provisions, construction of this project shall be in accordance with all applicable Maricopa Association of Governments (MAG) Uniform Standard Specifications and Uniform Standard Details, latest revision, and the latest revision of the City of Phoenix Supplements to the MAG Uniform Standard Specifications and Details, together with Maricopa County Highway Department Supplements to the Uniform Standard Specifications.

PRECEDENCE OF CONTRACT DOCUMENTS

The City of Phoenix Supplements to MAG Specifications and Details will govern over the MAG Standard Specifications and Details. In case of a discrepancy or conflict, Project Plans will govern over both the City of Phoenix Supplements and MAG Standard Specifications and Details. These Supplementary General Conditions and the Construction Special Provisions, will govern over the City of Phoenix Supplements and MAG Standard Specifications and Details and the Project Plans.

PAYMENT

Payment will be made for only those items listed in the proposal and will not be made in accordance with the measurement and payment provisions of the Standard Specifications where this differs from the items listed in the proposal. All material and work necessary for completion of this project are included in proposal items. Any work or material not specifically referred to in these items is considered incidental to the item and included in the unit price.

WORK STANDARDS

The Contractor shall comply with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330) as supplemented by Department of Labor Regulations (29 CFR Part 5).

CONTRACT TIME:

The Contractor shall commence work within seven (7) calendar days after the date of the Notice to Proceed and complete all work within two hundred ten (210) calendar days after receipt of the Notice to Proceed (see also Section 108.9). In the event the Contractor elects to work overtime, second shifts, weekends, or legal holidays, to complete the work that is not required by the Project Plans and these Supplementary General Conditions or Construction Special Provisions, the Contractor will be responsible to bear the additional costs that may be incurred by the Owner including engineering, inspections, testing, surveying and construction administration all in accordance with

Section 108.5. These costs will be deducted from the monies due to the Contractor for each Payment Request. The costs associated with these items shall be incidental to the unit price items in the bid schedule.

NEGOTIATION CLAUSE:

Recovery of damages related to expenses incurred by the Contractor for a delay for which the Owner is responsible, which is unreasonable under the circumstances and which was not within the contemplation of the parties to the contract, shall be negotiated between the Contractor and the Owner. This provision shall not be construed to void any provisions in the contract which requires notice of delays, provides for arbitration or other procedure for settlement, or provides for liquidated damages.

WATER, LIGHT, POWER, HEAT, TELEPHONE:

All water for construction purposes, drinking water, lighting, temporary electric power, heat and telephone service shall be arranged for and provided for in the requirements of the work by the Contractor at his expense.

PROGRESS SCHEDULE:

The Contractor shall submit a proposed work progress schedule to the Engineer for review before starting work. Weekly updates shall be submitted to the Owner's Inspector at the weekly coordination meeting.

MATERIALS SOURCES:

Select Material, Aggregate Base, Mineral Aggregate, concrete, steel products and pipe shall be obtained from commercial sources. The Contractor shall pay all royalties, or any other charges or expenses, incurred in connection with the securing and hauling of the material. The Contractor will be required to furnish the Engineer with a list of his proposed commercial sources prior to use, and shall present certificates stating that the material produced from any commercial sources is in accordance with the Uniform Standard Specifications and these Supplementary General Conditions.

ACCESS THROUGH PRIVATE PROPERTY:

Bidders must have approval from the Flood Control District of Maricopa County before entering into private property (i.e., Paradise Shadows Mobile Home Park) during the bidding time period.

Subsection 101.2 - Definitions and Terms:

1. Change the definition of the phrase "Board of Supervisors" to being the Board of Directors acting under the authority of the laws of the State of Arizona and in their capacity of the Board of Directors of the FCDMC.
2. Change the definition of the phrase "Budget Project" to being a project financed by funds set aside in the annual budget or otherwise approved by the FCDMC Board of Directors.

3. Add to the definition of the phrase "Contract Documents", the phrase "Supplementary General Provisions".
4. Change the definition of the term "Engineer" to being the person appointed by the FCDMC Board of Directors to the office of Chief Engineer and General Manager of the FCDMC acting directly or through his authorized representative, the Chief of the FCDMC Construction and Operations Division.
5. Change the definition for the phrase "Notice of Award" to a letter from the FCDMC advising the Contractor that he is the successful bidder and the FCDMC has accepted his proposal.
6. Change the definition of the term "Owner" to the Flood Control District of Maricopa County, acting through it's legally constituted officials, officers, or employees.

Subsection 102.5 - Preparation of Proposal: It shall be the responsibility of prospective bidders to determine, prior to submission of a bid, if any addenda have been issued by the Flood Control District. This may be accomplished by calling 602-262-1501. Any addendum issued, if not already bound into the Special Provisions, must be included as part of the Special Provisions and any quantities on the Bidding Schedule requiring change shall be adjusted by pen and ink, to the new figure.

Bids which do not include appropriate addenda and show appropriate changes to the Bidding Schedule shall be invalid.

The bidder's Arizona State Contractor's License number and classifications shall be shown on the proposal. The Contractor may be required to provide certification of prior satisfactory completion for similar construction and shall include a copy of his license and the renewal certificate with the bid proposal.

Subsection 102.6 - Subcontractors' List: A list of subcontractors proposed to be employed on the project shall be submitted with the bid.

Subsection 103.6 - Contractor's Insurance: Concurrently with the execution of the contract, the Contractor shall furnish a Certificate of Insurance using the included Certificate or one of equal wording, that names the additional insureds as set out in the Certificate. The Certificate shall also name the additional insureds as Certificate Holders. The types of insurance and the limits of liability shall be as indicated on the included form.

Subsection 103.6.1(D) - Contractor's Insurance: Add additional insureds as indicated on the included Certificate of Insurance.

Subsection 105.6 - Cooperation with Utilities: An attempt has been made to determine the location of all underground utilities and drainage pipes, culverts, and structures; however, it shall be the Contractor's responsibility to cooperate with the pertinent utility companies so that any obstructing utility installation(s) may be adjusted. Should the Contractor's operations result in damage to any utility the location of which has been brought to his attention, he shall assume full responsibility for such damage.

The Contractor shall contact Arizona Blue Stake (telephone number 263-1100) a minimum of two (2) working days before beginning any underground work. In addition, Blue Stake notification(s) shall be maintained on a current basis.

The following phone numbers should put the Contractor in contact with the proper personnel:

Flood Control District.....	262-1501
US West Communications.....	831-4647
Arizona Public Service.....	371-7171
Location Staking (A.P.S., Mtn. Bell, S.W. Gas, TV)...	263-1100
Maricopa County Highway Department.....	233-8600
S.W. Gas.....	484-5257
Dimension Cable TV.....	866-0072

Subsection 105.8 - Construction Stakes, Lines, and Grades: Add the following to MAG:

1. The Contractor shall set all project control, alignment staking, elevation control, and construction staking.
2. Before any construction work is started, the Engineer will provide cross sections of existing conditions that will be required as a basis for quantity determination. See Section 211 of the CONSTRUCTION SPECIAL PROVISIONS.

Subsection 107.2 - Permits: The Contractor shall be responsible for being aware of and obtaining all permits and licenses, pay all charges, fees, taxes, and give all notices necessary and incidental to the due and lawful prosecution of the work. Permits for earth moving may be obtained from the Bureau of Air Pollution Control, Maricopa County Department of Health Services, 1845 East Roosevelt, Phoenix, Arizona, telephone number 258-6381.

Subsection 107.5.2 - Compliance with the Arizona Communication Standard: The Owner will provide the Contractor with Material Safety Data Sheets (MSDS) for any products known to exist on the site that are deemed health hazards. The Contractor will provide a copy of Owner-provided MSDS to all subcontractors.

The Contractor will provide the Owner and all subcontractors with MSDS for any products that have or are deemed health hazards that will be brought onto the site or created on the site by either the Contractor or by any subcontractors.

The Contractor will provide the Owner with a statement certifying that all personnel (Contractor and subcontractor) employed by the Contractor or by a subcontractor on the job site have received the required Hazard Communication Standard training.

Subsection 108.9 - Failure to Complete on Time: The actual cost per calendar day incurred by the Owner for Administration and Inspection Services on this project will be added to the daily charges as indicated by TABLE 108, LIQUIDATED DAMAGES (as computed using the total Contract Amount), and will be deducted from the monies due or to become due to the Contractor for each and every calendar day that work, or any portion thereof, shall remain uncompleted after the times specified in the deadlines and time constraints under CONSTRUCTION SCHEDULE in the SPECIAL PROVISIONS, or as adjusted by the Engineer.

Nothing contained in this provision shall prohibit the Owner from deducting from monies due or to become due to the Contractor for any other costs incurred by the Owner directly attributable to the delay in completing this contract.

Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time fixed for its completion may have been extended, will in no way operate as a waiver on the part of the Contracting Agency of any of its rights under the contract.

Subsection 109.1 - Measurement of Quantities: Measurement for payment shall be made for the actual work completed as determined by the Engineer. Payment will be made at the bid unit price, which price shall include the cost of all labor, materials, tools, equipment, transportation, permits, and incidentals required for performing the work as specified. Monthly Progress Payments of the agreed to value of the work accomplished shall be made by the Owner.

Measurements of placed materials and/or constructed items will be made after completion of the project to determine compliance with the specifications. Any deficiencies in thickness or width shall be corrected by the contractor before acceptance by the FCDMC.

The cost of all work required under this contract as shown on the plans for which there are no specific items shown on the Bidding Schedule, shall be included in the prices bid for related items.

Subsection 109.2 - Scope of Payment:

In addition to the contained provisions, the work under this section shall consist of preparatory work and operations, including but not limited to, the movement of personnel, equipment, supplies and incidentals to the project site; the establishment of all offices, buildings and other facilities necessary for work on the project, and for all other work operations that must be performed and costs incurred prior to beginning work on the various items on the project site.

The cost of all work required under this contract as shown on the plans for which there are no specific items shown on the Bidding Schedule, shall be included in the prices bid for related items.

Subsection 109.2 - Scope of Payment:

In addition to the contained provisions, the work under this section shall consist of preparatory work and operations, including but not limited to, the movement of personnel, equipment, supplies and incidentals to the project site; the establishment of all offices, buildings and other facilities necessary for work on the project, and for all other work operations that must be performed and costs incurred prior to beginning work on the various items on the project site.

Mobilization will be measured for payment as a lump sum, a single complete unit or work.

Payment for mobilization, measured as provided above, will be made at the contract lump sum price, when so called for in the Bid Schedule, which shall be full compensation for supplying and furnishing all materials, facilities and services and performing all the work required. If payment for mobilization is not a separate bid item, then such costs shall be considered incidental.

Subsection 109.7 - Payment for Bond Issue and Budget Projects: Add the following to MAG.

1. Both progress and final pay estimates will be initially processed by the FCDMC's Construction and Operations Division on Tuesdays only, Tuesdays being the only day the Contractor may submit a pay estimate.

CONSTRUCTION SPECIAL PROVISIONS

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
FCD CONTRACT 90-54
UPPER EAST FORK CAVE CREEK
DRAINAGE CHANNEL

PROPOSED WORK

The work includes, but is not limited to, the furnishing of all materials, labor, equipment, tools, transportation, and services to conduct the following:

- . Demolition and fencing
- . Sanitary Sewer Mainline (City of Phoenix No. S-885665)
- . Excavation grading of channel
- . Culverts and Drop Structures
- . Appurtenant drainage structures and features
- . Utility relocation
- . Temporary detours and signage
- . Street pavement and improvements
- . Maintenance road
- . Rough Grading for Detention Basin #1 (Phase 1 & Phase II)
(City of Phoenix No. ST-89-896811)
- . Protecting in-place designated trees
- . Installing headwall/drop structure on south end of Beardsley Road culvert.

CONCURRENT WORK

The following work will be done by others (City of Phoenix) under a separate, but concurrent contract for the entire project duration:

- | | |
|-----------|--|
| S-903039 | Sanitary Sewer: Upper East Fork Channel from Beardsley Road to C.A.P. Aqueduct |
| P-901793 | Paving: Beardsley Road from 28th Street to 26th Street |
| W-910851 | Waterline: Beardsley Road from 30th Street to 24th Way |
| S-892786 | Reclaimed Waterline: Beardsley Road from 28th Street to Cave Creek Road |
| ST-910976 | Temporary Sewer Bypass: Beardsley Road |

The following work will be done by others (Flood Control District of Maricopa County) under a separate, but concurrent contract for the entire project duration:

- FCD 90-58 Mitigation: Boxed trees are stored and maintained within the project limits adjacent to and north of Union Hills Drive.
Thirty (30) existing trees (blue tagged) are being maintained in place.

The Contractor shall exercise every reasonable effort to coordinate the scheduling and sequencing of his work with the projects listed above.

The Contractor shall be responsible for reviewing the construction documents for the above listed projects. One (1) copy of these documents will be made available at the Flood Control District of Maricopa County for review.

CONSTRUCTION SCHEDULE AND PHASING

The following start/completions deadlines and time constraints will be placed upon the Contractor. Prior to commencement of the work, the Contractor shall prepare and submit to the Engineer for approval, a written schedule covering the sequence of work to be performed. Five copies of the schedule shall be submitted to the Engineer at the Pre-Construction Conference.

After the Notice to Proceed, the Contractor shall schedule weekly progress meetings. The construction schedule will be updated and submitted for approval at the weekly progress meetings.

- PHASE I BASIN - Excavation and grading of the northeast portion of Detention Basin No. 1 as shown on the plans shall be completed within 60 days from the Notice to Proceed date.
- PHASE II BASIN - Excavation and grading of the southwest portion of Detention Basin No. 1 as shown on the plans shall not begin until after January 1, 1992. The sanitary sewer line (City Project S-903039) through this portion of the basin will be completed by others by December 31, 1991.
- FENCING - All permanent fencing and gates for the entire project shall be completed within 90 days from the Notice to Proceed date, with the exception of the Paradise Shadows Mobile Home Park (PSMHP), which shall be completed within 30 days from the Notice to Proceed date. The Contractor may erect and maintain temporary fencing along "B" Street until the box culvert is installed and permanent fencing can be completed.
- PARADISE SHADOWS MOBILE HOME PARK (PSMHP) - All work as shown on the plans within the PSMHP TCE (i.e., "K" Street improvements) shall be completed within 60 days from the Notice to Proceed date. The Contractor shall be allowed only one 3-week closure of "B" Street which includes the 36-inch sanitary sewer crossing, installation of the precast box culvert, and completion of final "B" Street improvements.

GENERAL

1. The Contractor shall attend a meeting with the Engineer and the City of Phoenix 72 hours in advance of relocation work of the Utopia Road water line. The Contractor shall propose his sequence of work for review by the Engineer which outlines a scheduled maximum 2-hour water service shut down to the Desert Tree Farm water service.
2. The Contractor shall exercise care in conducting his construction activities around existing electrical, gas and water facilities in order to not cause interruption of service to the Desert Tree Farm located north of Utopia Road and east of the proposed channel.
3. The Contractor shall notify the Engineer and individual residents 72 hours in advance of work that will affect residents to allow them adequate time to secure or relocate domestic animals and other personal property.

4. At the close of each work day, the Contractor shall secure individual property owner's rear yards that are affected by construction activities with 6' high temporary chain link fencing until permanent fencing is in place.
5. As directed by the Engineer, the Contractor shall pump dry the water accumulation in Basin #1 within 72 hours. The Contractor shall pump this water into the existing channel. The Contractor shall make arrangements with the City of Phoenix to place temporary pump lines into Beardsley Road. Pump lines shall not interfere with traffic.
6. Since this project is located within the limits of the East Fork of the Cave Creek Wash, the Contractor shall construct this project with the knowledge that significant quantities of storm water may enter the site during construction. The Contractor shall be responsible for protecting any existing and new facilities from storm water damage. The Contractor shall maintain an unobstructed channel opening of equal dimensions to the adjacent existing channel affected by construction: (i.e.: in no way shall construction activities reduce the water carrying capacity of the existing channel.)
7. During the entire project duration, the Contractor shall protect-in-place from construction activities thirty (30) existing trees (FCD 90-58) shown on plans and blue tagged in the field and existing trees located within the TCE fill area south of Siesta Lane. Damage done to crowns or roots systems of these trees shall be repaired immediately by a qualified tree surgeon at the Engineer's direction, and at the Contractor's expense.
8. Siesta Lane and Utopia Road shall not be closed to traffic simultaneously.
9. Access for the Contractor, equipment, and delivery of materials shall be through the channel right-of-way and not through any private property frontage.
10. Soil borings and analysis have been performed for design purposes only and soils reports are available for examination at the Flood Control District of Maricopa County. With prior approval by the Engineer, bidders may make borings, test pits or such other investigations as they deem necessary to determine the character, location and amounts of subsurface materials to be encountered. Before submitting his bid, the Contractor shall make his own determination as to the soil and subsurface conditions and shall complete his work in whatever material and under whatever condition he may encounter without extra cost to the Owner.
11. Construction water shall be obtained through a fire hydrant meter and purchased from the City of Phoenix.
12. No night work shall be permitted on this project without permission of the Engineer.
13. Utilities
 - a. Existing utilities shown on the plans are approximated from the best available information provided by the various owners of the facilities and supplemented by visual surface features.
 - b. Those utilities found to be in conflict with the work have been previously relocated or abandoned in place.

- c. Where abandoned utilities are exposed by the channel slope, the Contractor shall remove and cut and plug the abandoned lines a minimum of 5 feet behind the slope or as directed by the Engineer.

WORK WITHIN THE PARADISE SHADOWS MOBILE HOME PARK (PSMHP) REACH. (SIESTA LANE TO UTOPIA ROAD.

1. Use of precast box culvert sections is required for the "B" Street box culvert. Details for the box are contained within the requirements of Section 507 of the Construction Special Provisions.
2. The Contractor shall restrict all channel related construction activities including ingress and egress of personnel, vehicles, and equipment to the channel right-of-way.
3. The Contractor shall restrict all 'K' Street related construction activities including ingress and egress of personnel, vehicles, and equipment to the channel right-of-way and the TCE.
4. The Contractor shall not utilize the area within the PSMHP reach for overnight parking, maintenance of equipment, or long term storage.
5. The Contractor's employees or subcontractor's shall not utilize PSMHP facilities and shall at all times stay within the right-of-way and TCE as indicated in notes 2 and 3 of this section.
6. The Contractor shall exercise extreme care in providing dust control and in limiting excessive noise. Additional watering may be required at the direction of the Engineer to address complaints of the PSMHP residents.
7. The Contractor shall notify fire, rescue, ambulance, and police in writing 72 hours in advance of 'B' street shutdown and reopening to outline ingress/egress changes to the mobile home park. Copies of these notifications shall be concurrently submitted to the Engineer.
8. With the exception of 'B' street closure, the residents of PSMHP shall have continuous auto access within the mobile home park.
9. During the construction of 'B' street improvements, the Contractor shall construct and maintain in good order a temporary walkway (approximate location shown on Sheet C-3) for PSMHP residents. Actual construction of this walk and tie-in with permanent fencing shall be coordinated by the Contractor and approved by the Engineer. The installation and backfill of the portion of 36" sanitary sewer underneath the location of the walkway must be completed before the temporary walkway is constructed.
10. After 'K' Street and 'B' Street improvements are completed, the Contractor shall dress and fine grade the completed work for inspection and acceptance by the Engineer. After improvements are accepted, the Contractor will not have use of these areas.
11. The Contractor shall coordinate its works to maintain uninterrupted water and sewer service to the mobile homes during "K" Street improvements.

12. At the close of each work day, the Contractor shall erect temporary fencing along Siesta Lane and Utopia Road to secure these ends of the channel against unauthorized pedestrian and vehicle access to the mobile home park until permanent fencing and gates are in place.
13. Construction debris will not be allowed to accumulate and will be removed as directed by the Engineer.

WORK RELATING TO SANITARY SEWER MAINLINE
(CITY OF PHOENIX NO. S-885665)

1. The work schedule shall show construction starting at the downstream end of the project and progressing upstream. All downstream mainline sanitary sewer pipe installed by the Contractor shall be accepted for service prior to permitting any sewage from entering the pipe. Continuous sewer service shall be maintained at all times. Payment for maintaining continuous sewer service shall be incidental to the cost of the pipe.
2. The existing sanitary sewer mainline from Bell Road to Union Hills Drive is in service. A second separate contract will be awarded by the City for the continuation of this sewer from Beardsley Road to the CAP Aqueduct on project number S-903039.
3. The contractor shall verify horizontal and vertical coordinates with the other contractors for the connection points on this project. Work shall proceed in a manner as required by MAG section 105.7 The contractor is responsible for verifying pipe material type, manufacturer, horizontal location, vertical location, and schedule for the new pipe installed by others. If the contractor elects to use a different pipe manufacturer, or material type, a pre-fabricated transition piece will be required. Shop drawings for the transition piece shall be submitted for approval by the Engineer. There shall be no additional payment for the pre-fabricated transition.

Section 201 - Clearing and Grubbing

Clearing and grubbing shall conform to Section 201 of MAG.

Materials to be removed include trees, shrubs, cacti, and all other obstructions within the right-of-way or designated limits of demolition (approximately 22 acres) not tagged for preservation or salvage.

Materials to be preserved include trees, shrubs, vegetation, and other existing materials tagged in the field or noted on the drawings.

Payment for Clearing and Grubbing shall be at the Lump Sum price for BID ITEM 201.

Section 206 - Structure Excavation and Backfill

Structure Excavation and Backfill shall conform to Section 206 of MAG. Any surplus material shall be handled in accordance with Section 205.6 of MAG.

In accordance with MAG Section 206.5, no separate payment will be made for Structure Excavation and Backfill.

Section 211 - Fill Construction

The work under this section consists of filling areas shown on the plans; the major areas are listed below:

1. Existing channel located within the temporary construction easement at the north end of the "Tree Farm".
2. Existing channel within the temporary construction easement south of Siesta Lane. Extreme care shall be exercised to protect-in-place existing trees within this easement.
3. Portion of existing channel south of Union Hills Drive. Where existing boulders along the existing channel bank will be under new fill material, the Contractor shall remove and dispose of existing boulders down to a depth of 3-feet below finished grade.

Placement, compaction and testing shall be in accordance with Section 211 of MAG to the lines and grades as indicated on the plans.

Measurement for payment shall be based on the average-end area method of calculation. The Engineer shall provide the Contractor with cross sections at 100 foot intervals for the existing "before" condition prior to commencement of work, and the Contractor shall survey the "after" condition at no more than 100 foot intervals and submit survey field notes and calculations sealed by an Arizona Registered Engineer or Land Surveyor. No extra payment shall be made in cases where the Contractor's work exceeds the neat lines and grades shown in the drawings, except where approved in writing by the Engineer.

Excavation of borrow for Compacted Fill, including removal of existing boulders, is included in the BID ITEMS of Section 215 herein.

Payment for Compacted Fill shall be at the price per cubic yard for BID ITEM 211.

Section 215 - Earthwork for Open Channels

Channel and Basin No. 1 excavation shall conform to Section 215 of MAG.

Surplus excavated material shall be treated as follows:

Basin #1- The Contractor shall be required to remove surplus excavated material from this excavation site and place it in mandatory fill sites as follows:
45,000 CY to Deer Valley Park
92,000 CY to Buffalo Ridge Park
137,000 CY TOTAL

Sketches SK-1, SK-2 and SK-3 show the location of Basin #1 (excavation site) and Deer Valley Park and Buffalo Ridge Park (Stock pile sites). The Contractor shall make running dumps in the fill sites as directed by the Engineer. Compaction will not be required. Slope at the edges of the fill shall not exceed 4 horizontal to 1 vertical.

Measurement for payment shall be in accordance with the requirements of Section 211 herein.

Section 310 - Untreated Base

Untreated Base shall conform to Section 310 of MAG. Aggregate base shall comply with MAG Subsection 702.2.

The Contractor will be required to furnish the Engineer certified weight tickets covering all of the Aggregate Base placed on the project. Final pay quantities will be based upon the scale tickets accepted by the Engineer.

Payment for Untreated Aggregate Base shall be at the price per ton for BID ITEM 310.

Section 321 - Asphalt Concrete Pavement

Asphalt Concrete Pavement shall conform to Section 321 of MAG.

Asphalt Concrete for base, surface and leveling courses shall be Type C-3/4 in conformance with Section 710 of MAG and the City of Phoenix Supplement to MAG. Pavement thicknesses shall be as shown on the plans.

Viscosity Grade of Asphalt: AC-40
Liquid Asphalt Material: AC-40
Grade of Emulsified Asphalt: ss-1h

A leveling course (MAG Type C-3/4), shall be required at the discretion of the Engineer.

The Contractor shall furnish certified weight tickets covering all plant-mixed asphalt concrete placed on the project.

Payment for Asphaltic Concrete Pavement, including tack coat, shall be made at the price per ton for BID ITEM 321-1. See Section 507 F and G for BID ITEM 321-2.

Section 329 - Tack Coat

Tack Coat Composition: ss-1h per MAG Sec 713 diluted 50% water to 50% emulsion
Tack Coat Application Rate: 0.05-0.10 gal diluted per square yard

No separate payment will be made for this Item. Payment is incidental to BID ITEM 321.

Section 336 - Pavement Matching and Surface Replacement

Pavement Cuts: Sawcut only
Pavement Replacement Type: Type A MAG Std Detail 200 for parallel trenching.
Type B T-Top MAG Std Detail 200 for transverse.
Seal Coat Required: None

No separate payment will be made for this item. Payment is incidental to BID ITEM 321.

Section 340 - Concrete Curb, Gutter, Sidewalk, Driveways and Alley Entrances

Compacted Subgrade Thickness: 6 inches
Concrete Materials: Type B (2500 psi f'c) concrete, Type II Portland cement. The new sidewalk along K Street shall match the existing 3'-0" ribbon curb.

Payment shall be at the unit prices complete-in-place including all materials for BID ITEMS 340-1, 340-2, and 340-3. Subgrade preparation is incidental.

Section 345 - Adjusting Frames, Covers, Valve Boxes, & Water Meter Boxes

Frames & Covers: MAG Detail 422
Valve Boxes: MAG Section 345

Payment shall be at the unit price per each for BID ITEMS 345-1 and 345-2.

Section 350 - Removal of Existing Improvements

Items to be Removed: Concrete, structures, fencing, removal of abandoned utilities in conflict with construction, and all other obstructions not tagged for preservation or salvage.
Items to be Preserved: Items to be preserved will be tagged in the field or shown on the drawings.

Payment for Remove Existing Improvements shall be at the lump sum price for BID ITEM 350-1 and for Remove Existing Curb and Gutter at the price per lineal foot for BID ITEM 350-2.

Section 401- Traffic Control

Devices Required to Channelize Traffic include traffic cones, reflective striping, and raised pavement markers during construction as well as permanent signage (including signs on "K" Street).

- A. Major Streets: Union Hills Drive and Beardsley Road.
- B. All traffic and/or traffic control devices on this project shall be provided, maintained and/or controlled as specified in the City of Phoenix TRAFFIC BARRICADE MANUAL, latest revision.
- C. Permission to restrict City streets, sidewalks, and alleys (street closure permits) shall be requested as specified in Section III of the TRAFFIC BARRICADE MANUAL.
- D. Unless otherwise provided for in the following "SPECIAL TRAFFIC REGULATIONS", all traffic on this project shall be regulated as specified in Section IV of the TRAFFIC BARRICADE MANUAL.

SPECIAL TRAFFIC REGULATIONS

Union Hills Drive and Beardsley Road

A minimum of two lanes (one each way) shall be maintained on paved surfaces, on each of the above-mentioned streets, at all times.

Special Residential/Business Access Requirement

The contractor shall maintain access to all businesses and residents at all times, notify affected property owners of any restriction that will affect access 48 hours in advance and restore access as soon as possible. When access cannot be maintained, the Contractor shall provide alternate access, to be determined with the affected businesses/residents prior to any restriction.

Payment for Detours including asphaltic concrete, subgrade preparation, permanent signage, and all devices required to channelize traffic shall be at the lump sum price for BID ITEM 401-1 and for Traffic Control - Uniformed Officer at the price per hour for BID ITEM 401-2.

Temporary Concrete Construction Barriers

Concrete Materials:	Precast MAG Class A (3000 psi f'c) concrete
Reinforcing Steel:	Grade 40
Barrier Connections:	Conform to ASTM A325
Construction Requirements:	Fasten sections to temporary barrier together to form a continuous chain. After placement, move each unit longitudinally to remove slack in the joints between the units. Where directed by the Engineer, flare back the ends of the barrier. Do not use units which, in the opinion of the Engineer have been excessively damaged before or after installation with an undamaged unit.

Payment: Per lineal foot for BID ITEM 401-3

Section 405 - Monument

MAG Detail 120-1 Type B Survey Markers shall be used.

Payment for Survey Marker, Type B, MAG 120-1 shall be at the price per each for BID ITEM 405.

Section 415 - Flexible Metal Guardrail

Rail Material:	AASHTO M-180 galvanized steel
Bolting Material:	Galvanized steel
Posts:	Douglas fir, pressure treated
Painting - Metal Surfaces:	One zinc chromate prime coat-two coats white enamel
Painting - Wood Surfaces:	One coat wood primer-two coats finish paint - color as directed by Engineer

Payment for Guardrail and Breakaway Cable terminal assemblies shall be at the price per lineal foot for BID ITEMS 415-1 and 415-2.

Section 420 - Chain Link Fence

Fencing Material Type I: 6-ft. high chain link fence
Fencing Finish: galvanized steel
Post Rail and Bracing Type: Type C high strength steel pipe per MAG Spec 772
Fencing Material Type II: Chain Link - 9 Ga.
Fencing Finish: Galvanized
Post Rail and Bracing Type: Steel, Galvanized

Payment shall be at the prices for BID ITEMS 420-1, 420-2, 420-3, 420-4, 420-5, and 420.6.

Section 505 - Concrete Structures

The work under this section consists of constructing concrete drop structures, concrete head walls and concrete wing walls in accordance with the plans and Section 505 of MAG.

Location and dimensions of structures are as shown in the plans.

Concrete Materials: Type A (3000 psi f'c) concrete
Portland Cement: Type II Portland Cement
Steel Reinforcement: Grade 60
Reinforced Concrete Encasement: MAG Detail 404
Pipe supports: MAG Detail 403
Catch Basin: MAG 535, Type F
Permanent Concrete Barrier: See Plans for Detail

Use of precast box culvert sections in lieu of cast-in-place culverts is required at "B" Street. At all other locations in the plans where box culvert sections are shown, cast-in-place box culvert sections will be required as a basis for bidding. If the successful bidder would prefer to use precast box sections, the Engineer may give consideration to the alternate. However, it shall be the responsibility of the Contractor to submit plans and calculations stamped by a registered Professional Engineer in the State of Arizona indicating the necessary modifications to the original construction plans to accommodate the precast box sections subject to approval by the Engineer. Any efforts to propose or design a precast alternative are at the Contractor's sole risk and expense. If the Engineer does not approve the modified plans, the Contractor shall construct the culverts cast-in-place as indicated on the plans. All precast box culvert sections shall be manufactured according to ASTM Designation C-850 with the exceptions as noted in Specification 507 section of this document.

Payment for BID ITEM 505-1 Concrete Class A, 3000 psi, shall be per cubic yard and includes concrete for drop structures, head walls and wing walls.

Payment for BID ITEM 505-2 Steel Grade 60 shall be per pound and includes reinforcing steel for drop structures, head walls and wing walls, but not wire fabric for drop structures which shall be considered incidental to the drop structures, and not reinforcing steel for the precast or cast-in-place concrete box structures.

Payment for BID ITEM 505-3 Catch Basin, Type F, MAG 535 shall be per each complete-in-place including excavation, backfill, concrete and steel.

Payment for BID ITEM 505-4 Permanent Concrete Barrier shall be per lineal foot including concrete and steel.

Payment for BID ITEMS 505-5 10'x 4' 6-Barrel Box Cast-in-Place and 505-6 10'x 5' 2-Barrel Box Cast-in-Place shall be per lineal foot complete-in-place including concrete, steel, excavation and backfill.

Section 507 Precast Reinforced Concrete Box Sections for Culverts

Precast reinforced concrete box sections are required for "B" Street.

Materials shall conform to the requirements of Section 505 of these Construction Special Provisions.

A. General

On-site precasting of box culverts within the mobile home park area is prohibited.

Precast reinforced concrete box sections shall conform to ASTM designation C-850. Welded wire reinforcing for precast boxes shall be as indicated in Table 1 and Figure 1 of the ASTM Designation C-850.

B. Jointing Materials

Unless otherwise specified on the plans, the contractor shall have the option of making the joints using any of the following materials:

1. Cold Applied, Plastic Asphalt Sewer Compound. This material shall be suitable for jointing precast concrete box sections. It shall consist essentially of natural and/or processed asphalt base, suitable volatile solvents, and inert filler, a portion of which shall be asbestos fiber. The consistency is to be such that the ends of the boxes can be coated with a layer of the compound up to one-half inch thick by means of a trowel. It shall cure to a firm, stiff plastic condition after application. The material shall be of a uniform mixture and any small separation occurring in the container before use must be readily stirred back to form a uniform mix.

This material shall meet the following test requirements:

Asphalt Base, 100-(% Volatiles + % Ash), % by wt	28-45
Volatiles by 212 F Evaporation, 24 hrs, % by wt	10-26
Mineral Matter determined by Ash, % by wt	30-55
Consistency, Cone Penetration, 150 g, 5 sec, 77 F	150-275

2. Cold Applied Preformed Plastic Gaskets. This material shall be suitable for sealing joints of precast concrete box sections. The gasket sealing the joint shall be produced from blends of refined hydrocarbon resins and plasticizing compounds reinforced with inert mineral filler and shall contain no solvents, irritating fumes, or obnoxious odors. The gasket joint sealer shall not depend on oxidizing, evaporating, or chemical action for its adhesive or cohesive strength, and shall be supplied in extruded rope-form of suitable cross-section. The size of the plastic gasket joint sealer shall be in accordance with the manufacturer's recommendations and sufficient to obtain a visible squeeze-out. The gasket joint sealer shall be protected by a suitable wrapper so designed that when removed at the proper time, the jointing material will maintain its integrity.

The chemical composition of the gasket joint sealing compound as shipped shall meet the following requirements when tested in accordance with the test methods shown:

COMPOSITION	TEST METHOD	TYPICAL ANALYSIS
Bitumen (Petroleum Plastic content) (% by weight)	ASTM D-4	50 - 70

The gasket joint sealing compound when immersed for 30 days at ambient room temperature separately in 5 percent solution of caustic potash, a mixture of 5 percent hydrochloric acid, a 5 percent solution of sulfuric acid, and a saturated H₂S solution shall show no visible deterioration.

The physical properties of the gasket joint sealing compound as shipped shall meet the following requirements:

PROPERTY	TEST METHOD	TYPICAL ANALYSIS	
Specific Gravity @ 77 F	ASTM D-71	1.20 Min	1.35 Max
Ductility @ 77 F (cm) Min	ASTM D-113	5.0 Min	
Softening Point	ASTM D-36	275 F Min	
Penetration			
32 F (300g) 60 sec.	ASTM D-217	75 Min	
77 F (150g) 5 sec.		50 Min	120 Max
115 F (150g) 5 sec.			150 Max
Flashpoint C.O.C. F	ASTM D-92	600 F	
Fire Point C.O.C. F	ASTM D-92	625 F	

C. Box Handling

All box sections and fittings shall be furnished with lifting holes (four per box section). The lifting device should be located as near to the wall as practical, and not in the central portion of the top slab.

D. Repairs

Box sections may be repaired, if necessary as a result of imperfections in manufacture or handling damage, and will be acceptable if, in the opinion of the Engineer, the repairs are sound, properly finished and cured, and the repaired box section conforms to the requirements of the ASTM C-850 specifications.

E. Installation

Precast reinforced concrete box installation shall conform to MAG Section 601, with the following modifications:

1. Subgrade Preparation - Prior to placement of the bedding course, the subgrade shall be compacted to 95% of maximum density, as determined by ASTM D-698.
2. Bedding - A bedding course shall be used to provide uniform support for the full length and width of each section. The bedding course shall consist of at least 2 inches of compacted ABC or pea gravel.
3. Attachment to Cast-in-place Headwalls and Cut-off Walls - The box end sections shall be positively anchored to the cast-in-place headwalls and cut-off walls per Figure 2 in this Specification.
4. Backfill - The slurry shall consist of ABC, with one sack of cement per cubic yard of ABC.

F. Wearing Surface

A minimum of two (2) inch asphalt concrete type C-3/4 wearing surface shall be applied on top of Asphalt Rubber Stress Absorbing Membrane (ARSAM) which shall be applied on top of the completed box culvert. The ARSAM shall extend 10' from each side of the culvert under the full width of "B" Street. ARSAM shall conform to Section 410 of the ADOT Standard Specifications for Road and Bridge Construction.

G. Measurement and Payment

Payment for BID ITEM 507 10'x10' 5 Barrel Box Precast shall be per lump sum complete-in-place including concrete, steel, excavation and backfill.

Payment for BID ITEM 321-2, Asphaltic Rubber Stress Absorbing Membrane shall be per square foot complete-in-place ready to accept AC wearing surface.

Section 520 - Steel Handrails

Location: Railing on headwalls and wingwalls on culverts
Height: See plans
Number of Bars: See plans
Materials: 2-inch galvanized steel schedule 40 pipe
Paint: 1 coat primer
2 coats beige water based enamel

Payment: Per lineal foot for BID ITEM 520.

Section 601 - Trench Excavation, Backfilling and Compaction

Pavement Cuts: Sawcut only
Trench Backfill Type: MAG Table 601-1 Type 1
Maximum Backfill Lift: 4 foot maximum
Water Consolidation: Use Jetting only

No separate payment will be made for this item. Payment is incidental to pipe material cost.

Section 610 - Water Line Construction

A. Ductile Iron Water Pipe and Fittings

Location: Utopia Road and Siesta Lane
Diameter: 6-inch
Class: Class 50 Ductile iron pipe
Minimum Wall Thickness: 0.25 inch
Coating: Polyethylene wrap
Polywrap Diameter: 20-inch Tube
Lining: 0.125-inch cement mortar
Joints: Push-on (Joint restraint, Megalug or equal)
Corrosion Protection: Polyethylene wrap or letter from DIPRA
Tie Bars: 2 @ 0.875-inch diameter

Location:	Union Hills Drive
Diameter:	12-inch
Class:	Class 50 Ductile iron pipe
Minimum Wall Thickness:	0.31 inch
Coating:	Polyethylene wrap
Polywrap Diameter:	30-inch Tube
Lining:	0.125-inch cement mortar
Joints:	Push-on (Joint restraint, Megalug or equal)
Corrosion Protection:	Polyethylene wrap or letter from DIPRA
Tie Bars:	2 @ 0.875-inch diameter

Payment for ductile iron water pipe shall be at the price per lineal foot complete-in-place including trenching, bedding, backfilling, fittings, taps, temporary and permanent joint restraint, temporary support of existing lines, City of Phoenix charges for shutdowns/wet taps, and disinfecting for BID ITEMS 610-1 6-inch, and 610-2 12-inch.

B. Asbestos Cement Water Pipe and Fittings

Location:	K Street waterline
Diameter:	6-inch
Class:	150
Pipe Type:	I

Payment for 6-inch Buried Water Pipe and Fittings, Asbestos Cement Pipe shall be at the price per lineal foot complete-in-place including trenching, bedding, backfilling, fittings, taps, temporary and permanent joint restraint, temporary support of existing lines, City of Phoenix charges for shutdowns/wet taps, and disinfecting for BID ITEM 610-3.

Payment for the Fire Hydrant Installation at Utopia shall be at the price per each for BID ITEM 610-4. Two "non-standard" fire hydrant relocations required for this job will not be paid separately, and shall be considered incidental to the water line. The Contractor shall apply for all required City of Phoenix permits for shutdowns and wet taps.

Section 615a - Sewer Line Construction for City of Phoenix Job No. S-885665

The following applies to the City of Phoenix Sewer Line Plans included with this project City of Phoenix Job No. S-885665, which is covered by BID ITEMS 615-1 and 625-1 through 625-4.

1. Pipe Material and Type

All 36-inch pipe shall be P.V.C. lined reinforced concrete rubber gasket pipe or extra strength VCP conforming to MAG Sections 735, 743 and the following attached Table 1.

2. Lining

Lining of the pipe shall cover 360 degrees of the inside of the R.C.P. pipe. Lining material and placement shall conform to MAG Section 741 and City of Phoenix Supplement 741.2.2.

3. Rubber Gaskets

Rubber gaskets for concrete pipe shall conform to MAG Section 765.

4. Mortaring Joints

The interior portion of all concrete pipe joints shall be mortared prior to welding the joints of the lining. Mortar shall conform to MAG Section 736.3.1

5. Pipe Bedding and Trench Backfill

Where no type of backfill is shown on the plans, backfill shall be in accordance with Section 601.4.3. — *Backfill spec*
Bedding spec

The cost of the pipe bedding and trench backfill shall be included in the cost of the pipe.

6. Measurement and Payment

The cost of all bedding and trench backfill necessary fittings, and field closures shall be included in the price bid per linear foot of pipe.

7. Special Pipe Requirements

The first pipe section downstream of the special angle manhole number 3 structure shall have spigots on each end. No field closures will be allowed.

8. The Contractor shall furnish the Engineer with two (2) additional copies of the shop drawings in addition to the number required in Subsection 105.2 of the City of Phoenix Supplement, latest revision.

The shop drawings include pipe layout diagrams, manufacturer's catalog data and detailed information in sufficient detail to show complete compliance with all specified requirements. This shall include, but not limited to, the following items:

- A. Fabricated Pipe and Design Data, Including Rubber Gaskets and Bell Rings
- B. Pipe Liner
- C. Pre-Cast Manhole Shaft, Corbel and Adjusting Rings
- D. Reinforcing Steel
- E. Castings
- F. Field Closures
- G. Concrete Mix Designs
- H. P.V.C. Structure Lining
- I. Caulking Materials
- J. Coating Materials
- K. Reference Markers
- L. Details for ALL Concrete Structures
- M. Detailed Sequence of Construction, Construction Schedule

9. Submittals

Prior to fabrication of pipe, the Contractor shall obtain and submit to the Engineer, manufacturer's drawings and pertinent data as required above.

Data submitted shall include layout drawings and schedules, with references to the stationing and grades shown on the plans. The schedules will show D-loads and the point of change from one D-Load to the next shall be clearly indicated by the station number. Invert elevations of the pipeline shall be shown on the layout drawings.

Drawings showing full details of reinforcement, concrete, lining, and joint dimensions for the straight pipe, specials and connections, shall be furnished.

10. Drawings

Drawings of a minor nature or incidental fabricated material and/or equipment may not be required by the Engineer. The Contractor shall furnish the Engineer tabulated lists of such fabrications, showing the names of the manufacturers and catalog numbers, together with samples or general data as may be required to permit determination by the Engineer as to their acceptability for incorporation in the work.

11. Review

The Contractor, at his own expense, shall make such changes in the above drawings as may be necessary to conform to the plans and specifications. Prior to return of such drawings, marked "Furnish as Submitted" or "Furnish as Noted", any work which the Contractor may do on the fabrications covered by the same shall be at his own risk, as the City will not be responsible for any expense or delays incurred by the Contractor for changes to make the same conform to the drawings as finally reviewed.

One copy of submitted drawings will be returned to the Contractor marked, "Furnish as Submitted", or "Furnish as Noted". If the submittal is marked "Review and Resubmit" or "Rejected", a new submittal shall be made in the same manner as the original submittal.

When submitted for the Engineer's review, shop drawings, line layouts, etc., shall bear the Contractor's certification that he has reviewed, checked and approved the shop drawings, etc., and that they are in conformance with the requirements of the Contract Documents. The Engineer will not review any submittals which do not have the Contractor's certification.

After the review has been completed, the above drawings, lists, samples, design calculations, and other data, shall become a part of the Contract Documents and the fabrications furnished shall conform to the submittal.

Review of material and layout drawings consists of review for general conformity to plans and specifications and in no way relieves the Contractor or the supplier responsibility for the corrections of the drawings.

Deviations or changes from plans or specifications must be called out as such and will require review by the Engineer for approval or rejection.

Construction of this project shall not begin until the shop drawings and line layouts have been reviewed and approved by the Engineer.

12. Off-Site Inspection

The Contractor shall be responsible for all expenses, including but not limited to travel and per diem expenses, for required inspections by the Engineer and/or the cost of inspection and testing by an independent testing laboratory as required by and at the discretion of the Engineer for any inspection of any pipe manufactured outside of a fifty-mile radius from the City limits of Phoenix, Arizona.

Corrections required on the shop drawings will not constitute valid reasons for delay in the project schedule. The existing contract time provides for 4 weeks for shop drawing preparation and review.

13. Leakage Test for Sanitary Sewer Pipe

All costs for testing shall be incidental to the project.

VCP sewer pipe shall be subjected to a leakage test per MAG section 615 and the COP supplements.

No leakage test will be required of the Contractor on the R.C.P. sewer pipe. The liner plate shall be visually inspected and the liner plate and welds shall be tested in accordance with Section 741.2.5 of MAG.

The Contractor will be required to use a feeler gauge (supplied by the pipe manufacturer) on each pipe joint to ensure that the rubber gasket has not been damaged or unseated. All damaged rubber gaskets shall be removed and replaced with new rubber gaskets. The Engineer will check the joints with the same feeler gauge used by the Contractor prior to the joints being mortared at his discretion. Any necessary repairs or corrections shall be made by the Contractor at no additional cost to the City.

Exception - A water leakage test done in accordance with MAG Section 615.10 will be required on each pipe joint connecting to a structure using a bell ring.

14. Pipe Bulkheads

At the close of each day's work and at other such times when pipe is not being laid, the end of the pipe shall be closed with a temporary stopper in accordance with MAG Subsection 615.3 Temporary stoppers shall be incidental to the project.

15. Survey Monuments

Any monument disturbed by the construction shall be replaced in conformance to MAG Section 405. Where monuments are called for on the plans to be removed and replaced, the payment will be made for the item each as called for in the proposal. There will be no direct payment for the replacement of monuments not specifically called for on the plans, the cost of this work shall be included in the price for sewer pipe.

16. Permanent Pipe Supports

Pipe supports shall be installed when called for on the plans or as determined by the Engineer. No separate payment shall be made and the item shall be considered incidental to BID ITEM 615-1.

17. Alternate to Permanent Pipe Supports

METHOD "A"

In lieu of placing permanent pipe supports, the Contractor may install a temporary pipe during trenching operations in place of the existing sewer pipe crossing, install the mainline pipe including backfill up to the crossing pipe and replace the temporary pipe with a new pipe installation matching the existing pipe material. Flexible couplings shall be used to connect the new pipe to the existing pipe at the trench wall interface at both ends. No separate payment shall be made and the item shall be considered incidental to BID ITEM 615-1.

METHOD "B"

Where sanitary sewer lines (vitrified clay pipe 12 inches or smaller) cross the mainline construction, the Contractor has the option of permanently supporting the sanitary sewer line per MAG Detail 403, or replacing it with ductile iron pipe, class 50, and fittings. Replacement sections shall extend five feet beyond trench walls.

Interior coating of the ductile iron pipe shall be either Type 1 or Type 2, as listed below:

Lining Type No. 1

Catalyzed coal tar epoxy applied centrifugally to all barrel surfaces which will be exposed to sewer liquids and/or gasses. The lining compound shall be applied to obtain a uniform and smooth integral surface of two or more coats. The first coat shall be 16 mils minimum dry film thickness. The finish coat(s) shall be applied to yield a total minimum dry film thickness of 40 mils for the complete lining system. All joint surfaces exposed to sewer liquids and/or gases shall be given a prime and finish coat resulting in a 30 mils minimum dry film thickness. (Koppers 300M, or equal, coal tar epoxy.)

Lining Type No. 2

Polyethylene lining material complying with ANSI/ASTM D 1248 heat fused to cover the inner surface of pipe or fitting from the plain or beveled end to the ear of the gasket socket. Lining shall be 40 mils nominal thickness through the barrel and taper for a distance of 4 inches to a minimum of 10 mils thickness and hermetically sealed at the ends of pipe and fittings.

18. Protective Fencing

The Contractor shall provide for the safety and welfare of the general public by adequately fencing all sewer trenches that are permitted by the Engineer to remain open when construction is not in progress and wherever else directed.

Fencing shall be securely anchored to approved steel posts located six (6) feet on centers, having a minimum height of six (6) feet and shall consist of wire mesh fabric of sufficient weight and rigidity to adequately span a maximum supporting post separation of six (6) feet.

The fencing, when installed about the periphery of excavations and trenches, shall form an effective barrier against intrusion by the general public into areas of construction. The Contractor, at all times when construction is not in progress, shall be responsible for maintaining the fencing in good repair and upon notification by the Engineer or owner, shall take immediate action to rectify any deficiency. Prior to the start of any excavation or trenching required for the execution of the proposed work, the Contractor shall submit, to the Engineer for approval, detailed plans showing types of materials and methods of fabrication for the protective fencing.

Compensation for the installation and maintenance of Protective Fencing shall be included in the price per lineal foot of sewer pipe bid therefore in the proposal.

Payment for 36" R.G.R.C.P. Sanitary Sewer Pipe complete-in-place per lineal foot for City of Phoenix Job Number S-885665 shall be per BID ITEM 615-1.

Section 615b - Sewer Line Construction (All Other Work Not Included in 615a)

The work under this section shall be in accordance with the plans and Section 615 of MAG. The following applies to sewer line construction paid by BID ITEMS 615-2 through 615-4. All fittings, taps, manhole connections, etc., are incidental.

Location: K Street
Diameter: 8-inch
Material and Class: Extra Strength Vitrified Clay Pipe
Minimum Wall Thickness: 1-inch
Joints: Non mitered
Allowable Infiltration: 1.26 gph/100 ft.
Payment: Per lineal foot for BID ITEM 615-2, complete-in-place

Location: Utopia Road Sewer
Diameter: 8-inch
Material and Class: Class 50 Ductile Iron Pipe
Minimum Wall Thickness: 0.29 inch
Coating: Polyethylene wrap
Polywrap Diameter: 27 inch
Lining: Epoxy
Joints: Push-on
Corrosion Protection: Polyethylene wrap or letter from DIPRA
Allowable Infiltration: 1.57 gph/100 ft.
Payment: Per lineal foot for BID ITEM 615-3, complete-in-place

Location: Siesta Lane, sewer easement crossing channel
Diameter: 10-inch
Material and Class: Class 50 Ductile Iron Pipe
Minimum Wall Thickness: 0.29 inch
Coating: Polyethylene wrap
Polywrap Diameter: 27 inch
Lining: Epoxy
Joints: Push-on
Corrosion Protection: Polyethylene wrap or letter from DIPRA
Allowable Infiltration: 1.57 gph/100 ft.
Payment: Per lineal foot for BID ITEM 615-4, complete-in-place

Section 618 - Storm Drain Construction

Location: Utopia Rd.
Diameter: 18"
Material: Rubber Gasket Reinforced Concrete Pipe
Type: See Plans
Payment: Per BID ITEMS 618-1

Location: Sheets C-2, C-3, and P-9 of Plans
Diameter: 12"
Materials: PVC Storm Sewer Pipe Per Section 745 of MAG.
Joints: Gaskets, Lubricant & Caps and Plugs
Payment: Per lineal foot for BID ITEM 618-2, complete-in-place

Other BID ITEMS included in this section are 618-3 through 618-7, per the unit prices bid, complete-in-place, including cleanouts.

Section 625a- Manhole Construction and Drop Sewer Connections

The following applies to the City of Phoenix Sewer Line Plans included with this project City of Phoenix Job No. S-885665, and covers BID ITEMS 625-1 through 625-4.

1. Manhole Structure

The manhole structures on the R.C.P. and V.C.P. sewer pipe and the special manhole structures shall be constructed as detailed on the plans in conformance with MAG Section 625.

The base for the special degree manhole structures, with bell rings on each side, may be precast. If the Contractor elects to precast the base he will be responsible for designing the necessary lifting devices and method of installation. The concrete shall reach a minimum compressive strength of 3,000 P.S.I. before base is installed in trench.

The top slab for the special structures shall be precast.

The special through manhole bases to be constructed on the new sanitary sewer may be precast using a half pipe length upstream and downstream.

The cut end of the pipe shall be installed in the center of the manhole. The spigot end shall be downstream and the bell end shall be upstream.

The concrete for the base shall develop a minimum compressive strength of 3,000 P.S.I. before being installed in the trench.

If the Contractor elects to precast the manhole base he will be responsible for designing the necessary lifting devices and method of installation.

The sanitary sewer connections to be made to new manholes as shown on plan sheets SS2, SS3, SS4 will be made on the east side of the manhole. The end of the existing sanitary sewer line to be abandoned on the west side of the manhole will be plugged with concrete. The cost for the connections and plugs will be incidental.

2. Manhole Shaft

Manhole shafts, frames and covers shall be constructed as detailed on the plans and meeting the applicable requirements of MAG Details 420 and 422. Material and construction methods shall conform to MAG Section 625.

Manhole frame and covers shall have the interior of the frame and both sides of cover coal tar epoxy coated. The coat tar epoxy shall be Koppers 300 M\$ or equal, applied in two or more coats for a total dry film thickness of 16 mils in accordance with manufacturer's application instructions. Metal surfaces shall be prepared in accordance with Steel Structures Painting Council (SSPC) Specifications SP-10, not more than 12 hours before painting.

3. Pressure Manhole Covers

MAG Detail 523, change the Note (upper right corner) that reads, "For a 30-inch manhole opening...noted on the sheets", to read:

"For a 30-inch manhole opening, use the standard watertight 30-inch manhole frame and cover in accordance with Notes 1 through 12 listed below on this sheet."

4. Aluminum Manhole Covers

The Water and Wastewater Department has the following stated policy, "MAG Standard Detail 425 - 24-inch aluminum manhole frame and cover is not approved by the City of Phoenix."

5. Lining of Manholes

All manhole shafts shall be lined on the inside with P.V.C. liner plate per MAG Section 741. The lining shall extend fully around the interior circumference from the bottom of the manhole shaft up through the cone excluding the adjustment rings. All joints in the lining shall be covered with a weld strip. The lining shall also conform to the details on the plans. All costs for lining shall be included in the cost of the manhole.

6. Reference Marker

Manhole reference markers shall be installed as detailed on the plans. The cost of the reference markers shall be included in the cost of the manhole.

7. Special Structures - General Requirements

The work described in this Section involves the general requirements for furnishing and installing the following special structures.

1. Junction Structure (Station 11+80.00/MH #1
2. Junction Structure (Station 38+49.42/MH #7
3. Junction Structure (Station 54+81.82/MH #12
4. Junction Structure (Station 63+97.09/MH #14

The general requirements as listed below shall apply to each of the above special structures.

7.(a) Site Work

Excavation, Backfill and Compaction

All excavation, backfill and compaction for special structures shall meet the requirements of applicable portions of MAG Section 206, with the following exceptions:

- a. On structures where the existing pipe does not continue through the structure, the top six inches of the subgrade under the base slab shall be compacted to minimum of 95% of maximum density prior to placement of the slab.

b. All backfill around special structures shall be Aggregate Base Course (ABC), conforming to MAG Section 702. Backfill shall be compacted mechanically to 95% of maximum density, in lifts not exceeding twelve (12) inches in depth. Water settling of backfill around structures shall not be permitted. Backfill material compacted shall be within 2% of its optimum moisture content.

c. Site work for special structures shall include any sheeting, shoring, bracing or dewatering required during construction, or for the safety and protection of personnel.

Utility Supports

The site work for each special structure shall include the temporary support or re-location of utilities which are disturbed as a part of the work for the special structure. Work done to protect existing utilities shall be in conformance with applicable MAG Specifications and Details, and shall be done to the satisfaction of the affected utility.

Site Protection

Open excavations, equipment and material stored on-site shall be protected from access by the public at all times, by means of temporary fencing, traffic detours and/or other approved measures.

Cost of site protection shall be included as site work for each of the special structures.

Surface Restoration

The site work for each special structure shall include the restoration of all existing surfaces in kind, including street pavement, curbs and gutters, sidewalks and landscaping.

Restoration of surfaces other than street pavement shall match the existing surface in detail, appearance, and material quality to the greatest extent possible. All costs for surface restorations shall be included in the cost of the structure.

7.(b) Structural Work

Structural concrete for the bottom slabs and walls shall be cast-in-place with Class "AA" reinforced concrete meeting the requirements of MAG Section 725. Structural concrete for the top slabs shall be precast with Class "AA" reinforced concrete meeting the requirements of MAG Section 725. Cement shall be type II, low alkali, or Portland Pozzolan Cement.

Placement, curling and finishing of concrete shall conform to the requirements of MAG Section 505. All concrete surfaces shall receive a Class I finish.

Concrete curing materials shall conform to the requirements of MAG Section 726.

Reinforcing steel shall be deformed intermediate grade 40 billet steel, in accordance with MAG Section 727.

Waterstops shall be P.V.C., dumbbell type, 3/8-inch thickness. Waterstops shall be made continuous with all splicing performed in accordance with the manufacturer's recommendations. Waterstops shall be Graces Servicized/Dura-joint, or equal, and shall be installed in accordance with the details on the Plans.

Locations of waterstops shall be as noted in these Special Provisions and as noted on the plans, for the individual structures affected.

Where new concrete is poured against existing concrete surfaces, the existing surface (including concrete bricks and pipe walls) shall be sandblasted to remove all earth and foreign material. The existing surface shall then be coated with a bonding agent, applied in accordance with manufacturer's recommendations. Bonding agents shall be Epoxy Adhesive Engineering Conpressive No. 1 LPL, Hunts Process HB 100 or 151, or equal.

Bond Breaker for concrete form surfaces shall be white pigmented curing compound, conforming to AASHTO M-148, Type 1 for structures.

Grout used for the repair of imperfect concrete work, filling holes left by form bolts or ties, the filling of voids around items through the concrete and in settling machinery and anchor bolts shall be five star, non-metallic, non-shrink grout such as POR-ROK, Hallenite Manufacturing Company; Burke Stone, Burke Concrete Accessories, Inc.,; or equal.

Caulking, where indicated on the Plans, shall be done with a synthetic rubber sealing compound. The rubber sealing compound shall be a multi-part polyurethane designed to cure at room temperature to a firm, highly resilient rubber. Application shall be in strict accordance with the manufacturer's instructions and by means of a pneumatic caulking tool or other acceptable method.

Filletts shall be furnished and installed in each special structure, in accordance with the general flow lines shown on the Plans. Filletts shall be constructed of Class C concrete. In accordance with MAG Section 725, or Course Brick in Mortar.

Filletts shall be hand shaped and trowel finished to create a smooth, even flow line which is free of obstructions to the flow.

Bell rings shall be cast-in-place in the concrete walls, in accordance with applicable Plan Details.

All welding and inspection of reinforcing steel shall be done in accordance with the requirements of the American Welding Society (AWS), Structural Welding Code - Reinforcing Steel, AWS D 1.4.

7.(c) P.V.C. Liner Plates

Liner plate material shall conform to MAG Section 741 and shall be installed on all interior surfaces where shown on the drawings. MAG Section 741 shall be amended to include the following paragraphs:

741.3 Application to Cast-In-Place Concrete Structures
Special Requirements

741.3.1

Liner plate sheets shall be closely fitted and properly secured to the inner forms. Sheets shall be cut to fit curved and warped surfaces using a minimum number of separate pieces. If liner plate joints are to be type C-3 joints, as described below, the adjacent sheets shall be butted with not more than 1/8-inch opening between the sheets. A welding strip shall be fusion-welded on the back of butt joints to prevent wet concrete from flowing around edges.

Unless otherwise shown on the plans, liner plate shall be returned 4 inches at the surface of contact between the concrete structure and items not of concrete. The same procedure shall be followed at joints where the type of protective lining is changed. At each return, the returned liner plate shall be sealed to the adjacent surface in contact with the plastic lined concrete, using Amercoat No. 19Y adhesive, or equal. If the joint space is too wide or the joint surfaces too rough to allow satisfactory sealing with this adhesive, the joint space shall be filled with 2 inches of densely caulked lead wool or other approved caulking material.

741.3.2 Joint in Liner Plate for Cast-In-Place
Concrete Structures

Liner plate at joints shall be free of all mortar and other foreign material and shall be clean and dry before joints are made.

Field joints in the liner plate shall be of the following described types, used as prescribed:

Type C-1: The joint shall be made with a separate 4-inch joint strip and two welding strips. The width of the space between adjacent liner plate sheets shall not exceed 2 inches. The 4-inch joint strip shall lap over each liner plate a minimum of 1 inch. It may be used at any transverse or longitudinal joint.

Type C-2: The joint shall be made by lapping sheets not less than 1 inch. One welding strip is required. The upstream sheet shall overlap the one downstream.

Type C-3: The joint consists of one welding strip applied to the face of the liner plate sheets butted together with one welding strip applied on the back of the joint. It will not be permitted if the gap between the sheets exceeds 1/8-inch.

Type C-4: The joint consists of an "L"-shaped P.V.C. strip with a minimum, 2-1/2" width on each leg. This joint shall be used to seal corners.

All welding to be in strict conformance with liner plate manufacturer's specifications.

- 7.(d) Coating Coal tar epoxy shall be Koppers 300M, or equal, applied in two or more coats for a total dry film thickness of 16 mils in accordance with manufacturer's application instructions. Metal surfaces shall be prepared in accordance with Steel Structures Painting Council (SSPC) Specifications SP-10, not more than 12 hours before painting.

7.(e) Precast Manhole Shafts

Where required to complete the installation of a special structure, furnish and install a 60-inch diameter precast manhole shaft and top sections meeting the applicable requirements of MAG Detail 420 (Type "A"), and the details shown in the Plans. Materials and construction methods shall conform to MAG Section 625.

All Manhole shafts shall be lined on the inside with P.V.C. liner plate per these specifications. The lining shall extend fully around the interior circumference from the bottom of the manhole shaft up through the cone excluding the adjustment rings. All joints in the lining shall be covered with a weld strip. The lining shall also conform to the details on the Plans.

7.(f) Payment

Payment for each of the Special Structures shall be based on Lump Sum price bid for each structure, as noted below:

1. Junction Structure (Station 11+80.00/MH #1) BID ITEM 625-2
2. Junction Structure (Station 38+49.42/MH #7) BID ITEM 625-1
3. Junction Structure (Station 54+81.82/MH #12) BID ITEM 625-2
4. Junction Structure (Station 63+97.09/MH #14) BID ITEM 625-1

The prices bid for each structure shall include all necessary excavation, backfill, and compaction to install each structure, concrete, reinforcing steel, P.V.C. lining, coatings as specified, bell ring inserts, permanent pavement replacement, fillets and grout, and all other miscellaneous items necessary to complete the work on each structure.

Payment for other Manhole Structures for City of Phoenix Job Number S-885665 shall be per BID ITEMS 625-3 and 625-4.

Section 625b - Manhole Construction and Drop Sewer Connections (for Work Not Included in Section 625a)

The work under this section consists of constructing and placing Manholes, Drop Sewer Connections, and making connections to existing laterals in accordance with the plans and Section 625 of MAG.

Manhole Type: 48" COP Detail P-1430
Drop Sewer Connections Type: MAG Detail 426, Type A

Payment shall be per BID ITEMS 625-5 and 625-6, complete-in-place.

Section 630 - Tapping Sleeves, Valves and Valve Boxes on Water Lines

Location: Waterline Relocation
Quantity: See plans
Size: 6-inch and 12-inch
Pressure Class: 150 psi
Materials: Standard
End Style: Match adjacent pipe
Valve Position: Horizontal flow (buried valve)
Valve Operation: 2" AWWA nut manually opening to left

Payment: Per BID ITEMS 630-1, 630-2, 630-3, and 630-4

Section 702 - Decomposed Granite

Location: Maintenance Road on West Channel Bank
Material: Decomposed Granite
PI of material: Not Less than 3 not Greater than 10
Sieve Test: Not more than 20% shall pass the No. 200 Sieve

Payment: Per BID ITEM 702
Subgrade preparation is incidental

Section 801 - Pumping Basin No. 1

The work under this section consists of pumping dry the water accumulation in Basin #1. The Contractor will be paid per hour of pumping. A pumping rate of 6400 gallons per minute (gpm) is estimated for an assumed period of time of 144 hours. A pumping rate different than 6400 gpm and less than 144 hours will be prorated accordingly.

Payment shall be per BID ITEM 801.

Section 802 - Empty PVC Conduit

The work under this section consists of providing empty 4" schedule 40 PVC conduit; 24" below finished grade at "K" Street and 24" below bottom of new box culvert at Union Hills Drive. See plans for exact locations. Conduits shall have pull wires and each end capped with screwed fittings.

Payment shall be per BID ITEM 802, complete-in-place.

ELECTRICAL SPECIFICATIONS

SECTION 803-ELECTRICAL

The work under this section shall include all electrical work on the load side of the A.P.S. Transformer as shown on Sheets E-1 and E-2 of the plans, and as described below:

100 A 120/240V 1Ø 3W Lighting Control Cabinet for Area Lighting including all circuit breakers, switches, time clocks and lighting contractors necessary to complete the job in a workmanlike manner.

Complete branch circuit wiring system for lighting;

Culvert lighting fixtures;

Poles, pole bases, pole-mounted light fixtures;

Trenching and backfilling for underground electrical system.

All other electrical equipment and services needed to complete a usable and operable facility in accordance with all pertinent codes and regulations;

1. QUALITY ASSURANCE

For the actual fabrication, installation, and testing of the work of this Section, use only thoroughly trained and experienced personnel who are completely familiar with the requirements of this work and with the installation recommendations of the manufacturers of the specified items.

2. CODES, ORDINANCES, AND CERTIFICATES

Install all work in accordance with the National Electrical Code and its latest revisions, with any Maricopa County or Arizona Codes, and with all pertinent requirements and standard specifications of the local power company.

All work included shall comply with all State and Local rules and regulations. Finish to the Owner all certificates of inspection and approval as required.

3. CONCRETE, EXCAVATION, FILL AND BACKFILL

Furnish all concrete, excavation, fill and backfill, and steel required for this work unless specifically noted otherwise.

Concrete shall be Class 'A', 3000 p.s.i. and shall be mixed, placed and cured in conformance with M.A.G. Specifications.

Backfill conduit trenches in a manner to prevent disturbance to the pipes or conduits. Fill under and around pipes thoroughly to a point approximately 6" above the top of the pipe and compact.

Compaction of backfill shall be in horizontal lifts not exceeding 6" in thickness. Compact to 85 percent of maximum density at optimum moisture content in accordance with local codes and standards.

4. ELECTRICAL DRAWINGS

The drawings are generally diagrammatic and indicate the manner, method and nature of the installation. The Specifications denote the style and quality of material and workmanship. Where a conflict exists between the Drawings and Specifications, promptly notify the Engineer. The Engineer will make the proper interpretation and his decision will be final.

Any items not mentioned in these specifications or not indicated on the plans but which are necessary for successful and efficient operation of the work shall be held to be implied and shall be furnished and installed as part of the contract.

5. STANDARD OF MATERIAL AND WORKMANSHIP

All materials shall be new and shall conform to UL Standards in every case where such a standard has been established and shall bear the UL label. All work shall be performed in a workmanship manner in accordance with the best accepted standards and shall present a neat mechanical appearance when completed.

Ratings of all electrical equipment shall be in accordance with National Electrical Manufacturers Association.(NEMA).

6. PAINTING

All exposed electrical equipment, conduit, flush panel fronts, transformers, switches, switchboards, panels, panel mounting boards, and similar items shall be painted as specified under the Painting Section of the MAG Specifications.

7. TEMPORARY POWER

Provide temporary power as required by the job. This service shall be maintained throughout the entire job as the work progresses.

8. FINAL INSPECTION AND TESTS

Furnish all meters, cable, connection and apparatus necessary for making tests.

Test system for shorts and grounds. Faulty wiring shall be removed and replaced. Any device, apparatus or fixture installed showing substandard performance shall be removed and replaced as directed by the Inspector or Engineer.

9. SHOP DRAWINGS

All data shall be submitted at one time, bound and indexed in an orderly manner. Prior to starting work, submit to the Engineer for approval, six (6) sets of shop drawings, panels, lighting fixtures, poles, and all other equipment to be fabricated.

10. WIRE AND CABLE

GENERAL: Soft drawn, annealed copper having conductivity of not less than 98% of that pure copper, uniform in cross-section, free from flaws, scale and other imperfections. All interior branch wiring shall be Type "THHN"/"THWN" 600 volt, unless otherwise noted

and a minimum of #12 except for control wiring which shall be stranded and a minimum of #14. All conductors underground shall be "THW."

Wire #8 and larger shall be stranded. Wire #2 and larger or as noted, shall be type "XHHW."

Manufacturers shall be Simplex, General Cable, Okonite, Rome Cable, Anaconda, General Electric and Kaiser.

INSTALLATIONS: Install all wire and cable in conduit.

Make all above ground connections and splices for #10 wire and smaller with Buchanan "B-Cap", 3-M "Scotchlok", or Ideal "Wing Nut" preinsulated wire connector (sizes as recommended by manufacturer). Make connection and splices for #8 conductors and larger with solderless pressure or compression type connectors by O.Z., Burndy, Buchanan, T & B, or Illsco. Tape all splices with plastic so insulation is at least equivalent to insulation of conductor. Thoroughly clean ends before splicing. Where plastic tape is used and there is any danger of insulation damage from pressure of joint against non-current carrying metal parts, use friction tape for additional protection. Vinyl plastic tape shall be Scotch #33 or Plymouth.

Make all underground connections and splices for #10 wire and smaller with crimp type connectors and insulate with Scotchcast insulation kits or approved equal.

All wires in panelboards, gutters, switchboards, wireways and pull boxes shall be neatly arranged with terminations located directly opposite terminals and routed in a neat and workmanlike manner through spaces where the wire passes.

Exercise due care when pulling wire and cable through raceways, to prevent conductors from kinking and injuring insulations.

UL approved pulling compounds may be applied to the conductors to insure ease of pulling. Under no circumstances shall any medium containing water, acid or petroleum base be used.

Leave no less than 6" of wire at each outlet for connection to lighting fixture, switch receptacle, and other pieces of equipment. Where wires feed through an outlet or junction box, neatly tuck a 6" long loop in bottom of box.

Control wiring and all other stranded wiring to screw connections shall be provided with T & B "STA-KON" terminals.

Solid conductors shall loop tightly and completely around terminal screws on all wiring devices.

11. CONDUIT RACEWAYS

Conduit systems shall be rigid galvanized steel, non-metallic fiber or Polyvinylchloride (PVC) plastic as specified herein, or as indicated on the plans. All systems shall be continuous.

Rigid steel conduit shall be heavy walled, hot dipped, galvanized or sherardized. Use rigid steel conduit in concrete slabs on grade, in exposed locations such as tunnels and equipment rooms, where exposed to weather, and where buried in earth. Make all joints with standard couplings or unions; use of running threads is prohibited. Ream conduit ends after cutting use double lock nuts at terminations. Use insulated bushings throughout.

No conduit placed in a concrete slab shall be greater than 3/4" trade size diameter and no conduit smaller than 1/2" shall be installed underground. No conduit shall be imbedded in a slab that is less than 3-1/2" thick except for local offsets. Unless otherwise noted or specified, tops of underground conduit and ducts shall not be less than 18" below grade. Assemble joints together using approved couplings to make watertight joints.

Schedule 40 PVC electrical conduit, UL listed, 2" and smaller may be used for direct burial of underground branch circuits (with bond wire). Furnish and install expansion joints approximately 75 feet on centers for full length of underground runs. All bends shall be manufactured, not field made.

GENERAL: Stubs and risers above grade to panels and cabinets shall be rigid steel conduit and shall be grounded as described under "Grounding."

Where exposed, install conduit parallel to walls and partitions; do not cross window openings.

All conduit bends 45 degrees and larger, and 2 inches and above shall be manufactured bends or field make with hydraulic bender.

Coat Metallic conduit below grade or encased in concrete with two coats of Koppers Bitumastic, or half lap with Scotch Wrap #50, minimum thickness to be 20 mils.

12. CONDUIT FITTINGS

Provide double lockouts and bushings at all rigid conduit terminations except at threaded hubs. Bushings shall be O.Z. type "A" molded bakelite except for 2" conduit and shall be O.Z. type "B" or type "BL" where groundings is required.

13. GUTTERS, PULLBOXES AND JUNCTION BOXES

Boxes shall be fabricated from code gauge steel without knockouts and a minimum 14 gauge front cover. Finish shall be galvanized steel or phosphate undercoating, with 2 finish coats hammer gray or bake enamel.

Junction boxes shown outside flush or surface mounted shall be watertight all welded construction with neoprene gasketed screwed covers NEMA Type 3R.

14. NAMEPLATES

Provide lamicaid nameplates for all distribution switches, breakers, lighting and power panels.

15. FUSES

Shall be high capacity, current limiting, low peak or dual element as indicated. Dual element fuses shall be used for all motor loads. Furnish to the Owner, at each switchboard, 2 sets of spare fuses for each size used below 100 amps and 1 set for each size 100 amps and above.

Approved Manufacturers are: Buss and Gould/Shawmut.

16. ELECTRICAL SERVICE

The electrical service shall be as shown on the plans by Arizona Public Service.

Provide all necessary material and labor required by the serving utility for delivery of power to the service entrance equipment.

17. SERVICE ENTRANCE EQUIPMENT

Service entrance shall be 12 gauge standardized, modular formed steel dead front construction, front accessible.

The enclosure shall be weatherproofed and factory painted gray enamel over primer and rust inhibitor undercoat.

The service entrance shall have space and necessary provisions for metering current transformer and testing as required by the power company and P.U.E.S.R. Standards.

Main and branch feeder over-current devices shall be fusible or circuit breaker type and sized as noted on the drawings.

The switchgear assembly shall be braced for short circuit stress as noted on the drawings.

All distribution equipment shall be of the same manufacturer. Approved manufacturers are: Federal Pacific, General Electric, Square D, Sylvania, Westinghouse, or Myers.

18. GROUNDING

The neutral conductors and all other exposed non-current carrying metal parts as required by Code shall be grounded. Grounding bushings shall be used as required and shall be O.Z. insulated Type "BL", or approved equal. No grounding shall be made to gas piping. Where equipment or devices are served by non-metallic ducts, enclosures shall be grounded by means of a code size bare or green insulated equipment ground wire installed in the duct with the current carrying conductors and be bonded securely in each cabinet terminating the ground wire. Copper jumpers shall bridge flexible conduit and be installed with ground wire. All service grounds shall be in accordance with the "UFER" ground.

All panels containing ground or bonding wires shall be equipped with a ground bus for terminating all such wires.

19. GENERAL

Work covered under this section includes manufacturing, equipping, wiring and assembling of all lighting fixtures. Provide lighting fixtures complete for each and every light outlet in the type, quality and size of fixture indicated on the drawings.

Check the drawings with the fixture schedules for completeness, as numbers on the schedule are for the purpose of indicating the general type, quality and size of fixtures that will be required. The use of catalog numbers for a fixture does not necessarily include all the required accessories that may be demanded for a complete installation.

Provide all light-sources, lamps and other light producing media called for and suitable for specified equipment and functions. Unless otherwise called for, all lamps operating without controlling ballasts or transformers, operate on 120 volts.

The use of a vendor's name and catalog number is for convenience in specifying the quality, style, size finish and performance required and does not intentionally exclude similar equipment available from other manufacturers.

20. INSTALLATION OF LIGHTING FIXTURES

Installation of all lighting fixtures shall be done by qualified and experienced mechanics.

Protect the lighting fixtures from damage during their unloading or removal, storage or installation. Any broken fixtures, glassware, etc., must be replaced with new parts, without any additional expense to the Owner, undue delay or inconvenience.

Upon completion of the installation of the lighting fixtures and lighting equipment, they must be in first-class operating order and in perfect condition as to finish, etc. Check for proper operation and appearance, alignment of fixtures and proper placement of lenses, louvers, lamps and other light-controlling or modifying appurtenances.

Cleaning - Immediately prior to final inspection, damp clean all glassware, fixture trims, reflectors; clean lamps or install new lamps as directed, with glass and fixtures free of labels.

21. POLES

The poles shall be steel in construction, with "Hot-Dipped" galvanized finish per ASTM A-123. Pole shall be capable of with standing a 100 MPH wind with mounting accessories as indicated on the plans.

The pole base shall be as indicated on the plans. Hole shall be augured and compacted against undisturbed earth.

Pole height shall be as indicated on the plans.

PVC conduit elbows shall be installed in the base as needed for conductor entry.

22. HAND-OFF-AUTO SWITCHES

Switches shall be Square D or approved equal.

23. TIME SWITCHES

Time switches shall be Tork with a spring wound backup mechanism.

24. LIGHTING CONTACTORS

Lighting contactors shall be sized to facilitate all the lighting circuits within the pedestal or panel, and shall be Square D, Culter Hammer, Furnas, Allen Bradley or approved equal.

25. PAYMENT

Payment for electrical shall be at the lump sum price for BID ITEM 803.

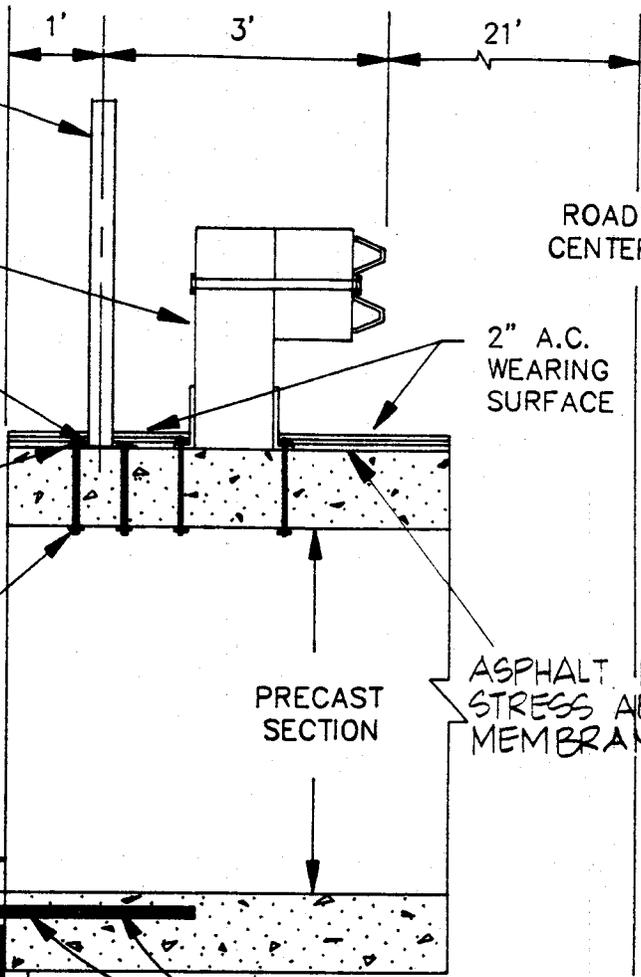
2-3/8" O.D. FENCING
 LINE POST @ 10'-0" O.C.
 SEE SHEET D-3 OF PLANS.

REFER TO ADOT STD.
 DWG. C-10.23 FOR
 GUARDRAIL DETAILS.

1/4"

STEEL PLATE
 1/4x9x9

4- 3/4"Ø THRU BOLTS
 (GA=6"x6") W/NUTS AND
 WASHERS SIMILAR TO ADOT
 INSTALLATION DETAIL ON
 STD. DWG C-10.23



ROADWAY
 CENTERLINE

2" A.C.
 WEARING
 SURFACE

ASPHALT RUBBER
 STRESS ABSORBING
 MEMBRANE.

PRECAST
 SECTION

2" MIN. COVER

1'-0"

6' FOR
 OUTLET
 (4' FOR
 INLET)

9 - #4 BARS
 SPACED AS
 SHOWN (OUTLET
 ONLY).

#4 BENT DOWELS @ 18"

2'-7" 2'-1" *
 1'-6" 1'-6"

#4 BARS @ 18"

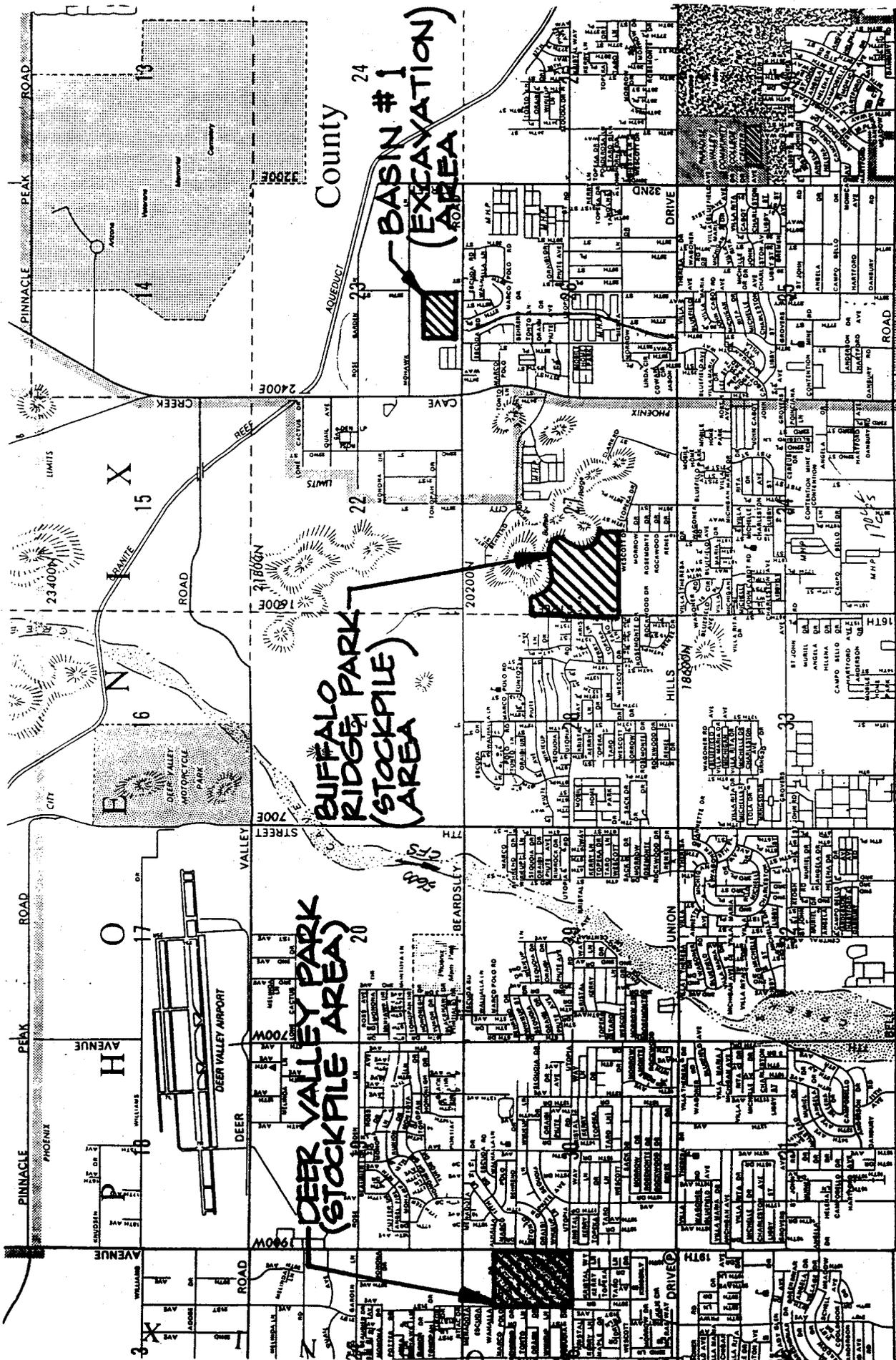
4" MIN. COVER

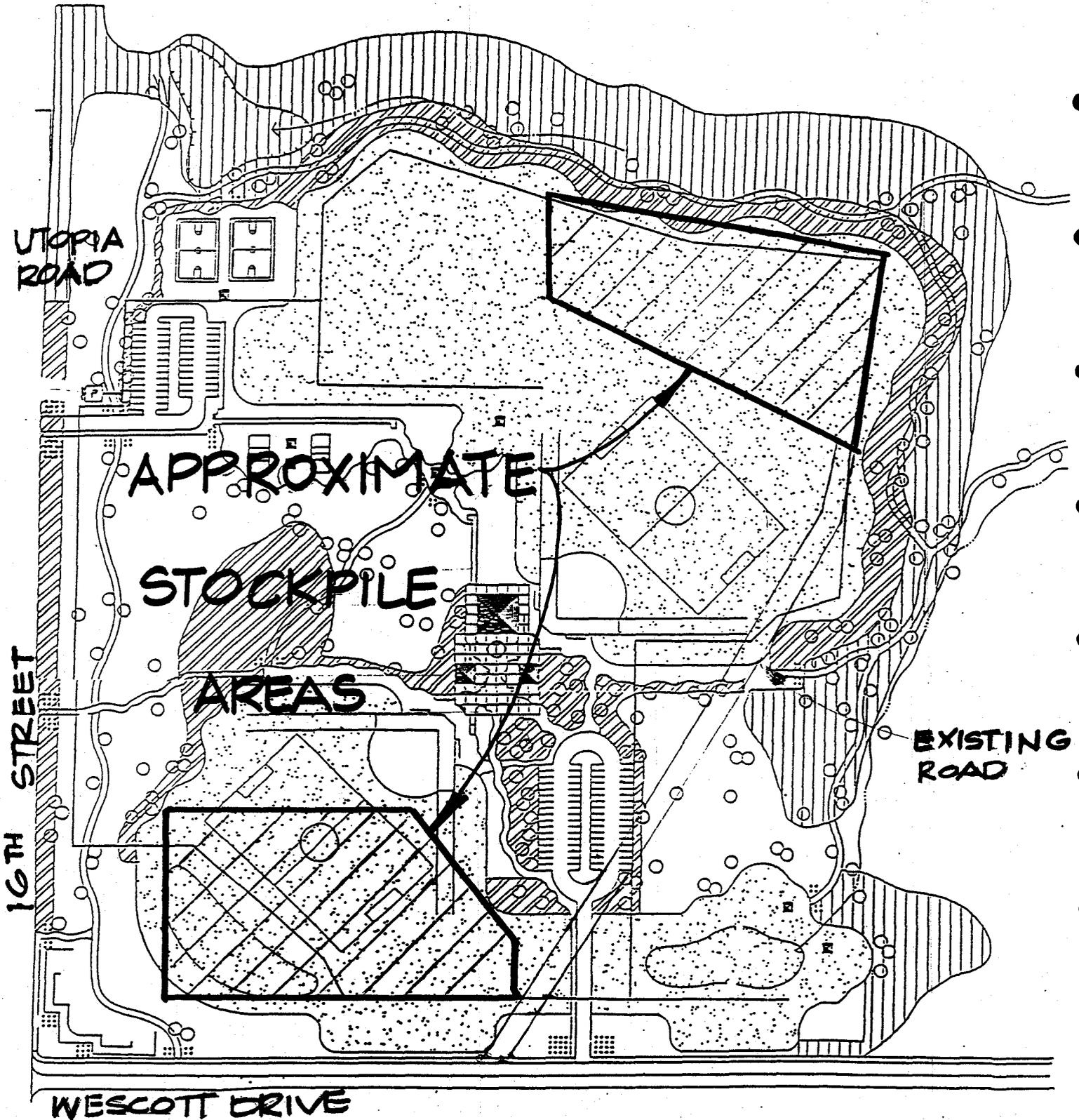
1'-4"

NOTE
 TWO INCH
 MIN. COVER
 OVER ALL
 BARS UNLESS
 NOTED
 OTHERWISE.

ELIMINATE THESE BARS ON INLET SIDE OF CULVERT.

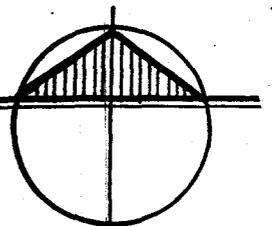
FIGURE 2 - BOX ATTACHMENT DETAIL





Buffalo Ridge Park

 City of Phoenix Parks Recreation & Library Department



SK-2 of 3

WAHALLA DRIVE

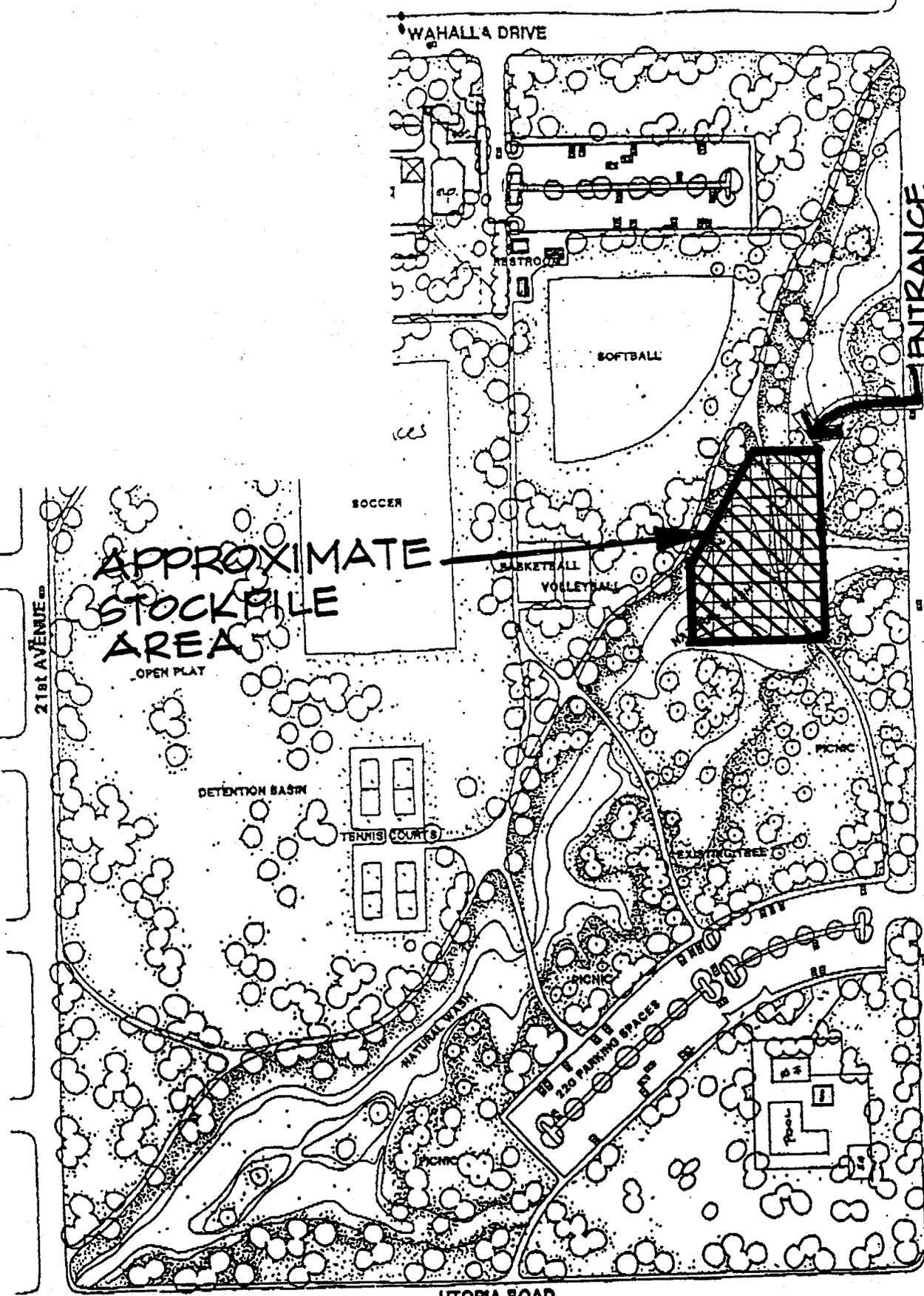
ENTRANCE
To Brewery Road

21st AVENUE

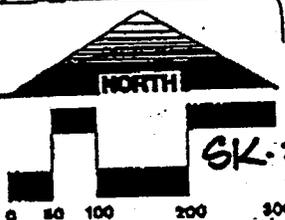
19th AVENUE

UTOPIA ROAD

APPROXIMATE STOCKPILE AREA



DEER VALLEY PARK



GK-3 of 3

