

2

CONSTRUCTION SPECIFICATIONS

for

CONTRACT FCD 99-07
ORANGEWOOD AVENUE STORM DRAIN
PCN 4500333

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

(Engineer's
Seal)



Prepared By:
Wood, Patel & Associates, Inc.
1550 East Missouri, Suite 203
Phoenix, Arizona 85014

for

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

Recommended by: Edward A. Raleigh Date: 6/22/99
Edward A. Raleigh, P.E.
Manager Engineering Division

Issued for Public Bidding by: M.S. Ellegood Date: 4/21/99
Michael S. Ellegood, P.E.
Chief Engineer and General Manager

SUPPLEMENTARY TO MARICOPA ASSOCIATION OF GOVERNMENTS UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION EDITION OF 1998 AND REVISIONS AND SUPPLEMENTS THERETO.

ATTENTION

ALL PROSPECTIVE BIDDERS

A.R.S. Section 34-201 requires that construction bid proposals be accompanied by a certified check, cashiers check or surety bond for **ten percent (10%)** of the total amount of the bid.

All bonds must be executed solely by a surety company or companies holding a Certificate of Authority to transact surety business in Arizona, issued by the Director of the (State) Department of Insurance.

Bonds (bid, payment and performance) executed by an individual surety or sureties are not in compliance with the Arizona Revised Statutes. Bids received containing bid bonds not in compliance with the Arizona Revised Statutes will be considered as being non-responsive. The use of District-supplied bond forms is required.

Please submit your bids accordingly.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

CONTRACT FCD 99-07
PCN 4500333

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(Area to left reserved
for Engineer's Seal)



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

INVITATION FOR BID

BID OPENING DATE: **Thursday, July 29, 1999 @ 2:00 p.m.**
at the Flood Control District, 2801 West Durango Street

PROJECT LOCATION: Oranewood Avenue, 83rd Avenue to Grand Avenue, Glendale, Arizona

PROPOSED WORK: The project consists of installation of storm drain pipe and catch-basins

BIDS:

SEALED BIDS for the proposed work will be received by the Flood Control District of Maricopa County, 2801 West Durango Street, Phoenix, Arizona 85009 until 2:00 p.m. (Phoenix time) on the above date and then publicly opened and read at 2801 West Durango Street, Phoenix, Arizona 85009. All bids are to be marked in accordance with Section 102.9 of the MAG Uniform Standard Specifications and addressed to the Chief Engineer and General Manager, Flood Control District of Maricopa County, 2801 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:

The bidder shall be required to certify that it has the appropriate "A" Contractor's license in the State of Arizona to perform the before-mentioned type of work. Certification 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.

PRE-BID CONFERENCE:

A Pre-Bid conference will be held on Wednesday, July 14, 1999 at 2:00 p.m. in the Flood Control District Conference Room, 2801 West Durango Street, Phoenix, Arizona. All potential contractors and subcontractors are encouraged to attend this pre-bid conference and be prepared at that time to submit in writing and discuss any comments concerning this solicitation.

Questions or items for clarification may be addressed to the Contracts Manager, in writing, no later than 10:00 a.m. on July 21, 1999. Questions received after this deadline may not be accepted. Responses to all questions submitted will be sent to all planholders by addenda. Verbal interpretations, unless specifically addressed by addendum, shall not be binding nor have any legal effect.

CONTRACT TIME:

All work on this Contract is to be completed within two hundred seventy (270) calendar days from the date of Notice to Proceed.

MBE/WBE PARTICIPATION:

It is the policy of the 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, disability, or national origin.

The Maricopa County Minority and Women-Owned Business Enterprise Program, effective January 1, 1992, is incorporated herein by reference.

Two Affidavits are included herein. The first form, the "M/WBE Assurances Affidavit", must be completed and submitted with the bid - **Failure to do so may be cause for rejection of the bid.** If M/WBE goals have been established, the first and second low bidders must complete and return the second form, "Actual M/WBE Participation Affidavit", to the Flood Control District, by 4:00 p.m. on the seventh calendar day after bid opening,

For this contract, a goal of ten percent (10%) MBE/WBE is established for Minority/Women-Owned Business Enterprises. Complete instructions and additional forms are available from the Flood Control District, Contracts Branch, telephone number 506-4433 or 506-4876. Failure to implement "good faith" efforts in accordance with the City of Phoenix-Maricopa County Consolidated Certification Program for DBE/MBE/WBE to the satisfaction of the District may result in rejection of the bid.

PROJECT PLANS, SPECIAL PROVISIONS AND CONTRACT DOCUMENTS:

Plans and Construction Specifications may be obtained from the Flood Control District of Maricopa County, 2801 West Durango Street, Phoenix, Arizona 85009 upon **payment of \$40.00 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 \$8.00 for first class U.S. postage and handling. The total \$48.00 will not be refunded. Regardless of circumstances, we cannot guarantee mail delivery.

Each bid must be accompanied by a Bid Bond executed on the District-supplied bond form, cashier's or certified check or postal money order equal to 10 percent (10%) 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.

PRINCIPLE ITEMS AND APPROXIMATE QUANTITIES

QUANTITY	UNIT	DESCRIPTION
2,512	LF	72" Pipe
5,367	LF	66" Pipe
3,842	LF	60" Pipe
3,082	LF	48" Pipe
4,220	LF	42" Pipe
234	LF	60" Jack Pipe

BID

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

Gentlemen:

The following Bid is made for Orangewood Avenue Storm Drain, FCD 99-07, in the County of Maricopa, State of Arizona.

The following Bid is made on behalf of

and no others. Evidence of authority to submit the bid is herewith furnished. The bid 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 bid, 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, Supplementary General Conditions, Special Provisions, Forms of Contract, Bonds, and Sureties authorized by the Board of Directors and constituting essential parts of the bid, have been carefully examined and also that the work site 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, Supplementary General Conditions, or conditions to be overcome, be pled. On the basis of the Plans, Construction Specifications, Special Provisions, Supplementary General Conditions, 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 ten (10) days of receipt of Notice of Bid 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 **two hundred seventy (270)** 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 bid bond in the amount and character named in the Invitation to Bid, and amounting to not less than ten (10) percent of the total bid, is enclosed. The bid bond is submitted as a guaranty of good faith that the Bidder will enter into a written contract to do the work, as provided, if successful in securing the award thereof. It is therefore agreed that if the Undersigned withdraws its bid at any time except as herein provided, or if the bid is accepted and the Undersigned fails to execute the Contract and furnish satisfactory Bonds and Sureties as herein provided, the Flood Control District of Maricopa County shall be entitled and is hereby given the right to retain the said Bid Bond as liquidated damages.

The Undersigned acknowledges receipt of the following addenda, attached these to the bid package, and has included their provisions in the bid:

Addendum No. _____	Dated _____

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

BIDDING SCHEDULE

Contract FCD 99-07, PCN 4500333
 Orangewood Avenue Storm Drain

ITEM		UNIT	QUANTITY	UNIT PRICE	EXTENDED AMOUNT
105-1	PARTNERING	LS	1.0	15,000.00	
107-1	NPDES/SWPPP PERMITS	LS	1.0		
107-2	PUBLIC INFORMATION AND NOTIFICATION ALLOWANCE	LS	1.0	20,000.00	
107-3	PROJECT SIGNS	LS	1.0	15,000.00	
202-1	MOBILIZATION	LS	1.0		
215-1	EARTHEN CHANNEL EXCAVATION	CY	290.0		
215-2	BASIN EXCAVATION	CY	28,714.0		
220-1	RIPRAP CONSTRUCTION (TYPE I)	CY	113.4		
336-1	PAVEMENT REPLACEMENT (TYPE 'B' T-TOP)	SY	709.3		
336-2	PAVEMENT REPLACEMENT (TYPE 'A')	SY	14,027.6		
340-1	CONCRETE CURB & GUTTER (TYPE 'A')	LF	73.4		
340-2	CONCRETE VALLEY GUTTER	SF	98.0		
340-3	CONCRETE SIDEWALK	SF	357.0		
350-1	REMOVAL OF EXISTING IMPROVEMENTS	LS	1.0		
401-1	TRAFFIC CONTROL	LS	1.0		
401-2	TRAFFIC LOOP DETECTOR REPLACEMENT	EA	3.0		
405-1	SURVEY MARKER (TYPE 'B')	EA	3.0		
505-1	STRUCTURE #1 - JUNCTION STRUCTURE	CY	25.0		
505-2	STRUCTURE #2 - JUNCTION STRUCTURE	CY	32.0		
505-3	STRUCTURE #3 - JUNCTION STRUCTURE	CY	42.0		
505-4	STRUCTURE #4 - OUTLET STRUCTURE	CY	4.0		
505-5	STRUCTURE #5 - OUTLET HEADWALL (ADOT B-11.12)	CY	38.5		
505-6	STRUCTURE #6 - INLET/OUTLET STRUCTURE	CY	77.0		
505-7	STRUCTURE #7 - OUTLET HEADWALL (ADOT B-11.12)	CY	29.3		
505-8	STRUCTURE #8 - OUTLET HEADWALL (ADOT B-12.50)	CY	106.9		

BIDDING SCHEDULE

Contract FCD 99-07, PCN 4500333

Orangewood Avenue Storm Drain

ITEM		UNIT	QUANTITY	UNIT PRICE	EXTENDED AMOUNT
505-9	STRUCTURE #9 - CONFLICT STRUCTURE	CY	33.0		
505-10	CATCH BASIN COP P-1569-1, TYPE 'M-2', L=6'	EA	2.0		
505-11	CATCH BASIN COP P-1569-1, TYPE 'M-1', L=17'	EA	4.0		
505-12	CATCH BASIN COP P-1569-1, TYPE 'M-1', L=10'	EA	6.0		
505-13	CATCH BASIN COP P-1569-1, TYPE 'M-1', L=6'	EA	3.0		
505-14	CATCH BASIN COP P-1569-1, TYPE 'M-1', L=3'	EA	2.0		
505-15	CATCH BASIN COP P-1570, TYPE 'N-SINGLE'	EA	6.0		
505-16	CATCH BASIN COP P-1570, TYPE 'N-DOUBLE'	EA	4.0		
505-17	CATCH BASIN COP P-1570, TYPE 'N-TRIPLE'	EA	5.0		
505-18	CONCRETE ENCASE SANITARY SEWER	EA	7.0		
505-19	CONCRETE CATCH BASIN APRON	CY	14.3		
505-20	CONCRETE LOW FLOW CHANNEL	SF	28,700.0		
520-1	STEEL HAND RAILS	LF	248.0		
601-1	POWER POLE BRACING	EA	1.0		
610-1	WATER LINE REALIGNMENT (12")	EA	1.0		
610-2	WATER LINE REALIGNMENT (6")	EA	2.0		
610-3	WATER LINE REPLACEMENT (12")	EA	4.0		
610-4	WATER LINE REPLACEMENT (8")	EA	2.0		
610-5	WATER LINE REPLACEMENT (6")	EA	3.0		
610-6	WATER LINE REPLACEMENT (4")	EA	1.0		
615-1	SEWER LINE REPLACEMENT (12")	EA	1.0		
615-2	SEWER LINE REPLACEMENT (10")	EA	1.0		
618-1	STORM DRAIN TRUNK LINE PIPE (108")	LF	106.0		
618-2	STORM DRAIN TRUNK LINE PIPE (72")	LF	2,512.2		
618-3	STORM DRAIN TRUNK LINE PIPE (66")	LF	5,367.0		

BIDDING SCHEDULE

Contract FCD 99-07, PCN 4500333

Orangewood Avenue Storm Drain

ITEM		UNIT	QUANTITY	UNIT PRICE	EXTENDED AMOUNT
618-4	STORM DRAIN TRUNK LINE PIPE (60")	LF	3,842.5		
618-5	STORM DRAIN TRUNK LINE PIPE (54")	LF	318.2		
618-6	STORM DRAIN TRUNK LINE PIPE (48")	LF	3,082.6		
618-7	STORM DRAIN TRUNK LINE PIPE (42")	LF	4,220.8		
618-8	STORM DRAIN TRUNK LINE PIPE (36")	LF	92.8		
618-9	STORM DRAIN TRUNK LINE PIPE (30")	LF	56.0		
618-10	STORM DRAIN TRUNK LINE PIPE (27")	LF	60.4		
618-11	STORM DRAIN TRUNK LINE PIPE (24")	LF	51.6		
618-12	CATCH BASIN CONNECTOR PIPE (36")	LF	25.5		
618-13	CATCH BASIN CONNECTOR PIPE (30")	LF	116.9		
618-14	CATCH BASIN CONNECTOR PIPE (24")	LF	181.9		
618-15	CATCH BASIN CONNECTOR PIPE (18")	LF	625.3		
618-16	CATCH BASIN CONNECTOR PIPE (15")	LF	399.7		
618-17	RGRCP IRRIGATION PIPE (24")	LF	96.0		
618-18	REMOVE PIPE PLUG	EA	3.0		
618-19	PIPE PLUG (108")	EA	1.0		
618-20	PIPE PLUG (72")	EA	1.0		
618-21	PIPE PLUG (60")	EA	1.0		
618-22	PIPE PLUG (54")	EA	1.0		
618-23	PIPE PLUG (42")	EA	4.0		
618-24	PIPE PLUG (36")	EA	2.0		
618-25	PIPE PLUG (30")	EA	1.0		
618-26	PIPE PLUG (24")	EA	4.0		
618-27	PIPE PLUG (18")	EA	18.0		
618-28	PIPE PLUG (15")	EA	2.0		

BIDDING SCHEDULE

Contract FCD 99-07, PCN 4500333
 Orangewood Avenue Storm Drain

ITEM		UNIT	QUANTITY	UNIT PRICE	EXTENDED AMOUNT
618-29	PIPE COLLAR (24" OR LARGER)	EA	12.0		
618-30	PIPE COLLAR (21" OR SMALLER)	EA	10.0		
618-31	72" x 72" x 15" PREFABRICATED TEE	EA	6.0		
618-32	66" x 66" x 30" PREFABRICATED TEE	EA	3.0		
618-33	66" x 66" x 18" PREFABRICATED TEE	EA	14.0		
618-34	60" x 60" x 15" PREFABRICATED TEE	EA	1.0		
618-35	54" x 54" x 24" PREFABRICATED TEE	EA	1.0		
618-36	54" x 54" x 18" PREFABRICATED TEE	EA	1.0		
618-37	54" x 54" x 15" PREFABRICATED TEE	EA	1.0		
618-38	48" x 48" x 30" PREFABRICATED TEE	EA	1.0		
618-39	48" x 48" x 18" PREFABRICATED TEE	EA	8.0		
618-40	42" x 42" x 36" PREFABRICATED TEE	EA	1.0		
618-41	42" x 42" x 30" PREFABRICATED TEE	EA	2.0		
618-42	42" x 42" x 24" PREFABRICATED TEE	EA	2.0		
618-43	42" x 42" x 15" PREFABRICATED TEE	EA	2.0		
618-44	36" x 36" x 30" PREFABRICATED TEE	EA	1.0		
618-45	36" x 36" x 15" PREFABRICATED TEE	EA	2.0		
618-46	30" x 30" x 24" PREFABRICATED TEE	EA	2.0		
618-47	60" x 60" x 15" x 15" PREFABRICATED CROSS	EA	1.0		
618-48	60" x 48" PREFABRICATED REDUCER	EA	1.0		
618-49	54" x 48" PREFABRICATED REDUCER	EA	1.0		
618-50	PERMANENT PIPE SUPPORT	EA	28.0		
618-51	72" x 45* BEND	EA	1.0		
618-52	66" x 45* BEND	EA	1.0		
618-53	60" x 45* BEND	EA	2.0		

BIDDING SCHEDULE

Contract FCD 99-07, PCN 4500333

Orangewood Avenue Storm Drain

ITEM		UNIT	QUANTITY	UNIT PRICE	EXTENDED AMOUNT
618-54	60" x 56.2* BEND	EA	1.0		
618-55	48" x 4* BEND	EA	1.0		
618-56	42" x 35.4* BEND	EA	1.0		
618-57	42" x 35* BEND	EA	1.0		
618-58	42" x 45* BEND	EA	1.0		
618-59	60" x 60" x 42" WYE	EA	1.0		
618-60	ACCESS BARRIER ADOT C-1375 (108")	EA	1.0		
618-61	ACCESS BARRIER ADOT C-1375 (66")	EA	1.0		
618-62	ACCESS BARRIER ADOT C-1375 (54")	EA	1.0		
618-63	60" RGRCP JACK PIPE, CLASS V, WALL"C"	LF	234.0		
621-1	STORM DRAIN HYDROSTATIC TEST (CONTINGENCY ITEM)	EA	2.0		
625-1	STORM SEWER MANHOLE MAG 520 AND 522	EA	12.0		
625-2	STORM SEWER MANHOLE MAG 521 AND 522	EA	3.0		
625-3	STORM SEWER MANHOLE COP P-1560	EA	15.0		
630-1	TAPPING SLEEVE & VALVE BOX & COVER (CONTINGENCY ITEM)	EA	4.0		
750-1	DUCTILE IRON PIPE (18")	LF	41.0		
TOTAL BID AMOUNT WRITTEN IN NUMBERS					
TOTAL BID AMOUNT WRITTEN IN WORDS					

IF BY AN INDIVIDUAL:

By: _____ (Printed Name - Title) _____ (Address)

(Signature) _____ (Date) _____ (Telephone Number)

IF BY A FIRM, PARTNERSHIP OR L.L.C. (LIMITED LIABILITY COMPANY)

(Firm Name) _____ (Firm Address)
By: _____ (Signature - Title) _____ (Date) _____ (Telephone Number)

** Name and Address of Each Member, or each Manager of L.L.C. per Operating Agreement

**The name and post office address of each member of the Firm or Partnership must be shown, or of each Manager of an L.L.C., also address of the registered office of the L.L.C.

IF BY A CORPORATION

(Corporate Name) _____ (Corporation Address)

(Printed Name - Title) _____ (Telephone Number)
By: _____ (Signature) _____ (Date)

*Incorporated under the Laws of the State 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 name, title and business address of the President, Secretary, and Treasurer must be shown.

SUBCONTRACTOR LISTING

As required in Section 102.6 of the Supplementary General Conditions, the following is a listing of Subcontractors and material suppliers (including any M/WBE participation) that are to be used in the event the undersigned should enter into contract with the Owner. Although this list will not be considered as final commitment on the part of the successful proposer, any Subcontractor changes from those listed must have Owner's written approval prior to commencement of Subcontractor work on site.

(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 **ten percent (10%)** 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 the Arizona Revised Statutes.

WHEREAS, the said Principal is herewith submitting its proposal for Contract FCD 99-07, Orangewood Avenue Storm Drain.

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 the proposal and give the Bonds and Certificates of Insurance as specified in the Standard Specifications with good and sufficient Surety for the faithful performance of the contract and for the prompt payment of labor and material furnished in the prosecution of the contract, or in the event of the failure of the Principal to enter into the contract and give such Bond and Certificate of Insurance, if the Principal pays to the Flood Control District of Maricopa County the difference not to exceed the penalty of the bond between the amount specified in the proposal and such larger amount for which the Flood Control District of Maricopa County may in good faith contract with another party to perform the work covered by the proposal then this obligation is void. Otherwise it remains in full force and effect, provided, however, that this bond is executed pursuant to the provisions of Section 34-201, Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions of the section to the extent as if it were copied at length herein.

Signed and sealed this ____ day of _____, A.D., 199 ____.

Agency of Record, State of Arizona

Principal

Agency Address and Phone Number:

By: _____
(Printed Name) (Signature)
Title: _____

Surety Name
By: _____
Title: _____

Bond Number: _____

ATTACH SURETY POWER OF ATTORNEY

**AFFIDAVIT BY CONTRACTOR
CERTIFYING THAT THERE WAS NO COLLUSION
IN BIDDING FOR CONTRACT**

STATE OF _____ }
County of _____ }SS

_____ being first duly sworn, deposes and says:

That he/she is _____ of _____ bidding on Contract
FCD 99-07 for the Orangewood Avenue Storm Drain, in the County of Maricopa, State of Arizona.

That, in connection with the above-mentioned project, neither he/she, nor anyone associated with the
aforesaid business, has, directly or indirectly, participated in any collusion, entered into any contract,
combination, conspiracy or other act in restraint of trade or commerce in violation of the provisions of
A.R.S. Section 34-251, Article 4, as amended.

(Signature of Affiant)

Subscribed and sworn to before me this ___ day of _____, 199__

(Notary Public)

My Commission Expires

CERTIFICATION OF LICENSE

Pursuant to A.R.S. Section 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. Section 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 name(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. SECTION 13-2704.

Signature of Licensee

Date: _____

Company: _____

**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
MINORITY/WOMEN-OWNED BUSINESS ENTERPRISE PROGRAM
MBE/WBE ASSURANCES AFFIDAVIT**

NOTE: FAILURE TO COMPLETE AND SUBMIT THIS AFFIDAVIT WITH THE BID PROPOSAL MAY BE CAUSE FOR REJECTION OF THE BID.

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 the Flood Control District to establish that a good faith effort was made.

The first and second low bidders will specify their MBE/WBE participation on the Actual Participation affidavit or provide documentation of their good faith efforts not later than 4:00 p.m., the seventh calendar day following the bid opening. If participation is "None", the documentation shall provide bidder's good faith efforts to obtain the participation. This documentation will be reviewed by the Flood Control District (FCD) to determine whether in fact a comprehensive "good faith" effort has been implemented. The required affidavit shall be obtained by the apparent first and second low bidders from the Flood Control District, 2801 West Durango Street, Phoenix, Arizona 85009, Telephone 506-1501 following the bid opening and verbal notification from the Procurement Officer of the Procurement Agency; a SAMPLE affidavit form for reference purposes follows.

Name of Firm

By: _____
Signature

Title

STATE OF _____)
County of _____) ss

Subscribed and sworn to before me this ___ day of _____, 199__

Notary Public

My Commission Expires: _____

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
MINORITY/WOMEN OWNED BUSINESS ENTERPRISE PROGRAM
ACTUAL MBE/WBE PARTICIPATION AFFIDAVIT
 (NOTE: COMPLETED AFFIDAVIT MUST BE SUBMITTED WITHIN SEVEN CALENDAR DAYS
 FOLLOWING THE BID OPENING).

Name of Contractor _____

Project/Contract Number _____ Total Amount of Contract _____
 Contract M/WBE Goal: _____ %

Contact Person _____

Street No. _____

City _____ State _____ Zip _____

<u>Minority/Women Owned Firm</u>	<u>Principal</u>	<u>Address</u>	<u>Type of Work</u>	<u>Dollar Amount & Contract Percentage</u>
			E	
			L	
			P	
			M	
			A	
			S	

TOTALS (Dollars/Percentage) _____

The undersigned has entered into a formal agreement with the MBE/WBE subconsultants/subcontractors /suppliers listed above, in the execution of this contract with Maricopa County.

Signature _____

Title _____

STATE OF _____ }
)ss

County of _____ }

Subscribed and sworn to before me this _____ day of _____ by _____
 Notary Public

My commission Expires: _____

**MARICOPA COUNTY
MINORITY/WOMEN-OWNED BUSINESS ENTERPRISES PROGRAM**

**D/M/WBE PARTICIPATION REPORT
(To be attached with Each Request for Pay)**

Date: _____

General Contractor/Prime Consultant:

Contact Person: _____

Address: _____

Telephone Number: _____

Fax Number: _____

Project Description: _____

Contract Number: _____

For Pay Period of (indicate dates): _____

D/M/WBE Subcontractor/Subconsultant Name: _____

Contact Person: _____

Address: _____

Telephone Number: _____

Type of Firm: _____

Type of Work performed for this project: _____

Total D/M/WBE Subcontract Amount: \$ _____

**Amount Paid to this D/M/WBE
Subcontractor this invoice:** \$ _____

Total paid to this Subcontractor to date: \$ _____

Total D/M/WBE Contract Goal this project = ____ %

**Total D/M/WBE Participation
on this contract to date =** ____ %

**cc: Flood Control District of Maricopa County
Contracts Office
2801 West Durango Street
Phoenix, Arizona 85009**

CONTRACT AGREEMENT

THIS AGREEMENT, made and entered into this ___ day of _____, 1999 by and between the FLOOD CONTROL DISTRICT OF MARICOPA COUNTY, hereinafter called the Owner, acting by and through its BOARD OF DIRECTORS, and _____, hereinafter called the Contractor.

WITNESSETH: 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 Contract FCD 99-07, Orangewood Avenue Storm Drain, and furnish at its 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, 2801 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, i.e. Invitation to Bid, Plans, Standard Specifications and Details, Supplementary General Conditions, 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 its 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 270 calendar days following notice to proceed.

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 its 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. Section 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. Section 34-221.

ARTICLE V - TERMINATION: The Owner hereby gives notice that pursuant to A.R.S. Section 38-511(A) this contract may be canceled 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 employee or 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: The Owner 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 Owner without being discriminated against on the grounds of race, religion, sex, age, disability, or national origin. The City of Phoenix and Maricopa County Minority, Woman and Disadvantaged Business Enterprise Program is incorporated by reference.

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 disability 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

By _____
(Printed Name) (Signature)

Title: _____

Date: _____

Tax Identification Number

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
PARTY OF THE SECOND PART

RECOMMENDED BY:

Chief Engineer and General Manager Date
Flood Control District of Maricopa County

By: _____
Chairman, Board of Directors Date

ATTEST:

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.

By: _____
District, General Counsel 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 Obligee), in the amount of _____ (\$ _____), 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 the Flood Control District of Maricopa County, dated the _____ day of _____, 1999 for **Contract FCD 99-07, Orangewood Avenue Storm Drain**, 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 Principal promptly pays all monies due to all persons supplying labor or materials to the Principal or the Principal's Subcontractors in the prosecution of the work provided for in the contract, this obligation is void. Otherwise it remains in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of the Title 34, Chapter 2, Article 2, Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions, conditions and limitations of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, to the same extent as if they were copied at length in this agreement.

The prevailing party in a suit on this bond shall recover as a part of the judgment reasonable attorney fees that may be fixed by a judge of the court.

Witness our hands this _____ day of _____, 1999

Agency of Record, State of Arizona

Agency Address and Phone Number:

Principal

By: _____
Printed Name and Signature

Title: _____

Surety Seal

By: _____

Title: _____

Bond Number _____

ATTACH SURETY POWER OF ATTORNEY

**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 _____ (\$ _____), 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 the Flood Control District of Maricopa County, dated the _____ day of _____, 1999, for **Contract FCD 99-07, Orangewood Avenue Storm Drain**, 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 Principal faithfully performs and fulfills all of the undertakings, covenants, terms, conditions and agreements of the contract during the original term of the contract and any extension of the contract, with or without notice to the Surety, and during the life of any guaranty required under the contract, and also performs and fulfills all of the undertakings, covenants, terms, conditions and agreements of all duly authorized modifications of the contract that may hereafter be made, notice of which modifications to the Surety being hereby waived; the above obligation is void. Otherwise it remains in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions, conditions and limitations of Title 34, Chapter 2, and Article 2, Arizona Revised Statutes, to the same extent as if they were copied at length in this agreement.

The prevailing party in a suit on this bond shall recover as part of the judgment reasonable attorney fees that may be fixed by a judge of the court.

Witness our hands this _____ day of _____, 1999.

Agency of Record, State of Arizona

Agency Address and Phone Number:

Principal

By: _____
Printed Name and Signature

Title: _____

Surety Seal

By: _____
Title: _____

Bond Number _____

ATTACH SURETY POWER OF ATTORNEY

INDEMNIFICATION

To the fullest extent permitted by law, the Contractor shall defend, indemnify and hold harmless the District, Maricopa County, the City of Glendale, the Arizona Department of Transportation, and the Burlington Northern & Santa Fe Railway Company, their agents, representatives, officers, directors, officials, and employees from and against all claims, damages, losses and expenses (including but not limited to attorney fees, court costs, and the cost of appellate proceedings), relating to, arising out of, or resulting from the Contractor's work or services. The Contractor's duty to defend, hold harmless and indemnify the District, its agents, representatives, officers, directors, officials, and employees shall arise in connection with any claim, damage, loss or expense that is attributable to bodily injury, sickness, disease, death, or injury to, impairment, or destruction of property including loss of use resulting therefrom, caused in whole or in part by any act or omission by the Contractor, anyone the Contractor directly or indirectly employs, or anyone for whose acts the Contractor may be liable, regardless of whether it is caused in part by a party indemnified hereunder, including the District.

The amount and type of insurance coverage requirements set forth below will in no way be construed as limiting the scope of the indemnity in this paragraph.

INSURANCE REQUIREMENTS

Without limiting any of its obligations or liabilities, the Contractor, at Contractor's own expense, shall purchase and maintain the hereafter stipulated minimum insurance with companies duly licensed, possessing a current A.M. Best, Inc. rating of B++6, or approved unlicensed to do business in the State of Arizona with policies and forms satisfactory to the County.

All insurance required herein shall be maintained in full force and effect until all work required to be performed under the terms of the Contract is satisfactorily completed and formally accepted; failure to do so may, at the sole discretion of the District, constitute a material breach of this Contract.

The Contractor's insurance shall be primary insurance, and any insurance or self insurance maintained by the District shall not contribute to it.

Any failure to comply with the claim reporting provisions of the policies or any breach of the policy warranty shall not affect coverage afforded under the policies to protect the District.

The policies, except Workers' Compensation, shall contain a waiver of transfer rights of recovery (subrogation) against the District, its agents, representatives, directors, officers, and employees for any claims arising out of the Contractor's work or service.

The policies may provide coverage which contain deductibles or self insured retentions. Such deductible and/or self insured retentions shall not be applicable with respect to the coverage provided to the District under such policies. The Contractor shall be solely responsible for the deductible and/or self insured retentions and the District, at its option, may require the Contractor to secure the payment of such deductible or self insured retentions by a surety bond or an irrevocable and unconditional letter of credit.

The District reserves the right to request and to receive, within 10 working days, certified copies of any or all of the above policies and/or endorsements. The District shall not be obligated, however, to review same or to advise the Contractor of any deficiencies in such policies and endorsements, and such receipt shall not relieve the Contractor from, or be deemed a waiver of the District's right to insist on, strict fulfillment of the Contractor's obligations under this Contract.

The insurance policies, except Workers' Compensation and Professional Liability, required by this Contract shall name the District, its agents, representatives, officers, directors, officials, and employees as Additional Insureds.

Required Coverage

General Liability. The Contractor shall maintain Commercial General Liability insurance with a limit of not less than \$1,000,000 for each occurrence with a \$2,000,000 Products and Completed Operations Limit and \$2,000,000 General Aggregate Limit, and include coverage for bodily injury, broad form property damage, personal injury, products/completed operations and blanket contractual covering, including but not limited to, the liability assumed under the indemnification provisions of this Contract, which coverage will be at least as broad as the Insurance Service Office, Inc. Policy Form CG 000211093 or any replacements thereof. The coverage shall not exclude X, C, U.

Such policy shall contain a severability of interest provision, and shall not contain a sunset provision or commutation clause, nor any provision which would serve to limit third party action over claims.

The Commercial General liability additional insured endorsement will be at least as broad as the Insurance Service Office, Inc. Additional Insured, Form B, CG 20101093, or replacements thereof.

Any failure to comply with the reporting or other provisions of the policies including breaches of warranties shall not affect coverage provided to the District.

If required by this contract, the Contractor subletting any part of the work awarded to the Contractor shall purchase and maintain, at all times during prosecution of the work under this Contract, an Owner's and Contractor's Protective Liability insurance policy for bodily injury and property damage, including death, which may arise in the prosecution of the work or Contractor's operations under this contract. Coverage shall be on an occurrence basis with a limit not less than \$1,000,000 per occurrence, and the policy shall be issued by the same insurance company that issues the Contractor's Commercial General Liability insurance.

Automobile Liability. The Contractor shall maintain Commercial/Business Automobile Liability insurance with a combined single limit for bodily injury and property damage of not less than \$1,000,000 each occurrence with respect to the Contractor's any owned, hired, and non-owned vehicles assigned to or used in performance of the Contractor's work or services. Coverage will be at least as broad as coverage code 1, "any auto" (Insurance Services Office, Inc. Policy Form CA 00011293, or any replacements thereof). Such insurance shall include coverage for loading and off-loading hazards. If hazardous substances, materials, or wastes are to be transported, MCS 90 endorsement shall be included and \$5,000,000 per accident limits for bodily injury and property damage shall apply.

Workers' Compensation. The Contractor shall carry Workers' Compensation insurance to cover obligations imposed by federal and state statutes having jurisdiction of Contractor's employees engaged in the performance of the work or services; and Employer's liability insurance of not less than \$100,000 for each accident, \$100,000 disease for each employee, and \$500,000 disease policy limit.

In case any work is subcontracted, the Contractor will require the subcontractor to provide Workers' Compensation and Employer's Liability to at least the same extent as required of the Contractor.

Builders' Risk (Property) Insurance. The Contractor shall purchase and maintain, on a replacement cost basis, Builders' Risk insurance in the amount of the initial Contract amount as well as subsequent modifications thereto for the entire work at the site. Such Builders' Risk insurance shall be maintained until final payment has been made or until no person or entity other than the District has an insurable interest in the property required to be covered, whichever is earlier. This insurance shall include interests of the District, the Contractor, and all subcontractors and sub-subcontractors in the work during the life of the Contract and course of construction, and shall continue until the work is completed and accepted by the District. For new construction projects, the Contractor agrees to assume full responsibility for loss or damage to the work being performed and to the structures under construction. For renovation construction projects, the Contractor agrees to assume responsibility for loss or damage to the work being performed at least up to the full Contract amount, unless otherwise required by the Contract documents or amendments thereto.

Builders' Risk insurance shall be on an all-risk policy form and shall also cover false work and temporary buildings and shall insure against risk of direct physical loss or damage from external causes including debris removal, demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's service and expenses required as a result of such insured loss and other "soft costs" as required by the Contract.

Builders' Risk insurance must provide coverage from the time any covered property becomes Contractor's control and/or responsibility, and continue without interruption during construction or renovation or installation, including any time during which the covered property is being transported to the construction installation site, and while on the construction or installation site awaiting installation. The policy will provide coverage while the covered premises or any part thereof are occupied. Builders' Risk insurance shall be primary and not contributory.

If the Contract requires testing of equipment or other similar operations, at the option of the District, the Contractor will be responsible for providing property insurance for these exposures under a Boiler Machinery insurance policy.

Required coverages may be modified by an amendment to the Contract documents.

Certificates of Insurance

Prior to commencing work or services under this Contract, the Contractor shall furnish the District with Certificates of Insurance, or formal endorsements as required by the contract, issued by the Contractor's insurer(s), as evidence that policies providing the required coverages, conditions and limits required by this Contract are in full force and effect. Such certificates shall identify this Contract number and title. **The Certificate furnished on page 22 shall be used or, if a substitute certificate is used, it shall include all coverage and terms printed on the furnished Certificate.**

Subcontractor: The Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each subcontractor.

In the event any insurance policy(ies) required by this Contract is(are) written on a "claims made" basis, coverage shall extend for two years past completion and acceptance of the work or services and as evidenced by annual Certificates of Insurance.

Insurance evidenced by this Certificate shall not expire, be canceled, or materially changed without thirty (30) days prior written notice to the District. If a policy should expire during the life of the contract, a renewal Certificate must be sent to the District at least fifteen (15) days prior to the expiration date.

**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
CERTIFICATE OF INSURANCE**

CONTRACT FCD 99-07

PROJECT TITLE: Orangewood Avenue Storm Drain

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		

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

CO. LTR	TYPE OF INSURANCE	POLICY NUMBER	EFFECTIVE DATE (MM/DD/YY)	EXPIRATION DATE (MM/DD/YY)	LIMITS
	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				GENERAL AGGREGATE \$3,000,000 PRODUCTS/COMPLETED OPERATIONS 3,000,000 BODILY INJURY AND PROPERTY DAMAGE 3,000,000 PERSONAL INJURY 3,000,000 EACH OCCURRENCE 3,000,000
	COMPREHENSIVE AUTO <input checked="" type="checkbox"/> LIABILITY & NON-OWNED <input type="checkbox"/> EXCESS LIABILITY				EACH OCCURRENCE \$3,000,000 NECESSARY IF UNDERLYING NOT ABOVE MINIMUM
	<input checked="" type="checkbox"/> WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY				STATUTORY each accident 100,000
	<input type="checkbox"/> ENGINEERS PROFESSIONAL LIABILITY				EACH CLAIM AND ANNUAL AGGREGATE
	<input checked="" type="checkbox"/> OTHER	In addition to the Flood Control District, add Maricopa County, City of Glendale, Arizona Department of Transportation, and the Burlington Northern & Santa Fe Railway Company as additional insured.			

Except for Professional Liability Insurance and Workers' Compensation Insurance, the Flood Control District of Maricopa County is added as an additional insured on those types of policies described herein which are required to be furnished by this contract entered into between the insured and the Flood Control District. To the extent provided in this contract, insured shall hold harmless the Flood Control District of Maricopa County from liability arising out of any services provided or duty performed by insured as required by statute, law, purchase order or otherwise required, with the exception of liability for loss or damage resulting from the sole negligence of Flood Control District, its agents, employees or indemnities. 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 canceled, or materially changed to affect 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 2801 West Durango Street Phoenix, Arizona 85009	DATE ISSUED _____ _____ AUTHORIZED REPRESENTATIVE
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SUPPLEMENTARY GENERAL CONDITIONS

ORANGEWOOD AVENUE STORM DRAIN

**CONTRACT FCD 99-07
PCN 4500333**

**ORANGEWOOD AVENUE STORM DRAIN
CONTRACT FCD 99-07
PCN 4500333**

SPECIFICATIONS:

Except as otherwise amended by these Supplementary General Conditions and the Construction Special Provisions, contract specifications and construction for all portions of this project shall be in accordance with all applicable Maricopa Association of Governments (MAG) Uniform Standard Specifications and Uniform Standard Details and the City of Phoenix Supplement 1998. All references herein to MAG refer to the Uniform Standard Specifications for Public Works Construction by the Maricopa Association of Governments 1998 edition.

PRECEDENCE OF CONTRACT DOCUMENTS:

This Contract and its designated documents, whether taken separately or together, are to be interpreted according to full intent, meaning, and spirit, and shall be deemed to mutually explain each other and to be descriptive of any materials to be furnished and the work to be performed under this Contract. In cases of any difference or discrepancy between the Contract documents, the order of precedence shall be (a) Addendum to the Invitation for Bid, (b) the Contract form, (c) Supplementary General Conditions, (d) Construction Special Provisions, (e) Project Plans, and (f) MAG Uniform Standard Specifications and Uniform Standard Details.

Construction contract specifications for all portions of this project shall conform to the requirements of the Uniform Standard Specifications for Public Works Construction and the City of Phoenix Supplement (1998), sponsored and distributed by the Maricopa Association of Governments 1998 edition, except as noted, including Revisions and Corrections. In specific cases where the City of Phoenix Supplement is specified in the plans, they shall supersede the Maricopa Association of Governments Uniform Standard Specifications.

SECTION 101 – ABBREVIATIONS AND DEFINITIONS

Abbreviations and definitions shall conform to Section 101 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 101.2 - Definitions and Terms

1. Change the definition of the phrase "Board of Supervisors" to read the Board of Directors acting under the authority of the laws of the State of Arizona and in their capacity as Board of Directors of the Flood Control District of Maricopa County.
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 Flood Control District of Maricopa County Board of Directors.
3. Add to the definition of the phrase "Contract Documents", the phrase "Supplementary General Conditions".

4. Change the definition of the term "Engineer" to be the person appointed by the Flood Control District of Maricopa County Board of Directors to the office of Chief Engineer and General Manager of the Flood Control District of Maricopa County acting directly or through its authorized representative, the Chief of the Flood Control District of Maricopa County Construction and Operations Division.
5. Change the definition for the phrase "Notice of Award" to a letter from the Flood Control District of Maricopa County advising Contractor that it is the successful bidder and the Flood Control District of Maricopa County has accepted its 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.
7. Add the definition for Maricopa County Minority Business Office (MBO); the office responsible for administering the Maricopa County Minority and Women Owned Business Enterprise Program.
8. Add the definition for the Maricopa County Minority and Women Owned Business Enterprise Program as being the Program adopted by the Board of Supervisors effective January 1, 1992.

SECTION 102 - BIDDING REQUIREMENTS AND CONDITIONS

Bidding requirements and conditions shall conform to Section 102 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 102.4 - Examination of the Plans, Special Provisions, and Site Work:

Add the following:

The soil borings logs and geotechnical report, including ground water conditions, are available for review at the Owner's office, and Contractors are encouraged to do so. Existing moisture conditions shall be no basis for claim for additional monies or time extensions. The Contractor shall manipulate the existing soil, as required, to achieve stable soil conditions and required densities, as well as safe and stable side slopes during construction activities.

Subsection 102.5 - Preparation of Proposal

Add the following:

Bids, including the Bidding Schedule, must be legibly written in ink or typed, with all prices given in numerals. In case of a conflict between the unit bid price and the extension, the unit bid price will govern.

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) 506-1501. Any addendum issued, if not already bound into the Special Provisions, **shall be attached and included as part of the Specifications** and any quantities on the Bidding Schedule requiring change shall be adjusted to the new figure by pen and ink. **Bids, that do not have appropriate addenda, attached and show appropriate changes to the Bidding Schedule, and receipt of addenda acknowledged in the Proposal shall be invalid.**

The bidder's Arizona State Contractor's License number and the classification under which it proposes to perform the work shall be shown on the proposal. An "A" **General Engineering** License is required for this contract. The two lowest bidders may be required to provide certification of prior satisfactory completion for similar construction and to furnish a copy of their license and the renewal certificate.

Subsection 102.6 - Subcontractor's List:

Replace with the following:

A list of Subcontractors and suppliers (including any M/WBE participation) intended to be used on the project shall be submitted with the bid, on the form provided in the Proposal. Although this list will not be considered as final commitment on the part of the successful proposer, any Subcontractor changes from those listed must have Owner's written approval prior to work performed on site by a Subcontractor.

Subsection 102.7 - Irregular Proposals

Add the following:

- (F) If the Maricopa County Minority and Women-Owned Business Enterprises Assurances Affidavit is not completed and submitted.
- (G) If any addenda are not acknowledged and attached.
- (H) If Owner's bond forms are not used.
- (I) If the entire specifications document is not returned
- (J) If the Owner's statement from bidder's insurance carrier as required by Subsection 103.6 is not included.

SECTION 103 – AWARD AND EXECUTION OF CONTRACT

Award and execution of contract shall conform to Section 103 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 103.6 - Contractor's Insurance

Add the following:

A statement from bidder's insurance carrier shall be included in the proposal certifying that it will furnish the specified kind and amounts of insurance to the bidder if it is awarded the contract. As required by law, the statement will be from an insurance carrier or carriers authorized to do business in the State of Arizona. If countersigned by an agent, the letter shall include the name of the insurer. Concurrently with the execution of the contract, Contractor shall furnish a Certificate of Insurance, using the included Certificate, 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 the following:

Include additional insured as indicated on the included Certificate of Insurance.

SECTION 104 - SCOPE OF WORK

Scope of work shall conform to Section 104 of the MAG Uniform Standard Specifications except as modified herein.

This project is located on 83rd Avenue, from Glendale Avenue to Orangewood Avenue, on Orangewood Avenue, from 83rd Avenue to 66th Avenue, on 66th Avenue, from Orangewood Avenue to Frier Drive, on Frier Drive, from 66th Avenue to 65th Avenue and Grand Avenue, on 65th Avenue, from Grand Avenue to

Northern Avenue and on Northern Avenue, from 67th Ave to 63rd Avenue as depicted on Sheet 2 of the plans. A storm drain varying in size with catch basins and future stub outs is to be installed along this alignment as shown on the plans. Assorted utilities will be relocated as shown on the plans and in accordance with MAG Standard Specifications.

The Owner and Contractor shall have Milestone meetings at times agreed upon during the pre-construction meeting. These meetings shall be held prior to work commencing at intersections and all major work elements. The Engineer's approval shall be obtained before commencing work.

Subsection 104.1 - Work to be Done

Add the following:

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

Subsection 104.1.2 Maintenance of Traffic

Add the following:

All traffic and/or control devices on this project shall be provided, maintained and/or controlled as specified in the Uniform Traffic Control Manual and the City of Phoenix Traffic Barricade Manual, 1998.

Traffic control shall conform to the requirements established in the Special Provisions and as shown on the traffic control plan sheets.

In all cases during construction, access will be provided for emergency vehicles, trash collection, and school buses as required. The Contractor will notify schools, trash collection, emergency services, etc. at least 30 days in advance of implementing the traffic control plans that may affect their activities.

Subsection 104.2 - Alteration of Work

Add the following subsection:

Subsection 104.2.3 - Change

The Owner may at any time, by written order, and without notice to the sureties, if any, make changes within the general scope of this contract in any one or more of the following:

- (A) Drawings, designs, or specifications;
- (B) Method or manner of performance of the work;
- (C) Owner-furnished facilities, equipment, materials, services, or site;
- (D) Directing acceleration in the performance of the work.

Any other written or oral order from the Owner that causes a change shall be treated as a change order under this section provided that the Contractor gives the Owner written notification within two work days after receipt of such direction stating:

- (A) The date, nature, and circumstances of the conduct regarded as a change;
- (B) The particular elements of the contract performance for which the Contractor is seeking an equitable adjustment under this section, including any price or schedule adjustments;
- (C) The Contractor's estimate of the time by which the Owner must respond to the Contractor's notice to minimize cost, delay, or disruption of performance.

The Contractor shall diligently continue performance of this contract to the maximum extent possible in accordance with its provisions. Except as provided in this section, no order, statement, or conduct of the Owner shall be treated as a change or entitle the Contractor to an equitable adjustment. If any change under this section causes an increase or decrease in the Contractor's cost of, or the time required for, the performance of any part of the work under this contract, the Owner shall make an equitable adjustment and modify the contract in writing.

The equitable adjustment shall not include increased costs or time extensions for delay resulting from the Contractor's failure to provide notice or to diligently continue performance. No proposal for the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.

Subsection 104.2 – Alteration of Work

Add the following subsection:

Subsection 104.2.7 - Cost Estimates or Price Proposals

The Contractor and any lower-tier Subcontractors shall submit itemized cost estimates or price proposals for any Owner-directed change order or Contractor-initiated claim.

Cost estimates or pricing proposals shall be itemized to include direct labor by man-hours, individual craft, hourly wage rate and verifiable labor burden. Other direct costs shall include rental and operator rates for rented or owned equipment, material trucking expenses and other costs clearly identified and directly allocable to contract performance. Material costs shall be itemized by item description, quantity(s) for each item, unit price per item, including applicable sales tax markup, and extended total price per item. The Contractor shall provide copies of material supplier quote sheets, invoices or purchase orders, as appropriate.

Lump sum cost estimates or price proposals shall be rejected and returned to the Contractor for itemization as described above. Failure of the Contractor to submit properly itemized cost estimates or price proposals shall not constitute an excusable delay and result in a change order being unilaterally priced as the Owner's fair estimated price.

Subsection 104.2 – Alteration of Work

Add the following subsection:

Subsection 104.2.8 - Value Engineering

(A) General

The Contractor is encouraged to voluntarily develop, prepare, and submit value engineering change proposals (VECPs). The Contractor shall share in any instant contract savings realized from accepted VECPs, in accordance with paragraph (F) below. The Owner reserves the right to make alterations to the contract, in accordance with procedures elsewhere within this contract. Such alterations will not be eligible for inclusion in any VECP.

(B) Definitions

(1) **Contractor's development and implementation costs** means those costs the Contractor incurs on a VECP in developing, testing, preparing, and submitting the VECP as well as those costs incurred by the Contractor to make the changes required by the Owner's acceptance of the VECP.

(2) **Owner costs** means those Owner costs that result directly from developing and implementing the VECP, such as any net increases in the cost of testing, operations,

maintenance, and logistical support. The term does not include the normal administrative costs of processing the VECP.

- (3) **Instant contract savings** means the estimated reduction in Contract cost of performance resulting from acceptance of the VECP, minus the allowable Contractor's development and implementation costs, minus Subcontractors' development and implementation costs (see paragraph (G) below).
- (4) **Value engineering change proposal (VIECP)** means a proposal that (1) requires a change to the contract; (2) results in reducing the contract price or estimated cost without impairing essential functions or characteristics; and (3) does not involve a change in deliverable end item quantities, schedule, or a change to the contract type.

(C) **VECP Preparation**

As a minimum, the Contractor shall include in each VECP the information described in subparagraphs (1) through (7) below. If the proposed change affects contractually required schedule and cost reporting, it shall be revised to incorporate proposed VECP modifications. The VECP shall include the following:

- (1) A description of the difference between the existing contract requirement and that proposed, the comparative advantages and disadvantages of each, a justification when an item's function or characteristics are being altered, and the effects of the change on the end item's performance. All design changes must be submitted on 24"x 36" standard drawing sheets along with supporting calculations. An Engineer registered in the State of Arizona shall seal each drawing sheet and at least the content sheet of the calculations.
- (2) A list and analysis of the contract requirements that must be changed if the VECP is accepted, including any suggested specification revision.
- (3) A separate, detailed cost estimate for the affected portions of the existing contract requirements and the VECP. The cost reduction associated with the VECP shall take into account the Contractor's allowable development and implementation costs, including any amount attributable to subcontracts under paragraph (G) below.
- (4) A description and estimate of costs the Owner may incur implementing the VECP, such as test and evaluation and operating and support costs. This is an estimate based only on the Contractor's understanding of additional efforts to be expended by the Owner, should the VECP be accepted. The Owner will determine the final cost.
- (5) A prediction of any effects the proposed change would have on collateral costs to the agency, i.e., costs of operation or maintenance.
- (6) A statement of the time by which a contract modification accepting the VECP must be issued in order to achieve the maximum cost reduction, noting any effect on the contract completion time or delivery schedule.

- (7) Identification of any previous submissions of the VECP, including the dates submitted, the agencies and contract numbers involved and previous Owner actions, if known.

(D) Submission

The Contractor shall submit VECPs to the Owner's Engineer.

(E) Owner Action

- (1) The Owner shall notify the Contractor of the status of the VECP within 15 calendar days after receipt from the Contractor. If additional time is required, the Owner shall notify the Contractor within the 15-day period and provide the reason for the delay and the expected date of the decision. The Owner will process VECPs expeditiously; however, it shall not be liable for any delay in acting upon a VECP.
- (2) If the VECP is not accepted, the Owner shall notify the Contractor in writing, explaining the reasons for rejection.
- (3) The Contractor may withdraw any VECP, in whole or in part, at any time before it is accepted by the Owner.
- (4) Any VECP may be accepted, in whole or in part, by the Owner's award of a change order to this contract, citing this subsection. The Owner may accept the VECP, even though an agreement on price reduction has not been reached, by issuing the Contractor a notice to proceed with the change. Until a notice to proceed is issued or a change order incorporates a VECP to this contract, the Contractor shall perform in accordance with the existing contract. The Owner's decision to accept or reject all or any part of any VECP shall be final and not subject to disputes or otherwise subject to litigation.

(F) Cost Sharing

- (1) Rates - The Owner's share of savings is determined by subtracting the Owner's costs from instant contract savings and multiplying the result by 50 percent. The Contractor's share shall be the remaining 50 percent.
- (2) Payment - Payment of any share due the Contractor for use of a VECP on this contract shall be authorized by a change order to this contract to accept the VECP, reduce the contract price or estimated cost by the amount of instant contract savings, and provide the Contractor's share of savings by adding the amount calculated to the contract price.

(G) Subcontracts

The Contractor may include an appropriate value engineering clause in any subcontract. In computing any adjustment in this contract's price under paragraph (F) above, the Contractor's allowable development and implementation costs shall include any Subcontractor's allowable development and implementation costs clearly resulting from a VECP accepted by the Owner under this contract, but shall exclude any value engineering incentive payments; provided that these payments shall not reduce the Owner's share of the savings resulting from the VECP.

SECTION 105 – CONTROL OF WORK

Control of work shall conform to Section 105 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 105.1 - Authority of Engineer

Add the following subsection:

Subsection 105.1.1 - Engineers Evaluation:

Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to subsections 105.2, 105.3.1 and 106.4 (B) (contained herein). Engineer will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed or utilized without Engineer's prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. District may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any or equal or substitute. Engineer will record time required by Engineer and Engineer's Consultants in evaluating substitutes proposed or submitted by Contractor pursuant to subparagraphs 105.3.1 and 106.4(B) (contained herein) and in making changes in the Contract Documents (or in the provisions of any other direct contract with District for work on the project) occasioned thereby. Whether or not Engineer accepts a substitute item so proposed or submitted by Contractor, Contractor shall reimburse District for the charges of Engineer and Engineer's Consultants for evaluating each such proposed substitute item.

Subsection 105.2 - Plans and Shop Drawings:

Add the following:

- A) **Shop drawings** means drawings, submitted to the Engineer by the Contractor pursuant to the contract, showing in detail (i) the proposed fabrication and assemble of structural elements and (ii) the installation (i.e., form, fit and attachment details) of materials or equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the Contractor to explain in detail specific portions of the work required by the contract.

- B) **Product Data** is information on manufactured items, either stock or modified, and includes descriptive literature, operating data, performance curves, certified dimensional drawings, wiring or schematic control diagrams, piping, instrumentation, parts lists, and operating, maintenance and lubrication manuals.

Subsection 105.3 - Conformity with Plans and Specifications

Add the following subsection:

105.3.1- Substitute Construction Methods or Procedures

If a specific means, method, technique, sequence or procedure of construction is shown or indicated and expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence or procedure of construction acceptable to Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The procedure for review by Engineer will be similar to that provided in subparagraph 106.4(B).

Subsection 105.5 - Cooperation of Contractor

Add the following subsection:

Subsection 105.5.1 - Partnering:

The Owner intends to encourage the foundation of a partnering relationship with the Contractor and its Subcontractors. This partnering relationship will be structured to draw on the strengths of each organization to identify and achieve reciprocal goals. The objectives are effective and efficient contract performance, intended to achieve completion within budget, on schedule, and in accordance with plans and specifications.

This partnering relationship will be bilateral in makeup. Any cost associated with effectuating partnering will be covered by the Bid Item. The initial partnering workshop shall be scheduled after award of the contract, and prior to the Notice to Proceed, and shall be facilitated by a third party competent in the fundamentals of partnering, and mutually acceptable to Contractor and Owner. In order to achieve the desired partnering relationships, the Contractor will need to encourage attendance by its major Subcontractors on the project. The contractor shall be responsible for the scheduling, coordinating and hiring of a third party partnering facilitator, and planning all of the partnering meetings in consultation with the engineer. Follow-up workshops will be held periodically throughout the duration of the contract as agreed to by the Contractor and Owner. The Owner will be responsible to notify and coordinate attendance at the partnering meetings by other agencies.

An integral aspect of partnering is the resolution of disputes in a timely, professional, and non-adversarial manner. Alternative dispute resolution (ADR) methodologies will be encouraged in place of the more formal dispute resolution procedures. ADR will assist in promoting and maintaining an amicable working relationship to preserve the partnering relationship. ADR in this context is intended to be a voluntary, non-binding procedure available for use by the parties to this contract to resolve any dispute that may arise during performance.

Payment for Partnering will be made on the basis of invoices, and will be for a total amount not to exceed the amount shown in the bid schedule:

ITEM 105-1 – PARTNERING

Subsection 105.5 - Cooperation of Contractor

Add the following subsection:

Subsection 105.5.2- Pre-Construction Meeting

After award of the contract and prior to the commencement of the work or mobilization, a pre-construction meeting shall be scheduled at a location and time to be agreed upon between the Owner and the Contractor. The Contractor shall make all necessary arrangements to have key personnel of his company and of his principal subcontractors present at the meeting. Each representative shall have authority to make commitments and act for his firm. The purpose of the pre-construction meeting is to discuss any specific concerns or potential problems that the Contractor is aware of, to provide general information appropriate to the contract, to identify responsible individuals for various functions within each organization, and to develop tentative dates for the start of construction. The Contractor shall submit to the Engineer during the pre-construction meeting the following documents:

- 1) Manufacturer's certification for all materials
- 2) Material data safety sheets
- 3) Preliminary work schedule
- 4) Preliminary traffic control plan
- 5) Shop drawings
- 6) Emergency telephone numbers
- 7) Signing authority letter
- 8) Name and telephone number of the certified safety professional

9) Any other documents specified in the SP's or SGC's

The pre-construction meeting will cover topics such as critical elements of the work schedule, payment application and processing of invoices. Additionally, a scheduled start date for the work will be determined.

The Contractor shall be responsible to take minutes of the pre-construction meeting and distribute copies to all meeting participants. The meeting minutes shall be distributed within 48 hours of the meeting, At the subsequent construction progress meeting, the minutes will be attested or revised, as appropriate. The cost for attendance at the pre-construction meeting, and preparation and distribution of meeting minutes shall be incidental to the project and no extra payment will be made.

Subsection 105.5 - Cooperation of Contractor

Add the following subsection:

Subsection 105.5.3 -Construction Progress Meetings

Construction progress meetings shall be scheduled weekly, or as considered necessary by the Owner. The Contractor shall make all arrangements to have key personnel of his company and of his principal subcontractors present at all progress meetings; representatives shall have authority to make commitments and act for their firms. The Contractor shall assume full responsibility to act for and commit any subcontractor employed by the Contractor, whether or not such subcontractor is represented at the meeting.

During the construction progress meeting the Owner's representative will act as chairman and will advise the Contractor of any administrative matters connected with the contract. The Contractor shall submit for review his two-week rolling schedule. The Contractor's representative at these meetings shall be prepared to discuss and resolve construction problems and concerns, material delivery and vendor data submittals status, construction progress as measured against the Contractor's approved construction schedule and the Contractor's short range construction activities as provided on his two-week rolling schedule. The Contractor shall not be relieved of his responsibility to fulfill all of the terms of the contract as a result of any inferences drawn or suggestions made available at these meetings.

The Contractor shall be responsible to take minutes of the construction progress meetings and distribute copies to all meeting participants. The meeting minutes shall be distributed within 48 hours of the meeting. At the subsequent construction progress meeting, the minutes will be attested or revised, as appropriate. The cost for attendance at meetings, and preparation and distribution of meeting minutes shall be incidental to the project and no extra payment will be made.

Subsection 105.6 - Cooperation with Utilities

Add the following:

An attempt has been made to determine the location of all utilities and drainage pipes, culverts, and structures; however, it shall be Contractor's responsibility to cooperate with the pertinent utility companies so that any obstructing utility installation(s) may be adjusted. The location of the underground and overhead utilities as shown on the plans is based on the best available information. The contractor shall not assume that this represents the exact location of the line. No guarantee is made to the accuracy of the location shown on the plans. The contractor shall determine for himself the exact location of all utilities. Should Contractors operations result in damage to any utility the location of which has been brought to its attention, he shall assume full responsibility for such damage. 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 Contractor is to protect in place any utilities which are not designated as "to be relocated by others."

At numerous locations, utility lines will need to be supported across the storm drain trench. The Contractor is to coordinate with the utility Owner for the support of these lines, and shall pay to the utility Owner all applicable fees for bracing or support.

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

Flood Control District of Maricopa County, Fred Fuller.....	602/506-1501 or 4728
Southwest Gas Robert Sprague.....	602/484-5343
US West Communications Robert Arrieta.....	602/630-5473
Salt River Project (Electrical) Daryl Smith.....	602/236-8007
Salt River Project (Water Operations) Robert Maurer.....	602/236-2962
City of Glendale Engineering Dan Sherwood.....	602/930-3630
City of Glendale Fire Dept. Booke Edwards.....	602/930-3400
Location Staking (A.P.S., US West, S.R.P.) Blue Stake.....	602/263-1100
Arizona Public Service Cary Ann Bailey.....	602/371-6258

Electrical Service

The majority of this project lies within the SRP electrical service area. The area west of 66th Avenue and south of Northern Avenue lies within the APS electrical service area. For power pole bracing, contact the power company 7 working days in advance.

Salt River Project (SRP) Irrigation

This project includes work on and adjacent to Salt River Project (SRP) irrigation facilities. SRP will require the Contractor to execute a Construction Clearance Agreement (CCA) for work on and adjacent to their system. A copy of a blank CCA is available for review in the District's Contracting Branch located at 2801 West Durango Street, Phoenix, Arizona. This agreement must be executed before SRP will issue a construction clearance. The Contractor for this project shall be responsible to execute this agreement. If the work on the SRP irrigation system will be done by a Subcontractor, both the prime Contractor and the Subcontractor shall sign the agreement with SRP. A copy of the fully executed agreement shall be delivered to the project inspector prior to the start of work on SRP facilities. The inspector shall also receive copies of any revisions to the agreement that may become necessary during the course of the project construction. FCD wishes to emphasize item 4 of the terms and conditions of the CCA. Dry-up of SRP facilities is at the sole discretion of the Water Master. Dry-up's may take several weeks to schedule and may be impractical due to seasonal demands.

At several locations, the Contractor is to construct catch basins and connector pipes adjacent to SRP irrigation pipes. Many of these pipes are fragile cast in place pipe, and the Contractor is cautioned to use care when working around them. If the Contractor's operations disturb the surrounding soil around the pipe,

the Contractor is to replace the affected pipe with RGRCP and connect it to the original pipe using a concrete collar. A minimum of two full lengths of RGRCP shall be used. This is because the surrounding soil provides part of the structural integrity of cast in place pipe. The Contractor should plan on replacing existing irrigation pipes with RGRCP if the irrigation pipes are disturbed where they come in close proximity to the catch basins. The Contractor is to make minor deflections to the pipe as necessary to fit the proposed catch basins.

The Contractor shall provide shop drawings for protecting in place any of SRP's irrigation lines, for review and approval prior to working in the area.

Southwest Gas Corporation (SWG)

SWG pipes which cross trenches more than 3 feet wide must be supported in a manner where the supporting material does not damage the pipe or its protective wrapping. Please call Southwest Gas at 484-5256 to review and approve all proposed pipe support designs.

Please see Special Provisions Section 601.0 regarding trenching and backfilling.

Subsection 105.8 - Construction Stakes, Lines, and Grades

Add the following:

- A. Engineer will furnish the project survey control line together with a Bench Mark which the construction Contractor will use to set line and grade for all construction. All other surveying required for the project shall be the Contractor's responsibility. Engineer will not set any construction stakes.
- B. The Contractor shall submit original construction surveyor's notes duly signed by a Registered Land Surveyor to the Engineer at the end of the project. Copies of the survey notes shall be submitted to the Engineer at the first weekly meeting after being generated.
- C. As-built plans sealed by an Engineer registered in the State of Arizona shall be provided by the Contractor to the Owner prior to project close out.

SECTION 106 - CONTROL OF MATERIALS

Control of materials shall conform to Section 106 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 106.1 - Source of Materials and Quality

Add the following:

Select Material, Aggregate Base, Mineral Aggregate, concrete, steel products and pipe shall be obtained from commercial sources. Contractor shall pay all royalties, or any other charges or expenses incurred in connection with the securing and hauling of the material. Contractor will be required to furnish Engineer with a list of its 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.

Subsection 106.4 - Trade Names and Substitutions

Replace with the following:

Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to

establish the type, function and quantity required. Unless the specification or description contains or is followed by words reading that no like, equivalent or "or-equal" item or no substitution is permitted, other items of material or equipment of other Suppliers may be accepted by Engineer under the following circumstances:

- (A) "Or-Equal": If, in Engineer's sole discretion, an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for acceptance of proposed substitute items.
- (B) Substitute Items: If in Engineer's sole discretion an item does not qualify as an "or-equal" item under subparagraph 106.4 (A), it will be considered a proposed substitute item. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. The procedure for review by Engineer will include the following and may be supplemented in the Special Provisions and as Engineer may decide is appropriate under the circumstances. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor. If Contractor wishes to furnish or use a substitute item of material or equipment, Contractor shall first make written application to Engineer for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified and be suited to the same use as that specified. The application will state the extent, if any, to which the evaluation and acceptance of the proposed substitute will prejudice Contractor's achievement of completion on time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with District for work on the project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other Contractors affected by the resulting change, all of which will be considered by Engineer in evaluating the proposed substitute. Engineer may require Contractor to furnish additional data about the proposed substitute.
- (C) Contractor's Expense: All data to be provided by Contractor in support of any proposed "or-equal" or substitute item will be at Contractor's expense.

Subsection 106.5 – Storage of Materials

Add the following subsection:

Subsection 106.5.1 - Contractors Marshaling Yards

The Contractor shall obtain approval of the engineer when using vacant property to park and service equipment and store materials for use. The Contractor will obtain prior written approval of the property Owner for such use and submit a copy of the approval to the Engineer prior to use of the property.

The Contractor shall grade all construction yards, easements and limits of construction which are disturbed by construction or construction related activities to a condition similar to or better than the pre-existing condition.

SECTION 107 – LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

Legal relations and responsibility to public shall conform to Section 107 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 107.1 - Laws to be Observed

Add the following Paragraph (G):

- (G) 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). Contractor shall also comply with all applicable provisions of the Americans with Disabilities Act (Public Law 101-336, 42 U.S.C. 12101-12213) and all applicable federal regulations under the Act, including CFR Parts 35 and 36.

Subsection 107.2 - Permits

Replace with the following:

Contractor shall obtain all permits and licenses, pay all charges, fees, taxes, and provide all notices necessary and incidental to the due and lawful prosecution of the work.

Subsection 107.2 - Permits

Add the following subsection:

Subsection 107.2.1 - NPDES Permit Requirements

- (A) This project is subject to the National Pollutant Discharge Elimination System (NPDES) Storm water requirements for construction sites under the Environmental Protection Agency (EPA) General Permit for Arizona. Under provisions of that permit, the Contractor shall be designated as permittee, and shall take all necessary measures to assure compliance with the NPDES General Permit for Arizona as well as all other applicable Federal, State and local laws, ordinances, statutes, rules and regulations pertaining to storm water discharge. As the permittee, the Contractor is responsible for preparing, in a manner acceptable to the Environmental Protection Agency (EPA), including but not necessarily limited to:

1. Stormwater Pollution Prevention Plan (SWPPP) for the project, including certification of compliance form. Contractor shall be required to develop, implement, update and revise the SWPPP, as necessary, in order to assure compliance with the EPA permit requirements. The SWPPP shall be retained on the project site at all times during construction.
2. Notice of Intent (NOI) to assure compliance with the NPDES General Permit for Arizona, including certification of signatures.
3. Notice of Termination (NOT) of coverage under NPDES General Permit for Arizona.

- (B) Preliminary copies of the NOI and the SWPPP shall be submitted to District during the pre-construction meeting and shall be subject to review by Owner prior to implementation.

- (C) Contractor shall submit the completed and duly signed NOI forms no later than forty-eight (48) hours prior to the initial start of construction on the project to the following agencies:

EPA Stormwater Notice of Intent

P.O. Box 1215
Newington, VA 22122

A copy of the completed NOI form shall be submitted to the following:

Grant Anderson, City Engineer
City of Glendale
5850 West Glendale Avenue
Glendale, AZ 85301

Stormwater Coordinator
Arizona Department of Environmental Quality
P.O. Box 600
Phoenix, AZ 85001-0600

Failure by the Contractor (or Subcontractors of any tier) to submit NOI's within the mandated time frame shall result in delay of the construction start date, and no claim for extension of time will be granted for such delay. A copy of the completed NOI shall be posted at the construction site.

- (D) Inspections of all storm water pollution control devices on the project shall be performed by Contractor on a monthly basis and following each rainfall of 0.50 inches or more in a 24-hour period at the project site as required under provisions of the NPDES General Permit for Arizona. Contractor shall prepare reports on such inspections and retain the reports for a period of three years following the completion of the project. Inspection reports shall be submitted monthly to District along with progress payment requests.

Additionally, Contractor shall maintain all storm water pollution control devices on the project in proper working order, which shall include cleaning and/or repair during the duration of the project.

- (E) Contractor warrants that its employees and Subcontractors of any tier and their employees shall at all times comply with all applicable laws, ordinances, statutes, rules and regulations set forth by all federal, state and local governments and the Environmental Protection Agency in connection with NPDES Permitting requirements and laws and regulations pertaining to air, groundwater and surface water quality.

Fines and penalties imposed by the EPA against District or the Contractor, for Contractor's failure to comply with any of the requirements of NPDES General Permit of Arizona, shall be borne by the Contractor.

- (F) Upon project completion, acceptance and demobilization, Contractor shall submit its completed, duly executed NOT form to the EPA, with a copy to the Arizona Department of Environmental Quality (and the appropriate municipality), at the address listed in Section (B) above, thereby terminating all NPDES permit coverage for the project. Contractor shall then surrender to District copies of the SWPPP, inspection information and all other documents prepared and maintained by the Contractor in compliance of the NPDES General Permit. Contractor shall retain the originals of such documents for a period of three (3) years following the completion of the project.

- (G) The Lump Sum price for the SWPPP shall include all material, labor, and all other costs relating to the preparation, installation and maintenance of the SWPPP during project construction, including assuring proper operation of the pollution control devices installed, and all maintenance, cleaning, and disposal costs associated with clean-up and repair following storm events, runoff or releases on the project. The Lump Sum price for the SWPPP shall be inclusive of all costs, and Contractor shall make no additional claims under any other specification provision of these documents, including Change Conditions. Payment for this bid item shall be upon final completion and acceptance of the project, as per Section 109.1.
- (H) Copies of all required forms and guidance for preparing the SWPPP are available in the "Drainage Design Manual for Maricopa County, Volume III Erosion Control". The manual is available at the Flood Control District, 2801 West Durango Street, Phoenix, Arizona 85009

Payment for NPDES/SWPPP permit requirements shall be made on the basis of lump sum for all work described in Subsection 107.2.1 for:

ITEM 107-1 NPDES/SWPPP PERMITS

Subsection 107.2 - Permits

Add the following subsection:

Subsection 107.2.2 - Hauling and Grading Permit

A haul plan must be reviewed and approved by the City of Glendale (the contact person with the City of Glendale is Mr. Dan Sherwood at 930-3630). When the quantity of fill or excavation to be hauled exceeds 10,000 cubic yards, or when the duration of the haul is for more than 20 working days (i.e., Monday through Friday, inclusive), it shall be unlawful to haul, or cause to be hauled, fill or excavation, by truck, except upon the issuance of a haul route and construction permit by the City of Glendale for such conditions as may reasonably be necessary to prevent creation of a nuisance or hazard to the public. Such conditions may include, but not be limited to:

1. Designation of specific routes to be used.
2. Designation of specific locations and times of day access will be made to and from public right-of-way.
3. Provision for safety precautions, such as the use of barricades, warning or traffic signs, flagmen, or police officers for traffic control.
4. Payment of a cash bond in the amount of five hundred dollars (\$500) in order to secure the cost of the removal of any spillage of fill or excavation and the cleaning of the right-of-way by the City, such bond to be returned to the applicant if no spillage occurs or if any spillage is removed and the right-of-way cleaned by the applicant to the satisfaction of the City Engineer.
5. Any violation of the terms or conditions of the permit shall be sufficient grounds for the City Engineer to revoke the permit.

Subsection 107.4 - Archeological Reports

Add the following:

Any cultural and/or paleontological resource (historic site or object) discovered by the Contractor, or any person working on his behalf, shall be immediately reported to the Engineer. The Contractor shall suspend

all operations in the immediate area of such discovery until written authorization to proceed is issued by the Engineer. An evaluation of the discovery will be made by authorized personnel and the Engineer to determine appropriate actions to prevent the loss of significant cultural or scientific resources.

Subsection 107.5 - Safety Health and Sanitation Provisions

Add the following:

The entire construction site shall be considered a "Hard Hat Area" and all personnel in the area will be required to wear a hard hat.

Subsection 107.5 - Safety Health and Sanitation Provisions

Add the following:

Subsection 107.5.2 - Compliance with the Arizona Communication Standard

Add the following:

Owner will provide Contractor with Material Safety Data Sheets (MSDS) for any products known to exist on the site that are deemed health hazards. Contractor will provide a copy of District-provided MSDS to all Subcontractors.

Contractor will provide 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 Contractor or by any Subcontractors.

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

Subsection 107.5 - Safety Health and Sanitation Provisions

Add the following subsection:

Subsection 107.5.4 Contractor's Status During any Hazard Remediation:

If remediation of any discovered Regulated Substance, contamination or asbestos is necessary, the Owner will address the problem, and if this interferes with the project's critical path, then the CPM and project schedule will be reviewed and revised as mutually acceptable by the Engineer and Contractor to minimize the impact to the **total project schedule**. An extension in contract time for any delay to Contractor then resulting will be granted by Owner in accordance with Subsection 108.7.

If any Regulated Substance, asbestos, or other type of contamination is encountered that results in a changed condition, then a change order may be issued in accordance with the contract.

If the delay impacts the CPM in such a manner that the Contractor is prevented from continuing work on any portion of the project, and Owner issues a suspension of work order, then Contractor shall be entitled to compensation in the form of a **one-time payment** of Demobilization and Remobilization costs, which shall be no more than 6 percent of the original bid item for mobilization.

Subsection 107.6 - Public Convenience and Safety

Add the following subsection:

Subsection 107.6.3 - Public Information and Notification

The Contractor shall employ a specialty public information service as a subcontractor to provide the community relations program for the project as described herein. The name and address of the public information subcontractor shall be submitted with the bid as specified in subsection 102.6 of the

Supplementary General Conditions. Contractor shall work closely with his subcontractor in developing and carrying out the community relations program, but shall not be expected to actually perform the work of providing the public information services. Contractor shall submit a history of the subcontractor's qualifications and experience in public information services at the pre-construction conference for acceptance by the engineer. The community relations program for this project shall be designed to run the full length of calendar days in the contract for this project. The program will include but not be limited to the following:

1. Distributing a pre-construction information letter to all residences, businesses, schools, etc. within an area one-block radius of the storm drain construction zone.
2. Printing and distribution of public notices and/or newsletters.

The Contractor will use these or other means to inform the local citizens of necessary operations which create high noise levels, street closures, limited access, detour locations, haul routes and material delivery routes, hours of construction and disruption of bus, trash, school bus and other delivery/pick-up routes.

The Contractor will be required to furnish a private line telephone to be used solely for receiving incoming calls from local citizens with questions or complaints concerning construction operations or procedures. The Contractor shall publish this phone number and maintain a 24-hour answering service. The answering service shall be operated by Contractor personnel during all hours that work is being performed on the job site. The Contractor shall maintain a log of incoming calls, responses, and action taken which shall be submitted to the Engineer weekly and/or upon request.

At a date agreed upon between the Engineer and Contractor, and prior to the start of work, the Contractor shall notify, by letter, all affected businesses and residents of construction plans and schedules within the geographic area identified above. In addition, all schools and emergency services which serve the geographic area will also be notified even though they may be located outside the geographic area described above. The letter shall contain, as a minimum, the following information:

1. Name of Contractor
2. 24-hour telephone complaint number
3. Brief description of the project
4. Name of Contractor Project Superintendent
5. Name of Engineer
6. Name of Area Supervisor
7. Construction schedule including anticipated work hours
8. Traffic regulations, including lane restrictions
9. City of Glendale Street Transportation 24-hour phone number.

The plan and work which is eligible for reimbursement shall include the following: meetings with impacted businesses, schools, emergency services and residents, scheduling, preparation and distribution of newsletter (at the discretion of the engineer), and maintaining a 24-hour telephone hot line for complaints.

The Contractor shall submit a final report evaluation of the Public Information and Notification process performed for this project. This report shall be submitted before the Contractor receives final payment.

Payment will be based on invoices, and will be for a total amount not to exceed the amount shown in the bid schedule for the item, "PUBLIC INFORMATION AND NOTIFICATION ALLOWANCE", for work performed in notifying and coordinating with the local population impacted by this project. To cover the cost for administration and supervision, the General Contractor may add an amount equal to not more than five percent (5%) of the accumulated total invoiced billing for actual public information services provided by a Subcontractor. This cost for administration and supervision will be considered included in the "PUBLIC INFORMATION AND NOTIFICATION ALLOWANCE".

ITEM 107-2 - PUBLIC INFORMATION AND NOTIFICATION ALLOWANCE

Subsection 107.6 – Public Convenience and Safety

Add the following subsection:

Subsection 107.6.4 - Project Signs

Contractor shall provide and install project information signs, one at each end of the project before beginning construction to inform the public of the forthcoming project, construction dates, and suggested alternate routes. Project signs shall include the names of all agencies participating in the project. Signs shall not be constructed or installed prior to approval by the Engineer of their designs, sizes and proposed locations. Contractor shall maintain the signs as necessary and update the information as requested by the Engineer. Payment shall be made according to the allowance in the Bidding Schedule in installments of 50% upon installation, and the remaining 50% upon final payment for the work. A sample of project sign information is attached herein.

ITEM 107-3 PROJECT SIGNS

Subsection 107.8 - Use of Explosives:

Add the following:

The use of explosives will NOT be permitted for any construction activities on the project.

Subsection 107.9 - Protection and Restoration of Property:

Add the following:

The Contractor shall protect-in-place all existing structures and other features as identified on the plans.

The Contractor shall limit all construction activities to the areas shown in the plans and shall not disturb any areas other than as required for construction as shown on the plans.

Subsection 107.10 - Contractor's Responsibility for Work

Add the following:

- A. The Contractor shall protect-in-place at all times all existing utilities.
- B. Contractor is advised that the work will be subject to water flows of varying amounts. District assumes no responsibility for notifying Contractor of any anticipated flows. Nor will the District assume any responsibility for damages to Contractor's equipment or to any of the Contractor's work as a result of water flows.
- C. The Contractor shall take all necessary action to protect the public in and around the construction work area.
- D. The Contractor shall coordinate all work performed along the 66th Avenue alignment and the Frier Drive alignment including the jacking and boring operation thereon with the farmer's use of the field there. The window for this work is September and October of 1999.

SECTION 108 – COMMENCEMENT, PROSECUTION AND PROGRESS

Commencement, prosecution and progress shall conform to Section 108 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 108.1 - Notice to Proceed

Delete Paragraph (A) and replace with the following:

- (A) Contractor shall commence work within seven (7) calendar days after the date of the Notice to Proceed and complete all work within 270 calendar days beginning the day following the effective date specified in the Notice to Proceed. This includes the time necessary to fabricate the pipe. No time extension will be granted for pipe fabrication and delivery.

Subsection 108.2 - Subletting of Contract

Add the following:

For this project, Contractor shall perform, with its own organization, work amounting to 50 percent or more of the total contract cost.

Subsection 108.4 - Contractor's Construction Schedule

Delete in its entirety and replace with the following:

Contractor shall submit a proposed work schedule to Engineer for review before starting work, using the Primavera or other program that is acceptable to the Engineer. Weekly updates shall be submitted to District's Construction Coordinator at the weekly coordination meeting.

Subsection 108.4.1 - Contractor's Billing Schedule

Add the following subsection:

Contractor shall furnish the Engineer an Estimated Billing Schedule for the total project at the pre-construction conference, and thereafter at monthly intervals as agreed to between Contractor and Engineer.

Subsection 108.5 - Limitation of Operations

Add the following:

Should Contractor elect to perform any work after regular working hours, on weekends, or legal holidays, "with or without written approval of Engineer", any charges incurred by District for inspection of the work, surveys or tests of materials will be deducted from monies due or to become due to Contractor.

Subsection 108.9 - Failure to Complete on Time

Add the following:

The actual cost per calendar day incurred by District for Consultant Administrative and Inspection Services on this project will be added to the daily charges as indicated by TABLE 108, LIQUIDATED DAMAGES, and will be deducted from monies due or to become due to Contractor for each and every calendar day that work shall remain incomplete after the time specified for the completion of the work in the proposal, or as adjusted by Engineer. Nothing contained in this provision shall prohibit District from deducting from monies due or to become due to Contractor for any other costs incurred by District directly attributable to the delay in completing this contract.

SECTION 109 – MEASUREMENTS AND PAYMENTS

Measurements and payments shall conform to Section 109 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 109.2 - Scope of Payment

Add the following:

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 "complete-in-place" rate shall include but not necessarily be limited to all labor, material and equipment costs for preparation, installation, construction, modification, alteration or adjustment of the items, which shall include all costs for salaries and wages, all payroll additives to cover employee benefits, allowances for vacation and sick leave, company portion of employee insurance, social and retirement benefits, all payroll taxes, contributions and benefits imposed by any applicable law or regulation and any other direct or indirect payroll-related costs. The rate shall also include but not necessary be limited to all costs for indirect charges or overhead, mileage, travel time, subsistence, materials, freight charges for material to Contractor's facility or project site equipment rental, consumables, tools, insurance to the levels specified in Section 103.6, CONTRACTOR'S INSURANCE, all applicable taxes, as well as Contractor's fee and profit. This rate shall further include all site clean-up costs and hauling of construction debris to disposal sites designated by the Engineer.

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 MAG Standard Specifications where this differs from the items listed in the proposal. All materials not specifically referred to in these items are considered incidental to the item and are included in the unit price.

Payment shall not be made for unused materials

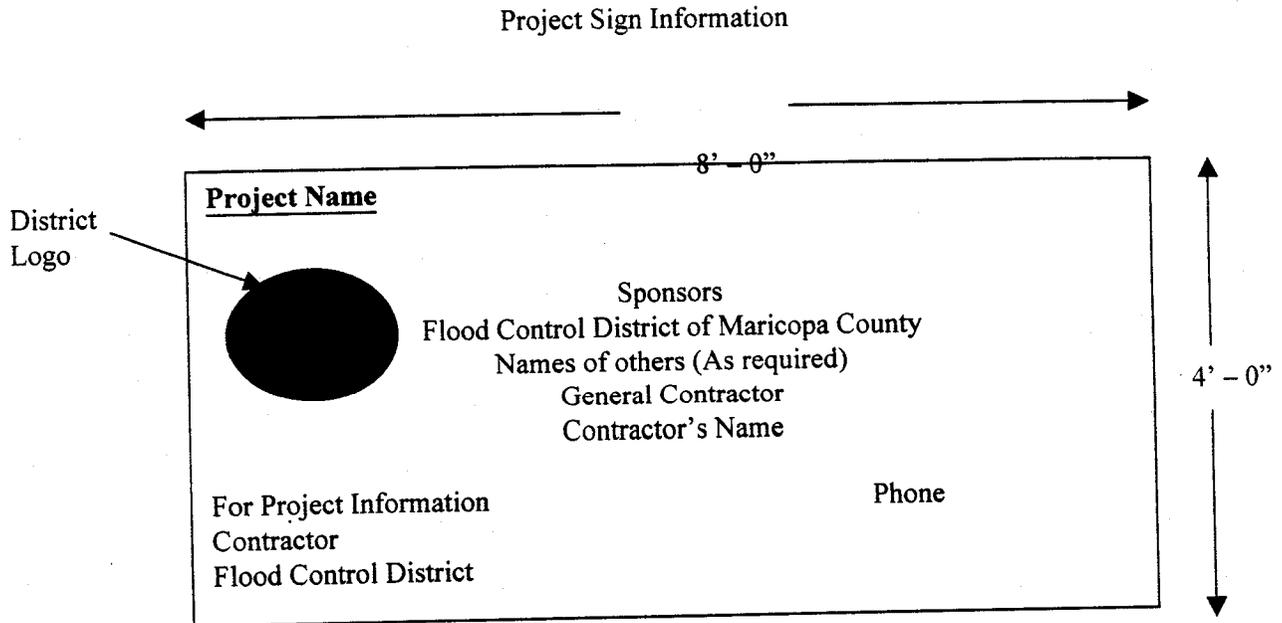
It is the responsibility of the bidders to contact all municipalities in the area to determine if they will charge Contractor sales taxes or any other fees for work on this project. Contractor shall pay any such taxes or fees.

Subsection 109.7 - Payment for Bond Issue and Budget Projects

Add the following.

- (A) To third paragraph, add: Payment or release of retained funds shall be made to the Contractor within thirty (30) days following final payment to the Contractor (reference (B) following), and Contractor furnishing to Engineer satisfactory receipts for all labor and material billed and waivers of liens from any and all persons and Subcontractors holding claims against the work. **Additionally, Contractor shall furnish completed and sealed As-Built Plans and a completed Certificate of Performance to Engineer evidencing it has satisfactorily discharged all its duties in connection with the work to be performed under this Contract.** The Engineer shall provide the form of Certificate of Performance to Contractor.
- (B) Delete second and third paragraphs and replace with: The final payment will be made to Contractor by District within thirty (30) days following receipt of the As-Built Plans, Certificate of Performance and Engineer's final estimate and receipt by District of Consent of Contractor's Surety to said final payment. If payment will be longer than thirty (30) days as aforesaid, District will provide Contractor specific written findings for reasons justifying the delay in payment.

- (C) The Engineer will initially process the Contractor's monthly pay estimate during the last week of the month covered.



1. Background of Sign to be White
2. Text to be Forest Green
3. Logo Supplied by the Flood Control District
4. For other information contact Fred Fuller at 506-4728

CONSTRUCTION SPECIAL PROVISIONS

ORANGEWOOD AVENUE STORM DRAIN

**CONTRACT FCD 99-07
PCN 4500333**

Prepared for :

Flood Control District of Maricopa County
2901 West Durango Street
Phoenix, Arizona 85009

Phone: (602) 506-1501

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ORANGEWOOD AVENUE STORM DRAIN

CONSTRUCTION SPECIAL PROVISIONS

CONTRACT FCD 99-07

PCN 4500333

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**ORANGEWOOD AVENUE STORM DRAIN
CONSTRUCTION SPECIAL PROVISIONS
CONTRACT FCD 99-07
PCN 4500333**

All references herein to MAG refer to the Uniform Standard Specifications for Public Works Construction by the Maricopa Association of Governments (MAG) 1998.

SECTION 201. - CLEARING AND GRUBBING

Clearing and grubbing shall conform to Section 201 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 201.5 - Payment

No payment will be made for clearing and grubbing as such; the cost thereof shall be included in the bid price for the construction or installation of the items to which said clearing and grubbing are incidental or appurtenant.

SECTION 202 - MOBILIZATION

Mobilization shall conform to Section 202 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 202.1 - Description

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 and operations that must be performed and costs incurred prior to beginning work on various items on the project site.

Field Office

This work shall consist of providing and maintaining a furnished Field Office for the exclusive use of and occupancy the Engineer and the Engineer's staff.

The office shall be a building or mobile trailer erected at a location convenient to the project. The Contractor's and the Engineer's offices shall not be in the same building or mobile trailer although the offices shall be located next to each other or within reasonable walking distance.

The Contractor may furnish equivalent facilities in an existing building provided such facilities and building are located to provide convenient service.

The field office shall be an approved and weatherproof building or mobile trailer providing a minimum of 500 square feet of clear floor space, not including the toilet area. The structure shall have a minimum ceiling height of 7 feet and shall be provided with weatherproof doors equipped with adequate locking devices. Windows shall also be provided with adequate locking devices. The Contractor shall also provide the following:

- a. Lighting - Electric light, non-glare type luminaries to provide minimum illumination level at desk height level.

- b. Heating & Cooling - Adequate electrically powered equipment to maintain an ambient air temperature of 72 degrees F plus or minus 8 degrees.
- c. Telephone - Two telephones with outside lines for the exclusive use of the Engineer. The Contractor will pay for the cost of the line and local calling charges. Long distance charges made on this line will be paid for by the District.
- d. Toilet - A commode and wash sink in a separately enclosed room within the building or mobile trailer, properly ventilated and complying with applicable sanitary codes. Contractor shall provide water service.
- e. Maintenance - The contractor shall maintain all facilities and furnished equipment in good working condition.
- f. Fire Extinguisher - Two non-toxic, dry chemical, fire extinguishers meeting Underwriters Laboratories, Inc. approval for Class A, Class B, and Class C fires with a minimum rating of 2A: 20B: 10C.
- g. Electricity - Contractor shall provide electric power and pay for all electric services.
- h. Furnishings - Two office desks with drawers, four office chairs (padded, swivel type), one drafting table (adjustable height 3 feet by 6 feet, one conference table, eight folding chairs, and one draftsman's stool.
- i. Fax, Printer, Copier - Contractor shall provide a 3 in 1 fax, printer and copier for the exclusive use of the Engineer.
- j. First Aid Kit.
- k. Potable water Supply or Service.

The office shall be fully equipped and made available for the Engineer's use and occupancy prior to the start of any Contract work and not later than 10 days after the date of notice to proceed. The Engineer will notify the Contractor, in writing, of the acceptability of the Field Office provided. The Contractor shall maintain the field office in operating condition until seven (7) days after acceptance of the Contract work.

All facilities shall be maintained in good operating condition and appearance by the Contractor for the designated period, after which all portable buildings or trailers, fencing, surfacing, and utilities shall be removed from the site, the areas cleaned and seeded if required and left in a neat and acceptable condition.

Subsection 202.1 - Payment

Payment shall be made on the basis of the lump sum price bid and shall be full compensation for supplying and furnishing all materials, facilities, and services and performing all work involved as specified herein. The lump sum price bid shall not exceed three (3%) percent of the total project bid amount exclusive of mobilization. No additional payment will be made for occupancy and services during periods of contract extension of time due to engineering changes.

ITEM 202-1 - MOBILIZATION

SECTION 206 - STRUCTURE EXCAVATION AND BACKFILL

Structure excavation and backfill shall conform to Section 206 of the MAG Uniform Standards Specifications except as modified herein.

Subsection 206.2 - Foundation Material Treatment

Add the following:

Foundation bearing surfaces shall be free of debris and water softened materials prior to placing concrete and reinforcing steel. All foundation excavations shall be inspected by the Engineer prior to placing the foundation material. Any loose or disturbed zones should be removed and replaced with compacted fill or lean concrete.

Below culvert bottom the moisture content of existing site soils should be maintained between optimum and optimum plus 3 percent (ASTM D698) during and subsequent to site grading to reduce expansive potentials. At these conditions, some pumping may be experienced under dynamic loading if the compaction is done by very heavy equipment (i.e. loaded scrapers, water-pulls, etc.) Some pumping is not considered detrimental in areas below the culvert bottom (i.e. static loading conditions) provided specified densities are obtained. Lighter compaction equipment and/or drying of wet soils may be used to reduce pumping if this condition becomes severe.

The Geotechnical Reports for the project is available from the District and may be used by the Contractor in developing plans for temporary construction slopes.

Subsection 206.4 - Structural Backfill

Add the following:

Compaction of structural backfill soils against embedded footings or walls shall be accomplished to a minimum 95 percent of the maximum ASTM D698 density.

Compaction against culverts, within 3 feet of the walls or lining shall be accomplished using manual or remote control compaction equipment only.

Backfill behind subsurface walls designed to support utilities, pavement, channels, or other facilities should be compacted to density criteria from Section 211. Backfills should consist of granular soils, free of vegetation, debris, organic contaminants, and fragments larger than 6 inches size, which exhibit low expansive potentials. On-site soils may be used in structural fills or backfills more than 3 feet below the final grade. The near surface clay soils exhibit medium to high plasticity. Only on-site soils with a plasticity index of less than 15 may be used as fill in pavement area or as storm drain or backfill. These soils must be mechanically compacted to required densities.

Backfill operations shall be accomplished by mechanical methods. Water settling or jetting shall not be permitted.

Imported soil used for fills around culverts or under pavements, or headwalls should be granular soils conforming to the following requirements:

Maximum Particle size: 6 inches*

Maximum percent expansion: 1.5**

* Maximum size may be reduced at the Engineer's direction to satisfy trenching and landscape requirements, etc.

** Performed on sample remolded to 95 percent of the maximum ASTM D698 dry density at a moisture content of 2 percent below optimum, place under a surcharged load of 100 psf.

Subsection 206.5 - Payment

Add the following:

No payment will be made for structural excavation or structural backfill as such; the cost thereof shall be included in the bid price for the construction or installation of the items for which said excavation is incidental or appurtenant.

SECTION 211 - FILL CONSTRUCTION

Fill construction shall conform to Section 211 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 211.2 - Placing

Add the following:

Highly plastic soils removed from the excavation shall not be used in any required fills or structural backfills.

Subsection 211.3 - Compacting

Add the following:

Compaction of exposed site soil, backfill, fill, and base course materials shall be accomplished to the following density criteria:

<u>Material</u>	<u>Minimum Percent Compaction (ASTM D698)</u>
Subgrade Soil:	
Below structural elements	95
Below pavement	95
Aggregate base course:	
Below pavement	100

The moisture content of soil and base materials at the time of compaction should be:

<u>Type</u>	<u>Area of Use</u>	<u>Moisture Content</u>
Onsite Soil	Pavement	2% below optimum or lower
Imported Soil	Pavement	2% below optimum or lower
Base Material	Pavement	Optimum plus or minus 3%

Any soils which are disturbed or over excavated by the Contractor outside the limits of the plans or specifications should be replaced with materials compacted as specified above.

Subsection 211.6 - Payment

No payment will be made for fill construction as such; the cost thereof shall be included in the bid price for the construction or installation of the items to which said fill construction is incidental or appurtenant. This section does not include structure backfill, which is part of Section 206 herein.

SECTION 215 - EARTHWORK FOR OPEN CHANNELS

Earthwork for open channels shall conform to Section 215 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 215.1 - Description

Add the following:

The work in this section consists of excavation, over-excavation, fill, grading, and disposal of excavated and removed material for the grading of the detention basin slopes as shown on the plans and restoration of earthen irrigation channels disturbed during construction.

Subsection 215.5 - Grading

Add the following:

Earthen Channels

Existing earthen channels disturbed during construction shall be restored to their original condition per plans and licenses related to the project, and to a condition which is acceptable to the maintaining authority. The contractor shall be responsible for maintaining the service of the irrigation ditch in Frier Drive and 66th Avenue alignments. The following is a phasing alternative for the construction in this area; however, the contractor may develop his own program for the phasing of the storm drain construction and irrigation ditch realignment within the Temporary Construction Easements as long as the irrigation ditch is not taken out of service. The storm drain in 66th Avenue shall be constructed from Orangewood Avenue to the north to approximately 50' south of the north property line. The storm drain shall be backfilled and compacted. The irrigation ditch will then be realigned as shown on the plans to allow for the completion of the storm drain to the north in 66th Avenue and the construction of the storm drain in Frier Drive.

Basin Excavation

It is anticipated that this project will precede the basin mass grading by others. A grading plan for the excavation required for construction of each of the basin inlet and/or outlet structures at the southwest and southeast corners of the west basin and at the southwest, northwest and northeast corners of the east basin is shown on the plans. The excavated material is to be stockpiled on the basin parcel adjacent to the excavation.

Subsection 215.7 - Measurement

Add the following:

Measurement for earthen channels will be made according to the quantity of material excavated from natural ground to the finished grades shown on the plans. The Engineer will verify the quantities of excavation by a method which in his opinion is best suited to obtain an accurate determination.

Measurement for basin excavation will be made according to the quantity of material excavated from existing ground to the finished grades shown on the plans. The Engineer will verify the quantities of excavation by a method which in his opinion is best suited to obtain an accurate determination.

Subsection 215.8 - Payment

Payment for excavation for detention basins shall be made on the basis of the price bid per cubic yard for excavation.

ITEM 215-1 - EARTHEN CHANNEL EXCAVATION

ITEM 215-2 - BASIN EXCAVATION

SECTION 220 - RIPRAP CONSTRUCTION

Riprap construction shall conform to Section 220 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 220.1 - Description

Add the following:

The construction of riprap shall consist of furnishing and placing bedding, geotextile fabric and stone as shown on the plans and specified in the special provisions. Sacked concrete riprap shall not be allowed.

Subsection 220.8 - Payment

Payment for riprap construction shall be made at the price bid per cubic yard to the neat lines shown on the plans, and shall include full compensation for furnishing all labor, materials, tools, and equipment, and doing all the work involved in constructing the riprap complete in place as specified on the plans, and in the special provisions. This includes, but is not limited to, preparation of ground surfaces, trenching, geotextile fabric and furnishing and placing of riprap.

ITEM 220-1 - RIPRAP CONSTRUCTION (TYPE I)

SECTION 329 - TACK COAT

Construction shall conform to Section 329 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 329.3 - Application

Add the following:

Tack coat shall be applied at a rate of 0.05 to 0.10 gallons per square yard.

Subsection 329.7 - Payment

No separate measurement or payment shall be made for tack coats; the cost thereof shall be included in the price bid for the construction of the item for such work that pavement replacement is incidental or appurtenant.

SECTION 336 - PAVEMENT MATCHING AND SURFACING REPLACEMENT

Asphalt concrete pavement replacement shall conform to Section 336 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 336.2.4 - Permanent Pavement Replacement

Add the following:

All asphaltic concrete pavement shall be placed using appropriate lay down equipment which has been specifically designed for that purpose. The temperature of the asphaltic concrete shall conform to Section 711, Table 711-2 of the MAG Uniform Standard Specifications.

Pavement replacement shall be as follows:

Street	Asphalt Concrete (in)	Base Material (in)
83 rd Avenue	4.0	8.0
Orangewood Avenue	4.0	8.0
Northern Avenue	5.0	10.0

For asphalt pavements, the asphalt concrete mix shall be SHRP Trench Mix. The top 1" lift shall be SHRP 3/8" (9.5mm), all lifts below the top 1" shall be SHRP 3/4" (19mm). The upper 4" of base material shall be MAG aggregate base and the remainder may be MAG select. All pavement sections shall be constructed in accordance with MAG Uniform Standard Specifications as modified by the City of Glendale.

Subsection 336.5 - Payment

Payment for asphalt concrete pavement replacement shall be made on the basis of price bid per square yard.

ITEM 336-1 - PAVEMENT REPLACEMENT (TYPE 'B' T-TOP)

ITEM 336-2 - PAVEMENT REPLACEMENT (TYPE 'A')

SECTION 340 - CONCRETE CURB, GUTTER, SIDEWALK, DRIVEWAY AND ALLEY ENTRANCES

Concrete curb, gutter, sidewalk and valley gutter shall conform to Section 340 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 340.6 - Payment

Payment for concrete curb and gutter shall be made on the basis of price bid per linear foot.

ITEM 340-1 - CONCRETE CURB AND GUTTER (TYPE 'A')

Payment for concrete sidewalk and valley gutter shall be made on the basis of price bid per square foot.

ITEM 340-2 - CONCRETE VALLEY GUTTER

ITEM 340-3 - CONCRETE SIDEWALK

SECTION 350 - REMOVAL OF EXISTING IMPROVEMENTS

Removal of existing improvements shall conform to Section 350 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 350-1 - Description

Add the following:

This work shall consist of the removal of storm drain inlets which currently outfall into existing irrigation lines and the plugging of the irrigation lines at the inlets. There are numerous minor private irrigation appurtenances within the east detention basin that will need to be removed. In all cases, holes or cavities resulting from the removal of structures shall be backfilled and compacted in accordance with Section 601.

350.4 - Payment

Payment for removal of existing improvements shall be the contract lump sum price for Item 350-1 of the bid schedule. This lump sum price shall be full compensation for the item complete as described herein and on the plans.

ITEM 350-1 - REMOVAL OF EXISTING IMPROVEMENTS

SECTION 401 - TRAFFIC CONTROL

Traffic control shall conform to Section 401 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 401.1 - Description

Add the following:

All traffic control shall conform to the Construction Specifications for this project and the request of the Engineer. Part IV of the "Manual On Uniform Traffic Control Devices For Streets And Highways" (U.S. Department of Transportation, Federal Highway Division) and all revisions thereto, the Traffic Manual from the City of Phoenix and all revisions thereto shall serve as a guideline in Contractor's application of traffic control.

It shall be the Contractor's responsibility to provide, erect and maintain and remove after completion of the work all necessary signs, barricades, temporary traffic signals, barriers, berms, lights, high level warning devices, delineators, and any other required devices, uniformed officers, and flagman, necessary to properly mark and control the construction area for the safe and efficient movement of traffic. Temporary traffic control devices shall be installed prior to the start of any work. It shall be the Contractor's responsibility to construct the required by pass lanes in order to make the road available to traffic. The City's (Glendale) approval of the Contractor's traffic control method shall not relieve the Contractor of its responsibility to protect the work, Contractor's personnel, or the general public.

The Contractor shall provide and maintain all necessary signs, barricades and centerline vertical panels for five (5) working days beyond the concrete cure time or acceptance of the project by the Engineer, whichever period is greater.

Subsection 401.5 - General Traffic Regulations

Add the following:

A road closure for the convenience of the Contractor is not authorized, except as specified in these Special Provisions, without the prior approval of the City of Glendale. Traffic restrictions are not permitted on major or collector streets during peak traffic hours of 6:00 a.m. to 8:30 a.m. and 4:00 to 7:00 p.m. weekdays.

At signalized intersections during peak hours, four lanes shall be open on roads with five or more lanes, and three lanes shall be open on roads with four or less lanes with the center lane a left turn lane. During off-peak traffic hours, the minimum number of lanes shall be two lanes (one in each direction) on streets with four lanes or less, and three lanes on streets with five or more lanes. Lane restrictions allowed in the traffic control plans for specific work locations are the exceptions to this criteria.

Channelization, including "KEEP RIGHT" signs, shall be provided whenever traffic is moved across the street center line, the existing center line is removed or opposing traffic is maintained in other than the normal traffic lanes.

All temporary traffic control devices shall be ballasted with sandbags or other approved ballast.

For construction or trenching diversions that require movement of traffic from the normal through lanes, temporary bypasses shall be utilized only during daylight hours and the normal traffic shall be restored during nighttime hours. Traffic plates and temporary pavement shall be used to restore traffic lanes. Exceptions may be authorized by the Engineer under unusual conditions.

The "SPEED LIMIT 25" sign shall be used where traffic is maintained on unpaved shoulders, on temporary detour roads, on road sections where the existing pavement has been removed, or on traffic lanes that are severely restricted.

Access to all adjacent properties shall be maintained whenever possible. When access cannot be maintained, Contractor shall notify the adjacent residents at least 48 hours in advance of the access

closure. In no case shall the access be closed for more than four hours. Access for fire stations, hospitals, sheriff stations and schools shall be maintained at all times.

In order to keep nighttime noise to acceptable levels, no work shall be conducted during the hours of 7:00 P.M. to 6:00 A.M. Exceptions may be granted by the Engineer. Special noise abatement procedures shall be implemented by Contractor for nighttime work.

Contractor shall maintain or relocate all existing signal indications, warning signs, STOP, YIELD, and street name signs are clean and in full view of the intended traffic at all times. Portable signs should be used to supplement blocked or removed signs. Contractor shall reset all disturbed signs to permanent locations when construction is completed. Unnecessary or surplus signs shall be removed and delivered to the City of Glendale. Contractor is responsible for the cost of replacing lost or damaged traffic warning signs.

If existing signal equipment is damaged as a result of Contractor's construction activity, Contractor shall notify the City of Glendale, in order to facilitate the prompt restoration of the traffic signal operation. All costs associated with the repair of damaged traffic signals, caused by Contractor's construction activity, shall be borne by Contractor.

Contractor shall erect portable jersey barriers when deemed necessary by the Engineer. The approach ends of all portable barriers shall be flared a minimum of ten feet away from the travel lane in order to lessen the severity of an accidental impact.

Rope, flagging, fencing and woven plastic tape may be used between barricades and channeling devices to provide additional safety.

Contractor shall install deceleration sand berms in the blocked traffic path or at other hazardous sites, if required by the Engineer, in order to prevent vehicles from entering the construction and/or hazard area. The deceleration sand berms shall be constructed of washed sand and shall be approximately 5 feet high.

Traffic shall be maintained on pavement at all times utilizing 12 foot wide lane.

All advance road closed warning signs shall use distance advisory criteria and be mounted on channels driven into the ground. All conflicting speed limit signs shall be covered.

Contractor shall provide and maintain all necessary signs, barricades and centerline vertical panels until the road is striped.

Construction shall not commence or proceed without an approved Traffic Control Plan. At the pre-construction conference, the Contractor shall submit for review his plan for the sequence of construction and the planned road closure signing for construction and the traffic flow when the road is opened. A Traffic Control Plan (TCP) covering the signing and staging shall be submitted and approved prior to the start of each stage of construction. The Traffic Control Plans shall address all construction staging and special provisions requirements.

At the time of the Pre-Construction conference, the Contractor shall designate an employee, other than the Project Superintendent, who is well qualified and experienced in construction traffic control and safety, to be available on the project site during all periods of construction to set up, maintain and coordinate safe barricading whenever construction restricts traffic. This individual shall be authorized to

receive and fulfill instructions from the Engineer and shall supervise and direct the work. Instructions and information given by the Engineer to this individual shall be considered as having been given to the Contractor.

Subsection 401.7 - Payment

Payment for traffic control, including all mobilization, placing, storing, removal and maintenance incidental to the approved traffic control plan, shall be made on the basis of the lump sum price bid.

ITEM 401-1 - TRAFFIC CONTROL

Payment for Traffic Loop Detector replacement per COG Det T5-1 shall be at the unit price bid per each, complete in place.

ITEM 401-2 - TRAFFIC LOOP DETECTOR REPLACEMENT

SECTION 405 - MONUMENTS

Construction of survey markers shall be in accordance with MAG Uniform Standard Specifications Section 405 except as modified herein.

Subsection 405.3 - Construction

Add the following:

Prior to removal of any existing survey marker, brass cap, the contractor shall ensure that appropriate survey ties have been made and recorded by a Registered Land Surveyor for re-establishing the survey markers after construction has been completed.

Subsection 405.5 - Payment

Payment for survey markers shall be at the contract unit price per each. Such payment shall be full compensation for removal, furnishing, and installing the monuments, complete in place, including the cost of labor, Registered Land Surveyor, and all other work not specifically covered that is incidental.

No penalty shall be incurred for the reduction in the number of items described above as determined by Engineer.

ITEM 405-1 - SURVEY MARKER (TYPE 'B')

SECTION 505 - CONCRETE STRUCTURES

Concrete structures shall conform to Section 505 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 505.1 - Description

Add the following:

The work under this section shall consist of furnishing all labor, materials and equipment for the construction of all cast-in-place and other concrete, including headwalls, wingwalls and aprons in accordance with the plans and Section 505 of the MAG Uniform Standard Specifications, except as modified herein.

Concrete shall conform to the requirements of Section 725 of the MAG Uniform Standard Specifications, and mix designs shall additionally meet the requirements of Chapter 5, Section 5.3 of ACI STANDARD 318-89. The Contractor shall submit mix designs and certifications of conformance with the above requirements for the written approval of the Engineer.

Class "A" Concrete, $f'c = 3,000$ psi shall be used for all concrete structures, including the channel lining, irrigation structures, and aprons.

Class "B" Concrete, $f'c = 2,500$ psi shall be used for curbs and gutters.

The use of Class F fly ash will be permitted in all concrete mixes, subject to approval of mix design by Engineer.

Transit Concrete mixers used on the project must carry current certification from ADOT or Arizona Rock Products Association.

The reinforcing steel should conform to Section 727, Grade 60, of the MAG Uniform Standard Specifications.

Junction Structure

The Contractor shall construct a junction structure on the storm drain in accordance with the plans at the following locations: 1) Structure #1: The southeast corner of the west detention basin. 2) Structure #2: The northwest corner of the east detention basin. 3) Structure #3: The northeast corner of the east detention basin.

Inlet /Outlet and Conflict Structures

The Contractor shall construct an inlet structure, inlet/outlet structure or conflict structure on the storm drain in accordance with the plans at the following locations: 1) Structure #4: The outlet structure at the southwest corner of the west detention basin. 2) Structure #5: The outlet headwall structure at the southeast corner of the west detention basin. 3) Structure #6: The inlet/outlet structure at the southwest corner of the east detention basin. 4) Structure #7: The outlet headwall structure at the northwest corner of the east detention basin. 5) Structure #8: The outlet headwall structure at the northeast corner of the east detention basin. 6) Structure #9: The irrigation/storm drain conflict structure at the northeast corner of 67th Avenue and Northern Avenue.

Catch Basins

The Contractor shall construct catch basins at the stations shown on the plans to the size and dimensions shown on the plans.

Catch basins shall have a minimum horizontal clearance of six (6) inches between all other facilities and the nearest surface to the catch basin. If the clearance cannot be maintained, the Contractor shall install expanded polystyrene form material of a minimum of two (2) inches thickness between the pipe and the catch basin.

Curbs, gutters, and sidewalks shall be removed as necessary to construct the catch basins. The Contractor has the option of saw cutting the existing curbs, gutters, and sidewalks for the removal or removing them to the closest existing joint within four (4) feet (preferred). Removal and replacement of existing curbs, gutters, and sidewalks is incidental to the construction of the catch basins. No separate measurement or payment shall be made to modify the catch basin dimensions in the field to avoid conflicting utilities, or for the removal and replacement of existing sidewalks.

Concrete Encased Sanitary Sewer

The Contractor shall construct concrete sanitary sewer encasements at the stations shown on the plans per MAG Standard Detail 404.

Concrete Low Flow Channel

The contractor shall verify and coordinate the location and alignment of the concrete low flow channels in the basins with the City of Glendale engineering department prior to construction.

Subsection 505.9 - Finishing Concrete

Add the following:

The use of wood trowels will not be permitted in any finishing operations for concrete slabs.

The concrete aprons and apron extensions for Structures #5 through #8 shall have an exposed aggregate surface per section 343 of the MAG Uniform Standard Specifications.

SECTION 505.10 - PAYMENT

Payment for concrete structures shall be made at the unit price bid per each, complete in place including all fittings, reinforcing steel, grates, concrete, exposed aggregate surfacing, cost of labor, excavation, removal of obstructions, shoring, bracing, bedding, backfilling, compaction, pavement removal and replacement, testing, and all other work not specifically covered that is incidental. Concrete aprons and apron extensions for Structures #5 through #8 are included in the cost of those structures. No separate measurement or payment shall be made to modify the catch basin dimensions in the field to avoid conflicting utilities, or for the removal and replacement of existing curbs, gutters and sidewalks to which such work is incidental or appurtenant.

- ITEM 505-1 - STRUCTURE #1 - JUNCTION STRUCTURE**
- ITEM 505-2 - STRUCTURE #2 - JUNCTION STRUCTURE**
- ITEM 505-3 - STRUCTURE #3 - JUNCTION STRUCTURE**
- ITEM 505-4 - STRUCTURE #4 - OUTLET STRUCTURE**
- ITEM 505-5 - STRUCTURE #5 - OUTLET HEADWALL (ADOT B-11.12)**
- ITEM 505-6 - STRUCTURE #6 - INLET/OUTLET STRUCTURE**
- ITEM 505-7 - STRUCTURE #7 - OUTLET HEADWALL (ADOT B-11.12)**
- ITEM 505-8 - STRUCTURE #8 - OUTLET HEADWALL (ADOT B-12.50)**
- ITEM 505-9 - STRUCTURE #9 - CONFLICT STRUCTURE**
- ITEM 505-10 - CATCH BASIN COP P-1569, TYPE 'M-2', L=6'**
- ITEM 505-11 - CATCH BASIN COP P-1569, TYPE 'M-1', L=17'**
- ITEM 505-12 - CATCH BASIN COP P-1569, TYPE 'M-1', L=10'**
- ITEM 505-13 - CATCH BASIN COP P-1569, TYPE 'M-1', L=6'**
- ITEM 505-14 - CATCH BASIN COP P-1569, TYPE 'M-1', L=3'**
- ITEM 505-15 - CATCH BASIN COP P-1570, TYPE 'N-SINGLE'**
- ITEM 505-16 - CATCH BASIN COP P-1570, TYPE 'N-DOUBLE'**
- ITEM 505-17 - CATCH BASIN COP P-1570, TYPE 'N-TRIPLE'**
- ITEM 505-18 - CONCRETE ENCASE SANITARY SEWER**
- ITEM 505-19 - CONCRETE CATCH BASIN APRON**
- ITEM 505-20 - CONCRETE LOW FLOW CHANNEL**

SECTION 520 - STEEL AND ALUMINUM HANDRAILS

Steel handrail construction shall conform to Section 520 of the Uniform Standard Specifications except as modified herein. Work shall consist of steel handrails on the detention basin inlet and outlet headwall at locations shown on the project plans.

Subsection 520.5 - Payments

Payment for handrails shall be made at the unit price per linear foot bid and shall be full compensation for furnishing and installing steel handrail as specified at detention basin inlet and outlet headwall locations including all labor, materials, tools and equipment, and doing all work involved in constructing steel handrail, complete in place, as shown on the plans and specified herein.

ITEM 520-1 - STEEL HAND RAILS

SECTION 601 - TRENCH EXCAVATION, BACKFILLING, AND COMPACTION

Trench excavation, backfilling, and compaction shall conform to Section 601 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 601.2.3 - Trench Grade

Replace with the following:

Alignment and elevation stakes shall be furnished the contractor at set intervals and agreed upon offsets. On water main projects, elevation stakes will be furnished only when deemed necessary by the Engineer. In all cases where elevation stakes are furnished, the Engineer will also furnish the Contractor with cut sheets.

The Contractor shall excavate for and provide for an initial granular bedding at least 4 inches thick or one twelfth (1/12) the O.D. of the pipe, whichever is greater. This bedding material shall be placed at a uniform density to the required compaction and fine graded as specified below. (See Standard Detail G-690.)

Bell or coupling holes shall be dug after the trench bottom has been graded. Such holes shall be of sufficient width to provide ample room for caulking, banding, or bolting. Holes shall be excavated only as necessary to permit accurate work in the making of the joints and to insure that the pipe will rest upon the prepared bottom of the trench and not be supported by any portion of the joint.

Depressions for joints, other than bell-and-spigot, shall be made in accordance with the recommendations of the joint manufacturer for the particular joint used.

Subsection 601.3 - Protection of existing utilities

Power pole bracing

The contractor shall be responsible for bracing all power poles located within ten feet of the top of trench.

Subsection 601.4 - Foundation, Bedding, Backfilling, and Compaction

Subsection 601.4.2 - Bedding

Add the following:

SRP Irrigation Pipe

The bedding requirements will depend on the pipe location. Pipeline bedding/backfill requirements per Salt River Project Detail CES-30300-001. Class C bedding or better will be required for pipe subject to heavy traffic and will be specified on the plans, license, or construction contract for the job. Where no bedding is specified, Class D bedding shall be used.

Bedding material that is placed or disturbed shall be mechanically compacted to the densities specified in the plans and specifications.

Bell holes shall be excavated with a minimum clearance of two inches to prevent point loading of laid pipe, and to provide full length, continuous support of the pipe barrel. Cable holes should also be excavated to prevent movement of the pipe when removing the pipe sling.

Subsection 601.4.1 - Foundation

Add the following:

MAG Storm Drain

The material upon which the conduit or structure is to be placed shall be accurately finished to the grade or dimensions shown on the plans or as directed by the Engineer. The bottom portion of the trench shall be shaped so as to conform to the bottom of the conduit or structure, in order to provide continuous contact between the conduit and the material upon which it is being placed. In rock trench, the contractor to excavate at least six inches below bottom of bell.

Subsection 601.4.2 - Bedding

Add the following:

MAG Storm Drain

Pipe and conduits installed in the City of Glendale easements and rights-of-way shall be bedded from bottom of excavation to one foot above the top of pipe with granular material meeting the requirements of MAG Section 601.4.6. Bedding shall be constructed so as to conform to a Class B, as defined by the American Society of Civil Engineers, Practice No. 60, except that the top of bedding shall extend to one foot above the top of pipe

Bedding shall consist of either granular material containing no pieces larger than 1 inch and free of any deleterious material. Chips or open graded rock will not be permitted without the express written permission of the Engineer.

Water consolidation shall be permitted for bedding material only with the written permission of the Engineer. Bedding material for all sizes of pipe or conduit shall be placed in lifts, with the maximum loose thickness not to exceed 8 inches. In no case shall the depth of the first lift exceed the springline of the pipe. See Detail G-690.

Slurry Alternate

At his option, the Contractor may utilize a Controlled Low Strength Material (CLSM) per MAG Uniform Standard Specifications Section 728 for bedding for stormdrain pipes. The CLSM shall conform to the requirements for ½ sack CLSM. The slurry shall be placed at a minimum from the outside bottom of the pipe to the springline of the pipe. The slurry must have a slump of $7" \pm 1"$. The slurry shall meet a required compressive strength at 28 days of 70 ± 30 psi.

Also, the Contractor may opt to excavate a trench having a cross-section with a rounded bottom rather than a flat bottom. If this option is chosen, the trench cross-section must maintain the minimum 12 inches between the outside wall of the pipe and the trench wall up to the springline.

Subsection 601.4.3 - Backfill

Add the following:

Backfill material shall be clean sound earthen material free from broken concrete, broken pavement, wood or other deleterious material. Unless otherwise specified, backfill may be screened native material with no piece larger than four (4) inches, select material or aggregate base course, or a slurry mixture consisting of aggregate base course and not more than one-half sack of cement per cubic yard.

Water consolidation shall not be permitted under any circumstance. Mechanical compaction shall be required except when ABC Slurry is chosen as the backfill material. The maximum uncompacted lift thickness for mechanically compacted backfill shall be one (1) foot for any trench width. Nothing contained in these specifications shall be construed to violate or reduce any trench shoring requirements normally required by O.S.H.A.

The moisture content of backfill materials shall be carefully maintained between the limits of +2 and -4 percent of optimum moisture content as determined by AASHTO T- 180 or ASTM D1557.

Subsection 601.4.4 - Compaction Densities

Replace with the following:

Except where noted, the backfill compaction densities listed below shall be determined using the Modified Proctor Method, ASTM D-1557.

<u>MINIMUM DENSITY REQUIRED</u>				
Backfill Type	Location	From Surface to 2' Below Surface	From 2' Below Surface to 1' Above top of Pipe	From 1' Above Top of Pipe to Bottom of Trench
I	Under any existing or proposed pavement, curb, gutter, sidewalk, or such construction included in the contract, or when any part of the trench excavation is within 2' of the above.	90%	90%	95% Standard Proctor
II	On any utility easement street, road or alley right-of-way outside limits of (I).	90%	90%	95% Standard Proctor
III	Around any structures or exposed Utility.	90%	90%	90%

Subsection 601.4.5 - Compaction Methods

Replace with the following:

Water consolidation for backfill will not be permitted within the City of Glendale. The backfill compaction shall be accomplished by mechanical methods using equipment such as rollers, pneumatic tamps, hydro hammers, or other approved devices which secure uniform and required density without injury to the pipe or related structures.

The moisture content of backfill materials shall be placed at +2/-4% of optimum moisture content as determined by AASHTO T-180 or ASTMD-1557. All materials outside these moisture content limits shall be considered unsuitable and subject to removal.

The Contractor shall excavate holes in the compacted bedding and backfill material to the depths, and at the locations, designated by the Engineer. As determined by the Engineer, these holes shall be of such size as to allow the required density testing to be performed in a safe manner. This shall include shoring or any other trench wall support measures required by OSHA.

Subsection 601.6 - Measurement and Payment

No separate measurement or payment shall be made for excavation, falsework, backfilling, and compacting of the storm drain, irrigation and connector pipes, and protecting utilities in place; the cost thereof shall be included in the price bid for construction or installation of the storm drain, irrigation and connector pipes to which such work is incidental or appurtenant. Excavation shall be in accordance with MAG Uniform Standard Specifications and Details and the details shown in the plan.

Payment for power pole bracing shall be at the unit price bid per each, complete in place.

ITEM 601-1 - POWER POLE BRACING

SECTION 610 - WATER LINE CONSTRUCTION

Water line construction shall conform to Section 610 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 610.2 - General

Add the following:

Except where noted otherwise, the Contractor is responsible for protecting all water lines in place and for maintaining all waterlines in service for the duration of the project. If the Contractor elects to temporarily shut down a water main for a period of time which exceeds eight hours, the Contractor shall provide a temporary bypass waterline at no additional cost, which is approved by the City of Glendale, depending on location.

The City of Glendale shall operate all valves on the City water system. The City of Glendale requires 72 hours written notice before necessary shut downs and coordinate all waterline activities with Jim Cowles of the City of Glendale Utilities Department at 930-2713. The City Fire Department must be notified at least 24 hours in advance of any shutdowns for water lines serving fire hydrants.

The Contractor is responsible for maintaining access to water valves within the construction area. Failure to do so may result in delays to a scheduled water shutdown.

Water System Shut Down

The contractor shall be responsible for protecting the existing water lines at all times during construction. The waterline may be shut down and the pressure relieved in segments for short periods during construction. The water line may not be shut down before 7:30 a.m. and must be back in service by 3:00 p.m. If a fire emergency develops that will require the water line to be placed back in service, the Contractor shall be responsible for backfilling or shoring the trench as necessary to allow re-pressurizing the water line.

When a shut down is necessary that will take a water user out of service, those residents and businesses must be notified by door hanger a minimum of 48 hours prior to the shut down. The notice should state that the City can provide bottled drinking water at five gallons per day per residence for those days when they will be out of service. The hanger should also state the hours that the water will be turned off.

The Contractor shall provide all materials and labor necessary to complete all waterline work. City of Glendale utility personnel will not provide materials, labor, or equipment for work related to this project.

Water Line Replacement

In the event of ACP or plastic water lines crossing over the mainline storm drain construction or laterals greater than 24" diameter, the Contractor shall replace the water line with DIP in accordance with Section 610 of the Uniform Standard Specifications as modified herein.

The Contractor shall arrange to have the line shut down in order to perform this work. The Contractor shall notify the Cities at least 72 hours prior to the need to shut down any water lines.

The Contractor shall bear the cost of flushing the lines.

Except for 2 inch water lines, materials for waterline replacement shall be ductile iron, in accordance with Subsection 610.3 of the MAG Uniform Standard Specifications.

Replacement of 2 inch water service line, including tapping water main, saddle, corp stop, copper line, meter line, and all appurtenances shall be considered incidental to related storm drain feature construction.

The replaced water lines shall be visually inspected for leaks under line pressure prior to backfilling.

Water Line Realignment

In the event of an unforeseen conflict between storm drain construction and an existing water line not detailed on the plans or as directed by the Engineer, the Contractor shall vertically and/or horizontally realign the water line in accordance with MAG Standard Detail 370 and Section 610 of the MAG Uniform Standard Specifications.

The water line realignment shall include, but not be limited to, excavation, backfill, compaction, pipe, fittings, offsets, couplings, sleeves, blocking, joint restraints, and hardware. The realigned water line shall be tested per Subsection 610.14 of the MAG Uniform Standard Specifications prior to backfilling.

The Contractor shall coordinate with the City of Glendale and obtain permission to have the line shut down in order to perform this work. The Contractor shall notify the Cities at least 72 hours in advance of the need for a shutdown.

Materials for water line realignment shall be ductile iron, in accordance with Section 750 of the MAG Uniform Standard Specifications.

Subsection 610.18 - Measurement and Payment

Payment for water line realignment and replacement construction will be made at a unit price bid per each location and size of pipe, and will include all trenching, bedding, backfill, materials, and other items incidental to the relocation of the waterlines.

ITEM 610-1 - WATER LINE REALIGNMENT (12")

ITEM 610-2 - WATER LINE REALIGNMENT (6")

ITEM 610-3 - WATER LINE REPLACEMENT (12")

ITEM 610-4 - WATER LINE REPLACEMENT (8")

ITEM 610-5 - WATER LINE REPLACEMENT (6")

ITEM 610-6 - WATER LINE REPLACEMENT (4")

SECTION 615 - SEWER LINE CONSTRUCTION

Sewer line construction shall conform to Section 618 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 615.1 - Description

Add the following:

All VCP sewer lines, which cross over storm drain pipes 36" or larger in diameter, shall be replaced with Ductile Iron Pipe unless otherwise noted on the plans. The 39" concrete sanitary sewer at 71st Avenue is to be protected in place unless otherwise directed by the City of Glendale engineer. Ductile iron pipe shall be class 50 in accordance with AWWA C-150. Transitions from vitrified clay pipe to ductile iron pipe shall be accomplished in a manner approved by the engineer. All ductile iron pipe shall have a ceramic epoxy or polyurethane protective lining which shall cover the inner surface of the pipe and fittings from the plain spigot end to the rear of the gasket socket. The pipe manufacturer shall be solely responsible for the quality of the lining and shall supply a certification as to compliance with the specification.

Subsection 615.3 - Laying Pipe

Add the following:

Ductile iron pipe shall be installed according to the alignment and grade of the pipe being replaced. The contractor shall exercise caution when making the connection to the existing pipe so as not to damage the connected sewer line.

Subsection 615.4 - Measurement and Payment

Payment for sewer line replacement shall be made at the unit price bid per each location and size of pipe and will include all trenching, bedding, backfill materials, and other items incidental to the relocation of the sewer lines.

ITEM 615-1 - SEWER LINE REPLACEMENT (12")

ITEM 615-2 - SEWER LINE REPLACEMENT (10")

SECTION 618 - STORM DRAIN CONSTRUCTION

Storm drain construction shall conform to Section 618 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 618.1 - Description

Add the following:

Storm drain construction along 66th Avenue alignment, Frier Drive alignment and across Grand Avenue at 66th Avenue alignment shall be scheduled to occur between September 1st and October 31st 1999. During this period the farmland will be fallow and disruption to the farming operation will be minimized.

Subsection 618.4 - Jacking Pipe

Add the following:

Utilities will be located so as to provide a safe environment and shall conform to the current "Federal Pipeline Safety Regulations" and "The American Railway Engineering Association Specifications". Where laws or orders of public authority prescribe a higher degree of protection, then the higher degree of protection prescribed shall have precedence.

Subsection 618.4.1 - Jacking Operation

Add the Following:

Jack pipe used shall meet the required jacking pressure based on the type of jacking equipment used. Jack pipe shall be RGRCP (ASTM C-76) no bell/flush bell, Class V, Wall "C", jack pipe with 2" grout holes and 2" galvanized plugs.

Pipeline installations under the Burlington, Northern and Sante Fe (BNSF) railroad tracks at Grand Avenue and Frier Drive alignment and at Northern Avenue and 65th Avenue alignment shall be accomplished by jacking. Jacking construction methods under tracks will be permitted only under direct supervision of a BNSF Engineer. Jacking procedures and equipment, and design, must have BNSF Bridge Department approval prior to starting any work on BNSF property.

Rail elevations over the work must be monitored at intervals prescribed by BNSF to detect any track movement. Movements of over one-quarter (1/4) inch vertically shall be immediately reported to the BNSF Roadmaster. Due to the danger to rail traffic that is caused by only small amounts of track movement, BNSF forces may have to be called to surface the track several times.

The following requirements shall apply to the jacking construction method:

1. The use of water under pressure jetting or puddling will not be permitted to facilitate jacking operations.
2. Where unstable soil conditions exist, boring operations shall be conducted in such a manner as not to be detrimental to the railroad being crossed.
3. If excessive voids or too large a bored hole is produced during pipeline installations, or if it is necessary to abandon a bored hole, prompt remedial action should be taken by the contractor.
4. All voids or abandoned holes caused by boring or jacking are to be filled by pressure grouting. The grout material should be a sand cement slurry with a minimum of two (2) sacks of cement per cubic yard and a *minimum of water* to assure satisfactory placement.
5. Pits for jacking should not be permitted within thirty (30) feet of the track, or closer to the track than the toe of fill slopes in fill sections or toe of shoulder slopes in ditch sections when pipes are allowed on the railroad property.

Subsection 618.5 - Measurement

Add the following:

Measurement for the storm drain pipes shall be by the linear foot/pipe size for the completed item in place within the limits shown on the plans.

Measurements for pipe plug removal, pipe plugs, pipe collars, prefabricated tees, crosses, reducers, permanent pipe supports, prefabricated pipe bends, wyes and access barriers shall be by each for the completed item in place within the limits, as shown on the plans.

Measurement will be made for each permanent pipe support constructed for the various sizes encountered and shall conform to the MAG Standard Details, ADOT Standard Details, and to details provided in the plans. Such pipe supports shall be erected at locations as shown on the plans and at locations determined by the Engineer.

Measurement for jacked pipe shall be made at the ground surface and shall be the number of linear feet of ground surface undisturbed by the cut and cover construction on either side of the jacked section.

No separate measurement or payment shall be made for falsework.

Subsection 618.6 - Payment

Payment for RGRCP storm drain construction shall be made at the unit price bid per linear foot, and shall be full compensation for furnishing and installing the storm drain pipe and connector pipe and fittings complete in place, as specified, including excavation, removal of obstructions, related falsework, cost of labor, backfilling, compaction, sheeting and bracing, testing, manhole and valve adjustments, utility line supports, and all incidental work not specifically covered in other pay items.

- ITEM 618-1 - STORM DRAIN TRUNK LINE PIPE (108")
- ITEM 618-2 - STORM DRAIN TRUNK LINE PIPE (72")
- ITEM 618-3 - STORM DRAIN TRUNK LINE PIPE (66")
- ITEM 618-4 - STORM DRAIN TRUNK LINE PIPE (60")
- ITEM 618-5 - STORM DRAIN TRUNK LINE PIPE (54")
- ITEM 618-6 - STORM DRAIN TRUNK LINE PIPE (48")
- ITEM 618-7 - STORM DRAIN TRUNK LINE PIPE (42")
- ITEM 618-8 - STORM DRAIN TRUNK LINE PIPE (36")
- ITEM 618-9 - STORM DRAIN TRUNK LINE PIPE (30")
- ITEM 618-10 - STORM DRAIN TRUNK LINE PIPE (27")
- ITEM 618-11 - STORM DRAIN TRUNK LINE PIPE (24")
- ITEM 618-12 - CATCH BASIN CONNECTOR PIPE (36")
- ITEM 618-13 - CATCH BASIN CONNECTOR PIPE (30")
- ITEM 618-14 - CATCH BASIN CONNECTOR PIPE (24")
- ITEM 618-15 - CATCH BASIN CONNECTOR PIPE (18")
- ITEM 618-16 - CATCH BASIN CONNECTOR PIPE (15")
- ITEM 618-17 - RGRCP IRRIGATION PIPE (24")

Payment for pipe plug removal, pipe plugs, pipe collars, prefabricated tees, crosses, reducers, permanent pipe supports, prefabricated pipe bends, wyes and access barriers shall be at the unit price bid per each, complete in place.

- ITEM 618-18 - REMOVE PIPE PLUG
- ITEM 618-19 - PIPE PLUG (108")
- ITEM 618-20 - PIPE PLUG (72")
- ITEM 618-21 - PIPE PLUG (60")
- ITEM 618-22 - PIPE PLUG (54")
- ITEM 618-23 - PIPE PLUG (42")
- ITEM 618-24 - PIPE PLUG (36")
- ITEM 618-25 - PIPE PLUG (30")
- ITEM 618-26 - PIPE PLUG (24")
- ITEM 618-27 - PIPE PLUG (18")
- ITEM 618-28 - PIPE PLUG (15")
- ITEM 618-29 - PIPE COLLAR (24" OR LARGER)
- ITEM 618-30 - PIPE COLLAR (21" OR SMALLER)
- ITEM 618-31 - 72" x 72" x 15" PREFABRICATED TEE
- ITEM 618-32 - 66" x 66" x 30" PREFABRICATED TEE
- ITEM 618-33 - 66" x 66" x 18" PREFABRICATED TEE
- ITEM 618-34 - 60" x 60" x 15" PREFABRICATED TEE
- ITEM 618-35 - 54" x 54" x 24" PREFABRICATED TEE
- ITEM 618-36 - 54" x 54" x 18" PREFABRICATED TEE
- ITEM 618-37 - 54" x 54" x 15" PREFABRICATED TEE
- ITEM 618-38 - 48" x 48" x 30" PREFABRICATED TEE
- ITEM 618-39 - 48" x 48" x 18" PREFABRICATED TEE

ITEM 618-40 - 42" x 42" x 36" PREFABRICATED TEE
 ITEM 618-41 - 42" x 42" x 30" PREFABRICATED TEE
 ITEM 618-42 - 42" x 42" x 24" PREFABRICATED TEE
 ITEM 618-43 - 42" x 42" x 15" PREFABRICATED TEE
 ITEM 618-44 - 36" x 36" x 30" PREFABRICATED TEE
 ITEM 618-45 - 36" x 36" x 15" PREFABRICATED TEE
 ITEM 618-46 - 30" x 30" x 24" PREFABRICATED TEE
 ITEM 618-47 - 60" x 60" x 15" x 15" PREFABRICATED CROSS
 ITEM 618-48 - 60" x 48" PREFABRICATED REDUCER
 ITEM 618-49 - 54" x 48" PREFABRICATED REDUCER
 ITEM 618-50 - PERMANENT PIPE SUPPORT
 ITEM 618-51 - 72" x 45° BEND
 ITEM 618-52 - 66" x 45° BEND
 ITEM 618-53 - 60" x 45° BEND
 ITEM 618-54 - 60" x 56.2° BEND
 ITEM 618-55 - 48" x 4° BEND
 ITEM 618-56 - 42" x 35.4° BEND
 ITEM 618-57 - 42" x 35° BEND
 ITEM 618-58 - 42" x 45° BEND
 ITEM 618-59 - 60" x 60" x 42" WYE
 ITEM 618-60 - ACCESS BARRIER ADOT C-1375 (108")
 ITEM 618-61 - ACCESS BARRIER ADOT C-1375 (66")
 ITEM 618-62 - ACCESS BARRIER ADOT C-1375 (54")

Payment for jacked storm drain construction shall be made at the unit price bid per linear foot, and shall be full compensation for furnishing and installing the storm drain jack pipe, as specified, including excavation of jacking pits, jacking of pipe, removal of excavated material, related falsework, cost of labor, backfilling, compaction, sheeting and bracing, testing, and all incidental work not specifically covered in other pay items.

ITEM 618-63 - 60" RGRCP JACK PIPE, CLASS V, WALL "C"

SECTION 620 - CAST-IN-PLACE CONCRETE PIPE

MAG Uniform Standard Specifications Section 620 is deleted in its entirety and the following section substituted:

Subsection 620.1 - General

Cast-in-place concrete pipe (CIPP) conforming to the following is an accepted alternate material for use on this project for storm drainage in areas not subject to traffic loading as described in paragraph (f) below. This specification covers cast-in-place non-reinforced concrete pipe intended for use as storm sewers or irrigation lines. The abbreviated title is CIPP. CIPP is conduit made of portland cement concrete cast monolithically in a properly prepared trench, using equipment specifically designed for this purpose. The type of equipment to be used by the contractor must be approved by the Engineer and the contractor may be required to furnish evidence of the successful use of this equipment on prior work. CIPP will be placed only:

- (a) By experienced operators. The Engineer will be the sole judge as to experience level.
- (b) In the presence of the Engineer.

- (c) In ground capable of standing unsupported from the bottom of the trench to the top of the pipe without sloughing.
- (d) In fill when it can be demonstrated to the satisfaction of the Engineer that the fill will adequately support the pipe.
- (e) When designated as an allowable storm sewer pipe material in the project specifications, this designation is no warranty, expressed or implied, that conditions will be suitable for the use of CIPP. Any costs incurred and/or time required to provide suitable conditions or to substitute an alternate pipe acceptable to the Engineer, in whole or in part, shall be the responsibility of the contractor.
- (f) In areas not subject to traffic loading. These areas include the 27" and 42" storm drain pipes located on the south side of the west basin, the 60" storm drain pipe along the 66th Avenue alignment and the Frier Drive alignment, and all of the storm drain pipes located within the east basin that are not subject to traffic loading.

If the Contractor elects to use CIPP, the diameter of the CIPP shall be increased from that shown for RCP to the next larger multiple of 6" pipe size. The Contractor shall be responsible for any utilities or any other conflict caused by the increase in the size of the pipe. There shall be no extension of time granted for any delay caused by these conflicts.

Subsection 620.2 - Materials

- 620.2.1 Cement shall be ASTM C- 1 50, Type 11, low alkali as per Section 725.
- 620.2.2 Sand aggregate used for concrete and mortar shall conform to Section 701. Maximum size of the aggregate shall not be greater than 1/3 of the minimum wall thickness up to and including a wall thickness of 4 1/2-inches . The maximum aggregate size of 1 1/2-inches.
- 620.2.3 Water used for concrete and for curing to pipe shall be as per Section 725.
- 620.2.4 Concrete shall be Class 'A' in accordance with Section 725. Slump shall be the minimum required for satisfactory placement of the concrete by the equipment used by the contractor. The slump shall not exceed 3-inches.
- 620.2.5 Bonding mortar shall consist of two (2) or more parts of cement to three (3) parts of sand by volume.

Subsection 620.3 - Construction Methods

- 620.3.1 Excavation: The trench will be neatly excavated with vertical sides and semi-circular bottom. The trench shall be shaped to form the bottom outside of the pipe on the alignment and to the grades specified in the plans. Departure from and return to the established grade for the finished trench and the invert of the installed pipe shall not exceed 1-inch per 10 linear feet with a maximum allowable departure of 1 1/2-inches. Departure from and return to specified alignment for the trench and pipe shall not exceed the allowable tolerances specified for the grade. The bottom of the trench, hereinafter known as the trench form, will be shaped to provide full, form, and uniform support by undisturbed earth or compacted fill for at least the bottom 210 degrees of the pipe.

Density of the fill shall be at least five percent (5%) greater than the natural in place soil, but in no case less than 85 percent (85%) when tested in accordance with AASHTO T-99, Method A and T-1 91 or ASTM D-2922 and D-3017.

When it is necessary to install the pipe in rocky areas, the rock will be removed and replaced with suitable fill material compacted to proper density. The rock will be over-excavated to leave a 6-inch minimum compacted soil cushion between the rock and the pipe. For construction accuracy, areas left void by rock removal will be completely filled with compacted material, then trenched for the pipe as though natural ground. If the rock below the pipe subgrade is fractured or fragmented or if it consists of large cobblestones or boulders, the replacement fill material will be carefully selected to ensure that it is of such gradation that it will not be removed downward by fluctuation of the water table. In no case will expansive soils be used for fill. A similar procedure of over-excavation, backfill, compaction, and retrenching will be used where sloughing sand or where soft or spongy soil conditions are encountered. When expansive clays are encountered, they will be thoroughly moistened by ponding, to completely expand the soil, and the moisture maintained until the concrete is placed. The contractor may substitute non-reinforced or reinforced concrete pipe for CIPP in these unsuitable areas. There will be no additional payment for this substitution.

Excavated trench shall be checked for compliance with requirements for grade and alignment prior to placement of concrete. The contractor shall submit his proposed method of grade and alignment control and checking of same for conformance with specifications to the Engineer for his approval prior to start of work. The contractor shall supply manpower, equipment and materials, as are required, to provide and confirm compliance with grade and alignment requirements. This is a non-pay item and all costs incurred shall be included in the bid item(s) for the pipe installation.

620.3.2

Placement: At the time of concrete placement, all soil in the trench will be adequately moistened so that water is not drawn from the freshly placed concrete. However, the trench form will be completely free of water, mud, and debris. All forming devices, including the slipforms and hopper of the placement device, shall be thoroughly moistened.

Concrete shall not be placed when temperature of the concrete exceeds 90 degrees Fahrenheit (32 Celsius) or is less than 50 degrees Fahrenheit (10 Celsius). The soil adjacent to the trench shall be at a temperature above freezing.

The pipe shall be constructed in one placement, the entire cross-section being placed monolithically. Inside forms shall be sufficiently rigid to withstand consolidation of the fresh concrete. Placement shall be such as to produce a thoroughly consolidated homogeneous concrete mixture conforming to the test requirements of this specification. Effective consolidation means shall be applied to the fresh concrete over the entire circumference and from within the pipe shell. Consolidation means shall be capable of effectively placing and consolidating fresh concrete at production speeds. Methods of consolidating shall be capable of building up sufficient pressure to effectively bond the concrete to the surrounding earth and to keep loose sand, mud and water out of the pipe shell.

Under no circumstances will the contractor be allowed to continue the pipe installation if the vibrators of the cast-in-place machine are inoperable. Portable vibrators or "stingers", shall only be used to supplement internal vibrators on the machine and not as a sole source to consolidate and distribute the concrete mix.

The contractor shall make provisions for removing sloughed material, debris and any foreign objects from trench before and during placement of concrete such that buildup of material does not occur ahead of the machine. In addition, small transverse trenches shall be dug across trench bottom, at distances not to exceed 25 linear feet to receive soil built up and pushed ahead of the slipform.

(a) Construction Joints:

When pipe placement stops in excess of ninety (90) minutes, a construction joint shall be formed. The ends of the pipe that are to be butt contact shall be left in rough condition with a slope between 20 and 45 degrees. Number 4 reinforcing bars shall be embedded 12-inches in the previous pour and 12-inches into the next pour and shall be placed 12-inches on center for pipe 42-inches in diameter or less and shall be placed 18-inches on center for pipe diameters in excess of 42-inches. Immediately before resuming concrete placement the surface to be bonded shall be cleaned of all laitance, coatings, foreign materials, and loose or defective concrete thoroughly wetted and coated with a layer of bonding mortar (Section 620.2.5) approximately ¼ -inch thick. In lieu of the bonding mortar, neat cement paste may be thoroughly scrubbed onto the wet surface of the previously placed concrete. For a joint that may be used for connections to another pipe or structure, a joint shall be made by squaring off the end of the pipe. An excavation shall be made along the sides and bottom of the cast-in-place pipe, for any diameter, to permit casting of a concrete collar as described above.

(b) Pipe Dimensions and Tolerances:

(1) The internal diameter of the pipe at any point shall not be less than 95% of the nominal diameter, and the average of any four (4) measurements of the internal diameter made at 45 degree intervals shall not be less than the nominal diameter.

(2) For pipe less than 15-inches inside diameter, the minimum wall thickness shall be 2-inches.

For pipe with an inside diameter of 15-inches to 24-inches the minimum wall thickness shall be 2 ½-inches. For pipe exceeding 24-inches, inside diameter the minimum wall thickness shall be 1/1 2 of the inside diameter, plus ½-inch.

(3) Offsets at form laps and horizontal edges shall not exceed ½-inch for pipe having inside diameter not greater than 42-inches; ¾-inch for pipe having inside diameter greater than 42-inches

but not greater than 72-inches; and 1-inch for pipe having inside diameter greater than 72-inches.

(c) Pipes Placement:

- (1) It is essential that concrete placement be done in a smooth and steady manner with as few starts and stops as is possible. The contractor shall schedule materials and operate the pipe machine at speeds and in a manner that will achieve this.
- (2) The contractor shall provide an anchoring system for pull of the machine in a manner which will provide the least probability of causing deviations in grade and/or alignment. Adjustments to or modifications in anchoring system, when required in the opinion of the Engineer, shall be made at no additional cost to the project.

620.3.3

Curing and Backfilling: The contractor shall be responsible for proper curing of the concrete and backfilling the trench to an even grade. Final backfill and compaction shall not be started until concrete has developed a compressive strength of at least 2,000 psi. The pipe shall be checked for grade, alignment and thickness prior to backfilling. Curing shall be performed in such a manner as to prevent the premature drying of the concrete. The contractor shall use the method described below.

- (a) Polyethylene film complying with ASTM C-171, nominal thickness 0.0015-inches, shall be placed on the exposed top surface of the pipe immediately after the pipe is cast. The film shall be anchored in place with loose soil to assure continuous, adequate curing.

A humid atmosphere within the pipe, as evidenced by condensation on the interior surface, shall be maintained for at least seven (7) days following placement, except for a maximum period of 24 hours allowed for removing forms and making repairs. To prevent air drafts which may dry the pipe and to maintain a humid atmosphere inside the pipe, all openings, ends, manholes, connector pipes shall be kept closed or securely covered, except when actual work is in progress on the inside of the pipe. The pipeline shall be partially filled with water during the curing period when work is not being performed on the inside of the pipe.

620.3.4

Repair: Immediately after removal of the forms, the inside of pipeline will be inspected for required repairs and conformance with all dimensional requirements including alignment and grade. The Engineer shall be the sole judge as to the repairability of deficiencies. He shall require removal and replacement of those sections of pipeline which he judges to be non-repairable or which are not within required dimensional tolerances, including alignment and grade.

When concrete placement is done by a method requiring the use of metal inner forms, the contractor shall schedule his work force, by extended, staggered or multiple shifts, as required, to provide for removal of forms within four to six hours of placement of concrete and start of repairing, patching and finishing of pipeline to conform with specification requirements.

When concrete placement is done by methods using pneumatically inflated inner liner, the contractor shall schedule his work force, by extended, staggered or multiple shifts, as required, to provide for removal of the pneumatic inner liner within 12 hours of placement of concrete and start of repairing, patching and finishing of pipeline to conform with specification requirements.

All rock pockets, non-longitudinal cracks or indentations shall be cleaned out, moistened and filled with 1:2 cement grout or approved epoxy material. Except where, in the opinion of the Engineer, the width and/or length of the crack may indicate a structural deficiency, repairs shall be made as required for longitudinal cracks.

At the discretion of the Engineer, longitudinal cracks exceeding 0.01-inches in width and 12-inches in length may be cause for rejection and removal and replacement of that portion of the pipe. Subject to the approval of the Engineer, cracks may be repaired using a pressure applied epoxy compound capable of providing structural correction to the area in addition to sealing the void. A longitudinal crack shall be defined as one which has the general direction of a 30 degree angle or less with the alignment of the pipe.

Irrespective of concrete placement method, all repairs, patches and finishing shall be completed within 24 hours of concrete placement.

The contractor, prior to start of concrete placement on project shall submit a written schedule of his proposed work activities and work time schedules for the Engineer's review and approval. No time schedule requiring overtime by the Engineer's staff is authorized without specific written approval of the Engineer.

Compliance with this section is a non-pay item and any costs incurred shall be included in the bid proposal item(s) for the pipe.

620.3.5

Finishing: Except for the form offsets, the interior surface of the pipe shall be equivalent to or better than a wood float finish. Form offsets shall be trimmed so as to provide a reasonably tapered slope from surface to surface. The bottom of the pipe below the metal forms shall be finished in a workmanlike manner and shall conform to the general circular circumference of the pipe without sags, dips and humps. All extraneous concrete shall be removed from the interior surface.

Subsection 620.4 - Tests

Random tests shall be made of the wall thickness at the top, bottom and sides, approximately every 100 feet on a daily basis by probes through fresh concrete or small holes drilled through the concrete. Holes shall be properly and permanently closed and sealed, flush with the inside surface of the pipe, after measurements are made, in accordance with the requirements of the fifth paragraph of MAG Subsection

620.3.4, contained herein.

Test cylinders shall be prepared and tested as per Section 725. If the cylinder tests indicate that the concrete does not meet the specified strength requirements, cores shall be taken from the same section of concrete represented by the faulty test cylinder under the supervision of the Engineer. The concrete should be at least 14 days old before the core specimens are taken. The diameter of the core specimens for the determination of compressive strength should be at least three (3) times the maximum nominal size of the coarse aggregate used and must be at least twice the maximum nominal size of coarse aggregate.

The length of the specimen, when capped, should be twice to core diameter. A core having a maximum height of less than 95 percent of its diameter before capping or a height less than its diameter after capping shall not be tested.

If cores are taken, the contractor shall patch all core holes in such a manner that the patch will be permanent, will not leak, and will have a smooth interior finish flush with the interior surface of the pipe.

Procedures and payment for coring shall be in accordance with applicable portions of Section 725. The Engineer will evaluate the test results and his decision as to required corrective action will be final.

Subsection 620.5 - Measurement

Measurement of cast-in-place concrete pipe will be the number of linear feet of pipe measured horizontally along the pipe axis from end to end of pipe. At change in diameter, the measurement shall be to center of manhole or transition.

Subsection 620.6 - Payment

Payment will be made at the contract unit price bid per linear foot to the nearest foot for each size of pipe and shall be compensation in full for furnishing and installing the cast-in-place concrete pipe as specified including removal of obstructions, excavation, backfilling, compacting, testing, and all incidental costs not specifically covered in other items in the proposal.

SECTION 621 - CORRUGATED METAL PIPE AND ARCHES

Concrete lined corrugated metal pipe shall conform to Section 621 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 621.1 - Description

Add the following:

Concrete lined corrugated metal pipe (CLCMP) conforming to the following is an accepted alternate material for use on this project for storm drain pipe.

Subsection 621.2 - Materials

Add the following:

Aluminized Steel Type 2 CMP: Corrugated metal pipe, coupling bands and fittings for concrete-lined pipe shall conform to the requirements of AASHTO M-36 for the specified sectional dimensions and metallic coatings. Aluminized coating shall conform to AASHTO M-274.

Pipe shall be full circle and shall be fabricated with helical corrugations.

Pipe thickness shall not be less than that listed in the following table:

Pipe Diameter	Minimum Thickness (Gage)	Corrugation Size
24"	0.064" (16)	2-2/3" x 1/2"
30"-54"	0.079" (14)	2-2/3" x 1/2"
60"-66"	0.109" (12)	2-2/3" x 1/2"
72"-84"	0.079" (14)	3" x 1"
90"-102"	0.109" (12)	3" x 1"
108"-120"	0.138" (10)	3" x 1"

Subsection 621.3.1 - Joints

Add the following:

Concrete Lining: Shall be in conformance with ASTM A-849 except as modified herein.

Composition: Concrete for the lining shall be composed of cement, fine aggregate and water that are well mixed and of such consistency as to produce a dense, homogeneous, non-segregating lining.

Cement: Portland cement shall be in accordance with MAG Section 725.

Aggregate: Aggregates shall conform to AASHTO M6, except that the requirements for gradation and uniformity of gradation shall not apply.

Mixture: The aggregates shall be sized, graded, proportioned and thoroughly mixed with such proportions of cement and water as will produce a homogeneous concrete mixture of such quality that the pipe will conform to the design requirements of this specification. In no case, however, shall the proportions of Portland cement plus pozzolanic admixture be less than 470 pounds per cubic yard of concrete.

Lining: The lining shall have a minimum thickness of 3/8 inch above the crest of the corrugations and shall be applied by a machine traveling through a stationary pipe. The rate of travel of the machine and the rate of concrete placement shall be mechanically regulated so as to produce a homogeneous non-segregated lining throughout. The lining shall be applied in a two course application, and shall be mechanically troweled by the lining machine as the unit moves through the pipe. The trowel attachment shall be such that the pressure applied to the lining will be uniform and shall produce a lining that has a uniform thickness and a consistent troweled finish. The vertical diameter anywhere inside the pipe must be 95% of the nominal diameter less acceptable tolerances as stated in AASHTO M36. Pipe not meeting these tolerances will be rejected.

Subsection 621.1 - Installation

Add the following:

Experience: The manufacturer shall certify in writing that he has successfully manufactured and furnished corrugated steel pipe with a concrete lining per these specifications on a minimum of ten (10) previous projects of a storm drain nature.

Each pipe and end shall be fabricated with a minimum of two annular re-rolled corrugations for purposes of joining pipes together with band couplers.

Pipe shall be joined with re-rolled bands made from the same material as the pipe. The bands shall be a minimum of 16 gage (0.064"). Bands shall be two piece for pipe greater than forty eight (48) inches in diameter.

Coupling bands shall be a minimum of ten and one half (10-1/2) inches wide, formed with two (2) corrugations that are spaced to provide nesting in the second corrugation of each pipe end and shall be drawn together by a minimum of two (2) one half (1/2) inch diameter galvanized bolts through the use of a par and strap suitably welded to the band.

Watertight joints with "O"-ring gaskets shall be per ASTM C-361 Section 6.9 and shall be placed in the first corrugation of each pipe end and shall be compressed by tightening the coupling band, in accordance with the manufacturers installation instructions.

Joints: All internal joints shall be mortared to a smooth trowel finish around the entire pipe. Mortar for joints shall conform to Section 776 of the MAG Uniform Standard Specifications.

Subsection 621.4 - Test Specimens

Add the following:

The Engineer, solely at his discretion, may require hydrostatic testing of the storm drainage facilities. The testing shall be performed after backfilling has been completed but prior to the placement of the pavement replacement. The testing shall be done on pipe segments between manhole sections or lengths not to exceed 1200 feet. A minimum of one pipe segment will be tested.

The test shall consist of sealing all the storm drain open ends and filling the manholes with water to a level 4' above the crown of the pipe at the high end. A period of at least two hours will be allowed for the absorption time before conducting the test. Once the test commences, the water level at the manhole shall be maintained at 4' above the crown of the pipe for a period of at least two hours and any water loss shall be measured and recorded by a method approved by the Engineer.

The allowable water loss for the storm drain facility shall not exceed 1.0 gallon per hour per inch of internal diameter per 100 feet of pipe tested.

The Contractor shall furnish all the labor, equipment and materials necessary to conduct the test. The cost of any repairs or corrections necessary to conform to the testing requirements herein shall be borne by the Contractor alone, as well as the cost of re-testing the storm drainage facilities as many times as necessary to conform to the requirements herein.

621.6 PAYMENT

Payment for this item, should it be required by the Engineer, shall be made at the unit price for each STORM DRAIN HYDROSTATIC TEST performed.

ITEM 621-1 - STORM DRAIN HYDROSTATIC TEST (CONTINGENCY ITEM)

SECTION 625 - MANHOLE CONSTRUCTION

Subsection 625.1 - Description

Add the following:

Manholes shall be constructed or shown on the plans and in accordance with MAG Uniform Standard Specifications 625 except as modified herein.

Subsection 625.4 - Measurement

Add the following:

Measurement for manholes shall be for each bid item completed in place within the limits shown on the plans.

Subsection 625.5 - Payment

Payment for manholes shall be made at the unit price bid per each complete in place. Such payment shall be full compensation for furnishing and installing the item complete in place, including the cost of all prefabricated tees, labor, excavation, removal of obstruction, shoring, bracing, bedding, and backfilling.

ITEM 625-1 - STORM SEWER MANHOLE MAG 520 AND 522

ITEM 625-2 - STORM SEWER MANHOLE MAG 521 AND 522

ITEM 625-3 - STORM SEWER MANHOLE COP DET P-1560

SECTION 630 - TAPPING SLEEVES, VALVES, AND VALVE BOXES ON WATER LINES

Subsection 630.1 - Description

Add the following:

All tapping sleeves, water valves and valve boxes shall be in accordance with Section 630 of the MAG Uniform Standard Specifications except as modified herein.

All existing valves which are to be abandoned as a result of new waterline construction shall be salvaged, as directed by the Engineer and returned to the City of Glendale.

All valve shutdown fees will be waived for work on water services and meters under these specifications. When it becomes necessary to shut down existing water mains and services to construct replacements, no main shall be left out of service for more than one (1) hour, and no individual service will be disrupted for more than five (5) continuous hours. Main valves shall be operated by representatives of the City of Glendale. Shutdowns will not begin before 7:30 a.m. and will not extend past 3:00 pm.

When it becomes necessary to shut down an existing waterline, it shall be the Contractor's responsibility to notify all customers in advance that the water service will be turned off. The customers shall be notified, in writing, at least 48 hours in advance and also verbally, the day the shutdown will occur. Initial notification shall include the reason for the shutdown, the date, the time, and the duration the water service will be shut off. A copy of the notification shall be given to the Engineer.

During construction, the Contractor shall be responsible for maintaining continuous access to the valve-operating nut for all water valves within the project boundaries.

Subsection 630.9 - Payment

At the discretion of the City Engineer, it may be necessary to add a line valve per bid item close to the area of waterline realignment to avoid a shutdown to a large service area. If a determination is made that line valves are necessary, these items will be considered contingency items, and payment shall be made at the contract unit price per each complete in place. Such payment shall be full compensation for furnishing and installing the item complete in place, including the cost of labor, excavation, removal of obstructions, shoring, bracing, bedding, backfilling, compaction, testing, and all other work not specifically covered that is incidental or appurtenant.

No penalty shall be incurred for the reduction of the number of each of this item described above as determined by the Engineer.

ITEM 630-1 - TAPPING SLEEVE AND VALVE BOX AND COVER (CONTINGENCY ITEM)

SECTION 703 - RIPRAP

Riprap shall conform to Section 703 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 703.1 - Stone

Add the following:

Waste concrete shall not be used as stone for riprap.

Subsection 703.2 - Size of Stone

Subsection 703.2 of the MAG Uniform Standard Specifications is replaced with the following requirements:

Riprap Type	D _{max} (in)	D ₅₀ (in)	D _{min} (in)
I	8	4	1.5

SECTION 725 - PORTLAND CEMENT CONCRETE

Portland cement concrete shall conform to Section 725 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 725.2 - Portland Cement

Add the following:

Cement shall be portland cement, conforming to the requirements of ASTM C-150, Type II, unless noted otherwise on the plans or in the specifications.

SECTION 750 - IRON WATER PIPE AND FITTINGS

Ductile iron pipe shall conform to Section 750 of the MAG Uniform Standard Specifications except as modified herein.

Subsection 750.1 - Description

The work under this section shall consist of the replacement of the irrigation line at the conflict structure with ductile iron pipe to the limits shown on the plans.

Subsection 750.5 - Payment

Payment for ductile iron pipe shall be made at the unit price bid per linear foot, and shall be full compensation for furnishing and installing the ductile iron pipe and fittings complete in place, as specified, including excavation, removal of obstructions, related falsework, cost of labor, back-filling, compaction sheeting and bracing, utility line supports, and all incidental work not specifically covered in other pay items.

ITEM 750-1 - DUCTILE IRON PIPE (18")