

#6

CONSTRUCTION SPECIFICATIONS

FOR

CONTRACT FCD 97-22

TATUM WASH DETENTION BASIN NO. 1

FCD Project No. 580040



Property of
Flood Control District of MC Library
Please Return to
2301 W. Durango
Phoenix, AZ 85009

(Engineer's Seal)

Prepared by

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

Recommended by: Edward A. Raleigh Date: 8/22/97
Edward A. Raleigh, P.E., Chief
Engineering Division

Issued for Public Bidding by: M.S. Ellegood Date: 8/22/97
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 1992 AND REVISIONS AND SUPPLEMENTS THERETO.

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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

TATUM WASH DETENTION BASIN NO. 1
CONTRACT FCD 97-22

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(Area to left reserved
for Engineer's Seal)

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

INVITATION FOR BID

BID OPENING DATE: Tuesday, September 23, 1997

LOCATION: This project is located in Phoenix on a vacant parcel on the south side of Shea Blvd. and west of 46th Street.

PROPOSED WORK: The proposed work includes the construction of a four acre detention basin, and construction of three concrete structures including an inlet spillway structure, a basin outlet structure, and a storm drain junction structure for an existing 78" storm drain located in Shea Blvd.

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:

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 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.

CONTRACT TIME:

All work on this Contract is to be completed within one hundred fifty (150) calendar days after date of Notice to Proceed.

MBE/WBE PARTICIPATION:

For this contract, a goal of six percent (6%) MBE/WBE is established for Minority/Women-Owned Business Enterprises. Instructions and required forms are included in the Minority and Women-Owned Business Enterprise Program Contracting Requirements section. The Maricopa County minority and Women-Owned Business Enterprise Program, effective January 1, 1992, is incorporated by reference.

PRE-BID CONFERENCE AND SITE VISIT:

A **mandatory** site tour will be held at **8:30 a.m.** on **Thursday, September 11th** at the project site, with parking available on the north-side Frontage Road across from the site. A pre-bid conference will follow at 10:00 a.m. at the Flood Control District Adobe/Harquahah Conference Room., 2801 West Durango Street, Phoenix, Arizona. It is **mandatory** that prospective bidders attend the pre-bid site tour and conference.

Questions or items for clarification may be addressed to the Contracts Manager, in writing, at least ten (10) days prior to bid opening date. Where appropriate, any answers or clarifications affecting the cost may be addressed to all bidders in an addendum. Verbal interpretations, unless specifically addressed by addendum, shall not be binding nor have any legal effect.

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 \$14.00 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 \$7.50 for first class U.S. postage and handling. The total \$21.50 will not be refunded. Regardless of circumstances, we cannot guarantee mail delivery. Each bid must be accompanied by a Bid Bond, cashier's or certified check or postal money order equal to 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 as liquidated damages.

PRINCIPLE ITEMS AND APPROXIMATE QUANTITIES

QUANTITY	UNIT	DESCRIPTION
77,534	CY	DETENTION BASIN EXCAVATION
655	CY	LARGE CONCRETE INLET SPILLWAY STRUCTURE
14	CY	CONCRETE OUTLET STRUCTURE
1	LS	CONCRETE STORM DRAIN JUNCTION STRUCTURE
108	LF	42" RGRCP

BID

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

Gentlemen:

The following Bid is made for construction of Tatum Wash Detention Basin No. 1, FCD 97-22, 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 one hundred fifty (150) 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 the good faith of the Bidder, that the Bidder will enter into a written contract to do the work, as provided, if successful in securing the award thereof; and it is hereby agreed that if at any time other than as provided in the bid requirements and conditions the Undersigned should withdraw its bid, if the bid is accepted and there should be failure on the part of the Undersigned to execute the Contract and furnish satisfactory Bonds and Sureties as herein provided, the Flood Control District of Maricopa County in either of such events, shall be entitled and is hereby given the right to retain the said 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 proposal:

Addendum No. _____	Dated _____

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

BIDDING SCHEDULE

PROJECT: Tatum Wash Detention Basin No. 1

CONTRACT: FCD 97-22

ITEM NO	DESCRIPTION	UNIT	APPROX QTY.	UNIT COST NUMBERS	EXTENDED AMOUNT
105-1	Partnering	LS	1	\$5,000.00	\$5,000.00
107-1	NPDES/SWPPP Permits	LS	1		
107-2	Public Information and Notification Allowance	LS	1	\$25,000.00	\$25,000.00
107-3	Project Signs Allowance	LS	1	\$2,000.00	\$2,000.00
201-1	Clearing and Grubbing	LS	1		
202-1	Mobilization	LS	1		
215-1	Detention Basin Excavation	CY	77,534		
220-1	Plain Rip Rap	CY	289		
225-1	Watering	100/CF	2,675		
336-1	Pavement Replacement	SY	98		
340-1	Concrete Curb and Gutter	LF	107		
340-2	Concrete Driveway Entrance	SF	464		
340-3	Concrete Sidewalk	SF	44		
350-1	Remove Drainage Inlet Structure	LS	1		
350-2	Remove Shotcrete Lining	LS	1		
350-3	Remove Curb and Gutter	LF	107		
350-4	Remove Sidewalk	SF	205		
401-1	Traffic Control	LS	1		
401-2	Off-Duty Uniformed Officer	HR	400		
505-1	Special Outlet Structure	CY	14		
505-2	Special Inlet Spillway	CY	655		
505-3	Special Junction Structure	LS	1		
515-1	24" Flapgate	EA	2		
520-1	Steel Handrails	LF	644		
520-2	Steel Pipe Gate	EA	3		
525-1	Shotcrete Channel Lining	SY	107		
615-1	15" DIP, CL 52	LF	16		
618-1	42" RGRCP	LF	108		
650-1	2" Dia. Instrumentation Conduit	LF	63		
TOTAL BID					

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 the 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 FCD 97-22, Tatum Wash Detention Basin No. 1.

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., 1997

Agency of Record, State of Arizona

Agency Address

Bond Number: _____

Principal

By: _____

Title: _____

Surety

By: _____

Title: _____

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 97-22 for Tatum Wash Detention Basin No. 1 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 _____, 1997.

(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: _____

**MINORITY AND WOMEN-OWNED BUSINESS ENTERPRISE PROGRAM
CONSTRUCTION CONTRACTING REQUIREMENTS**

A. The following conditions will apply in the calculations of the percentage attainment:

1. All M/WBE firms used in attainment of the goal must be certified with the Maricopa County Minority Business Office (MBO). The MBO is located at 2901 West Durango Street, Phoenix, Arizona 85009, telephone 506-4068. In addition, only those firms certified prior to the bid opening will be considered in the attainment of the goal.
2. Prime contractor subcontracts to MBE or WBE:
The M/WBE amount to be applied to the goal will be based on that portion (dollar value) of the contract that the M/WBE performs. For example, if a prime contractor subcontracts work amounting to \$100,000 of a contract for which the total project cost is \$1,000,000 the M/WBE participation will be credited as 10 percent.
3. Prime Minority Contractor:
An M/WBE prime contractor will be credited with the M/WBE participation for that portion of the contract which they themselves perform plus that portion subcontracted to other M/WBE firms. For example, if an M/WBE prime contractor proposes to perform 50 percent of a project quoted as \$1,000,000 and subcontracts 25 percent to an MBE firm and 25 percent to a non-M/WBE firm, M/WBE participation will be credited as 75 percent, or \$750,000.
4. Minority-Non Minority Joint Venture:
A joint venture consisting of M/WBE participation and non-M/WBE business enterprises, functioning as a prime contractor, will be credited with minority participation on the basis of the percentage of profit accruing to the M/WBE firm. For example, if a M/WBE and non-M/WBE joint venture proposes to perform 50 percent of a \$1,000,000 project and 50 percent of the joint venture profits (\$500,000) are to accrue to the M/WBE partner in the joint venture, M/WBE participation will be credited at 25 percent or \$250,000.
5. Lower Tier Non-M/WBE Participation:
M/WBE subcontractors proposing to further subcontract to non-M/WBE contractors shall not have that portion of subcontracting activity considered when determining the percentage of M/WBE participation.
6. M/WBE Suppliers:
Any M/WBE supplier that performs a commercially useful function, manufactures or substantially alters the material or product it supplies will have that portion of activity considered when determining the percentage of M/WBE participation.
7. M/WBE Trucking:
Credit for trucking by MBEs or WBEs will be the amount to be paid when the MBE or WBE trucker will perform the trucking with his/her trucks, tractors, and employees or when a MBE or WBE trucking broker has signed agreements with MBE and WBE truckers.

B. Required forms:

Two Affidavits are included as part of this section. The first form, the "M/WBE Assurances Affidavit", must be completed and submitted with the bid - **FAILURE TO DO SO SHALL BE CAUSE FOR REJECTION OF THE BID.**

A SAMPLE of the "Actual M/WBE Participation Affidavit", that must be completed and returned by the first and second bidders to the Minority Business Office by 4:00 p.m. on the seventh calendar day after bid opening, if M/WBE goals have been established, is provided for information purposes. A copy of the sample or the sample form itself may also be used. The affidavit will list the M/WBE participation by M/WBE firm name and the relative dollar value of the M/WBE contract. The information in this affidavit is binding on the contractor, to the extent that any amounts may be increased and not decreased, and that if any listed M/WBE's are unable to enter into a subcontract with contractor, the contractor **must** provide a written report to the Procurement Officer, through the Owner's representative in accordance with instructions provided elsewhere in this document.

C. **Good Faith Efforts:**

Bids which fail to meet MBE or WBE minimum goals at levels which equal or exceed established goals may be considered nonresponsive unless good faith efforts can be determined. Only MBE and WBE firms certified by Maricopa County prior to the bid submittal date, and which will perform a commercially useful function will be counted toward meeting the participation goals. Any portion of the work that a proposed MBE or WBE firm will subcontract to other than a certified firm, regardless of tier, will not be counted toward the applicable goals.

The apparent first and second low bidders who do not fulfill the established MBE and WBE goals must demonstrate, through detailed and comprehensive documentation, that "good faith" efforts have been made to solicit, assist and utilize MBE and WBE firms to meet participation goals.

The County minority Business Office (MBO) will assist prime contractors in identifying possible qualified and interested MBE and WBE subcontractors to meet designated MBE and WBE goals. A **M/WBE listing will be furnished with the bidding documents**, which contractors must utilize in identifying M/WBE firms. It will be the responsibility of the prime contractors to obtain the MBE and WBE firms necessary to meet the MBE and WBE goals. **FAILURE TO CONTACT THE MBO FOR ASSISTANCE IN COMPLYING WITH THESE GOALS MAY RESULT IN NOT HAVING IMPLEMENTED "GOOD FAITH" EFFORTS.** Contact may be in writing, by telephone, or in person. If by phone or in person, name of MBO person spoken to should be obtained and written within the "CONTRACTOR CERTIFICATE OF GOOD FAITH" SUBMITTAL FORM (supplied if a contract has M/WBE goals).

(The Minority Business Office is located at 2901 West Durango Street, Phoenix, Arizona. Telephone number is 506-4068.)

FAILURE TO IMPLEMENT "GOOD FAITH" EFFORTS IN ACCORDANCE WITH THE MARICOPA COUNTY MINORITY BUSINESS ENTERPRISE PROGRAM TO THE SATISFACTION OF MARICOPA COUNTY MAY RESULT IN THE REJECTION OF THE BID.

If information submitted by a prime contractor indicates that established MBE and WBE goals have not been met, the contractor must be required to provide sufficient documentation to demonstrate that he/she has complied with MBE and WBE requirements or good faith efforts. Good faith efforts will be determined by both quality and intensity of these efforts. Documentation provided to the MBO must include:

1. The date bidder requested assistance in writing, in person, or by telephone from the MBO. The bidder should request assistance from the MBO office in order for a determination to be made. **As Maricopa County M/WBE listings are updated frequently, bidders shall contact the MBO to ensure that they have the most recent edition.**
2. Names, addresses and telephone numbers; and dates of notification of Maricopa County certified MBEs and WBEs solicited by direct mail for this project; and dates and methods used for follow up of initial solicitations to determine with certainty whether MBEs or WBEs were interested in subcontracting. (SEE FOLLOWING NOTE).

3. Items of work for which bidder requested subbids, proposals or materials to be supplied by MBEs and WBEs; information furnished to interested MBEs and WBEs such as specifications and requirements of the work; plans; and any breakdown of items of work into economically feasible units to facilitate MBE and WBE participation.
4. Names of MBEs and WBEs who submitted bids for any of the work indicated above and were not accepted by the prime contractor. An explanation of why MBEs or WBEs contacted will not be awarded subcontracts. If price was the reason for rejection of the bid, the price bid of rejected MBEs or WBEs and price bid of the selected subcontractor shall be submitted. Since utilization of available MBEs and WBEs is the program objective, price differences will not automatically be considered as cause for a prime contractor's rejection of MBE and WBE bids.
5. Documentation of written notices or telephone calls to a reasonable number of M/WBEs soliciting their participation in sufficient time to allow M/WBEs to participate effectively. All M/WBEs listed on the Maricopa County Certification list which provide applicable goods and services for subject procurement/project should be contacted.

NOTE: THE ABOVE GOOD FAITH EFFORTS MUST HAVE BEEN CONDUCTED DURING THE BIDDING PERIOD AND PRIOR TO THE BID OPENING WITH SUBSTANTIAL TIME IN ORDER TO ALLOW FOR A RESPONSE FROM POTENTIAL M/WBE SUBCONTRACTORS. ORIGINAL CONTACT BY A PRIME CONTRACTOR JUST PRIOR TO OR ON THE BID OPENING WILL NOT BE CONSTRUED AS HAVING PROVIDED SUFFICIENT RESPONSE TIME FOR SUBMISSION OF SUBCONTRACT BIDS.

The following efforts can also be utilized in demonstrating "Good Faith" in soliciting M/WBE participation.

1. A description of the efforts made to assist MBEs and WBEs whose bids were rejected to be more competitive in their subcontracting bids. These efforts could include assistance in meeting bonding or insurance requirements.
2. Names and dates of advertisement of each newspaper, trade paper, and minority focus paper in which a request for MBE and WBE participation for this project was placed by the bidder.

Contractors are encouraged to seek M/WBEs in the same geographical area in which the work is to be performed or goods provided. If the bidder cannot meet the established goals using M/WBEs from the geographical area, the bidder should expand its search to a reasonable wider geographical area.

The MBO will make the final decision as to whether good faith efforts were met, based on the information submitted.

D. Appeal Process for Bid Award:

If the Owner is considering award of a contract to a bidder other than the low bidder because of failure to meet MBE and WBE participation goals or good faith efforts, the low bidder will be notified and given an opportunity to protest the decision. This protest will be made in accordance with the Maricopa County Procurement Code, Article 9, MCI-905, which is incorporated by reference.

E. Contract Compliance:

Failure of any bidder, contractor or subcontractor to comply with any of the requirements of the Maricopa County minority and Women-Owned Business Program shall be a material breach of contract. During the term of an awarded contract, the prime contractor shall:

1. Fulfill the MBE and WBE participation commitments submitted with their bid;
2. Continue to make every effort to utilize MBEs and WBEs;

3. Require that their subcontractors make every effort to utilize MBEs and WBEs;
4. Maintain records necessary for monitoring their compliance with provisions contained in the M/WBE Program.

The primary responsibility for assuring contractor's compliance with these M/WBE contract requirements after award rests with the Owner's designated representative. The Owner's designated representative should ascertain that no one other than the approved MBE or WBE contractors or subcontractors are performing the work, and that MBE and WBE subcontractor substitutes have been approved in advance. The prime contractor shall not perform any MBE or WBE contract work items without prior approval by the Owner's Procurement Officer, through the Owner's designated representative.

The Owner's Procurement Office shall advise the Minority Business Office immediately of any circumstances where a contractor appears to be in violation of the MBE and WBE contract requirements. An investigation will be held by the MBO and a recommendation for corrective action shall be forwarded to the Owner's Procurement Officer. Intentional noncompliance with the MBE and WBE requirements may result in withholding funds on the items already completed, in termination of the contract, and/or formal debarment from future contracts. The Maricopa County Minority Business Office reserves the right to inspect all records of the contractor, MBEs and WBEs concerning this project.

The MBO will conduct MBE and WBE compliance reviews on a regular basis.

F. Substitution of Subcontractors:

The prime contractor shall request approval to replace an approved MBE or WBE subcontractor that is unable or unwilling to perform successfully on a contract with another MBE or WBE. This failure does not remove the contractor's responsibility for meeting the MBE and WBE participation goals on the contract. A written request for substitution must be made to the Owner's Procurement Officer, through the designated Owner's representative, of the Procurement Agency. The substitute MBE or WBE, obtained to perform an equal or greater dollar value of work, must be approved by the Owner's Procurement Officer, through the designated Owner's representative, prior to beginning of any work by the substitute MBE or WBE. The request for substitution must include, but is not limited to the following:

1. Reason for substitution.
2. Name, address, and telephone number of the approved MBE or WBE.
3. Name, address and telephone number of the MBE or WBE substitute.
4. Item, numbers, description of work and the proposed MBE and/or WBE dollar amount.
5. Good faith effort documentation if the substitute subcontractor is not an MBE or WBE.

G. Requests for Pay:

Each Request for Pay must be accompanied by a Maricopa County Minority/Women-Owned Business Enterprise Program "MBE/WBE PARTICIPATION REPORT" in the form as provided by the Flood Control District of Maricopa County.

The final pay request shall include a listing of total contract MBE/WBE participation. Line numbers and a description of actual work performed shall also be included. If, at the time of contract completion, the MBE and WBE commitments are not actually attained, the report is to provide an explanation of failure to comply. These reports shall be submitted within thirty (30) days of contract completion, PRIOR TO RELEASE OF ANY REMAINING CONTRACT RETENTION.

CONTRACTOR CERTIFICATE OF GOOD FAITH*

The intent of this certification is to document the good faith efforts implemented by the apparent low bidder in soliciting and utilizing M/WBE firms to meet the established M/WBE goals for County contracts. This certificate will assist Maricopa County in determining whether the apparent low bidder has implemented "good faith" efforts in accordance with the Maricopa County Minority Business Program. The burden of proof rests with the apparent low bidder.

(NOTE: Prior to filling out this certificate it is important that contractors review the "good faith" efforts requirements in the M/WBE section of the project specification booklet).

Failure to implement "good faith" efforts to the satisfaction of Maricopa County will result in rejection of the proposal.

I, _____, do hereby acknowledge that I am the _____ of _____ who has been identified as the selected contractor on Flood Control District Project/Contract FCD 97-22.

Provide a brief summary of why the established M/WBE goal for this project has not been met. (Attach additional sheets if necessary).

I hereby certify that I have made comprehensive "good faith" efforts to solicit and utilize County certified M/WBEs to meet the established M/WBE goal of this project as demonstrated by my responses to the following questions:

A. IDENTIFYING SUBCONTRACTOR WORK ITEMS

Contractors are encouraged to select portions of work to be subcontracted in a manner which will increase the likelihood of meeting the established M/WBE goal for the project. In selecting work to be performed, contractors will consider, where appropriate, breaking down the project into economically feasible units to facilitate M/WBE participation. Contractors are reminded that only M/WBE certified by the County can be used as participants towards meeting the project goals. A County M/WBE Certification listing will be provided to all contractors interested in submitting bids for projects. This listing is the only authorized source from which to select M/WBEs for project participation. Current copies of this listing may be obtained by calling the Minority Business Office at (602) 506-4068.

1. Which portions of the contract proposal, in terms of the nature of the work were selected to be subcontracted to M/WBE firms?

B. NOTIFYING M/WBE FIRMS OR CONTRACTING OPPORTUNITIES

- 1. Solicitations by mail/fax must be made to all M/WBE firms identified on the M/WBE Certification Listing that perform the type of work which is proposed for subcontracting. Following this initial solicitation, at least one follow-up telephone call must be made to any of the M/WBE firms who have not responded to the mailing.
- 2. In the spaces provided below, indicate which firms received written notification of work items to be subcontracted. In the appropriate space, also indicate when the M/WBE firms received subsequent telephone solicitations. Please attach additional sheets so that all firms contacted are listed and attach photo copies of all written/fax solicitations to M/WBEs to this documentation.

M/WBE Firm Contacted	Name	Tel. No.	Date
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- 3. Were the services of the County Minority Business Office used to assist the contractor in the recruitment of M/WBEs or to assist in solving other problems? Yes_____ No_____

Contact was made by_____ Telephone_____

Written correspondence_____ Date contacted_____

Staff person contacted_____

C. PROVIDING M/WBES WITH ASSISTANCE

- 1. Explain any efforts undertaken to provide M/WBEs with information regarding project plans, specifications and requirements of the project:

- 2. Describe any efforts initiated to provide special assistance to M/WBE firms interested in participating in this project:

- 3. Describe any efforts undertaken to assist M/WBE firms in obtaining bonding, lines of credit, or insurance required by the County for this project:

- 4. Was solicitation for M/WBEs advertised in local papers, ethnic periodicals, or trade journals? If YES, please list the name of the periodical and dates advertised.

D. SOLICITING QUOTES FROM M/WBE FIRMS

Contractors must solicit quotes in good faith with interested M/WBE firms. Quotes and bids from interested M/WBEs must not be rejected by bidders without sound justification based upon a thorough investigation of the capabilities of the M/WBE firms.

- 1. Indicate in the space provided below, which M/WBE firms submitted quotes on the project proposal. Also provide a brief explanation of why any of these M/WBE quotes were rejected. If price was a determining factor, provide documentation showing the non-minority quotes. Please attach additional sheets if necessary.

Name of M/WBE Firm	Explanation for rejecting quote
<hr/>	
<hr/>	

* To be included in contract documents or those procurements which have M/WBE contract goals.

**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 FCD 97-22
 Contract M/WBE Goal: 6 %

Total Amount of Contract \$ _____

 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>Contract Percentage</u>

TOTAL (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

 Date

STATE OF ARIZONA }
 }ss
 County of Maricopa }

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: Contracts and D/W/MBE Office
2901 West Durango Street
Phoenix, Arizona 85009**

CONTRACT AGREEMENT

THIS AGREEMENT, made and entered into this ___ day of _____, 1997 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 97-22, 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 the time, or times, stated in the proposal pamphlet.

ARTICLE IV - PAYMENTS: For and in consideration of the faithful performance of the work herein embraced as set forth in the Contract Documents, which are a part hereof and in accordance with the directions of the OWNER, through its Engineer and to 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 cancelled without penalty or further obligation within three years after execution if any person significantly involved in initiation, negotiation, securing, drafting or creating a contract on behalf of the OWNER is, at any time while the contract or any extension of the contract is in effect, an 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 Flood Control District of Maricopa County will endeavor to ensure in every way possible that minority and women-owned business enterprises shall have every opportunity to participate in providing professional services, purchased goods, and contractual services to the Flood Control District of Maricopa County without being discriminated against on the grounds of race, religion, sex, age, disability, or national origin. The Maricopa County Minority Business Program implemented January 1, 1992, 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

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY,
PARTY OF THE SECOND PART

By: _____
Signature

Title: _____

By: _____
Chairman, Board of Directors

Date: _____

Tax Identification Number

ATTEST:

Clerk of the Board

RECOMMENDED BY:

Chief Engineer and General Manager
Flood Control District of Maricopa County

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 _____, 1997 for Contract FCD 97-22 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 _____, 1997.

Principal

Agency of Record, State of Arizona

By: _____

Agency Address

Title: _____

BOND NUMBER: _____
Seal

Surety

ATTACH SURETY POWER OF ATTORNEY

By: _____

Title: _____

**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 _____, 1997, for Contract FCD97-22, 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 _____, 1997.

Agency of Record, State of Arizona

Agency Address

BOND NUMBER: _____

ATTACH SURETY POWER OF ATTORNEY

Principal

By: _____

Title: _____

Surety Seal

By: _____

Title: _____

INDEMNIFICATION

To the fullest extent permitted by law, the Contractor shall defend, indemnify and hold harmless the District, Maricopa County, and City of Phoenix, 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.

For all other hazards, liabilities, and exposures: To the fullest extent permitted by law, the Contractor shall defend, indemnify and hold harmless the District, its 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. 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, injury to, impairment or destruction of property including loss of use resulting therefrom, caused in whole or in part by any act or omission of 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 the 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 as respects the District, 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 coverage, 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.

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, 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 00011093 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.

Subcontractor: The Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each subcontractor. If a policy does expire during the life of the Contract, a renewal Certificate of the required coverage must be sent to the District at least fifteen (15) days prior to the expiration date.

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 fifteen (15) days prior written notice to the District. If a policy does expire during the life of the contract, a renewal Certificate must be sent to the District fifteen (15) days prior to the expiration date.

All Certificates of Insurance required by this Contract shall be identified with a contract number and title. A \$25.00 administrative fee shall be assessed for all Certificates received without the appropriate contract number and title.

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

CONTRACT FCD 97-22

PROJECT TITLE Tatum Wash Detention Basin No. 1

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

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 PRODUCTS/COMPLETED OPERATIONS BODILY INJURY AND PROPERTY DAMAGE PERSONAL INJURY EACH OCCURANCE	\$2,000,000 \$1,000,000 \$1,000,000 \$1,000,000 \$1,000,000
	COMPREHENSIVE AUTO <input checked="" type="checkbox"/> LIABILITY & NON-OWNED				EACH OCCURRENCE	\$1,000,000
	<input type="checkbox"/> EXCESS LIABILITY				NECESSARY IF UNDERLYING NOT ABOVE MINIMUM	
	<input checked="" type="checkbox"/> WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY				STATUTORY each accident	\$500,000
	<input type="checkbox"/> ENGINEERS PROFESSIONAL LIABILITY				EACH CLAIM AND ANNUAL AGGREGATE	
	<input checked="" type="checkbox"/> OTHER	The Flood Control District, Maricopa County, and City of Phoenix are to be named 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 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 cancelled, 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
---	---

**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
CONTRACT FCD 97-22
TATUM WASH DETENTION BASIN NO. 1**

SUPPLEMENTARY GENERAL CONDITIONS

SPECIFICATIONS:

Except as otherwise amended by these Supplementary General Conditions and the Construction Special Provisions, construction of this project shall be in accordance with all applicable Maricopa Association of Governments (MAG) Uniform Standard Specifications and Uniform Standard Details, latest revision, supplemented by the City of Phoenix (COP) Supplemental Details and Uniform Standard Specifications, latest revision.

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, f) COP Supplements to the Uniform Standard Specifications and Details, and g) MAG Uniform Standard Specifications and Uniform Standard Details.

Subsection 101.2 - Definitions and Terms:

1. Change the definition of the phrase "Board of Supervisors" to being the Board of Directors acting under the authority of the laws of the State of Arizona and in their capacity of the Board of Directors of the 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 being 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 Maintenance 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 its 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.

Subsection 102.4 - Examination of the Plans, Special Provisions, and Site Work: Add the following:
The soil boring logs (included in Appendix "A") and geotechnical report are available for review at the Owner's office, and the 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 the required densities, as well as safe and stable side slopes during construction activities.

For excavation of the basin ripping may be necessary for the moderately to strongly cemented materials below about 10 feet below existing grades.

Subsection 102.5 - Preparation of Bid: 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 shall 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 which do not have appropriate addenda attached, show appropriate changes to the Bidding Schedule, and acknowledge receipt of addenda 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 - Subcontractors' List: Add the following:
A list of subcontractors to be employed on the project shall be submitted with the bid, on the form provided in the Proposal. Following Notice of Award, no change of the subcontractors named therein will be made unless first approved in writing by Owner.

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 provided Certificate of Insurance form is not used.

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; and that it will execute the form of Certificate of Insurance included in the documents. As required by law, the statement will be from an insurance carrier or carriers authorized to do business in the State of Arizona, or countersigned by an agent of the carrier authorized to do business in the State of Arizona. 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 insureds as indicated on the included Certificate of Insurance.

Subsection 103.6.2 - Indemnification of the Contracting Agency Against Liability: Add the following:
Additionally, Contractor shall execute the Indemnification found in the Contract Documents.

Subsection 104.1 - Work to be Done: Add the following sentence to 104.1.1:
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.

Add the following to 104.1.2:

Traffic control shall conform to the requirements established in the Special Provisions. Because of the extremely high volumes of traffic experienced at all times of the day, and every day of the week, a Traffic Control Plan (TCP) will be required, and the Contractor must closely coordinate the plan with and receive approval of the plan from the City of Phoenix.

There will be no allowance for any kind of complete shutdown of Shea Blvd. in either direction for the purpose of construction. Limited lane closures will be permitted as indicated in the Special Provisions.

The project site is located in a highly developed residential area. **Both noise and dust control will be of paramount importance on this project.** The Contractor will abide by all COP requirements and all direction given by the Engineer regarding these two very important and sensitive issues.

Project construction occurs within 401/404 jurisdictional limits of Tatum Wash. It is extremely important that the Contractor not undertake any construction activities within the Tatum Wash beyond the limits shown in the plans. In particular the following requirement will also be adhered to by the Contractor:

No construction activities shall take place in Tatum Wash during storm water flows or within ponded water. If flows occur within the watercourse of Tatum Wash during construction, the Contractor shall remove all equipment to a location outside of the wash.

Subsection 104.2.3 - Changes:

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 104.2.4 - 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 104.2.6 - 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.**

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.

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.

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).

Value engineering change proposal (VECP) 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. Each drawing sheet and at least the content sheet of the calculations shall be sealed by an Engineer registered in the State of Arizona.
- (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 final cost will be determined by the Owner.
- (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.

105.1 - Authority of Engineer: Add the following:

105.1.1 - Engineer's Evaluation: Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to subsections 105.3.1 and 106.4, but such time shall not exceed 20 calendar days. 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. Owner 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) and in making changes in the Contract Documents (or in the provisions of any other direct contract with Owner for work on the project) occasioned thereby. Whether or not Engineer accepts a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer and Engineer's Consultants for evaluating each such proposed substitute item.

105.3 - Conformity with Plans and Specifications: Add the following :

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:

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 strength 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 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. Follow-up workshops will be held periodically throughout the duration of the contract as agreed to by the Contractor and Owner.

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 of actual costs, and will be for a total amount not to exceed the amount shown in the bid schedule for the item.

ITEM 105-1 - PARTNERING

Subsection 105.6 - Cooperation with Utilities: Add the following:

An attempt has been made to determine the location of all underground 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. Should Contractor's 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 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
City of Phoenix Water Services Dept. Jerry Arakaki	602/261-8229
City of Phoenix Street Transportation Department Earl Lucas	602/534-2072
Cox Communications John Barnett	602/352-5860 x-156
Southwest Gas Company (SWG) Dominique Mitchell	602/484-5306
US West Communications (USW) Janis Cunningham	602/630-3552
Arizona Public Service (APS) Steve Goodman	602/371-6965

Arizona Public Service:

APS overhead lines, both 12kV and 69kV are located along the south side of Shea Blvd. in line with construction of the basin outlet structure. The Contractor shall exercise extreme caution when working under these lines. It is not anticipated that APS will permit an outage for these lines.

Southwest Gas Company:

An existing 4" gas line is located in the eastbound lanes of Shea Blvd. The 42" pipe connecting the outlet structure to the junction structure crosses under this line. The Contractor will support and protect this line in place, with the approval of SWG.

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. Before any construction work is started, Engineer shall perform all base surveys and cross sections of existing conditions that may be required as a basis for quantity determination.
- C. 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 during construction as and when requested.
- D. 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.

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 Owner 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 – Contractors Marshaling Yards: Add the following:

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.

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.

Add the following:

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 EPA, all documents required by this regulation, including but not necessarily limited to:
1. Storm water 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 Owner during the preconstruction meeting and shall be subject to review by Owner prior to implementation.

- C. Contractor shall submit the completed and duly signed NOI forms not less than forty-eight (48) hours prior to the initial start of construction on the project to the following agencies:

EPA Storm water Notice of Intent
P.O. Box 1215
Newington, VA 22122

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

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

Tom Lange
Development Services Department
City of Phoenix
200 W. Washington Street
Phoenix, AZ 85003

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 Owner 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 Owner 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 Owner 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 no additional claims shall be made by Contractor 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

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Subsection 107.4 – Archeological Reports: Add the following:

Any cultural and/or paleontological resource (historic or prehistoric 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 the Engineer and the Salt River Project and/or Bureau of Reclamation Archaeologist to determine appropriate actions to prevent the loss of significant cultural or scientific resources.

Subsection 107.5: 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 107.5.2 - 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 Owner-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 107.6.3 – Public Information and Notification: Add the following:

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 expect 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 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:

1. Distributing a preconstruction information letter to all residents, business, etc. within an area bounded by Gold Dust Avenue, Mercer Lane, Tatum Blvd., and 44th Street.
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 route 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.

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 Phoenix Street Transportation 24-hour phone number

The Contractor shall submit a Public Information and Notification Plan to the Engineer at the pre-construction meeting. No payments shall be made for this item until the Engineer approves the plan.

The plan and work which is eligible for reimbursement shall include: meetings with impacted businesses, schools, emergency services, residents, etc.; scheduling; preparation and distribution of newsletter at least bi-weekly; 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 5 percent 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 107.6.4 - Project Signs:

Contractor shall provide and install two 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 travel routes. Project signs shall include the names of all agencies participating in the project. Signs shall be constructed in accordance with the "Project Sign Information" drawing to be provided to the Contractor at the pre-construction meeting. The signs shall be installed at the location(s) approved by the Engineer. The 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.

ITEM 107-3 - PROJECT SIGNS ALLOWANCE

Subsection 107.9 - Protection and Restoration of Property:

The Contractor will protect-in-place existing masonry walls and footers along the project right-of-way limits.

The construction Temporary Construction easement shall be restored in a clean and well graded manner at the completion of construction.

Subsection 107.10 - Contractor's Responsibility for Work: Add the following:

Contractor is advised that the work will be subject to flows of water of varying amounts from Tatum Wash, and from the 78" storm drain in Shea Blvd. The Contractor shall manage the flows in Tatum Wash to facilitate construction of the basin and related structures, and shall manage the flows in the storm drain to facilitate construction of the junction structure. Owner assumes no responsibility for notifying Contractor of any anticipated flows, nor for any damages incurred by Contractor to its equipment or to any of the Contractor's work as a result of any flows of water.

No construction activities shall take place in Tatum Wash during storm water flows or within ponded water. If flows occur within the watercourse of Tatum Wash during construction, the Contractor shall remove all equipment to a location outside of the wash.

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 one hundred fifty (150) calendar days beginning the day following the effective date specified in the Notice to Proceed.

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

Subsection 108.4.1 - Contractor's Billing Schedule: Add the following:

Contractor shall furnish the Engineer an Estimated Billing Schedule which shall include an estimated amount of each billing for the total project at the preconstruction 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 Owner 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 Owner 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 Owner from deducting from monies due or to become due to Contractor for any other costs incurred by Owner directly attributable to the delay in completing this contract.

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.

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 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 form of Certificate of Performance shall be provided to Contractor by the Engineer.

(B) Delete second and third paragraphs and replace with: The final payment will be made to Contractor by Owner within thirty (30) days following receipt of Engineer's final estimate and receipt by Owner of Consent of Contractor's Surety to said final payment.

If payment will be longer than thirty (30) days as aforesaid, Owner will provide Contractor specific written findings for reasons justifying the delay in payment.

(C) The Contractor's representative and the Engineer shall make a determination of the monthly pay quantities on the last Wednesday of each month. The monthly pay estimate shall then be signed by the Contractor and submitted to the Engineer on the first day of the next month.

**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
CONTRACT FCD 97-22
TATUM WASH DETENTION BASIN NO. 1**

SPECIAL PROVISIONS

SECTION 201 - CLEARING AND GRUBBING

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

Subsection 201.1 - Description

Add the following to this subsection:

The Contractor shall protect-in-place all of the perimeter masonry walls and footers during this operation.

Subsection 201.5 - Payment

Replace this subsection with the following:

The project construction limits shall be cleared of all trees, vegetation, trash and debris. Such material as collected shall be disposed of at an approved landfill site and shall be subject to landfill fees so assessed, which will be included in the unit price bid for this item. Weigh tickets from all landfill disposal must be furnished to the Engineer.

Payment for clearing and grubbing as such will be paid for at the lump sum price bid for, and shall be full compensation for all labor, equipment, disposing of refuse and all other items that are incidental or appurtenant.

ITEM 201-1 - CLEARING AND GRUBBING

Subsection 201.6 - Measurement, Removal, and Disposal of Trees:

Replace this subsection with the following:

No measurement shall be made for the removal and disposal of trees.

Subsection 201.7 - Payment, Removal, and Disposal of Trees:

Replace this subsection with the following:

No payment shall be made for the removal and disposal of trees as such; the cost thereof shall be included in the price of clearing and grubbing.

SECTION 202 - MOBILIZATION

Add this section to the MAG Uniform Standard Specifications

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:

No field office will be required for this project.

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.

ITEM 202 -1 - MOBILIZATION

SECTION 206 - STRUCTURE EXCAVATION AND BACKFILL

Structure excavation and backfill shall conform to Section 206 of the MAG Uniform Standard Specifications and COP Supplement 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. Any loose or disturbed zones should be removed and replaced with compacted fill or lean concrete.

Subsection 206.4 - Structure Backfill

Add the following:

Compaction of structure backfill soils against embedded footings, walls, and headwall structures shall be accomplished to a minimum 95 percent of the maximum ASTM D698 density.

Compaction against wing walls, or channel lining within 3 feet of the walls or lining shall be accomplished using non-wheeled, hand operated 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 shall consist of free draining granular soils which exhibit low expansive potentials. The material shall be free of vegetation, debris, organic contaminants, and fragments larger than 6 inches in size.

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

On-site soils may be used in structural fills or backfills except for high plasticity on-site soils (P.I. > 12) which may not be used in structure fills or backfills. Imported soil used for fills under pavements, or channels, backfills around structures should be granular soils conforming to the following requirements:

Sieve Size	Percent Passing
3"	100
3/4"	60-80
#8	35-80
#200	0-12

(Arizona Test Method 201)

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

Subsection 206.5 - Payment

Replace this subsection with the following:

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

SECTION 211 - FILL CONSTRUCTION

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

Subsection 211.1 - Description

Add the following:

Work under this item shall consist of filling to raise the grade for the maintenance access road around the perimeter of the detention basin and to fill low areas along both sides of the inlet spillway structure.

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
Within three (3) feet of existing perimeter walls	85
Backfill:	
Below channel lining	95
Restoration of channel bank	95
Against structures	95

Compaction of granular soil below the channel lining should be accomplished at a moisture content between optimum minus 3 percent and optimum plus 3 percent.

Where existing Tatum Wash channel banks have been removed or re-graded for construction purposes, said banks shall be restored to original lines and grades. No separate payment will be made for the restoration of channel banks, but shall be considered incidental to related construction activities for which payment is provided.

On site undisturbed soils or compacted soils subsequently disturbed or removed by construction operations should be replaced by materials compacted as specified above.

Subsection 211.5 - Measurement

Replace this Subsection with the following:

No measurement will be made for fill construction. The estimated quantity for fill is 1,100 cubic yards.

Subsection 211.6 - Payment

Replace this Subsection with the following:

No payment will be made for fill construction, the cost thereof shall be included in the price bid for the Detention Basin Excavation to which such fill construction is considered incidental or appurtenant.

SECTION 215 - EARTHWORK FOR OPEN CHANNELS

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

Subsection 215.1 - Description

Replace this subsection with the following:

Open channels for the purpose of this section shall mean open channels and basins where there is exposed cuts. The work in this section consists of excavation, fill, grading, and disposal of excavated and removed material for the construction of the detention basin and associated inlet channel.

Subsection 215.3 - Excavation

Add the following:

The soil boring logs and geotechnical report (see Subsection 102.4) indicate that ripping may be necessary for the moderately to strongly cemented material below 10 feet. The Contractor is encouraged to review the soil boring logs included in Appendix A of these Special Provisions, and the geotechnical report as discussed in Subsection 102.4.

Subsection 215.7 - Measurement

Replace this subsection with the following:

Measurement for excavation material on site for the detention basin and the inlet channel will be made according to the quantity of material excavated from natural ground to the finished grades shown on the plans. No measurement will be made for fill construction, imported material, or disposal of excess material. 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

Replace this subsection with the following:

Payment for excavation of material for the detention basin and associated inlet channel will be made on the basis of the price bid per cubic yard of excavation.

ITEM 215-1 - DETENTION BASIN EXCAVATION

220 - RIPRAP CONSTRUCTION

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

Subsection 220.1 - Description

Replace this subsection with the following:

The construction of riprap shall consist of furnishing and placing stone adjacent to the inlet spillway structure walls and at the base of the inlet spillway structure as shown on the plans and specified in the special provisions. Sacked concrete riprap will not be allowed.

Subsection 220.4 - Plain Riprap

Replace this subsection with the following:

The construction of plain riprap shall consist of furnishing and placing the stones as shown in the plans and as specified in these special provisions.

Riprap Gradation Table ($D_{50} = 18''$)	
Stone Size (in)	Percent Passing
1.5 d_{50}	100
1.2 d_{50}	85
1.0 d_{50}	50
0.4 d_{50}	15

Subsection 220.7- Measurement

Replace this subsection with the following:

Riprap shall be measured by the cubic yard of the rock placed to the depth and neat lines as shown on the plans. No measurement will be made for riprap placed beyond the neat line as shown on the plan unless directed by the Engineer.

Subsection 220.8 - Payment

Replace this subsection with the following:

Payment for plain riprap shall be made on the basis of the price bid per cubic yard in place; within the limits of dimensions shown on the plans for bid items 220-1. Payment shall include labor, preparation of ground surfaces, excavation, rip rap, replacement of damaged areas, samples provided for the Engineer's approval and all other miscellaneous items required for rip rap construction.

ITEM 220-1 - PLAIN RIPRAP

SECTION 225 - WATERING

Water for compacting and dust control shall conform to Section 225 of the MAG Uniform Standard Specifications and COP Supplement except as modified herein.

Subsection 225.1 - Description

Replace this subsection with the following:

The project site is located within a densely developed residential area. Therefore, pre-soaking prior to excavation, and continuous dust control efforts during construction will be required for this project. The Contractor will maintain adequate pre-soak conditions during excavation, and adequate dust control during loading and transport operations to minimize dust.

Subsection 225.2 - Water Supply

Replace this subsection with the following:

The Contractor is to use City of Phoenix water. The Contractor shall use only those hydrants designated by the City of Phoenix *Water Services Department and in strict accordance with its requirements for hydrant use.*

The Contractor shall contact the Water Services Department, Technical Support Group at 495-5601 to obtain a "Permit to Use Water from Fire Hydrant" and pay the required fees, which include both monthly services charges, plus the cost of the water per 100 cu. Ft units used.

Subsection 225.4 - Measurement

Replace this subsection with the following:

The Contractor must obtain a hydrant meter from the City of Phoenix to measurement the amount of water used. Measurement will be made based upon meter readings rounded to the nearest 100 cubic feet.

The Contractor shall furnish all connections, wrenches, valves and small tools that may be necessary to meet the requirements pertaining to the hydrant use.

Subsection 225.5 - Payment

Replace this subsection with the following:

Payment will be made on the basis of the price charged by the City of Phoenix per 100 cubic feet of water including taxes. Payment shall be for the cost of the water only; the cost of renting the meter, connecting and disconnecting the meter, applying the water including but not limited to the equipment, hauling, and labor, shall be considered incidental to the items for which watering is incidental.

ITEM 225-1 - WATERING

SECTION 301 - SUBGRADE PREPARATION

Subgrade preparation shall conform to Section 301 of the MAG uniform Standard Specifications and COP Supplement except as modified herein.

Subsection 301.1 - Description

Replace this subsection with the following:

Subgrade preparation is for the detention basin maintenance access roads which are located along the east, west, and north sides of the detention basin.

Subsection 301.8 - Payment

Replace this subsection with the following:

No payment for subgrade preparation will be made as such; the cost thereof shall be included in the price of excavation.

SECTION 336 - PAVEMENT MATCHING AND SURFACING REPLACEMENT

Pavement matching and surfacing replacement shall conform to Section 336 of the MAG Uniform Standard Specifications and COP Supplement except as modified herein.

Subsection 336.2.2 -Pavement to be Removed

Add the following to this subsection.

All pavement to be removed shall first be sawcut.

Subsection 336.3 - Types and Locations of Pavement and Surfacing Replacement

Add the following to this subsection.

The replacement of asphaltic concrete pavement shall be 12" in thickness and shall match the grades of the existing pavement.

The materials shall conform to MAG Sections 702 and 710, and the following:

Asphaltic Concrete Type	C-3/4
Mineral Filler	Portland Cement (1-1/2% by weight)
Asphalt Cement	AC-20

Subsection 336.4 - Measurement

Replace this subsection with the following:

Measurement for payment will be by the square yard. In computing the pay quantities for replacements, the pay width will be measured to the outside of the trench not to exceed the maximum trench widths as listed as listed in Table 601-1 of the MAG Standard Specifications and along the longitudinal length of the pipe including through junction structures and/or manholes or as directed by the Engineer. Any pavement replacement in excess of this amount shall be considered and included in the bid item for such that the work is incidental or appurtenant.

Subsection 336.5 - Payment

Replace this subsection with the following:

Payment for pavement matching and surfacing replacement shall be made on the basis of the price bid per square yard, including all materials and subgrade preparation.

ITEM 336-1 - PAVEMENT REPLACEMENT

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

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

Subsection 340.1 - Description

Add the following:

The work shall include the construction of concrete curb and gutter sections and sidewalk to replace and match existing curb, gutter, and sidewalk removed for the construction of the outlet pipe as identified in the plans.

The work also includes construction of concrete driveways with curb and gutter. Pavement removal and replacement necessary for construction of the driveways shall be considered incidental to the construction of the driveways (See Appendix 'B' for Driveway Detail P-1255-1).

Subsection 340.6 - Payment

Replace this subsection with the following:

Payment for concrete curb and gutter (MAG Det. 220 Type 'A') shall be made on the basis of the price bid per linear foot and shall be full compensation for all construction equipment, labor, materials, pavement removal and replacement if necessary, and all incidentals necessary to accomplish the work in conformance to the plans.

ITEM 340-1 - CONCRETE CURB AND GUTTER

Payment for concrete driveway entrance (COP Detail P-1255 and COP Detail P-1255-1, 9" thick) shall be made on the basis of the price bid per square foot and shall be full compensation for all construction equipment, labor, materials, pavement removal and replacement if necessary, and all incidentals necessary to accomplish the work in conformance to the plans.

ITEM 340-2 - CONCRETE DRIVEWAY ENTRANCE

Payment for concrete sidewalk (COP DET. P-1230) shall be made on the basis of the price bid per square foot and shall be full compensation for all construction equipment, labor, materials, and all incidentals necessary to accomplish the work in conformance to the plans. .

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 and COP Supplement except as modified herein.

Subsection 350.1 - Description

Add the following:

The work includes the removal and disposal of an existing drainage inlet, concrete channel lining and other obstacles to construction, unless it is specifically called out on the plans to be removed and salvaged or protected in place.

Holes, cavities and trenches resulting from the removal of structures shall be backfilled if necessary in accordance with Sections 206 and 211. The disposal of all waste material removed under this item shall be the responsibility of the Contractor. The disposal site shall be approved by the Engineer.

If a Maricopa County landfill is selected for the disposal of waste materials and/or debris, a Maricopa County Landfill Use Permit will be required. Application for permit can be made at the Maricopa County Landfill Office, located at 2801 West Durango Street, Phoenix, Arizona 85009 (telephone (602) 269-2661). Charges will be levied on a volume basis for each load delivered to the landfill in accordance with the current fee schedule.

In computing the pay quantities for removals, the pay width or length will be measured to the outside of the trench not to exceed the maximum trench widths as listed in Table 601-1 of the MAG Standard Specifications and along the longitudinal length of the pipe. The pay amount for the junction structure shall be as shown on the plans. Any removals in excess of this amount unless directed to be removed by the Engineer will not be measured and shall be included in the bid item for such that the removal is incidental or appurtenant.

Subsection 350.4 - Payment

No payment shall be made for the removal of trees.

No payment will be made for the removal and disposal of existing AC pavement as such; the cost thereof shall be considered incidental to the work that such removal is incidental or appurtenant.

Payment for removal and disposal of the existing drainage structure shall be made on the basis of the lump sum price bid. Payment shall be full compensation for furnishing all labor, materials, tools and equipment, sawcutting, removal, hauling, disposal and all other items necessary to accomplish the work and shall include the cost of installing pipe plugs in the two remaining pipes in accordance with the MAG Detail 427.

ITEM 350-1 - REMOVE DRAINAGE INLET STRUCTURE

Payment for removal and disposal of the shotcrete lining shall be made on the basis of the lump sum price bid. Payment shall be full compensation for furnishing all labor, materials, tools and equipment, sawcutting, removal, hauling, disposal and all other that is incidental or appurtenant.

ITEM 350-2 - REMOVE SHOTCRETE LINING

Payment for removal and disposal of existing concrete curb and gutter shall be made on the basis of the price bid per linear foot. Payment shall be full compensation for furnishing all labor, materials, tools and equipment, sawcutting, removal, hauling, disposal and all other items necessary to accomplish the work.

ITEM 350-3 - REMOVE CURB AND GUTTER

Payment for removal and disposal of existing concrete sidewalk, driveways, and aprons shall be made on the basis of the price bid per square foot. Payment shall be full compensation for furnishing all labor, materials, tools and equipment, sawcutting, removal, hauling, disposal and all other items necessary to accomplish the work.

ITEM 350-4 - REMOVE SIDEWALK

SECTION 401 - TRAFFIC CONTROL

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

Subsection 401.1 – Description

Replace this subsection with the following:

This work shall consist of traffic control devices and flagmen or pilot cars in accordance with Section 401 of the COP Supplement and the City of Phoenix Traffic Barricade Manual, latest revision.

a. Traffic Control Devices

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

b. Street Closure Permits

Permission to restrict city streets, sidewalks and alleys (street closure permits) shall be requested as specified in Section III of the City of Phoenix Traffic Barricade Manual.

c. Traffic Manual

Unless otherwise provided for in the following “General Traffic Regulations,” all traffic on this project shall be regulated as specified in Section IV of the City of Phoenix Traffic Barricade Manual.

d. Prior Approval

No deviation to the “General Traffic Regulation” will be allowed or implemented unless submitted to the Engineer for review and approval two weeks prior to the proposed work.

Subsection 401.5 – General Traffic Regulations

a. Local Access Requirements

The Contractor shall maintain local access to all side streets, access roads, driveways, alleys, and parking lots at all times and shall notify residents 72 hours in advance of any restrictions which will affect their access. The Contractor shall restore the access as soon as possible. If the primary access cannot be restored in a timely manner, the Contractor shall provide an alternative, which shall be predetermined with the residents prior to imposing any restrictions. Any local street restrictions imposed shall be such that local area traffic circulation is maintained unless specified to be closed herein or as shown on the detour plans.

b. Flagging of Traffic

No flagging of traffic in the eastbound direction will be permitted during the peak traffic hours of 4:00 p.m. to 7:00 p.m. weekdays. No flagging of traffic in the westbound direction will be permitted during the peak traffic hours of 6:00 a.m. to 9:00 a.m. and 4:00 p.m. to 7:00 p.m. weekdays. Intermittent flagging of traffic in both directions will be allowed at all other times, and including between 7:00 p.m. Friday evenings and 6:00 a.m. Monday morning to facilitate construction and access for heavy construction equipment.

c. Traffic Control Plan

The Contractor shall submit a Traffic Control Plan (TCP) for approval, showing placement of all traffic control devices, including all conflicting signs to be covered/removed or relocated, or other features that may conflict with the placement of temporary signage. This plan shall be professionally drawn on a 24" x 36" reproducible medium, and shall be submitted to the Engineer at the Pre-Construction Conference meeting.

d. Business Access Requirements

Access shall be maintained to adjacent businesses at all times during their hours of operation. Access may be maintained by such measures as constructing driveways in half sections, or by providing bridging over new concrete. Properties having more than one point of access shall not have more than one access restricted for more than fourteen (14) calendar days at any given time. Access to adjacent driveways shall be provided during all non-working hours. Any business restrictions shall be coordinated with the affected business in writing at least seven (7) days prior to imposing restrictions.

e. Pedestrian Access Requirements

The Contractor shall ensure that all sidewalks on this project remain open and safely usable at all times. Such measures as backfilling or ramping to existing sidewalks, or providing alternate sidewalk areas adjacent to existing sidewalks may be used. In high pedestrian use areas, the Engineer may request temporary hard-surface walkways, such as plywood sheets to be installed at no additional cost to the District.

f. Bus Stops

The Contractor shall maintain all existing bus stop locations on this project in a safe manner, or provide alternate bus stop locations as required by the Engineer.

g. Sanitation Pickup

The Contractor shall provide sanitation pickup for affected residents by relocating trash containers, or by providing alternative measures acceptable to the Sanitation Division of the City of Phoenix Public Works Department.

h. Special Notification Signs

The Contractor shall provide and install two variable message signs for advanced public notification in lieu of post mounted signs for restrictions on Shea Blvd. These signs shall display the information shown below in the following order:

- * Location of Work
- * Type of Restriction
- * Time of Restriction
- * Advisory Note

Signs should be placed to be seen from a distance of 300 feet, or as directed by the Engineer. These signs shall be installed two weeks prior to the start of construction for the restriction.

i. Special Sign Requirements

The Contractor shall provide, erect, and maintain informational and directional access signs that may be required by the Engineer. The cost shall be included in the bid item for Traffic Control Devices.

j. Traffic Control and Safety

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 and safety, to be available on the project site during all periods of construction to coordinate and maintain safe barricading whenever construction restricts traffic.

k. Coordination with COP Construction Traffic Control

The Contractor shall contact Tony Arviso at 262-6565 or John Perez at 495-6934 at Construction Traffic Control, City of Phoenix.

Subsection 401.5.1 – Special Traffic Regulations

Replace this subsection with the following:

- a. Shea Blvd is considered a major street and the following lane closure restrictions will apply:
- b. Saw cutting of existing pavement and/or replacement of permanent pavement shall be accomplished one lane at a time from 9:00 am to 4:00 pm on weekdays, and during daytime working hours on weekends, in order to minimize and mitigate night time construction noise, and impacts to peak travel times on Shea Blvd.

- c. For construction of the junction structure in Shea Boulevard the Contractor shall maintain two lanes of traffic in each direction, allowing one lane closure in the eastbound direction and two lane closures in the westbound direction, by utilizing the north side frontage road as an additional westbound lane. The Contractor must provide a detour plan sealed by a Registered Engineer to the City of Phoenix for approval prior to the implementation of any such lane modifications, usages, and restrictions.
- d. For construction of the outfall pipe in Shea Blvd. from the basin to the junction structure, the Contractor shall maintain two eastbound lanes, allowing one lane closure in the eastbound direction.
- e. For construction of the junction structure and installation of the outfall pipe weekend work will be allowed, including night time hours, between 7:00 pm on Friday and 6:00 am on Monday, on non-holiday weekends after September 9. During weekend work two lanes (one lane in each direction) must be maintained at all times. As of 6:00 am on Monday, traffic restrictions and construction requirements as stated in items "c" and "d" above will apply. The Contractor must provide a traffic control plan to the City of Phoenix for approval prior to the implementation of any such lane modifications, usages, and restrictions.
- f. For night time work on weekends the Contractor shall minimize noise disturbance to the surrounding residential areas by disengaging "back-up beepers" and utilizing back-up strobe lights with spotters, and by increasing the muffler capacities of all equipment.
- g. Prior to excavation, the Contractor shall:
 1. Develop a haul route plan and obtain a no fee permit from COP Development Services Department
 2. Obtain COP Street Transportation Department approval of haul route, truck volumes and operating hours.
 3. Obtain COP Development Services Department grading permit, including Floodplain Section if applicable, for the proposed spoil location
 4. Street Transportation Department permit does not release Contractor from MAG Subsection 108.5 requirements.
- h. For excavation and haul activities only, the right eastbound curb lane can be restricted from 7:00 am to 4:00 pm on weekdays and daytime working hours on weekends. During all other times, all eastbound lanes shall remain unrestricted. Ingress and egress access for the business immediately east of the project area must be addressed as part of any TCP.
- i. Construction activities within Shea Blvd. will be restricted during the holiday season of November 15 through January 1. Construction activities that interfere with traffic flow on high volume streets such as Shea Blvd. must be carefully evaluated and imposed only when absolutely necessary.

Subsection 401.7 - Payment

Replace this subsection with the following:

Payment for traffic control, including all mobilization, signage, materials, and maintenance shall be made on the basis of the lump sum price bid.

ITEM 401 -1 - TRAFFIC CONTROL

Payment for off-duty City of Phoenix uniformed officers as mandated by the City of Phoenix will be on an as-used basis as determined by the Engineer. The Contractor shall submit documentation as required by the Engineer to support payment for this item. Payment for off-duty uniformed officers shall be made on the basis of the contract unit price per hour.

ITEM 401-2 - OFF-DUTY UNIFORMED OFFICER

SECTION 440 - SPRINKLER IRRIGATION SYSTEM INSTALLATION

Sprinkler irrigation system installation shall conform to Section 440 of the Mag Uniform Standard Specifications and COP Supplement except as modified herein.

Subsection 440.1 - General:

Replace this subsection with the following:

The existing landscape irrigation system located along the sidewalk will be relocated and/or adjusted as necessary by the Contractor to keep the irrigation system operational at all times during construction. Such relocation and/or adjustment may be necessary during the removal of existing features and/or installation of new construction.

Subsection 440.3 - Pipe Installation:

Add the following:

The work under this section shall include and apply to the existing relocation/modification of the existing irrigation line located in the vicinity of the East and West driveway entrances. The relocation/modifications shall consist of making any necessary changes to keep the integrity of the system intact after removing any necessary landscaping within the road rights-of-way and construction of the driveways.

Subsection 440.8 - Measurement and Payment

No measurement or payment for irrigation shall be made as such; the cost thereof shall be considered incidental to the cost of those construction activities requiring such removal or adjustment.

SECTION 505 - CONCRETE STRUCTURES

Structural concrete 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 structures including the concrete inlet spillway structure, the junction structure, and the basin outlet structure as located and indicated on the plans.

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 and concrete channel lining.

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

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

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

The 3" PVC weep holes shall be installed as shown on the plans.

Shop Drawings shall be submitted for the following:

1. Product Data: Admixtures and patching materials.
2. Placement Drawings:
 - a. Concrete, identifying location of each type of construction joint.
 - b. Reinforcing steel.
3. Plastic Type Water Stops: Details of splices to be used and method of securing water stop in the forms and supporting water stop so as to maintain proper orientation and location during concrete placement.

Do not backfill against walls until concrete has obtained 28-day compressive strength. Place backfill simultaneously on both sides of wall, where required, to prevent differential pressures.

Subsection 505.6 - Placing Concrete

Add the following:

Place concrete in accordance with ACI 301-89. Prior to placing concrete, remove loose soil and water from excavation and subgrade and debris and foreign material from forms. Obtain Engineer's approval of subgrade before placing reinforcing steel. Check reinforcing steel for proper placement and correct discrepancies. Before depositing new concrete on old concrete, clean surface using sandblast or bushhammer or other mechanical means to obtain a 1/4-inch rough profile. Maximum vertical drop to final placement shall be 6 feet, when not guided with chutes or other devices to prevent segregation caused by impact with reinforcing. Do not use aluminum pipe or aluminum conveying devices.

Steps performed in preparation for placing concrete shall meet requirements and recommendations of ACI 304R-89 and ACI 301-89, except as modified herein. Ends of chutes, piping, hopper gates, and other points of concrete discharge throughout the conveying, hoisting, pumping, and placing system shall be designed and arranged for concrete to pass without becoming segregated. Do not use chutes longer than 50 feet. The minimum slopes of chutes shall be angled to allow concrete to readily flow without segregation. Conveyor belts shall be approved by Engineer; wiped clean with device which does not allow mortar to adhere to belt; and conveyor belts and chutes covered.

Provide standby pump, conveyor system, crane and concrete bucket, or other system onsite during placing, for adequate redundancy to ensure completion of concrete placement without cold joints in case of a primary placing equipment breakdown. Minimum pump hose (conduit) diameter shall be 4 inches. Replace pumping equipment and hoses (conduits) that are not functioning properly.

Provide intermediate construction joints at maximum spacing of 30 feet. Should placement sequence result in cold joint, install water stop in joint.

Limit size of each placement to allow for strength gain and volume change caused by shrinkage. Minimum time between adjacent placements for construction of the spillway floor slab shall be seven (7) days.

Consolidate concrete with internal vibrators with minimum frequency of 8,000 cycles per minute and amplitude required to consolidate concrete in section being placed. Provide at least one standby vibrator in operable condition at placement site prior to placing concrete. Consolidation equipment and methods shall conform with the requirements of ACI 309R-87. Provide sufficient windows in forms or limit form height to allow for concrete placement through windows and for visual observation of concrete. Vibration consolidation shall not exceed a distance of 5 feet from point of placement. Vibrate concrete in vicinity of joints to obtain impervious concrete there.

When vibrating concrete, apply approved vibrator at points spaced not farther apart than vibrator's effective radius. Apply close enough to forms to vibrate surface effectively but not damage form surfaces. Vibrate until concrete becomes uniformly plastic. Vibrator must penetrate fresh placed concrete and into previous layer of fresh concrete below.

Subsection 505.6.1 - Joints

Add the following:

To new concrete wall horizontal construction joints, thoroughly clean and saturate joint with water. Cover horizontal wall surfaces with minimum 2 inches of grout, as specified in Section 732, and immediately place concrete. Limit concrete lift placed immediately on top of grout to 12 inches thick. Thoroughly vibrate to mix and consolidate grout and concrete together.

To old concrete (greater than 60 days old), mechanically roughen existing concrete surfaces to a clean, rough surface using a "Blastrac" by Wheelabrator-Frye, Inc.; or "Porta-Shotblast" by Nelco Manufacturing Corp, to remove existing concrete surface, and provide a minimum roughness profile of 1/4-inch. Saturate surface with water for 24 hours, cover with 2 inches of grout, and place grout as specified for new concrete.

Construction joints shall be constructed as straight joints and made either vertical or horizontal. Concrete placement shall commence after the joint preparation is complete.

For construction joints, prior to placement of abutting concrete, clean contact surface by removing laitance and spillage from reinforcing steel and dowels. Then roughen surface to a minimum of 1/4-inch amplitude by either sandblasting after the concrete has fully cured, water blasting after the concrete has partially cured, or if the concrete is green, cutting the fresh concrete with high pressure water and hand tools. Perform cleaning so as not to damage water stop, if one is present.

Join water stops at intersections to provide continuous seal. Center water stop on joint. Secure water stop in correct position to avoid displacement during concrete placement. Repair or replace damaged water stop. Place concrete and vibrate to obtain impervious concrete in the vicinity of all joints. For joints in slabs, make sure that the space beneath plastic water stop is completely filled with concrete. Also, during concrete placement, make a visual inspection of the entire water stop area. Limit concrete placement to elevation of water stop in first pass, vibrate the concrete under the water stop, lift the water stop to confirm full consolidation without voids, then place remaining concrete to full height of slab. Apply procedure to full length of plastic water stops.

Plastic water stops shall be installed in accordance with manufacturer's written instructions. Splice in accordance with the water stop manufacturer's written instructions using a thermostatically controlled heating iron. Butt splice unless specifically detailed otherwise. Allow at least 10 minutes before the new splice is pulled or strained in any way. Finished splices shall provide a cross section that is dense and free of porosity with tensile strength of not less than 80 percent of the unspliced materials. Wire looped plastic water stop may be substituted for plastic water stop.

Subsection 505.8 - Curing

Add the following:

Use one of the following methods as approved by Engineer.

Walls shall have only water curing procedures used. Method 1: Leave concrete forms in place and keep entire surfaces of forms and concrete wet for 10 days. Method 2: Continuously sprinkle with water 100 percent of exposed surfaces for 10 days starting immediately after removal of forms.

Slabs shall use one of the following methods: Method 1: Protect surface by water ponding for 10 days; Method 2: Cover with burlap or cotton mats and keep continuously wet for 10 days; Method 3: Cover with 1-inch layer of wet sand, earth, or sawdust, and keep continuously wet for 10 days; or Method 4: Continuously sprinkle exposed surface for 10 days. Other agreed-upon methods that will keep moisture present and uniform at all times on surface of slabs. Do not use curing compounds.

Subsection 505.9 - Finishing Concrete

Add the following:

A heavy rake finish shall be applied to the floor of the inlet spillway structure prior to the sloping surface. The sloping surface of the spillway shall have a rough broom finish applied to the floor.

All exposed concrete structures including the concrete channel lining, inlet spillway structure, and the outlet structure shall be colored using a "light brown" admixture. The color shall conform to Davis Color "Flag Stone Brown #64" as manufactured by Davis Colors, or an approved equal, with respect to hue, value, and chroma. A test panel shall be made and the concrete color shall be approved by the Engineer prior to use. The color shall be added at the rate of 2 pounds per 94-pound sack of cement. The cost of the coloring is incidental to the cost of the concrete.

A clear protective water based coating shall be applied to all exposed concrete structure surface areas. The coating shall be Graffiti Protector #J-44, produced by Dayton Superior, or approved equal. The coating shall be clear and contain no coloring. The cost of the coating is incidental to the cost of the concrete.

A form liner shall be used for the finish on the north, east, and west vertical faces of the outlet structure. The form liner shall be VA D.O.T. Fractured Rib design, No. 367, uni-cast and/or multi-cast sheets as manufactured by Greenstreak, or approved equal. Form liners shall be prepared, placed and stripped per the manufacturer's requirements, recommendations and specifications. The form liner shall not infringe on or reduce the required thickness of the retaining wall as detailed on the plans. The cost of the form liner is incidental to the cost of the outlet structure.

Prior to starting patching work, obtain quantities of color-matched patching material and manufacturer's detailed instructions for use to provide a structural patch with finish to match adjacent surface. Develop patching techniques

with epoxy manufacturer on mockup panel. Dress surface of patches that will remain exposed to view to match color and texture of adjacent surfaces. Patching of concrete shall provide a structurally sound surface finish, uniform in appearance or upgrade finish by other means until acceptable to Engineer.

For tops of walls, screed surfaces to true level planes. After initial water has been absorbed, float with wood float and trowel with steel trowel to smooth finish free from trowel marks.

Spray evaporation retardant onto surface of fresh flatwork concrete immediately after screeding to react with surface moisture. Reapply as needed to ensure a continuous moist surface until final finishing is completed.

Subsection 505.9.6 - Finishing and Patching Surfaces

Add the following new section:

When patching *defective* areas, remove *defective* concrete to a depth of sound concrete. Small shallow holes caused by air entrapment at surface of forms shall not be considered *defective* unless amount is greater than 1/2 inch in diameter or as stipulated by the Engineer. Obtain Engineer's approval of chipping work.

Cut out honeycombed and *defective* areas. Cut edges perpendicular to surface at least 1 inch deep. Do not feather edges. Soak area with water for 24 hours. Patch with nonshrink grout as specified in Section 732. Finish surfaces to match adjacent concrete. Keep patches damp for minimum 7 days or spray with curing compound to minimize shrinking.

To patch form tie holes, fill with Category I grout as specified in Section 732. Use only enough water to dry pack. Compact grout using steel hammer and steel tool to drive grout to high density. Cure grout with water. Make sure color of patch after curing matches color of adjacent concrete.

Subsection 505.10 - Payment

Payment for concrete structures shall be made on the basis of the price bid cubic yard of concrete. Payment shall be full compensation for all labor, materials, reinforcing steel, access barriers, and grates, equipment, excavation and backfill, color admixture, protective coating, and all other items necessary and incidental to construct the structures complete in place according to the plans and these Special Provisions excluding the flapgates.

ITEM 505-1 - SPECIAL OUTLET STRUCTURE

ITEM 505-2 - SPECIAL INLET SPILLWAY

Payment for the Special Junction Structure shall be made on the lump sum price bid. Payment shall be full compensation for all labor, materials, reinforcing steel, equipment, excavation and backfill, color admixture, protective coating, and all other items necessary and incidental to construct the structures complete in place according to the plans and these Special Provisions.

ITEM 505-3 - SPECIAL JUNCTION STRUCTURE

SECTION 515 - STEEL STRUCTURES

Steel Structures shall conform to Section 515 of the MAG Uniform Standard Specifications and COP Supplement except as modified herein.

Subsection 515.1 - Description

The work under this section shall consist of supplying and installing Waterman Model F-10 or approved equivalent flapgates and the inlet grates and access barriers and associated embedments for the outlet structure according to the plans and these Special Provisions.

All material for the inlet grate and access barrier shall be A36 steel. The inlet grates, access barriers and associated embedments shall be galvanized in accordance with MAG Section 771.

Subsection 515.7 - Payment

No payment will be made for access barriers, or inlet grates and associated embedment angles as such, the cost thereof shall be included in cost of the Special Junction Structure. Payment for flapgates shall be made on the basis of the lump sum price bid per each. Payment shall be full compensation for all labor, materials, equipment, and all other items necessary to complete the work in place according to the plans and these Special Provisions.

ITEM 515-1 - 24" FLAP GATE

SECTION 520 - STEEL HANDRAILS

Steel handrails shall conform to Section 520 of the MAG Uniform Standard Specifications and COP Supplement except as modified herein.

Subsection 520.1 - Description

Add the following:

The work under this section shall include providing and erecting steel handrails and pipe gates as shown in the plans.

All steel handrails and pipe gates shall be painted in accordance with MAG Section 790. The paint color shall be a light brown in color as approved by the Engineer.

Subsection 520.5 - Payment

Payment for handrails shall be made on the basis of the price bid per linear foot. Payment shall be full compensation for all labor, materials, equipment, and painting, and all other items necessary to complete the work in place according to the plans and these Special Provisions.

ITEM 520-1 - STEEL HANDRAILS

Payment for pipe gates shall be made on the basis of the lump sum price bid per each gate. Payment shall be full compensation for all labor, materials, equipment, and painting or galvanizing and all other items necessary to complete the work in place according to the plans and these Special Provisions.

ITEM 520-2 - STEEL PIPE GATE

SECTION 525 - PNEUMATICALLY PLACED CONCRETE

Subsection 525.1 - Description

Add the following:

The work under this section shall include the placement of shotcrete lining on the side slopes of the existing Tatum Wash upstream of the inlet spillway structure as shown in the plans.

Subsection 525.12 - Payment

Replace this subsection with the following:

Payment for shotcrete lining shall be measured on the basis of the price bid per square yard of exposed surface plus the area of any toedown. Payment shall be full compensation for all labor, materials, reinforcing steel, equipment, excavation and backfill, color admixture, coating, and all other items necessary and incidental to construct the lining complete in place according to the plans and these Special Provisions.

ITEM 525 -1 SHOTCRETE CHANNEL LINING

SECTION 601 - TRENCH EXCAVATION, BACKFILLING AND COMPACTION

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

Subsection 601.4.2 - Bedding:

Add the following:

This work shall include the placement of cement-treated slurry bedding as specified on the plans and in these Special Provisions.

Cement-treated slurry bedding material shall conform to the gradation specified for bedding material to the requirements set forth in MAG Section 728. Cement-treated slurry shall have a slump of 8 to 11 inches and have a minimum of 25 psi compressive strength and a maximum of 1000 psi based on a 28 day test.

Cement-treated slurry bedding material shall be placed in a uniform manner that will prevent voids in, or segregation of, the bedding material, and will not float or shift the pipe. Cement-treated slurry bedding material shall be placed from bottom of pipe to pipe spring line. No backfilling above the cement-treated slurry shall be commenced until 24 hours after the cement-treated slurry has been placed.

Subsection 601.4.3 - Backfill:

Add the following:

The Contractor may opt to use cement treated slurry aggregate base course in place of native backfill. The backfill begins from the springline to within one (1) foot from the top of the trench.

Cement-treated slurry backfill material if used shall conform to the gradation specified for bedding material in the COP Supplement Subsection 601.4.2 and to the requirements set forth in MAG Section 728. Cement-treated slurry shall have a slump of 8 to 11 inches and have a minimum of 25 psi compressive strength and a maximum of 1000 psi based on a 28 day test.

Cement-treated slurry pipe backfill shall be placed in a uniform manner that will prevent voids in, or segregation of, the backfill to a maximum elevation one foot from the top of trench and as required per plans. No backfilling above the cement-treated slurry pipe backfill above the cement-treated slurry pipe backfill shall be commenced until 24 hours after the cement-treated slurry has been placed.

Subsection 601.6 - Payment:

No payment will be included in the proposal, nor direct payment made for trench excavation, foundation, bedding, backfilling, compaction, or placement of temporary pavement. The cost of these features of the work shall be included in the unit price bid per linear foot for furnishing and laying pipe.

SECTION 615 - SEWER LINE CONSTRUCTION

Sewer line construction shall conform to Section 615 of the MAG Uniform Standard Specifications and COP Supplement except as modified herein.

Subsection 615.1 - Description

Add the following:

The work in this section shall include replacing the existing 15" sewer with ductile iron pipe at its crossing below the proposed 42" outlet structure pipe.

All ductile iron pipe shall be in accordance with AWWA C-150

A. Materials and Lining for Ductile Iron Sewer

All ductile iron pipe for conveying sewage shall be in accordance with AWWA C-150:

Ductile iron pipe with a minimum wall thickness of Class 52 may be substituted in lieu of the above.

The lining shall cover, at a minimum, the inner surfaces of the pipe and the fitting from the plain end or beveled spigot end to the rear of the gasket socket. If flanged fittings and pipe are included in the project, the lining must not be used on the face of the flange, however full face gaskets must be used to protect the ends of the pipe. At the ends of the pipe and fittings, the lining thickness shall taper for a distance of 4 inches to a minimum thickness of 10 mils.

All ductile iron sewer pipe shall have a protective lining with a nominal thickness of 40 mils and a minimum thickness of 35 mils of Protecto 401 (ceramic epoxy), Polythane (polyurethane), SewerCoat (calcium aluminate), or approved equal throughout the barrel area of the pipe. However, the lining in the bell area shall transition to a minimum thickness of 10 mils at the edge of the gasket socket. The 10 mil lining shall extend into the gasket socket area to a point where the gasket would overlap the lining when it is compressed due to pipe assembly during construction. The 10 mil lining shall also continue from inside the barrel area, around the spigot end of the pipe and along the outside of the pipe to a point where the center of the gasket of the next pipe section would contact the edge of the lining on the spigot end of the previous pipe section. The thickness of the linings shall be determined by using a dry film thickness magnetic gauge at four quadrants.

Each section of pipe and each fitting shall be tested and shall have an absence of holidays when tested by a suitable holiday detector. In all cases, the barrel area of the pipe shall be tested using a voltage of 7,500 volts and a dry conductive probe.

Holiday testing shall conform to ASTM G 62-87 and NACE Standards RP0274-74 and RP0188-90 (latest revision).

The pipe manufacturer shall be solely responsible for the quality of the lining and shall supply a certification as to compliance to the specification. The certification shall state specifically the following items:

- 1) All ductile sewer pipe and fittings have a protective lining of 40 mils (35 mils min) in the barrel area, 10 mils in the bell area and 10 mils minimum on the exterior of the spigot end.
- 2) Each section of pipe and each fitting have been tested for holidays utilizing a test voltage of 7,500 volts with a dry conductive probe in the barrel area and a test voltage of 67.5 volts with a wet sponge in both the bell area and the exterior of the spigot end, and no holidays were found.
- 3) The lining material used meets the current specifications and that the material was applied as required by the specification.

If the contractor makes a field cut of the lined ductile pipe, the Contractor shall comply with the recommendations of the pipe manufacturer in applying a field coating to the end of the pipe ends. In all cases, as a minimum, a 10 mils coating shall be applied to the pipe end and shall overlap the lining by four inches and extend around the pipe end and along the outside of the pipe a minimum of ten inches. The coating shall be allowed to dry before assembly. In addition, the overlapped surface of the lining shall be roughed up to produce a 3 to 5 mil profile over the entire surface. The end result of this process is to secure proper adhesion of the field coating.

B. Repair

Repair of the damaged sections of the lining shall be in accordance with the lining manufacturer's recommendation or as specified above so that the repair area is equal to the undamaged lined area in all respects. All damaged lined areas and holidays shall be repaired immediately after discovery.

Holiday testing may be required by the Engineer before pipe assembly when deemed appropriate. The testing and repair requirements shall follow the procedures called for in this specification and all costs for such repairs will be the responsibility of the Contractor.

There will be no other provisions for repair of the lining of DIP.

C. Protective Collar

In order to protect the exterior spigot end against abrasion and damage during shipping and handling, the manufacturer shall install temporary collars on the exterior of each spigot end of each pipe section. The manufacturer shall secure the collars to the pipe to prevent accidental removal during shipping and normal handling by the Contractor. The collars are not to be removed from the pipe until right before the pipe section is to be installed or field cut.

D. Sewer Inspection

The COP must TV inspect and approve the completed DIP sewer line installation after backfilling of the pipe has been done. The Contractor shall contact Gerry Arakaki at the WSD at 261-8229 a minimum of 48 hours in advance of the need to do the TV inspection.

Subsection 615.13 - Measurement and Payment

Replace this subsection with the following:

Measurement will be made horizontally along the length of the pipe rounded to the nearest foot including all fittings.

Payment for sewer pipe construction shall be made at the unit price bid per linear foot, and shall be full compensation for furnishing and installing the pipe, lining, and fittings complete in place, as specified, including excavation, removals if necessary, backfilling, compaction, sheeting and bracing, testing, and all incidental work not specifically covered in other pay items.

ITEM 615-1 - 15" DIP, CL 52

SECTION 618 - STORM DRAIN CONSTRUCTION

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

Subsection 618.1 - Description

Add the following:

The work applies to the storm drain pipe connecting the outlet structure with the junction structure in Shea Boulevard.

Subsection 618.2 - Materials

Add the following:

Concrete pipe, joints, gaskets, and testing shall be according to MAG Section 735 and as specified below.

Location	Storm drain construction from the basin outlet structure to the storm drain junction structure.
Type	Rubber Gasketed Reinforced Concrete Pipe (RGRCP), ASTM C 76
Class	IV
Diameter	42 inch
Joints	Rubber Gasket Bell and Spigot

Subsection 618.5 - Measurement

Replace this subsection with the following:

Measurement will be made horizontally along the axis of the pipe rounded to the nearest foot including all fittings. Measurement shall extend from the inside face of the outlet to the inside face of the junction structure.

Subsection 618.6 - Payment

Payment for storm drain construction shall be made at the unit price bid per linear foot, and shall be full compensation for furnishing and installing the pipe and fittings complete in place, as specified, including excavation, removal of AC pavement, backfilling, compaction, sheeting and bracing, testing, and all incidental work not specifically covered in other pay items.

ITEM 618-1 - 42" RGRCP

SECTION 650 - INSTRUMENTATION CONDUIT

Add this section to the MAG Uniform Standard Specifications.

Subsection 650.1 - Description

The work in this section shall include installing galvanized and pvc conduit to facilitate the future installation of weather monitoring equipment.

Subsection 650.2 - Conduit

Galvanized and Schedule 80 PVC in 2-inch diameter as required. Pipe shall conform to ASTM D 1785. Use Schedule 80 fittings conforming to ASTM D 2467 withy primer and adhesive solvent connections conforming to ASTM D 2564. Install conduit as shown on plans. Provide and install 200-lb minimum test pull string in conduit.

Subsection 650.2 - Measurement

Measurement will be made horizontally along the length of the pipe rounded to the nearest foot including all fittings.

Subsection 650.2 - Payment

Payment for instrumentation conduit installation shall be made at the unit price bid per linear foot, and shall be full compensation for furnishing and installing the pipe and fittings, concrete collar, excavation, compaction, and all incidental work not specifically covered in other pay items to complete this item in-place as specified.

ITEM 650-1 - 2" Dia Instrumentation Conduit

SECTION 725 - PORTLAND CEMENT CONCRETE

Portland cement concrete shall conform to Section 725 of the MAG Uniform Standard Specifications and COP Supplement 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.

Subsection 725.6 - Admixtures

Add the following:

When an air-entraining agent is authorized, the amount used will be limited to the extent that the amount of air by volume shall not be less than 4 percent nor more than 6 percent. Air-entraining agents complying with AASHTO M-154 or ASTM C-260 will be permitted as long as strength requirements are met. Any admixture shall be measured accurately by mechanical means into each batch by equipment and in a method approved by the Engineer.

APPENDIX “A”

"GEOTECHNICAL INVESTIGATION REPORT"

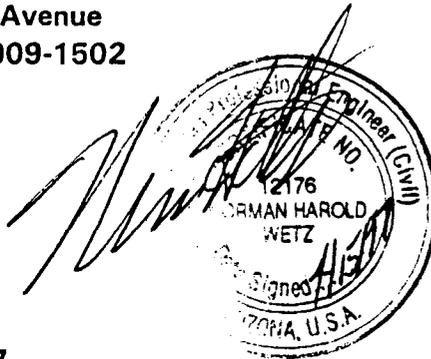
**GEOTECHNICAL INVESTIGATION REPORT
ASSIGNMENT NO. 4
TATUM WASH
TATUM & SHEA BOULEVARDS
CONTACT NO. FCD 96-13
PHOENIX, ARIZONA**

Submitted To:

**Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, Arizona 85009**

Submitted By:

**AGRA Earth & Environmental, Inc.
3232 West Virginia Avenue
Phoenix, Arizona 85009-1502**



**15 April 1997
AEE Job No. 7-117-000044
Report No. 1**



AGRA Earth &
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15 April 1997
AEE Job No. 7-117-000044
Report No. 1

Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, Arizona 85009

Attention: Warren Rosebraugh, P.E.
Project Manager

Gentlemen:

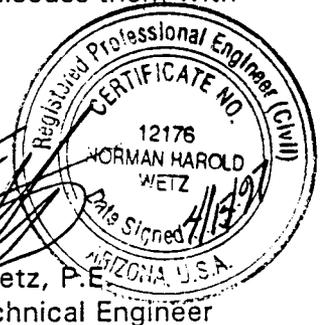
**RE: GEOTECHNICAL INVESTIGATION REPORT
ASSIGNMENT NO. 4
TATUM WASH
TATUM & SHEA BOULEVARDS
CONTACT NO. FCD 96-13
PHOENIX, ARIZONA**

Our Geotechnical Investigation Report for the above-referenced project is herewith submitted. The following sections provide the results of exploratory drilling, laboratory analysis, and presents recommended criteria for site grading and excavation.

Should any questions arise concerning this report, we would be pleased to discuss them with you.

Respectfully submitted,
AGRA Earth & Environmental, Inc.


Elizabeth A. Judd, E.I.T.

Reviewed by 

Norman H. Wetz, P.E.
Senior Geotechnical Engineer

c: Addressee (3)

met/J6-97/4-14-97

Geotechnical Investigation Report
Assignment No. 4
Tatum Wash
Tatum & Shea Boulevards
Contact No. FCD 96-13
Phoenix, Arizona

AEE Job No. 7-117-000044
Report No. 1
15 April 1997
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APPENDICES

Appendix A - Field Investigation
Appendix B - Laboratory Testing



1.0 INTRODUCTION

This report presents the results of a geotechnical investigation by AGRA Earth & Environmental, Inc. (AEE) for the site of a proposed retention basin, located in Phoenix, Arizona. The purpose of this investigation was to evaluate the physical properties of the soils underlying the site. Based on this evaluation, recommendations are presented for site grading and mass excavation.

2.0 PROJECT DESCRIPTION

Details of the project were provided by Warren Rosebraugh, P.E. of the Flood Control District of Maricopa County. It is understood that a retention basin will be excavated to about 15 to 20 feet below existing grade and will encompass an area of about 325 by 575 feet. The retention basin will collect stormwater runoff from Tatum Wash.

3.0 INVESTIGATION

3.1 SUBSURFACE EXPLORATION

Three exploratory borings were drilled, one to a depth of 25 feet and the other two, to 20 feet below existing site grade along the basin alignment. The borings were advanced using a CME-75 drill rig equipped with 6 5/8-inch O.D. hollow stem auger. Standard penetration testing and open-end drive sampling were performed at selected intervals in the borings. During drilling, the soils encountered were continuously examined, visually classified and logged. The field investigation was supervised by Elizabeth A. Judd, E.I.T., of this firm.

Results of the field investigation are presented in Appendix A, including a brief description of drilling and sampling equipment and procedures, and logs of the test borings. A site plan showing the location of test borings is also included in Appendix A.

3.2 LABORATORY ANALYSIS

The moisture contents of selected samples recovered were determined. The results of these tests are shown on the boring logs. Grain-size analysis and Atterberg limits tests were performed on selected samples. The results of these tests are presented in Appendix B.

4.0 SITE CONDITIONS & GEOTECHNICAL PROFILE

4.1 SITE CONDITIONS

The site is bordered on the north side by Shea Boulevard and residential lots on all other sides. The area is undeveloped and is dissected by Tatum Wash which flows from the southwest to the northeast. The vegetation consists of palo verde and mesquite trees, small shrubs and

desert grasses. The surface is also littered with some household and construction debris. The site slopes downward to the north (Shea Boulevard), with an elevation change of about 6 feet across the site.

4.2 GEOTECHNICAL PROFILE

Based on the test borings, the geotechnical profile underlying the channel alignment can be generalized into a two stratum system as follows:

Stratum A - Silty to clayey sand and gravel, with traces of cobbles, extends to about 9.5 to 13.0 feet below existing grade. The soils of this deposit are firm to hard in consistency, exhibit nonplastic to medium plasticity and are weakly to moderately lime cemented.

Stratum B - Silty to clayey sands were encountered below Stratum A and extend to the full depth of the investigation. The soils of this deposit are hard in consistency, moderately to strongly lime cemented and exhibit low to medium plasticity.

4.3 GROUNDWATER & SOIL MOISTURE CONDITIONS

No free groundwater was encountered in the test borings and soil moisture contents were very low, ranging from 1 to 3 percent.

5.0 DISCUSSION & RECOMMENDATIONS

5.1 EXCAVATIONS & SLOPES

It appears that mass excavation for the upper 5 to 10 feet can be accomplished with conventional earthmoving equipment. Ripping may be necessary for the moderately to strongly cemented material below this depth.

5.2 SITE GRADING

5.2.1 Surface Preparation

All vegetation, debris and any man-made fill should be removed from areas designated for the retention basin.

The exposed surfaces upon which fill is to be placed should be scarified in the upper 8 inches, brought to within the range of optimum moisture content to plus 3 percent of optimum moisture content, and compacted to at least 95 percent of maximum dry density as determined by ASTM D698. No scarification and recompaction will be necessary where strongly cemented soils are encountered.

Geotechnical Investigation Report
Assignment No. 4
Tatum Wash
Tatum & Shea Boulevards
Contact No. FCD 96-13
Phoenix, Arizona

AEE Job No. 7-117-000044
Report No. 1
15 April 1997
Page 3

5.2.2 Structural Fill

All fill required to raise the site to subgrade elevation should be free of vegetation, debris and other deleterious materials, and should contain no particles larger than 6 inches in dimension.

All structural fill should be compacted to at least 95 percent of maximum dry density as determined by ASTM D698. The moisture content during compaction should be maintained within 2 percent of the optimum moisture content.

APPENDIX A
FIELD INVESTIGATION

TEST DRILLING EQUIPMENT & PROCEDURES

Description of Subsurface Exploration Methods

Auger Boring Drilling through overburden soils is performed with 6 5/8" O.D., 3 1/4" I.D. hollow stem auger or 4 1/2" solid stem continuous flight auger. Carbide insert teeth are normally used on bits so they can penetrate soft rock or very strongly cemented soils. A CME-55 or CME-75 truck-mounted drill rig is used to advance the auger. The drill rigs are powered with six-cylinder Ford industrial engines capable of delivering about 7,000 to 8,400 foot-pounds torque to the drill spindle. The spindle is advanced with twin hydraulic rams capable of exerting 16,000 to 20,000 pounds downward force.

Generally, refusal to penetration of the auger is adopted as top of the SGC or river-run material, which normally requires other techniques for penetration. Grab samples or auger cuttings may be taken as necessary. Standard penetration tests or 2.42" diameter ring samples are taken in conjunction with the auger borings as needed, with the sampling interval and type being indicated on the boring logs.

Hammer Drill Drilling with the Hammer drill is accomplished with a Drill Systems AP1000 drill rig advancing a double-walled drive casing with a link-belt 180 diesel pile driving hammer, having a rated energy of 8,100 foot-pounds per blow. Where noted on the boring log, the hammer is equipped with a supercharger which can boost the energy to approximately 12,000 foot-pounds per blow. The supercharger is used only in portions of the boring where blow counts are relatively high. Cuttings are removed with compressed air by a reverse circulation process, and are collected in a cyclone from which grab samples are obtained. The drive casing is either 9" O.D. by 6" I.D. or 6 5/8" O.D. by 4" I.D. and employs an expendable bit of slightly larger diameter than the O.D. of the casing. Hammer blows required to advance the drive casing are recorded in 1' increments, as noted on the boring logs. Standard penetration tests or 2.42" diameter ring samples taken are noted on the boring logs.

Odex System The Odex (overburden drilling with the eccentric method) system, also referred to as the DTH (down-the-hole hammer) system, consists of a pneumatic-rotary percussion down-the-hole hammer operating at the bottom being drilled through a 5" diameter steel casing. The eccentric button percussion bit overreams the boreholes and allows advancement of the casing. The same compressed air or air-detergent (foam) mixture that operates the hammer also serves to expel the cuttings from the borehole, where they can be collected as grab samples. Retraction of the eccentric drill bit allows removal of the hammer from the center of the casing to facilitate standard penetration testing (ASTM D1586) where noted on the boring logs.

TEST DRILLING EQUIPMENT & PROCEDURES (CONT.)

Schramm Rotadrill The Schramm T64H truck-mounted drill rig is a top drive rotary rig capable of up to 85,500 inches/pounds of torque with a pulldown capacity of 35,000 lbs. Drilling is performed with either 4", or larger, diameter Tricone roller bits or 4" to 6" diameter down-the-hole hammer. Cutting removal is facilitated by compressed air or air/water mixtures and collected in a cyclone. Where noted on the boring logs, grab samples of the cuttings were collected. When casing is required to stabilize the borehole, an Aardvark drill through casing hammer is utilized, permitting simultaneous drilling and driving of the casing. Casing penetration is recorded on the boring logs in feet per minute. Standard penetration, 2.42" diameter ring samples, Shelby tubes, pitcher tube or Denison samples taken are noted on the boring logs.

Sampling Procedures Dynamically driven tube samples are usually obtained at selected intervals in the borings by the ASTM D1586 test procedure. In many cases, 2" O.D., 1 3/8" I.D. samplers are used to obtain the standard penetration resistance. "Undisturbed" samples of firmer soils are often obtained with 3" O.D. samplers lined with 2.42" I.D. brass rings. The driving energy is generally recorded as the number of blows of a 140-pound, 30-inch free fall drop hammer required to advance the samplers in 6-inch increments. However, in stratified soils, driving resistance is sometimes recorded in 2- or 3-inch increments so that soil changes and the presence of scattered gravel or cemented layers can be readily detected and the realistic penetration values obtained for consideration in design. These values are expressed in blows per 6 inches on the boring logs. "Undisturbed" sampling of softer soils is sometimes performed with thin walled Shelby tubes (ASTM D1587), pitcher samplers, Denison samplers or continuous CME samplers. Where samples of rock are required, they are obtained by NQ diamond core drilling (ASTM D2113). Tube samples are labeled and placed in watertight containers to maintain field moisture contents for testing. When necessary for testing, larger bulk samples are taken from auger cuttings. Also, representative samples are obtained from the cuttings from the hammer and Schramm drill rig.

Boring Records Drilling operations are directed by our field engineer or geologist who examines soil recovery and prepares the boring logs. Soils are visually classified in accordance with the Unified Soil Classification System (ASTM D2487), with appropriate group symbols being shown on the boring logs.

TERMINOLOGY USED TO DESCRIBE THE RELATIVE DENSITY,
CONSISTENCY OR FIRMNESS OF SOILS

The terminology used on the boring logs to describe the relative density, consistency or firmness of soils relative to the standard penetration resistance is presented below. The standard penetration resistance (N) in blows per foot is obtained by the ASTM D1586 procedure using 2" O.D., 1 3/8" I.D. samplers.

1. Relative Density. Terms for description of relative density of cohesionless, uncemented sands and sand gravel mixtures.

<u>N</u>	<u>Relative Density</u>
0-4	Very loose
5-10	Loose
11-30	Medium dense
31-50	Dense
50 +	Very dense

2. Relative Consistency. Terms for description of clays which are saturated or near saturation.

<u>N</u>	<u>Relative Consistency</u>	<u>Remarks</u>
0-2	Very soft	Easily penetrated several inches with fist.
3-4	Soft	Easily penetrated several inches with thumb.
5-8	Medium stiff	Can be penetrated several inches with thumb with moderate effort.
9-15	Stiff	Readily indented with thumb, but penetrated only with great effort.
16-30	Very stiff	Readily indented with thumbnail.
30 +	Hard	Indented only with difficulty by thumbnail.

3. Relative Firmness. Terms for description of partially saturated and/or cemented soils which commonly occur in the Southwest including clays, cemented granular materials, silts and silty and clayey granular soils.

<u>N</u>	<u>Relative Firmness</u>
0-4	Very soft
5-8	Soft
9-15	Moderately firm
16-30	Firm
31-50	Very firm
50 +	Hard

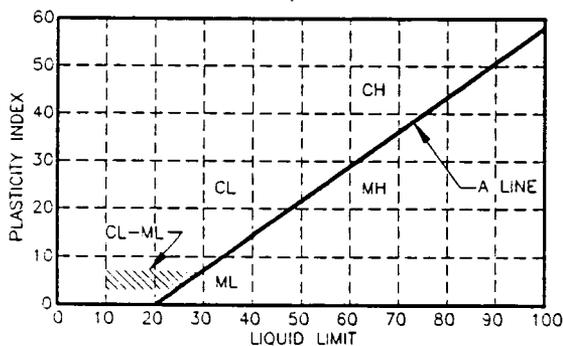
UNIFIED CLASSIFICATION SYSTEM FOR SOILS

Soils are visually classified by the Unified Soil Classification System on the boring logs presented in this report. Grain-size analysis and Atterberg Limits Tests are often performed on selected samples to aid in classification. The classification system is briefly outlined on this chart. For a more detailed description of the system, see "The Unified Soil Classification System" ASTM Designation: D2487.

MAJOR DIVISION		GRAPH SYMBOL	GROUP SYMBOL	TYPICAL DESCRIPTION
COARSE-GRAINED SOILS (Less than 50% passes No. 200 sieve)	GRAVELS (50% or less of coarse fraction passes No. 4 sieve)		GW	Well graded gravels, gravel-sand mixtures or sand-gravel-cobble mixtures.
			GP	Poorly graded gravels, gravel-sand mixtures, or sand-gravel-cobble mixtures.
			GM	Silty gravels, gravel-sand-silt mixtures.
			GC	Clayey gravels, gravel-sand-clay mixtures.
	SANDS (More than 50% of coarse fraction passes No. 4 sieve)		SW	Well graded sands, gravelly sands.
			SP	Poorly graded sands, gravelly sands.
			SM	Silty sands, sand-silt mixtures.
			SC	Clayey sands, sand-clay mixtures.
FINE-GRAINED SOILS (50% or more passes No. 200 sieve)	SILTS LIMITS PLOT BELOW "A" LINE & HATCHED ZONE ON PLASTICITY CHART		ML	Inorganic silts, clayey silts with slight plasticity.
		MH	Inorganic silts of high plasticity, silty soils, elastic silts.	
	CLAYS LIMITS PLOT ABOVE "A" LINE & HATCHED ZONE ON PLASTICITY CHART		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
		CH	Inorganic clays of high plasticity, fat clays, silty and sandy clays of high plasticity.	

NOTE: Coarse-grained soils with between 5% & 12% passing the No. 200 sieve and fine-grained soils with limits plotting in the hatched zone on the plasticity chart to have dual symbol.

PLASTICITY CHART



DEFINITIONS OF SOIL FRACTIONS

SOIL COMPONENT	PARTICLE SIZE RANGE
Boulders	Above 300mm (12in.)
Cobbles	300mm to 75mm (12in. to 3in.)
Gravel	75mm (3in.) to No. 4 sieve
Coarse gravel	75mm to 19mm (3in. to 3/4in.)
Fine gravel	19mm (3/4in.) to No. 4 sieve
Sand	No. 4 to No. 200
Coarse	No. 4 to No. 10
Medium	No. 10 to No. 40
Fine	No. 40 to No. 200
Fines (silt or clay)	Below No. 200 sieve



L F G E N D



BORING LOCATION AND NUMBER



AGRA
Earth & Environmental
 3232 WEST VIRGINIA AVENUE
 PHOENIX, AZ, U.S.A. 85009-1502

JOB NO.	7-117-000044
DESIGN	BAJ
DRAWN	SPG
DATE	3/97
SCALE	N. T. S.

SITE PLAN

A-5

PROJECT Tatum Wash LOG OF TEST BORING NO. 1

JOB NO. 7-117-000044 DATE 3-10-97

LOCATION See Site Plan
 RIG TYPE CME-75
 BORING TYPE 6 5/8" Hollow Stem Auger
 SURFACE ELEV. _____
 DATUM _____

Depth in Feet	Drill Rate Min/Ft.	Graphical Log	Sample	Sample Type	Blow Count	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION		
0				S	7-9-11				slightly moist to dry firm to hard	SILTY SAND & GRAVEL , trace of cobbles, trace of clay, poorly graded, weakly to moderately lime cemented, subrounded to subangular, nonplastic to low plasticity, brown		
				S	17-11-9							
				S	22-17-22		1	GM-GP				
				A								
				S	17-50/5"							
15					U	100/4"		SC			slightly moist to dry hard	CLAYEY SAND , some to considerable fine grained gravel, poorly graded, subrounded to subangular, moderately to strongly lime cemented, low to medium plasticity, light brown
				S	50/1"							
20												Stopped Auger at 20' Sampler refused at 20'1"
25												

7-117-000044.GWH.04/14/97

GROUNDWATER		
DEPTH	HOUR	DATE
	none	

SAMPLE TYPE
 A - Drill cuttings.
 S - 2" O.D. 1.38" I.D. Tube Sample.
 U - 3" O.D. 2.42" I.D. Tube Sample.
 T - 3" O.D. Thin-walled Shelby Tube.
 C - 6" O.D. Continuous Core

PROJECT Tatum Wash

LOG OF TEST BORING NO. 2

JOB NO. 7-117-000044 DATE 3-10-97

LOCATION See Site Plan

RIG TYPE CME-75

BORING TYPE 6 5/8" Hollow Stem Auger

SURFACE ELEV. _____

DATUM _____

Depth in Feet	Drill Rate Min/Ft.	Graphical Log	Sample	Sample Type	Blow Count	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0			S	9-9-20				GP	slightly moist medium dense	SAND, GRAVEL & COBBLES, poorly graded, subrounded to subangular, nonplastic, brown
			S	10-20-50/5"				GC-GP	slightly moist to dry hard	CLAYEY SAND & GRAVEL, some to trace of cobbles, poorly graded, subrounded to subangular, weakly to moderately lime cemented, low plasticity, brown
5			S	45-50/3"					slightly moist to dry hard	SILTY SAND, some to considerable fine grained gravel, poorly graded, angular to subangular, moderately to strongly lime cemented, low to medium plasticity, light brown
10			S	50/3"			3		slightly moist to dry hard	
			A							
15			S	50/3"				SM		
20			S	45-34-40						
25									Stopped Auger at 20' Stopped Sampler at 21'6"	

7-117-000044_GWH_04/14/97

GROUNDWATER

SAMPLE TYPE

DEPTH	HOUR	DATE
	none	

- A - Drill cuttings.
- S - 2" O.D. 1.38" I.D. Tube Sample.
- U - 3" O.D. 2.42" I.D. Tube Sample.
- T - 3" O.D. Thin-walled Shelby Tube.
- C - 6" O.D. Continuous Core



PROJECT Tatum Wash LOG OF TEST BORING NO. 3

JOB NO. 7-117-000044 DATE 3-10-97

LOCATION See Site Plan
 RIG TYPE CME-75
 BORING TYPE 6 5/8" Hollow Stem Auger
 SURFACE ELEV. _____
 DATUM _____

Depth in Feet	Drill Rate Min/Ft.	Graphical Log	Sample	Sample Type	Blow Count	Dry Density lbs. per Cubic ft.	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0			S	11-17-33					slightly moist to dry hard	SILTY SAND & GRAVEL , trace of cobbles & clay, poorly graded, weakly to moderately lime cemented, low to medium plasticity, light brown
			S	37-50/4"						
5			S	45-50/3"			2			
10			S	50/4 1/2"					slightly moist to dry hard	CLAYEY SAND , some fine grained gravel, poorly graded, angular to subangular, moderately to strongly lime cemented, low to medium plasticity, light brown
15			S	31-50/4"				SC		
			A							
20			S	18-50/5 1/2"						
25										

7-117-000044.GWH.04/14/97

GROUNDWATER

DEPTH	HOUR	DATE
	none	

SAMPLE TYPE

- A - Drill cuttings.
- S - 2" O.D. 1.38" I.D. Tube Sample.
- U - 3" O.D. 2.42" I.D. Tube Sample.
- T - 3" O.D. Thin-walled Shelby Tube.
- C - 6" O.D. Continuous Core

APPENDIX B
LABORATORY TESTING

AGRA Earth & Environmental, Inc.

PROJECT: ASSIGNMENT NO. 4 TATUM WASH
 LOCATION: TATUM & SHEA BLVD

JOB NO: 7-117-000044
 WORK ORDER NO: 1
 DATE SAMPLED: 03-12-97

MECHANICAL SIEVE ANALYSIS
 GROUP SYMBOL, USCS (ASTM D-2487)

SIEVE SIZES

Location & Depth	USCS	LL	PI	Silt or Clay	SAND								GRAVEL						COBBLES		Lab #
					Fine				Medium			Coarse	Fine			Coarse					
					#200	#100	#50	#40	#30	#16	#10	#8	#4	1/4"	3/8"	1/2"	3/4"	1"	1 1/2"	2"	

PERCENT PASSING BY WEIGHT

Location & Depth	USCS	LL	PI	#200	#100	#50	#40	#30	#16	#10	#8	#4	1/4"	3/8"	1/2"	3/4"	1"	1 1/2"	2"	3"	4"	6"	Lab #	
#1 @ 5.0 - 10.0'	GP-GM	NV	NP	8.4	11	14	16	17	21	25	26	34	38	51	60	76	86	96	98	100	100	100	100	2
#2 @ 10.0 - 15.0'	SM	34	6	20	26	31	33	36	44	52	55	69	76	87	92	98	100	100	100	100	100	100	100	9
#3 @ 5.0 - 5.8'	SM	42	16	20	26	30	32	35	41	47	50	63	69	80	88	95	100	100	100	100	100	100	100	15

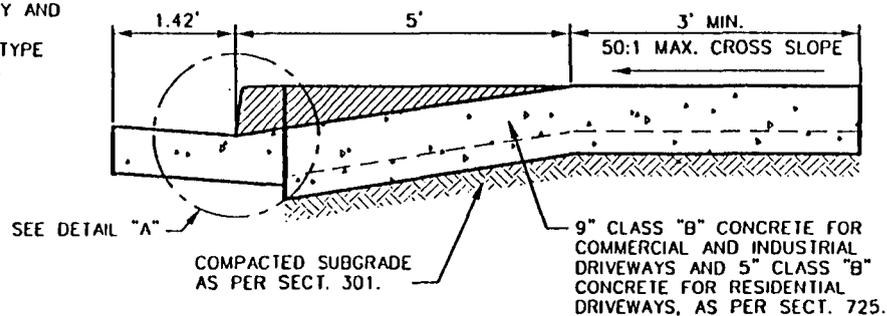
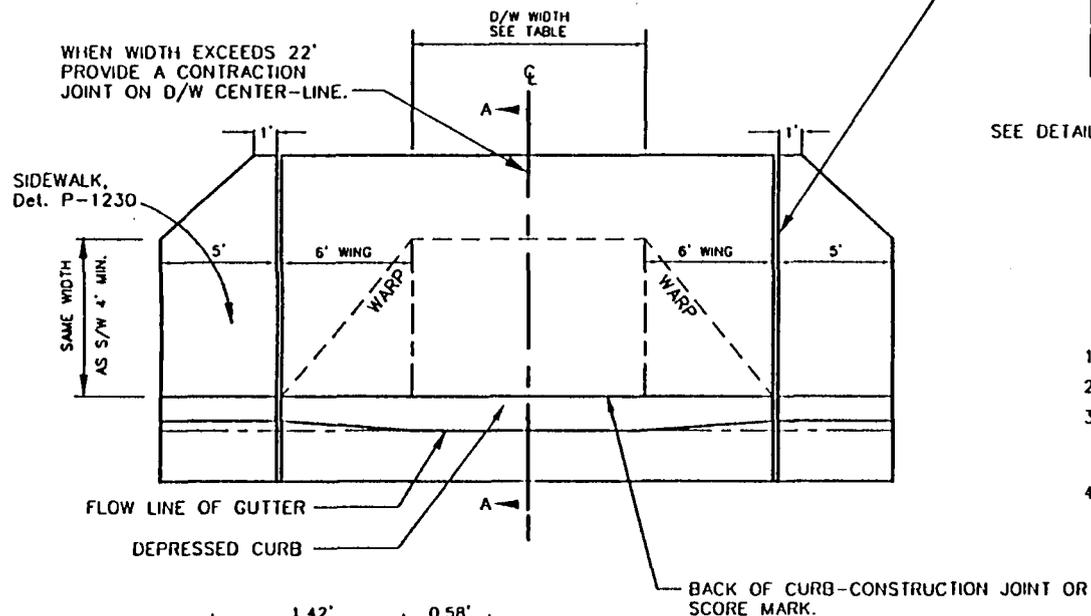
18

B-1

APPENDIX "B"

"MODIFIED DRIVEWAY DETAILS P1255-1 & P1255-2"

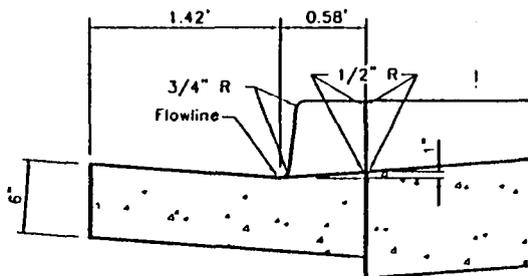
EXPANSION JOINT THROUGH DRIVEWAY AND CURB & GUTTER. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED EXPANSION JOINT FILLER A.S.T.M. D-1751.



SECTION A-A

NOTES

1. DEPRESSED CURB SHALL BE PAID FOR AS COMBINED CURB AND GUTTER.
2. PAYMENT FOR DRIVEWAY SHALL BE ON A SQUARE FOOTAGE BASIS.
3. EXPANSION JOINT MATERIAL SHALL BE SECURED IN PLACE PRIOR TO POURING CONCRETE AND SHALL COMPLETELY SEPARATE THE DRIVEWAY SLAB FROM THE SIDEWALK, EXTENDING FROM THE SURFACE TO THE SUBGRADE.
4. WHEN DRIVEWAY IS CONSTRUCTED AT A "T" INTERSECTION AND IS USED AS A RAMP, THE SLOPE OF THE DRIVEWAY SHALL BE A MAX OF 12:1.



DETAIL "A"

DRIVEWAY WIDTH	MIN.	MAX.	CLASS	DEPTH
COMMERCIAL ZONING	16'	50'	B	9"
INDUSTRIAL ZONING	16'	50'	B	9"
RESIDENTIAL ZONING				
MAJOR STREETS	16'	40'	B	9"
COLLECTOR STREETS	12'	40'	B	5"
LOCAL STREETS	12'	30'	B	5"

* ONE-WAY ONLY, 24' MIN. FOR TWO-WAY TRAFFIC
 ** 16' DESIRABLE

DETAIL NO.
P1255-1



City of Phoenix
STANDARD DETAIL

DRIVEWAY ENTRANCE - TYPE I
(SIDEWALK ADJACENT TO CURB)

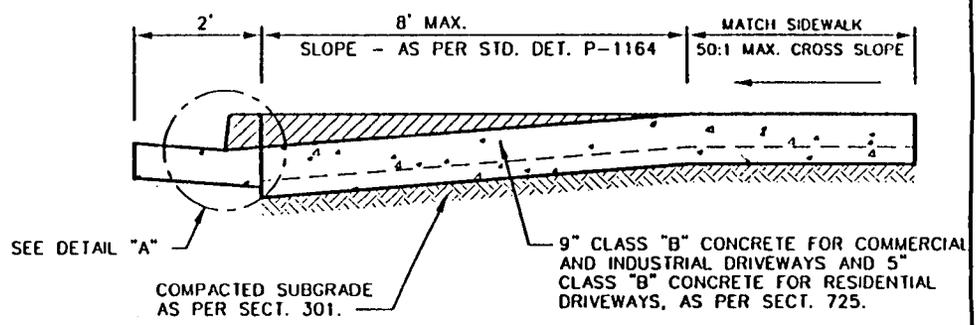
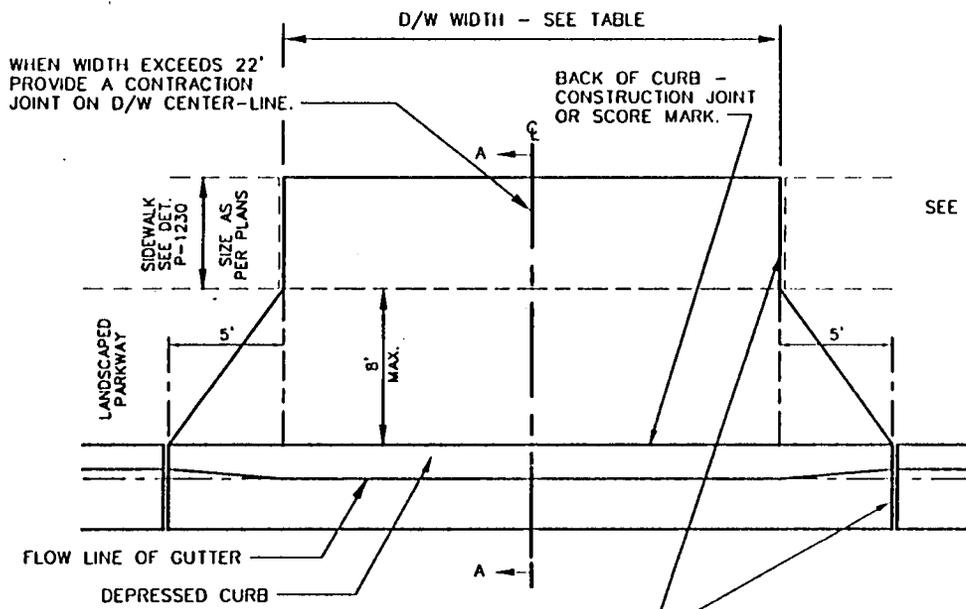
APPROVED

CITY ENGINEER

DATE

DETAIL NO.

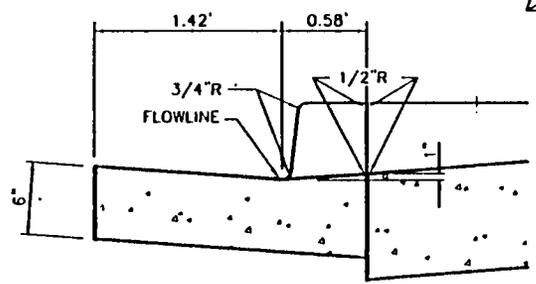
P1255-1



SECTION A-A

NOTES

1. DEPRESSED CURB SHALL BE PAID FOR AS COMBINED CURB AND GUTTER.
2. PAYMENT FOR DRIVEWAY SHALL BE ON A SQUARE FOOTAGE BASIS.
3. EXPANSION JOINT MATERIAL SHALL BE SECURED IN PLACE PRIOR TO POURING CONCRETE AND SHALL COMPLETELY SEPARATE THE DRIVEWAY SLAB FROM THE SIDEWALK, EXTENDING FROM THE SURFACE TO THE SUBGRADE.
4. WHEN DRIVEWAY IS CONSTRUCTED AT A "T" INTERSECTION AND IS USED AS A RAMP, THE SLOPE OF THE DRIVEWAY SHALL BE A MAX OF 12:1.



EXPANSION JOINT THROUGH SIDEWALK AND CURB & GUTTER. EXPANSION JOINT FILLER SHALL BE 1/2" BITUMINOUS TYPE PREFORMED EXPANSION JOINT FILLER A.S.T.M. D-1751.

DETAIL "A"

DRIVEWAY WIDTH	MIN.	MAX.	CLASS	DEPTH
COMMERCIAL ZONING	16'	50'	B	9"
INDUSTRIAL ZONING	16'	50'	B	9"
RESIDENTIAL ZONING				
MAJOR STREETS	16'	40'	B	9"
COLLECTOR STREETS	12'	40'	B	5"
LOCAL STREETS	12'	30'	B	5"

* ONE-WAY ONLY, 24' MIN. FOR TWO-WAY TRAFFIC
 ** 16' DESIRABLE

DETAIL NO.
P1255-2



City of Phoenix
STANDARD DETAIL

DRIVEWAY ENTRANCE - TYPE 2
(DETACHED SIDEWALK)

APPROVED

 CITY ENGINEER

 DATE

DETAIL NO.
P1255-2