

CONSTRUCTION SPECIFICATIONS

for

CONTRACT FCD 1999C053
Basin #2 and #4 along Central Arizona Project (CAP) Canal
PCN 442.03.30



(Engineer's Seal)

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Prepared By
Dibble and Associates
2633 E. Indian School Road, Suite 401
Phoenix, Arizona 85016-6763

for

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

Recommended by: Edward A. Raleigh Date: 11/9/99
Edward A. Raleigh, P.E.
Manager Engineering Division

Issued for Public Bidding by: 1115-341 Date: 11/10/99
Michael S. Ellegood, P.E.
Chief Engineer and General Manager

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

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

Basin #2 and #4 Along Central Arizona Project (CAP) Canal

Contract FCD 1999C053

Project No. 442-03-30

ADDENDUM NO. 2

December 9, 1999

Contract FCD 1999C053

To Contract Documents

Title: Basin #2 and #4 along CAP Canal

Owner: Flood Control District of Maricopa County

This Addendum No. 2 modifies or clarifies Contract FCD 1999C053. All other provisions of the contract remain unchanged unless specifically modified herein. The Addendum No. 2 forms a part of the Contract Documents and modifies them as follows:

I. Revisions to Addendum No. 1

1. Page 1 of 9

The first sentence should read "Delete unit price and the amount from Bid Item No. 107-1".

II. Revisions to Bid Schedule

1. Page 8 of 27

Change Bid Item 505-3 to "Concrete Headwall, MAG Std. 501-4, modified for 2-30" pipes".

III. Revisions to Special Provision:

1. Page 31 of 43

Section 440- Sprinkler Irrigation System Installation **Subsection 440.6 – Automatic Control System and Installation**

Add the following:

Non-metered Electric Service Connection:

The service line shall be installed in a minimum 6" wide trench with at least 36" of cover. The conduit shall be 2.5" PVC Conduit, PUC, DB120, Rated for 90-degree cable, ASTM F512, with 90-degree 24" or 36" EII(s) from power source to J-Box. The J-Box will be supplied by Salt River Project (SRP). The service line installation shall comply with SRP

standards. The Bid Item 440-18 in Bid Supplement Cost Form shall include cost for trenching, PVC conduit and installation of J-Box supplied by SRP.

2. **Page 35 of 43**
Section 505 – Concrete Structures
Subsection 505.1 – Description

Add the following:

The alignment of the 6'X3' RCBC starting from approximate Sta. 30+00 has shifted by approximately 130' east of the original alignment as shown in the plans. The revised box quantity was reflected in the Addendum No. 1. The final plans reflecting these change will be provided to the Contractor at the "Pre-Construction Meeting" as stated in the Addendum No. 1.

IV. **Revisions to Plans**

Basin #4

1. **Sheet 10 of 26**

On Section B, change MAG Std. Detail 501-1, "U" type Headwall to MAG Std. Detail 501-4, modified for 2-30" pipes".

Note that the due date of all bids under this Invitation For Bids remains scheduled for **December 14, 1999 at 2:00 pm.** Bidders are reminded that each addenda must be acknowledged on page 5 of 27 of the bid and a copy of addenda attached to the bid package.

**FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY**

**FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY**

By: 

Michael S. Ellegood, P.E.
Chief Engineer and General Manager


By: 

Raju C. Shah, P.E.
Project Manager

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

Basin #2 and #4 Along Central Arizona Project (CAP) Canal

Contract FCD 1999C053

Project No. 442-03-30

ADDENDUM NO. 1

December 7, 1999

Contract FCD 1999C053

To Contract Documents

Title: Basin #2 and #4 along CAP Canal

Owner: Flood Control District of Maricopa County

This Addendum No. 1 modifies or clarifies Contract FCD 1999C053. All other provisions of the contract remain unchanged unless specifically modified herein. The Addendum No. 1 forms a part of the Contract Documents and modifies them as follows:

I. INVITATION FOR BID:

- 1. Page 2 of 27:**
Change **two hundred and forty (240)** days to **One hundred and eighty (180)** days.

II. Revisions to Bid Schedule

- 1. Page 6 of 27**
Delete unit price and the amount from Item No. 107-2 NPDESS/SWPPP Permits. Also, delete the word "allowance" from this bid item. The Contractor shall fill in the amount for this bid item.
- 2. Page 8, and 9 of 27**
The property owner at the tail end of the project has requested to re-route the storm drain through perimeter of his property. This re-routing will cause increase in quantities for already existing bid items. It is anticipated that revised plans and specifications incorporating these changes will be provided to the Contractor at the Pre-Construction/Partnering meeting. The following quantity revisions are provided for bidding purposes in support of these changes.

Bid Item 505-9 – 6'X3' RCBC, Change the quantity from 820 LF to 1067 LF.

- 3. Replace Page 9 with 9A (Attached with this Addendum) of 27.**

III. Revisions to Supplementary General Conditions

1. Page 9 of 19

Subsection 105.6 – Cooperation with Utilities:

Include area code 602 in front of Arizona Blue Stake telephone number 263-1100.

Change the contact person from Carl Mckay to Scott Gusso and change the telephone number to (623) 322-7210 for Cox Communication.

Change the area code from 480 to 623 for the Central Arizona Project's contact person.

Change the area code from 480 to 602 for the U S West Communications.

2. Page 10 of 19

Subsection 106.4 – Trade Names and Substitutions:

Delete following Sentences: "The procedure for review by the Engineer will include the following and may be supplemented in the Special Provision and as the Engineer may decide is appropriate under the circumstances."

Add following sentences: "The procedure for review by the Engineer will include the following and may be supplemented in the Special Provision. The Engineer may decide what is appropriate under the circumstances."

Add the following:

If the final placement of a product will remain the property of the municipality or utility and/or owned by the municipality or utility, that entity is responsible for issuing written approval for any equivalent or "or-equal" products. The Contractor or Supplier will submit to that entity the request and documentation for written approval of a product substitution. The Contractor will provide the entity's written approval to the Engineer at the Pre-Construction Meeting.

3. Page 11 of 19

Subsection 107.2 – Permits:

Add area code 602 in front of telephone number 506-6700.

4. Page 13 of 19

Subsection 107.5.4.1 – Contractor's Status During any Hazard Remediation:

Delete following sentence: "An extension in contract time for any delay to Contractor then resulting will be granted by Owner in accordance with Subsection 108.7."

Add following sentence: "An extension in contract time for any delay to Contractor then resulting

may be granted by Owner in accordance with Subsection 108.7.”

5. Page 14 of 19

Subsection 107.6.3 – Public Information and Notification:

Delete following sentence: “Distributing a pre-construction information letter to all residents, business, schools, farm operations, etc. within an area bounded by 90th Street on west, Adobe Road on north, Signal Butte Road on east and Broadway Road on south, Printing and distribution of public notices and/or newsletters.”

Add following sentence: “Printing and distributing pre-construction information letters, public notices and newsletters to all residents, businesses, schools, farm operations within an area bounded by 90th Street on west, Adobe Road on north, Signal Butte Road on east and Broadway Road on south.”

6. Page 17 of 19

Subsection 108.1 – Notice to Proceed:

Paragraph (A): Change **two hundred and forty (240)** days to **One hundred and eighty (180)** days.

7. Page 19 of 19

Subsection 109.7 – Payment for Bond Issue and Budget Projects:

Paragraph (B)

Delete the following sentence; “Delete second and third paragraphs and replace with the following:” and add following sentence; “Add the following:”

IV. Revisions to Special Provisions

1. Page 8 of 43

Section 336 – PAVEMENT MATCHING AND SURFACE REPLACEMENT

Subsection 336.1

Add the following:

Asphalt must be approved by the East Valley Asphalt Committee.

Subsection 336.2

Change the revision date from July 1, 1989 to September 29, 1999.

2. Page 11 of 43

Section 401 –Traffic Control

Subsection 401.5 – General Traffic Regulations

Add the following:

Safety Fencing Requirements for Trenches and Excavations

- The Contractor shall provide safety construction fencing around all open trenches and excavations during all non-working hours.

- The Contractor shall provide for the safety and welfare of the public by adequately fencing all excavations and trenches that are permitted by the Engineer to remain open when construction is not in progress.
- Fencing shall be securely anchored to approved steel posts located six (6) feet on center, having a minimum height of six (6) feet, and shall consist of wire mesh fabric of sufficient weight and rigidity to adequately span a maximum supporting post separation of six (6) feet.
- The fencing, when installed about the periphery of excavations and trenches, shall form an effective barrier against intrusion by the public into areas of construction. The Contractor, at all times when construction is not in progress, shall be responsible for maintaining the fencing in good repair, and upon notification by the Engineer, shall take immediate action to rectify any deficiency. Prior to the start of any excavating or trenching required for the execution of the proposed work, the Contractor shall submit to the Engineer for approval detailed plans showing types of materials and methods of fabrication for the protective fencing.

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, as described in section (P) below, 72 hours in advance of any restrictions which will affect their access as described in. 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.

Work Site Requirements

- The Contractor's work area shall be completely fenced and secured at the end of each work shift and it shall not extend more than 200 feet at the end of any work shift.
- The Contractor's work area shall be secured such that neighborhood residents and others are not exposed to construction hazards.

Alternate Parking Site

- Along 93rd Street between University Drive and Sleepy Hollow Road, the residents on the east side of the street utilizes street for their vehicle parking. The Contractor shall provide alternate-parking site no farther than 1 street block to park their vehicles.
- For the residents along 93rd Street, this street is only ingress-egress to the major street. The street shall not be closed for traffic and shall be always open for local traffic and emergency vehicles.

3. **Page 42 of 43**
Subsection 610.18 Measurement and Payment
ITEM 610-4
Replace 4" PVC WATERLINE with 4" DIP WATERLINE.

4. Page 42 of 43
Section 618 – STORM DRAIN CONSTRUCTION
Subsection 618.6 – Payment

Add the following:

The Contractor shall bid either RGRCP or CIPP for Bid Item 618-4 and 618-6. No value engineering will be allowed for Bid Items 618-4 and 618-6 as per SGC Page 5 of 19, Subsection 104.2.6 - Value Engineering. The Contractor shall notify selected option for Bid Item 618-4 and 618-6 to the District no later than the pre-construction/partnering meeting.

Reword the following bid items as follows:

- ITEM 618-1 - 24" RGRCP STORM DRAIN PIPE
- ITEM 618-2 - 30" RGRCP STORM DRAIN PIPE
- ITEM 618-3 - 36" RGRCP STORM DRAIN PIPE
- ITEM 618-4 - 36" RGRCP/42" CIPP STORM DRAIN PIPE
- ITEM 618-5 - 48" RGRCP STORM DRAIN PIPE
- ITEM 618-6 - 48" RGRCP/54" CIPP STORM DRAIN PIPE

5. Page 43 of 43
Add the following Section to the Special Provision
Section 620 – CAST-IN-PLACE CONCRETE PIPE

Add the following:

Subsection 620.1 General:

This specification covers cast-in-place non-reinforced concrete pipe intended for use as storm sewers. The abbreviated title is CIPP. The CIPP is a designated allowable storm drain pipe material at following locations:

<u>Station</u>	<u>RGRCP Pipe Size</u>	<u>CIPP Pipe Size</u>	<u>Length</u>
10+70.88 to 22+94.85	36"	42"	1224'
23+51.55 to 27+00.00	48"	54"	349'

When designated as an allowable pipe material in the project specifications, this designation is no warranty, expressed or implied, that conditions will be suitable for the use of CIPP. Any costs incurred and/or time require to provide suitable conditions or to substitute an alternate pipe acceptable to the Engineer, in whole or part, shall be the responsibility of the Contractor. The minimum cover on top of the pipe shall be at least 2'.

The Contractor will have to abide by the same restrictions/guidelines as described in Section 401 of this Special Provision and Sections 104.1 and 107.10 of Supplementary General Conditions with either RGRCP or CIPP option.

If CIPP option is selected which requires an increase in pipe diameter, the Contractor shall be responsible for funding and resolving any utilities and/or other conflicts. There shall be no extension granted for delay caused by these conflicts nor any additional payment be made to the Contractor.

Subsection 620.2 Materials:

620.2.4 Concrete shall be Class "AA" in accordance with Section 725. Test cylinders shall be prepared and tested as per Section 725. The pipe represented by unsatisfactory strength tests on cylinders shall be further tested either by coring or by load testing at the Engineer's option as specified in Section 620.4. Any pipe failing these tests shall be replaced or repaired at the option of the Engineer, at the Contractor's expense.

Subsection 620.3 Construction Methods:

620.3.1 Excavation

All unstable strata or lenses of loose sand, silt, or other noncohesive soils, below the contact line of the concrete pipe and trench form, shall be stabilized by approved methods or over-excavated and refilled in accordance with following method:

Over-excavation and refill – When this method is adopted for stabilization, the trench shall be over-excavated to such depths and widths as required, refilled with selected cohesive soils, and compacted by acceptable methods to a density that will provide stability for the trench form.

When expansive clays are encountered they will be thoroughly moistened by ponding, to completely expand the soil, and the moisture maintained until the concrete is placed. The Contractor may substitute reinforced concrete pipe for CIPP in these unsuitable areas. There will be no additional payments for this substitution. In areas where the soils are too hard for efficient trenching or where additional moisture adds to the trench stability, trench excavation may be simplified by prior wetting.

Care should be taken to insure that at the time of concrete placement there is adequate moisture in the trench form so that water is not drawn from the freshly placed concrete. If the trench is too dry, all soil in contact with the concrete should be moistened. However, the trench form must be free of water and mud at the time of concrete placement.

620.3.2 Placement

The concrete shall be vibrated, rammed, tamped, or worked with suitable compacting equipment until thoroughly consolidated. Under no circumstances will the Contractor be allowed to continue the pipe installation if the vibrators of the cast-in-place machine are inoperable. Portable vibrators or "stingers", shall only be used to supplement internal vibrators on the machine and not as a sole source to consolidate and distribute the concrete mix. The interior finish surface of the pipe shall be equivalent to or better than a wood float finish. All extraneous concrete shall be removed from the interior surface. The Contractor shall make provisions for removing sloughed material, debris, foreign objects, or any material from trench before and during the concrete placement such that buildup of material does not occur ahead of the machine. In addition, small transverse trenches shall be dug across trench bottom, at distance not to exceed 25 linear feet, to receive soil built up and pushed ahead of the slipform. It is essential that concrete placement is done in a smooth and steady manner with a few starts and stops as is possible. The Contractor shall schedule materials and operate the pipe machine at speeds and in a manner, that will achieve this.

The Contractor shall provide an anchoring system for pull of the machine in a manner, which will provide the least probability of causing deviations in grade and/or alignment. Adjustments to or

modifications in anchoring system, when required in the opinion of the Engineer shall be made at no additional cost to the project.

Lateral Pipe Connections:

Lateral pipe connections shall be constructed in accordance with City Of Phoenix Standard Detail P-1576.

Construction Joints:

When pipe placement stops in excess of ninety (90) minutes, a construction joint shall be formed. The ends of the pipe that are to be butt contact shall be left in rough condition with a slope between 20 and 45 degrees. Number 4 reinforcing bars shall be embedded 12 inches in the previous pour and 12 inches into the next pour and shall be placed 12 inches on center for pipe 42 inches in diameter or less and shall be placed 18 inches on center for pipe diameters in excess of 42 inches.

Pipe Dimensions and Tolerances:

For pipe exceeding 24 inches inside diameter, the minimum wall thickness shall be 1/12 of the inside diameter, plus 1-inch. The pipe diameter shall be increased by 6" from the recommended equivalent reinforce concrete pipe.

Subsection 620.3.3 Curing and Backfilling:

Final backfilling and compaction shall not be started until concrete has developed a compressive strength of at least 3000 psi. The pipe shall be checked for grade, alignment and thickness prior to backfilling. A humid atmosphere within the pipe, as evidenced by condensation on the interior of the surface, shall be maintained for at least seven (7) days following placement, except for a maximum period of 24 hours allowed for removing forms and making repairs.

Subsection 620.3.4 Repairs:

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

When concrete placement is done by a methods requiring the use of metal inner forms, the Contractor shall schedule his work force, by extended, staggered or multiple shifts, as required, to provide for removal of forms within 4 to 6 hours of placement of concrete and start of repairing, patching and finishing of pipeline to conform with specifications requirements.

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

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

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

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

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

Subsection 620.4 Methods of Tests:

Random tests shall be made of the wall thickness at the top, bottom and sides, approximately every 100 feet, on a daily basis by probes through fresh concrete or small holes drilled though the concrete. Holes shall be properly and permanently closed and sealed, flush with the inside surface of the pipe, after measurements are made, in accordance with the requirements of the fifth paragraph of MAG Subsection 620.3.4. Test cylinders shall be taken for each 50 cubic yards of concrete used, but not less than one sample for each day's work or less than one sample for each section of pipe placed in a continuous operation.

Subsection 620.6 Payment:

Payment will be made at the contract unit price bid per linear foot to the nearest foot for each size of pipe as specified in bid item 618-4 and 618-6. No value engineering will be allowed for Bid Items 618-4 and 618-6 as per SGC Page 5 of 19, Subsection 104.2.6 - Value Engineering. The Contractor shall bid either RGRCP or CIPP. The Contractor shall notify the selected option for these Bid Items to the District no later than the pre-construction/partnering meeting. The payment shall include full compensation for furnishing and installing the cast-in-place concrete pipe and lateral connections complete in place (i.e. wyes, tees, and crosses), as specified, including excavation, removal of obstruction, related falsework, cost of labor and equipment, backfilling, compacting, sheeting and bracing, testing, repairing, manhole and valve adjustments, utility line supports, and all other related items.

6. Page 43 of 43

Section 625 – MANHOLE CONSTRUCTION AND DROP SEWER CONNECTIONS

625.1 – Description:

Add the following:

The manhole cover shall say "City of Mesa Storm Sewer". The standard MAG Detail 520 and 522 shall be modified to eliminate steps inside the manhole shaft. The manhole shaft shall be modified to 5' in diameter instead of 4' as shown in MAG Detail 520 and 522.

V. Revisions to Plans

Basin #2:

1. **Sheet 3 of 31:**
Item 610-4; replace 4" PVC Waterline to 4" DIP Waterline.
2. **Sheet 5 of 31:**
Add Removal Note #4: Saw cut remove and replace 1' strip of asphalt pavement (38 LF).
3. **Sheet 5 of 31:**
General Note #14; replace PVC with Ductile Iron Pipe.

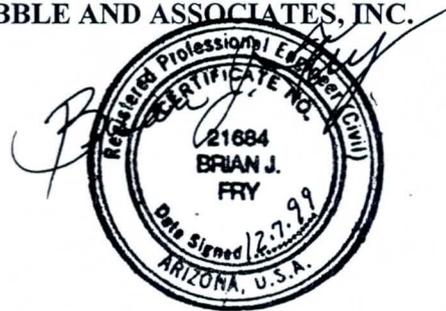
Basin #4:

1. **Sheet 7 of 26:**
Removal Note #6 and #7: Add the following sentence: "Remove water meter, if there is one and provide that to City of Mesa inspector to salvage."
2. **Sheet 7 of 26:**
General Note #22; replace PVC with Ductile Iron Pipe.

Note that the due date of all bids under this Invitation For Bids remains scheduled for **December 14, 1999 at 2:00 pm**. Bidders are reminded that each addenda must be acknowledged on page 5 of 27 of the bid and a copy of addenda attached to the bid package.

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

DIBBLE AND ASSOCIATES, INC.



By: 
Michael S. Ellegood, P.E.
Chief Engineer and General Manager

By: _____
Brian J. Fry, P.E.
Project Manager

BID SCHEDULE

Contract FCD 1999C053
 Central Arizona Project Detention Basins #2 and #4

PAY ITEM NO.	DESCRIPTION	UNIT	APPROX QUANTITY	UNIT PRICE	AMOUNT
610-3	8" TS, V, B&C	1	EA		
610-4	4" DIP Waterline	59	LF		
610-5	Fire Hydrant	1	EA		
618-1	24-inch RGRCP Storm Drain Pipe	73	LF		
618-2	30-inch RGRCP Storm Drain Pipe	349	LF		
618-3	36-inch RGRCP Storm Drain Pipe	90	LF		
618-4	36-inch RGRCP/42-inch CIPP Storm Drain Pipe	1224	LF		
618-5	48-inch RGRCP Storm Drain Pipe	439	LF		
618-6	48-inch RGRCP/54-inch CIPP Storm Drain Pipe	379	LF		
625	Manhole (MAG Std 520 and 522)	7	EA		
<u>TOTAL BID AMOUNT WRITTEN IN NUMBERS</u>					
<u>TOTAL BID AMOUNT WRITTEN IN WORDS</u>					

CONSTRUCTION SPECIFICATIONS

for

CONTRACT FCD 1999C053
Basin #2 and #4 along Central Arizona Project (CAP) Canal
PCN 442.03.30



(Engineer's
Seal)

Prepared By
Dibble and Associates
2633 E. Indian School Road, Suite 401
Phoenix, Arizona 85016-6763

for

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

Recommended by: Edward A. Raleigh Date: 11/9/99
Edward A. Raleigh, P.E.
Manager Engineering Division

Issued for Public Bidding by: 11/5-3/4 Date: 11/10/99
Michael S. Ellegood, P.E.
Chief Engineer and General Manager

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

ATTENTION

ALL PROSPECTIVE BIDDERS

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

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

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

Please submit your bids accordingly.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

CONTRACT FCD 1999C053
PCN 442.03.30

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(Area to left reserved
for Engineer's Seal)

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

INVITATION FOR BID

BID OPENING DATE: December 14, 1999 @ 2:00 p.m. local time

PROJECT LOCATION: The project is located within County unincorporated area and City of Mesa.

PROPOSED WORK: The proposed project includes construction of detention basins #2 and #4. The Basin #2 is located at the northeast corner of University Drive and Ellsworth Road. The Basin #4 is located at the northeast corner of Crismon Road and Apache Trail. The Basin #2 is downstream of Central Arizona Canal (CAP) overchutes, whereas, Basin #4 is upstream of the CAP overchute. The construction includes, but is not limited to, concrete inlet and outlet structures, low flow pipes and concrete channels, headwalls, outlet pipe/storm drain, catch basins, invert access ramps, grouted riprap and gabion construction and landscaping.

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. (local time) on December 14, 1999**, 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.

PRE-BID CONFERENCE:

A Pre-Bid conference will be held on **November 30, 1999 at 2:00 p.m. (local time)** at the Flood Control District Conference Room, 2801 West Durango Street, Phoenix, Arizona. All potential contractors and subcontractors are encouraged to attend this pre-bid conference and be prepared at that time to submit in writing and discuss any comments concerning this solicitation.

Questions or items for clarification may be addressed to the Contracts Manager, in writing, at least five (5) workdays prior to bid opening date. Questions received after this deadline may not be accepted. Responses to all questions submitted will be sent to all planholders by addenda. Verbal interpretations, unless specifically addressed by addendum, shall not be binding nor have any legal effect.

ELIGIBILITY OF CONTRACTOR:

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

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

CONTRACT TIME:

All work on this Contract is to be completed within two hundred forty (240) calendar days after date of Notice to Proceed.

MBE/WBE PARTICIPATION:

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

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

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

For this contract, a goal of ten percent (10%) is established for Disadvantaged/Minority/Women-Owned Business Enterprises. Bidders unable to meet the established goal, must submit "Good Faith" documentation. Failure to implement "good faith" efforts in accordance with the Maricopa County Minority and Women-Owned Business Enterprise Program to the satisfaction of the District may result in rejection of the bid. Complete instructions and additional forms are available from the Flood Control District, Contracts Branch, telephone number 602-506-4433 or 602-506-4876.

PROJECT PLANS, SPECIAL PROVISIONS AND CONTRACT DOCUMENTS:

Plans and Construction Specifications may be obtained from the Flood Control District of Maricopa County, 2801 West Durango Street, Phoenix, Arizona 85009 upon payment of **\$40.00** payable to the FLOOD CONTROL DISTRICT OF MARICOPA COUNTY. This payment will not be refunded. Mail orders for project documents must include an additional \$8.00 for first class U.S. postage and handling. The total \$48.00 will not be refunded. Regardless of circumstances, we cannot guarantee mail delivery.

Each bid must be accompanied by a Bid Bond executed on the District-supplied bond form, cashier's or certified check or postal money order equal to 10 percent (10%) of the bid, made payable to the FLOOD CONTROL DISTRICT OF MARICOPA COUNTY as a guarantee that if the work is awarded to the bidder, the bidder will within ten (10) days of receipt of the Proposal Acceptance, enter into proper contract and bond condition for the faithful performance of the work, otherwise, said amount may be forfeited to the said BOARD OF DIRECTORS.

PRINCIPLE ITEMS AND APPROXIMATE QUANTITIES

QUANTITY	UNIT	DESCRIPTION
173,605	CY	Detention Basin Excavation
1,513	CY	6" ABC Maintenance Road
3,861	LF	Smooth Wire Fence
203	CY	Concrete
2,007	LF	6" Low Flow Channel
820	LF	6' X 3' RBC
73	LF	24" Storm Drain Pipe
349	LF	30" Storm Drain Pipe
1,314	LF	36" Storm Drain Pipe
818	LF	48" Storm Drain Pipe

BID

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

Gentlemen:

The following Bid is made for Contract FCD 1999C053 for Basin #2 and #4 Central Arizona Project (CAP) Canal, 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 Provision, 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 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.

increase or decrease and hereby proposes to perform all quantities of work, as either increased or decreased, in accordance with the provisions of the Specifications, at the unit price bid in the Bidding Schedule.

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

The Undersigned further proposes to execute the Contract Agreement and furnish satisfactory Bonds and Sureties within ten (10) days of receipt of Notice of Bid acceptance, **TIME BEING OF THE ESSENCE**. The Undersigned further proposes to begin work as specified in the Contract attached hereto, and to complete the work within two hundred forty (240) calendar days from the effective date specified in the Notice to Proceed, and maintain at all times a Payment and Performance Bond, approved by the Board of Directors, each in an amount equal to one hundred percent of the contract amount. This Bond shall serve not only to guarantee the completion of the work on the part of the Undersigned, but also to guarantee the excellence of both workmanship and material and the payment of all obligations incurred, said Bonds and Sureties to be in full force and effect until the work is finally accepted and the provisions of the Plans, Specifications, and Special Provisions fulfilled.

A bid bond in the amount and character named in the Invitation to Bid, and amounting to not less than ten (10) percent of the total bid, is enclosed. The bid bond is submitted as a guaranty of good faith that the Bidder will enter into a written contract to do the work, as provided, if successful in securing the award thereof. It is therefore agreed that if the Undersigned withdraws its bid at any time except as herein provided, or if the bid is accepted and the Undersigned fails to execute the Contract and furnish satisfactory Bonds and Sureties as herein provided, the Flood Control District of Maricopa County shall be entitled and is hereby given the right to retain the said Bid Bond as liquidated damages.

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

Addendum No. _____	Dated _____

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

BID SCHEDULE

Contract FCD 1999C053
 Central Arizona Project Detention Basins #2 and #4

PAY ITEM NO.	DESCRIPTION	UNIT	APPROX QUANTITY	UNIT PRICE	AMOUNT
105-1	Partnering (Allowance)	1	LS	\$10,000.00	\$10,000.00
107-1	NPDESS/SWPPP Permits (Allowance)	1	LS	\$15,000.00	\$15,000.00
107-2	Public Information & Notification (Allowance)	1	LS	\$10,000.00	\$10,000.00
107-3	Project Signs (Allowance)	1	LS	\$4,000.00	\$4,000.00
201	Clearing and Grubbing	1	LS		
202	Mobilization	1	LS		
215-1	Detention Basin Excavation	173605	CY		
215-2	Earth V-Ditch	795	LF		
220-1	Riprap	489	CY		
220-2	Gabion Mattress	541	SY		
310	6" ABC Maintenance Road	1513	CY		
324	6" Concrete Pavement	584	SY		
336-1	Pavement Replacement (Type A)	717	SY		
336-2	Pavement Replacement (Type B)	58	SY		

BID SCHEDULE

Contract FCD 1999C053

Central Arizona Project Detention Basins #2 and #4

PAY ITEM NO	DESCRIPTION	UNIT	APPROX QUANTITY	UNIT PRICE	AMOUNT
340-1	Commercial Driveway		302	SF	
340-2	Concrete Curb & Gutter		10	LF	
350-1	Miscellaneous Removals		1	LS	
401	Traffic Control		1	LS	
420-1	Chain Link Fence		200	LF	
420-2	Chain Link Gate		1	EA	
420-3	Collapsible Fence		34	LF	
421-1	Game Fence (smooth wire) (ADOT Std. C-12.10)		3861	LF	
421-2	Gate (ADOT Std. C-12.10 Type 1)		2	EA	
430	Landscape Planting		1	LS	
440	Irrigation System		1	LS	
505-1	Concrete (Class 'A', Including Reinforcing Steel)		203	CY	
505-2	Drop Inlet (MAG Std 501-5, Modified)		6	EA	

BID SCHEDULE

Contract FCD 1999C053
 Central Arizona Project Detention Basins #2 and #4

PAY ITEM NO.	DESCRIPTION	UNIT	APPROX QUANTITY	UNIT PRICE	AMOUNT
505-3	Concrete Headwall (MAG Std 501-1 "U" type)		1	EA	
505-4	Concrete Apron with Cutoff Wall		2	EA	
505-5	Concrete Headwall (ADOT B-04.30)		2	EA	
505-6	Concrete Headwall (MAG 501-3, Modified)		2	EA	
505-7	6" Low Flow Channel		2007	LF	
505-8	Catch basin (MAG Std 537 Type "G")		4	EA	
505-9	6' x 3' RCBC (ADOT Std. B-02.10)		820 1067	LF	
505-10	Concrete Cutoff Wall (MAG Std 552)		148	LF	
515	Trash Racks		10	EA	
520	Safety Rail		204	LF	
525	Shotcrete		390	SY	
610-1	Vertical Realignment of Water Main		7	EA	
610-2	4" TS, V, B&C		1	EA	

BID SCHEDULE

Contract FCD 1999C053

Central Arizona Project Detention Basins #2 and #4

PAY ITEM NO	DESCRIPTION	UNIT	APPROX QUANTITY	UNIT PRICE	AMOUNT
610-3	^{DIP} 4" PVC Waterline		59	LF	
610-4	Fire Hydrant		1	EA	
618-1	24-inch Storm Drain Pipe / ^{30" CIPP}		73	LF	
618-2	30-inch Storm Drain Pipe / ^{36" CIPP}		349	LF	
618-3	36-inch Storm Drain Pipe / ^{42" CIPP}		1314	LF	
618-4	48-inch Storm Drain Pipe / ^{54" CIPP}		818 ⁷⁸⁷	LF	
618-5 625	^{30" RGRCP} Manhole (MAG Std 520 and 522)		7 ¹⁴⁴	EA ^{LF}	
<p><u>TOTAL BID AMOUNT WRITTEN IN NUMBERS</u></p> <p><u>TOTAL BID AMOUNT WRITTEN IN WORDS</u></p>					

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 minority and women-owned business participation) that are to be used in the event the undersigned should enter into contract with the Owner. Although this list will not be considered as final commitment on the part of the successful proposer, any Subcontractor changes from those listed must have Owner's written approval prior to commencement of Subcontractor work on site.

(Signature)

SURETY BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____, as Principal, (hereinafter called the Principal), and the _____, a corporation duly organized under the laws of the State of _____, as Surety, (hereinafter called the Surety), are held and firmly bound unto the Flood Control District of Maricopa County as Oblige, in the sum of **ten percent (10%)** of the total amount of the bid of Principal, submitted by him to the Flood Control District of Maricopa County, for the work described below, for the payment of which sum, well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, and administrators, successors and assigns, jointly and severally, firmly by these presents, and in conformance with the Arizona Revised Statutes.

WHEREAS, the said Principal is herewith submitting its proposal for **Contract FCD 1999C053, Basin #2 and #4 along Central Arizona Project (CAP) Canal.**

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

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

Agency of Record, State of Arizona

Agency Address and Phone Number:

Principal

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

Surety Name
By: _____
Title: _____

Bond Number: _____

ATTACH SURETY POWER OF ATTORNEY

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 42-5005) is: _____; and that, if any exemption to the above licensing requirements is claimed;

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

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

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

Signature of Licensee

Date: _____

Company: _____

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

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

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

_____ (the entity submitting the bid)

(CHECK ONE)

- Will meet the **established** goal for participation by Minority/Women-Owned Business Enterprises.
- Will provide the necessary documentation to the Flood Control District to establish that a good faith effort was made.

A sample Actual Participation affidavit is included in this Bid documents. The first and second low bidders are required to specify their MBE/WBE participation by submitting a notarized affidavit no later than 4:00 p.m. the seventh calendar day following the bid opening, or by providing documentation of their good faith efforts. If participation is "None", the documentation shall provide bidder's good faith efforts to obtain the participation. The Flood Control District (District) will review this documentation to determine whether in fact a comprehensive "good faith" effort has been implemented. Affidavit forms and Good Faith documentation forms are available from the Flood Control District, 2801 West Durango Street, Phoenix, Arizona 85009, Telephone 506-1501.

Name of Firm

By: _____
Signature

Title

STATE OF _____)
County of _____)§

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

Notary Public

My Commission Expires: _____

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

ACTUAL MBE/WBE PARTICIPATION AFFIDAVIT
 (NOTE: COMPLETED AFFIDAVIT MUST BE SUBMITTED WITHIN SEVEN CALENDAR DAYS
 FOLLOWING THE BID OPENING).

Name of Contractor _____ Project/Contract No. _____ Total Amount of Contract _____

Contact Person _____ Contract M/WBE Goal: _____ %

Street No. _____

City _____ State _____ Zip _____

<u>Minority/Women Owned Firm</u>	<u>Principal</u>	<u>Address</u>	<u>Type of Work</u>	<u>Dollar Amount & Contract Percentage</u>

TOTALS (Dollars/Percentage) _____

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

Signature

Title

Date

STATE OF _____ }
 County of _____ }§

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

My commission Expires: _____

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

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

Date: _____

General Contractor/Prime Consultant:

Contact Person: _____

Address: _____

Telephone Number: _____

Fax Number: _____

Project Description:

Contract Number: _____

For Pay Period of (indicate dates): _____

D/M/WBE Subcontractor/Subconsultant Name:

Contact Person: _____

Address: _____

Telephone Number: _____

Type of Firm:

Type of Work performed for this project: _____

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

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

Total paid to this Subcontractor to date: \$ _____

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

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

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

CONTRACT AGREEMENT

THIS AGREEMENT, made and entered into this ____ day of _____ 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 1999C053, Basin #2 and #4 along Central Arizona Project (CAP) Canal, 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 two hundred forty (240) calendar days following notice to proceed.

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

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

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

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

ARTICLE VIII - MBE/WBE PROGRAM: The Owner will endeavor to ensure in every way possible that minority and women-owned business enterprises shall have every opportunity to participate in providing professional services, purchased goods, and contractual services to the Owner without being discriminated against on the grounds of race, religion, sex, age, disability, or national origin. The City of Phoenix and Maricopa County Minority, Woman and Disadvantaged Business Enterprise Program is incorporated by reference.

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

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

Party of the First Part

By _____
(Printed Name) (Signature)

Title: _____

Date: _____

Tax Identification Number

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
PARTY OF THE SECOND PART

RECOMMENDED BY:

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

By: _____
Chairman, Board of Directors Date

ATTEST:

Clerk of the Board Date

LEGAL REVIEW

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

By: _____
District, General Counsel Date

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

KNOW ALL MEN BY THESE PRESENTS:

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

WHEREAS, the Principal has entered into a certain written contract with the Flood Control District of Maricopa County, dated the _____ day of _____ for **Contract FCD 1999C053, Basin #2 and #4 along Central Arizona Project (CAP) Canal**, 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 _____, _____

Agency of Record, State of Arizona

Agency Address and Phone Number:

Principal

By: _____
Printed Name and Signature

Title: _____

Surety Seal

By: _____
Title: _____

ATTACH SURETY POWER OF ATTORNEY

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

KNOW ALL MEN BY THESE PRESENTS:

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

WHEREAS, the Principal has entered into a certain written contract with the Flood Control District of Maricopa County, dated the _____ day of _____, _____ for **Contract FCD 1999C053, Basin #2 and #4 along Central Arizona Project (CAP) Canal**, 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 _____, _____

Agency of Record, State of Arizona

Agency Address and Phone Number:

Principal

By: _____
Printed Name and Signature

Title: _____

Surety Seal

By: _____
Title: _____

ATTACH SURETY POWER OF ATTORNEY

INDEMNIFICATION

To the fullest extent permitted by law, the Contractor shall defend, indemnify, and hold harmless the Flood Control District of Maricopa County (District), Maricopa County (County), the City of Mesa (Mesa), and the City of Scottsdale (Scottsdale), 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, expert witness fees, and the cost of appellate proceedings, relating to, arising out of, or alleged to have resulted from the acts, errors, omissions or mistakes relating to the performance of this Contract. Contractor's duty to defend, indemnify and hold harmless the District and Maricopa County, their 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 by any acts, errors, omissions or mistakes in the performance of this Contract including any person for whose acts, errors, omissions or mistakes, the Contractor may be legally liable.

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

Abrogation of Arizona Revised Statutes Section 34-226:

In the event that A.R.S. § 34-226 shall be repealed or held unconstitutional or otherwise invalid by a court of competent jurisdiction, then to the fullest extent permitted by law, the Contractor shall defend, indemnify and hold harmless the District, the County, Mesa and Scottsdale, and 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 Contractor's work or services. Contractor's duty to defend, indemnify and hold harmless the District, the County, Mesa, and Scottsdale, and their 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 Contractor directly or indirectly employs or anyone for whose acts Contractor may be liable, regardless of whether it is caused in part by a party indemnified hereunder, including the District and Maricopa County.

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.

The scope of this indemnification does not extend to the sole negligence of the District and Maricopa County.

INSURANCE REQUIREMENTS

Contractor, at Contractor's own expense, shall purchase and maintain the herein stipulated minimum insurance with companies duly licensed, possessing a current A.M. Best, Inc. Rating of B++6, or approved unlicensed companies in the State of Arizona with policies and forms satisfactory to the District.

All insurance required herein shall be maintained in full force and effect until all work or service 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 insurance policies or any breach of an insurance policy warranty shall not affect coverage afforded under the insurance policies to protect the District.

The insurance policies may provide coverage which contains 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 retention and the District, at its option, may require the Contractor to secure payment of such deductibles 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 herein required insurance policies and/or endorsements. The District shall not be obligated, however, to review such policies and/or endorsements or to advise Contractor of any deficiencies in such policies and endorsements, and such receipt shall not relieve Contractor from, or be deemed a waiver of the District's right to insist on strict fulfillment of Contractor's obligations under this Contract.

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

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

Required Coverage

Commercial General Liability.

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/Completed Operations Aggregate and a \$2,000,000 General Aggregate Limit. The policy shall include coverage for bodily injury, broad form property damage, personal injury, products and completed operations and blanket contractual coverage including, but not limited to, the liability assumed under the indemnification provisions of this Contract which coverage will be at least as broad as Insurance Service Office, Inc. Policy Form CG 00011093 or any replacements thereof. The coverage shall include X, C, U.

The policy shall contain a severability of interest provision, and shall not contain a sunset provision or commutation clause, or any provision which would serve to limit third party action over claims.

The Commercial General Liability additional insured endorsement shall be at least as broad as the Insurance Service Office, Inc.'s Additional Insured, Form B, CG 20101185, and shall include coverage for Contractor's operations and products and completed operations.

If the Contractor subcontracts any part of the work, services or operations awarded to the Contractor, he shall purchase and maintain, at all times during prosecution of the work, services or operations 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 Contractor's work, service or 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.

Contractor shall maintain Automobile Liability insurance with an individual single limit for bodily injury and property damage of no less than \$1,000,000, each occurrence, with respect to Contractor's vehicles (whether owned, hired, non-owned), assigned to or used in the performance of this Contract.

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, as well as Employer's Liability insurance of not less than \$1,000,000 for each accident, \$1,000,000 disease for each employee, and \$1,000,000 disease policy limit.

In case any work is subcontracted, the Contractor will require the Subcontractor to provide Workers' Compensation and Employer's Liability insurance 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 comes under contractor's control and/or responsibility, and continue without interruption during construction, 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.

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

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.

Certificates of Insurance

Prior to commencing work or services under this Contract, Contractor shall furnish the District with Certificates of Insurance, or formal endorsements as required by the Contract, issued by 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.

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 Contractor's work or services and as evidenced by annual Certificates of Insurance.

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.

Cancellation and Expiration Notice

Insurance required herein shall not expire, be canceled, or materially changed without thirty (30) days prior written notice to the District.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
CERTIFICATE OF INSURANCE

CONTRACT FCD 1999C053

PROJECT TITLE: Basin #2 and #4 along Central Arizona Project (CAP) Canal

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 certificate of insurance certifies that policies of insurance listed below have been issued to the insured named above and are in full 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				GENERAL LIABILITY, EACH OCCURRENCE \$1,000,000
	<input checked="" type="checkbox"/> : PREMISES OPERATIONS				PRODUCTS/COMPLETED OPERATIONS AGGREGATE \$2,000,000
	<input checked="" type="checkbox"/> : CONTRACTURAL				GENERAL AGGREGATE \$2,000,000
	<input checked="" type="checkbox"/> : BODILY INJURY				
	<input checked="" type="checkbox"/> : BROAD FORM PROPERTY DAMAGE				
	<input checked="" type="checkbox"/> : PERSONAL INJURY				
	<input checked="" type="checkbox"/> : PRODUCTS AND COMPLETED OPERATIONS HAZARD				
	<input checked="" type="checkbox"/> : EXPLOSION AND COLLAPSE				
	<input checked="" type="checkbox"/> : UNDERGROUND HAZARD				
	<input checked="" type="checkbox"/> : INDEPENDENT CONTRACTORS COMPREHENSIVE AUTO:				
	<input checked="" type="checkbox"/> : LIABILITY AND 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				EMPLOYER'S LIABILITY, each accident \$1,000,000 DISEASE, each employee \$1,000,000 DISEASE policy limit \$1,000,000
	<input checked="" type="checkbox"/> : BUILDERS' RISK ALL-RISK FORM				REPLACEMENT COSTS
	<input checked="" type="checkbox"/> : OTHER:	The Flood Control District of Maricopa County and Maricopa County, their agents, representatives, officers, directors, officials, and employees are named as Additional Insured's.			

Except for Professional Liability Insurance and Workers' Compensation Insurance, the Flood Control District of Maricopa County and Maricopa County are added as additional insured's 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 and Maricopa County from liability arising out of any services provided or duty performed by insured as required by statute, law, purchase order or otherwise required, with the exception of liability for loss or damage resulting from the sole negligence of Flood Control District, its agents, employees, or indemnities. It is agreed that any insurance available to the named insured shall be primary of other sources that may be available. It is further agreed that no policy shall expire, be 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
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**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
CAP DETENTION BASINS 2 AND 4
CONTRACT 1999C053
PCN 442-03-30**

SUPPLEMENTARY GENERAL CONDITIONS

SPECIFICATIONS

Except as otherwise amended in these Supplementary General Conditions and the Construction Special Provisions, construction of this project shall be in accordance with all applicable Maricopa Association of Governments (MAG) Uniform Standard Specifications and Uniform Standard Details, dated 1998, together with the City of Mesa, Supplements to MAG Details.

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 Bids, (b) the Contract form, (c) Supplementary General Conditions, (d) Construction Special Provisions, (e) Project Plans, (f) City Mesa Supplements to MAG, 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 Planning and Project Management 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 borings logs and geotechnical report, including ground water conditions, are available for review at the Owner's office, and Contractors are encouraged to do so. Existing moisture conditions shall be no basis for claim for additional monies or time extensions. The Contractor shall manipulate the existing soil as required to achieve stable soil conditions and the required densities, as well as safe and stable side slopes during construction activities.

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

Subsection 102.7 - Irregular Proposals:

Add the following:

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

Subsection 103.6 - Contractor's Insurance:

Add the following:

A statement from bidder's insurance carrier shall be included in the proposal certifying that it will furnish the specified kind and amounts of insurance to the bidder if it is awarded the contract. As required by law, the statement will be from an insurance carrier or carriers authorized to do business in the State of Arizona, 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.

SECTION 104 – SCOPE OF WORK

Add the following:

This project is located within City of Mesa and County unincorporated area. The project includes a Detention basin (Basin #2) at northeast corner of University Drive and Ellsworth Road and a Detention basin (Basin #4) at northeast corner of Apache Trail and Crismon Road. The outlet pipe from Basin #2 runs south along 93rd Street down to Apache Trail and ties into the existing box culvert under Apache Trail. The outfall pipe from Basin #4 daylight into the existing over chute structure. The project also includes constructing inlet/outlet structures, headwalls, open channels, landscaping, irrigation system, catch basins, manholes, and low flow channels. Several utilities will be relocated as shown on the plans and in accordance with MAG Standard Specifications.

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.

CAP Canal access and maintenance roads shall remain open at all times. If the Canal road need to be closed for sometime, CAP shall be notified of the closure at least 48 hours in advance.

The Contractor shall be responsible to coordinate and schedule work to minimize disruption or conflicts with other projects in the project area.

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

The Contractor shall coordinate with special events organizer to coordinate traffic during the event.

The Contractor shall provide safety construction fencing around all open trenches and excavations during non-working hours.

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

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

Night work will **not** be allowed on this project unless otherwise approved by the Engineer.

Due to the close proximity to the residential areas, the Contractor shall use adequate dust control measurements.

Construction Sequence:

1. The Contractor shall construct the Detention Basin #4 and all related items.
2. The Contractor shall construct the Detention Basin #2 and all related items.
3. The Contractor shall start the construction of outfall system for Basin #2 from the upstream end.
4. The tail end of the outfall system for Basin #2 (Sta. 29+00 to 35+00) shall be constructed at the end.

Rights-of-way Constraint:

The project right-of-way from Sta. 29+00 to Sta. 35+00 is not acquired at this time. The Contractor shall perform construction within this property at the end of the project. The rights-of-way will become available for construction by February 15, 2000. If for any reason, the rights-of-way does not become available, the District will terminate the project at Sta. 29+00 with appropriate MAG Standard headwall and provide positive grade to drain toward south. The District will subtract the remaining amount from the Contract.

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, operator rates for rented or owned equipment, materials, 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 subcontractor's 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.

If the VECP is not accepted, the Owner shall notify the Contractor in writing, explaining the reasons for rejection.

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.**
- 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.

Subsection 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 105.2.1, 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.

Subsection 105.2.1 - Plans and Shop Drawings:

Add the following:

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

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

Subsection 105.3 - Conformity with Plans and Specifications:

Add the following:

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 initial partnering workshop shall be scheduled after award of the contract, and prior to the Notice to Proceed, and shall be facilitated by a third party competent in the fundamentals of partnering, and mutually acceptable to Contractor and Owner. The Contractor shall be responsible for scheduling, coordinating, and hiring the third party facilitator, and planning all of the partnering meetings in consultation with the Engineer. The Owner will be responsible to notify and coordinate attendance at the partnering meetings by other agencies. 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 105.5.2 – Pre-Construction Meeting:

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

- Mix design composition
- Manufacturer's certification for all materials
- Material data safety sheets
- Preliminary work schedule
- Preliminary traffic control plan
- Shop drawings
- Emergency telephone numbers
- Signing authority letter
- Name and telephone number of the certified safety professional

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

The Contractor shall be responsible to take minutes of the pre-construction meeting and distribute copies to all meeting participants. The meeting minutes shall be distributed within 48 hours of the meeting. At the subsequent construction progress meeting, the minutes will be attested or revised, as appropriate. The cost for attendance at the pre-construction meeting, and preparation and distribution of meeting minutes shall be incidental to the project and

no extra payment will be made.

Subsection 105.5.3 - Construction Progress Meetings:

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

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

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

Subsection 105.6 - Cooperation with Utilities:

Add the following:

An attempt has been made to determine the location of all underground utilities, drainage pipes, and structures; however, it shall be the Contractor's responsibility to cooperate with the pertinent utility companies so that any obstructing utility installation(s) may be adjusted. The location of the underground and overhead utilities as shown on the plans is based on the best available information. The Contractor shall not assume that this represents an exact location of the line. No guarantee is made to the accuracy of the location shown on the plans. The Contractor shall determine for himself the exact location of all utilities. Should 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. There also exists the strong likelihood that other abandoned older and undocumented underground utility and irrigation lines exist within the project area. 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 telephone numbers should put the Contractor in contact with the proper personnel:

<u>Name of Utility Company</u>	<u>Contact Person</u>	<u>Phone #</u>
Cox Communications	Carl McKay	602-322-7214
Salt River Project - Water	Robert Maurer	602-236-2962
Salt River Project - Electric	Jim Frescholtz	602-236-0840
Southwest Gas	Robert Sprague	602-484-5343

U.S. West Communications	John Aker	480-630-0496
City of Mesa – Water, Sewer, Gas	Burt Williams	480-644-2784
Central Arizona Project (CAP)	Abe Sahli	623-869-2126

Subsection 105.8 - Construction Stakes, Lines, and Grades:

Add the following:

- A. The Engineer will furnish a Benchmark which the Contractor will use to set line and grade for all construction. All other surveying required for the project shall be the Contractor's responsibility. The Engineer will not set any construction stakes.
- B. Before any construction work is started, the 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 at the first weekly meeting after being generated.
- 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 the 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. The Contractor may utilize District owned property east of Ellsworth Road, south of the CAP Canal for the marshaling yard upon obtaining a right-of-way use permit from the District. (See attached Exhibit "A")

The Contractor shall grade all construction yards, easements and limits of construction which are disturbed by construction or construction related activities to the lines and grades shown on the plans; or as a minimum, where no line or grade is shown, to a condition similar to or better than the pre-existing condition.

Subsection 107.2 - Permits:

Replace with the following:

Contractor shall obtain all permits and licenses, including but not limited to those required by City of Mesa and Salt River Project (SRP) and Central Arizona Project (CAP); pay all charges, fees, taxes, and provide all notices necessary and incidental to the due and lawful prosecution of the work. Permits for earth moving may be obtained from Air Pollution Control, Maricopa County Department of Environmental Management, 2406 South 24th Street, Suite E-214, Phoenix, Arizona 85034, telephone number 506-6700. The cost for the earth moving dust control permit is \$80 plus \$8 per acre. The above permit costs are subject to change. It is the responsibility of the Contractor to verify these costs.

Subsection 107.2.1 - NPDES Permit Requirements:

Add the following:

- 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 pre-construction meeting and shall be subject to review by Owner prior to implementation.
- C. Contractor shall submit the completed and duly signed NOI forms no later than forty-eight (48) hours prior to the initial start of construction on the project to the following agencies:

EPA 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

City of Mesa
20 E. Main Street, Suite 500
P. O. Box 1466
Mesa, AZ 85211-1466

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 Changed Conditions. Payment for this bid item shall be upon completion and acceptance of the project, as per Section 109.1.
- H. Copies of all required forms and guidance for preparing the SWPPP are available in the "Drainage Design Manual for Maricopa County, Volume III Erosion Control." The manual is available at the Flood Control District, 2801 West Durango Street, Phoenix, Arizona 85009.

Payment for NPDES/SWPPP permit requirements shall be made on the basis of lump sum for all work described in Subsection 107.2 .1 for:

ITEM 107-1 NPDES/SWPPP PERMITS

Subsection 107.4 - 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 authorized personnel and the Engineer 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 107.5.4.1 Contractor's Status During any Hazard Remediation:

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

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

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

Subsection 107.6.3 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:

Distributing a pre-construction information letter to all residents, business, schools, farm operations, etc. within an area bounded by **90th Street on west, Adobe Road on North, Signal Butte Road on east and Broadway Road on south**, Printing and distribution of public notices and/or newsletters.

The Contractor shall issue a monthly newsletter to inform the public, within the above described area, of the project progress.

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 telephone 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

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.

Any items not listed here and listed in Section 401, Subsection 104.4 or any other Section or Subsection of this Special Provision that requires the Contractor to inform the public will be responsibility of the General Contractor. It will be up to the General Contractor to delegate that authority to the Public information SubConsultant. The cost of such item will not be paid from this allowance. However, this cost will be incidental to the bid item cost for constructing such item.

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 eight (8) project information signs as directed by the Engineer, at the pre-construction meeting, before beginning construction. The signs will 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 107.8 - Use of Explosives:

Add the following:

Because of the proximity to the residential areas and the CAP Canal, the use of explosives will NOT be permitted for any construction activities on the project.

Subsection 107.9 - Protection and Restoration of Property:

Add the following:

The Contractor shall protect-in-place all existing structures and other features as identified on the plans. This includes but is not limited to landscaping on the private front yards and back yards, mail boxes, traffic signs, curbs and sidewalks, driveways, existing utilities shown as protect in place, fences, gates, irrigation box structures, and other items shown as protect in place on the construction plans.

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

The Contractor will grade all Temporary Construction and Permanent Easement areas, and project areas which are disturbed during construction to the lines and grades shown on the plans, or as a minimum, where no lines and grades are shown, to a condition similar to or better than the pre-existing condition.

Subsection 107.10 - Contractor's Responsibility for Work:

Add the following:

The Contractor shall protect-in-place existing chain link fence along the CAP Canal that is shown as protect-in-place. If any part of the fence is removed or damaged, the Contractor shall replace any additional fence removed beyond the limits shown on the plans with "in-kind" fence.

Any damage to the existing outlet pipes from the CAP over chutes shall be repaired by the Contractor at no cost to the District per satisfaction of the Bureau of Reclamation.

The Contractor shall not remove any vegetation, plants and/or trees outside the rights-of-way.

The Contractor shall protect-in-place the existing block wall along the west side of 93rd Street. Any damage to the block wall or foundation of the block wall shall be repaired "in-kind" and/or satisfaction of the owner.

The Contractor shall protect-in-place the existing block wall along the eastern edge of the Self Storage facility located south of Sleepy Hollow Road and east of Ellsworth Road. Any damage to the block wall or foundation of the wall shall be repaired "in-kind" and/or to the satisfaction of the owner.

The Contractor shall protect-in-place the existing chain-link fence south of Sleepy Hollow, east of the 20' Drainage Easement. Any damage to the fence shall be repaired "in-kind" and/or to the satisfaction of the owner.

The Contractor shall take all necessary action to protect the public from the construction work area.

The Contractor shall take all necessary action to ensure that all construction materials are stored in such a manner that storm runoff from the storage area does not divert the flows or block the historical runoff patterns.

All of the existing chain link fence not shown as removal and replacement shall be protected in place. Any damage

to the chain link fence shall be repaired by the Contractor at no cost to the District.

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 **two hundred and forty (240)** 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 Engineer at the pre-construction meeting for review before starting work using the Primavera or other similar software program that is acceptable to the Engineer. Weekly updates shall be submitted to Engineer at the weekly coordination meeting.

Contractor shall be solely responsible for the planning, scheduling and execution of the work to assure timely completion of the project.

Subsection 108.4.1 - Contractor's Billing Schedule:

The Contractor shall furnish the Engineer an Estimated Billing Schedule, which shall include the estimated amount of each billing for the total project at the pre-construction conference, and thereafter at monthly intervals as agreed to between the Contractor and Engineer.

Subsection 108.5 - Limitation of Operations:

Add the following:

Work in excess of regular working hours shall be defined as overtime. For overtime which becomes necessary, the Contractor shall make a written request to the Engineer at least eight (8) calendar days before the desired overtime.

The request shall include the duration, dates, times, reason for overtime, and a statement of the consequences if overtime is not approved.

The Contractor shall not schedule any overtime work which requires inspection, survey, or material testing without written permission from the Engineer two (2) working days before the proposed overtime work. The Engineer reserves the right to deny the requested overtime. If an overtime request is denied, the Engineer may extend the contract time at no additional cost to the District, including extended overhead costs.

Overtime that is not requested and approved in accordance with the above procedure shall be defined as unscheduled overtime. All costs (including appropriate overtime) shall be paid by the Contractor by deduction from the contract.

An emergency is defined as work required for a situation that is not within the Contractor's control. With the Engineer's approval, the Contractor will be permitted to work overtime without being responsible for paying the District's costs.

Any proposed night work shall be done in accordance with all City of Mesa Ordinances. No night work shall be allowed in residential areas.

The Contractor shall submit a comprehensive plan at the Pre-Construction Meeting that details the steps and methods of noise reduction during night working hours. This plan shall address, but not be limited to, the following: back up alarms, equipment noise, scheduling of excessively noisy construction phases, and material delivery times. Spotters, in lieu of back-up alarms, may be required at night.

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

Subsection 109.2 – Scope of Payment:

Add the following:

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

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

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

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

Subsection 109.7 - Payment for Bond Issue and Budget Projects:

(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 following:
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.

The Contractor's monthly pay estimates will be initially processed by the Engineer during the last week of the month covered.



Exhibit "A"

Not to Scale

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**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
CAP DETENTION BASINS 2 AND 4
CONTRACT 1999C053
PCN 442-03-30**

SPECIAL PROVISIONS

SECTION 201 CLEARING AND GRUBBING

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

201.1 Description:

Add the following:

This work shall consist of removing objectionable material from the right-of-way, easements and such other areas as may be specified in the special provisions. Clearing and grubbing shall be performed in advance of grading operations. The contractor shall protect in place all perimeter masonry walls, footers, and chain link fences during clearing and grubbing operations unless identified in the plans to be removed. Removal of trees, tires and other debris is also included in this section.

201.5 Payment:

Add the following:

Objectionable material collected as part of this operation shall be disposed of at an approved landfill site and shall be subject to landfill fees so assessed, which will be included in the lump sum price bid for this item. Weigh tickets from all landfill disposal must be furnished to the Engineer.

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

ITEM 201 - CLEARING AND GRUBBING

SECTION 202 MOBILIZATION

Add this section to the MAG Uniform Standard Specifications:

202.1 Description:

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

Field Office

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

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

The field office shall be an approved and weatherproof building or mobile trailer providing a minimum of 500 square feet of clear floor space, not including the toilet area. The structure shall have a minimum ceiling height of 7

feet and shall be provided with weatherproof doors equipped with locking devices. Windows shall also be provided with adequate locking devices. The Contractor shall also provide the following:

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

Heating & Cooling - Adequate electrically powered equipment to maintain an ambient air temperature of 72 degrees Fahrenheit plus or minus 8 degrees.

Telephone - Two telephone lines with an outside line for the exclusive use of the Engineer. The Contractor will pay for the cost of the line and local calling charges. Long distance charges made on this line will be paid for by the District.

Toilet - a commode and wash sink in a separately enclosed room within the building or mobile trailer, properly ventilated and complying with applicable sanitary codes. The Contractor shall provide water service.

Maintenance - The Contractor shall maintain all facilities and furnished equipment in good working condition.

Fire Extinguisher - Two non-toxic, dry chemical, fire extinguishers meeting Underwriters Laboratories, Incorporated approval for Class A, Class B, and Class C fires with a minimum ratings of 2A: 20B: 10C.

Electricity - The Contractor shall provide electric power and pay for all electric services.

Furnishings - Two office desks with drawers, two office chairs (padded, swivel type), one drafting table (adjustable height 3 feet by 6 feet, one conference table, eight folding chairs, and one draftsman's stool.

Fax, Printer, Copier - The Contractor shall provide a 3 in 1 fax, printer and copier for the exclusive use of the Engineer.

First Aid Kit.

Potable water supply or service.

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

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

202.2 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 percent (3%) of the total project bid amount exclusive of mobilization and traffic control. No additional payment will be made for occupancy and services during periods of contract time extension due to the engineering changes.

ITEM 202 - MOBILIZATION

SECTION 206 STRUCTURE EXCAVATION AND BACKFILL

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

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 shall be removed and replaced with compacted fill or lean concrete.

206.4 Structural 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 with P.I.'s not greater than 12 may 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)

206.5 Payment:

Add 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 are incidental or appurtenant.

SECTION 211 FILL CONSTRUCTION

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

211.1 Description:

Add the following:

Fill construction shall consist of constructing embankments except as may otherwise be specified, including the preparation of the areas upon which they are to be placed; the construction of berms; the placing and compacting of approved material within areas where unsuitable material has been removed; and the placing and compacting of material in holes, pits, existing washes, and other depressions.

211.6 Payment:

Add the following:

No separate payment will be made for fill construction. Material placed in fill construction will be paid for under ITEM 215-Detention Basin Excavation, as appropriate.

SECTION 215 EARTHWORK FOR OPEN CHANNELS

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

215.1 Description:

Add the following:

Open channels for the purpose of this section shall mean lined or unlined trapezoidal channels, earth v-ditch and detention basins. The work in this section includes stripping, excavation, overexcavation, fill, backfill, berm construction, grading and disposal of excavated and removed material.

215.2 Stripping:

Add the following:

The excavation areas shall be stripped of all existing fill zones, backfill zones, unstable soils and loose wash bed deposits. During stripping observe the surface for evidence of buried debris, vegetation or disturbed materials which will require additional removal. If encountered, these materials should be removed at no cost to the District.

The ground surface in fill areas shall be prepared by scarifying, moisture conditioning, and compacting the exposed surface soils to a depth of 12 inches.

215.4 Fill and Backfill:

Add the following:

Unless otherwise specified in the special provisions, material obtained from the project excavations may be presumed to be suitable for use as fill or backfill provided that all organic material, rubbish, debris, and other objectionable material is first removed. *Stone, broken portland cement concrete and bituminous type pavement obtained from the project excavations shall not be permitted in the backfill or fill.*

Add the following:

Subgrade, fill, backfill, subbase fill or base material shall be compacted to the following minimum percent compaction of the ASTM D698 maximum dry density in each lift:

<u>Material</u>	<u>Minimum Percent Compaction</u>
Soil: Berm Fill	95
Backfill:*	90

* - Outside of berm areas.

The moisture content of soil materials at the time of compaction shall be:

<u>Type</u>	<u>Area of Use</u>	<u>Moisture Content</u>
On-site	Berms	Optimum plus or minus 3%
Imported	Berms	Optimum plus or minus 3%

The fill material for the existing channel shall be compacted in horizontal lifts to a minimum of 95% of the maximum density as determined in accordance with ASTM D-698 within moisture content range of plus or minus 2% of optimum. The depth of the compacted lifts shall not exceed 8 inches.

215.7 Measurement:

Add the following:

Measurement for earthwork for open channels and detention basins 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/her opinion is best suited to obtain an accurate determination.

215.8 Payment:

Add the following:

Earthwork for open channels and detention basins will be paid for at the contract unit price per cubic yard of

excavation as stipulated in the proposal. Earth V-ditch construction will be paid at the unit price bid per lineal foot. Such price shall include clearing, stripping, excavation, overexcavation, fill, backfill, compaction, grading, hauling, removal and disposal of excess excavated material and debris.

ITEM 215-1 - DETENTION BASIN EXCAVATION

ITEM 215-2 - EARTH V-DITCH

SECTION 220 RIPRAP CONSTRUCTION

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

220.1 Description:

Add 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. Gabion Mattress construction shall consist of furnishing and installing wire baskets and stone for outlet protection as shown on the plans and in these specifications.

220.2 Materials:

Add the following:

Materials furnished for riprap shall conform to the requirements of Section 703, *except that waste concrete and sacked concrete shall not be used.*

Add the following:

220.2.1 Fabric: Riprap and Gabion Mattress construction shall include furnishing and installing a woven or non-woven high survivability filter fabric meeting the following requirements

Nonwoven:

Property	Requirement	Test Method
Grab Tensile Strength, N	890	ASTM D 4632
Grab Elongation at Break, %	45 minimum 115 maximum	ASTM D 4632
Puncture Strength, N	360	ASTM D 4833
Burst Strength, M Pa	2.20	ASTM D 3786
Trapezoidal Tear, N	220	ASTM D 4533
Permittivity, second ⁻¹	0.07	ARIZ 730
Apparent Opening Size, Sieve Size, μ m	106 - 600	ASTM D 4751
Ultraviolet Stability %	70	ASTM D 4355

Woven:

Woven fabric shall meet the physical requirements listed above for nonwoven fabric except that the grab elongation at break, percent, shall be 13 minimum, 115 maximum.

220.2.2 Construction Requirements:

The identification, packaging, handling, and storage of the geotextile fabric shall be in accordance with ASTM D 4873. Fabric rolls shall be furnished with suitable wrapping for protection against moisture and extended ultraviolet exposure prior to placement. Each roll shall be labeled or tagged to provide product identification sufficient to determine the product type, manufacturer, quantity, lot number, roll number, date of manufacture, shipping date, and the project number and name to which it is assigned. Rolls will be stored on the site or at another identified storage location in a manner which protects them from the elements. If stored outdoors, they shall be elevated and protected with a waterproof, light colored, opaque cover. At no time shall the fabric be exposed to sunlight for a period

exceeding 14 days.

When the fabric is required, it shall be placed in the manner and at the locations shown on the project plans. The surface to receive the fabric shall be free of obstructions, depressions, and debris. The fabric shall be loosely laid and not placed in a stretched condition.

The strips shall be placed to provide a minimum 2 foot overlap for each joint. On horizontal joints, the uphill strip shall overlap the downhill strip. On vertical joints, the upstream joint shall overlap the downstream strip.

Add the following:

220.2.3 Riprap (Gabion Mattress): Rock for Gabion Mattresses shall be well graded with 70 percent, by weight, exceeding four inches. The maximum dimension of a single stone shall not exceed the least dimension of the Gabion Mattress.

220.2.4 Wire Baskets (Gabion Mattress): Baskets shall be 12 inches thick. Woven wire fabric shall conform to the requirements of ASTM A 116, except that the minimum weight of zinc coating shall be 0.3 of an ounce per square foot or ASTM A 584, Class 1.

Add the following:

220.4.1 Construction Requirements for Gabion Mattress:

The mattress bed shall be excavated to the width, line and grade as shown on the plans. The mattress shall be founded on this bed and laid to the lines and dimensions required.

Mattresses shall be fabricated in such a manner that the sides, ends, lid and diaphragms can be assembled at the construction site into rectangular units of the specified sizes. Mattresses are to be of single unit construction, the base, ends and sides either to be woven into a single unit or one edge of these members connected to the base section of the unit in such a manner that strength and flexibility at the point of connection is at least equal to that of the mesh.

All perimeter edges of the mattresses are to be securely selvaged or bound so that the joint formed by tying the selvages have at least the same strength as the body of the mesh.

Mattresses shall be placed to conform with the details shown on the project plans. Stone shall be placed in close contact within the unit so that maximum fill is obtained. The units may be filled by machine with sufficient hand work to accomplish the requirements of this specification.

Gabion Mattresses shall be filled with at least two layers of stone.

Before the mattress units are filled the longitudinal and lateral edge surfaces of adjoining units shall be tightly connected by means of wire ties placed every four inches or by a spiral tie having a complete loop every four inches. The lid edges of each unit shall be connected in a similar manner to adjacent units. The Gabion Mattress shall be anchored as recommended by the manufacturer. Each anchor stake shall be fastened to the cover mesh with a tie wire.

Six inches of topsoil shall be placed over the Gabion Mattress structure. The finished grade of the topsoil shall be the finished grade shown on the plans.

220.8 Payment:

Payment for riprap will be made for the number of cubic yards of riprap in place, on the basis of unit prices stipulated in the proposal and shall include preparation of ground surfaces, equipment, labor, material, filter fabric, and trenching. No separate payment will be made for filter fabric.

ITEM 220-1 - RIPRAP

Payment for Gabion Mattress will be made for the number of square yards in place, which shall be full compensation for the work, complete in place, including excavation, preparing the ground area and furnishing and installing the rock, filter fabric, bedding material, and metal items and placement of topsoil over the Gabion Mattress.

ITEM 220-2 - GABION MATTRESS

SECTION 225 WATERING

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

225.1 Description:

Add the following:

The work performed under this section shall include applying all water required for the control of dust as considered necessary in the execution of the work including excavation, fill, backfill, trenching, hauling the excess dirt and other related activities. 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.

225.2 Water Supply:

Add the following:

The Contractor shall obtain a fire hydrant meter from City of Mesa Public Works Services. All construction water shall be obtained through the hydrant meter. Contractor shall pay all fees related to the hydrant meter and all water bills for construction water.

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

225.5 Payment:

Add the following:

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

SECTION 301 SUBGRADE PREPARATION

Subgrade preparation shall conform to Section 301 of the MAG Uniform Standard Specifications except as modified herein:

301.1 Description:

Add the following:

This section shall govern the preparation of natural, or excavated areas prior to the placement of sub-base material for maintenance roadways and invert access ramps. It shall include stripping and disposal of all unsuitable material including existing pavement and obstructions such as stumps, roots, rocks, etc., from the area to be covered with untreated base.

301.8 Payment:

Add the following:

Payment for subgrade preparation shall be included in the cost of ITEM 310 - 6" ABC Maintenance Road in those areas where subgrade preparation is required prior to placement of untreated base.

SECTION 310 UNTREATED BASE

Placement of untreated base shall conform to Section 310 of the MAG Uniform Standard Specifications except as modified herein:

310.1 Description:

Add the following:

Aggregate base course, also referred to as ABC, shall be placed as shown on the plans and shall comply with Subsection 702.2

310.4 Payment:

Payment for untreated base will be made on the basis of the price bid per cubic yard. Such payment shall include material, transportation, labor, equipment, placement, subgrade preparation and compaction. No allowance will be made for spilling or waste beyond the limits of placement shown on the plans.

ITEM 310 - 6" ABC MAINTENANCE ROAD

SECTION 324 6" CONCRETE PAVEMENT

Placement of concrete pavement shall conform to Section 324 of the MAG Uniform Standard Specifications except as modified herein:

324.1 Description:

Add the following:

Portland cement concrete pavement, simply referred to as concrete pavement, shall be placed as shown on the plans and shall comply with Subsection 725.

324.4 Payment:

Payment for concrete pavement will be made on the basis of the price bid per square yard. Such payment shall include material, transportation, labor, equipment, placement, and finishing. No allowance will be made for spilling or waste beyond the limits of placement shown on the plans.

ITEM 324 - 6" CONCRETE PAVEMENT

SECTION 336 PAVEMENT MATCHING AND SURFACING REPLACEMENT

Pavement matching and surface replacement shall conform to City of Mesa Standard Detail M-19.4 and Section 336 of the MAG Uniform Standard Specifications except as modified herein:

336.1 Description:

Add the following:

Street and alley pavement and surfacing within the rights-of-way, removed by construction activities or to be widened or matched in connection with the improvement of Public Works, shall be placed as shown on the plans and applicable standard details, in accordance with this specification and/or the special provisions.

Asphalt concrete pavement replacement shall be constructed in accordance with Type A and B of standard details, as indicated on the plans, and as required by Sections 321 and 710. *Asphalt must be approved by the East Valley Asphalt committee*

336.2 Materials and Construction Methods:

Add the following:

Sep. 29, 1999

The Contractor shall be responsible for backfilling and replacing pavement in all street excavations per the City of Mesa Policy Statement for Street Trench Backfilling and Pavement Replacement, Revised ~~July, 1989~~. Copies of this policy statement are available at the Public Works Service Desk, at no charge. A special permit is not required.

SPECIAL ATTENTION IS CALLED TO THE POLICY STATEMENT REQUIREMENTS FOR TRANSVERSE TRENCHES. BACKFILL IN ALL TRANSVERSE TRENCHES SHALL BE ABC SLURRY, WITH ONE SACK OF CEMENT PER CUBIC YARD OF MIX. ALL COSTS FOR FURNISHING AND INSTALLING THE SLURRY MIX SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE APPLICABLE ITEMS. NO ADDITIONAL COMPENSATION WILL BE MADE FOR THE SLURRY MIX.

IN ADDITION THE PAY WIDTH FOR PAVEMENT REPLACEMENT SHALL BE IN ACCORDANCE WITH

THE PAY WIDTHS LISTED IN M.A.G. UNIFORM STANDARD SPECIFICATIONS SECTION 336.4 EXCLUDING ANY ADDITION FOR "T"-TOP PAVEMENT REPLACEMENT. IN COMPUTING PAY QUANTITIES BY THE SQUARE YARD, THE PRODUCT OF THE LENGTH OF PAVEMENT REPLACEMENT MEASURED ALONG THE CENTERLINE OF THE TRENCH AND THE PAY WIDTHS LISTED, EXCLUDING ANY ADDITION FOR "T"-TOP PAVEMENT REPLACEMENT, SHALL BE USED. NO DIRECT PAYMENT WILL BE MADE FOR SURFACE COURSE PAVEMENT REPLACEMENT OUTSIDE OF THE SPECIFIED PAY WIDTHS. THE CONTRACTOR SHALL INCLUDE THE COST FOR SURFACE COURSE PAVEMENT REPLACEMENT AND MILLING THAT IS BEYOND THE SPECIFIED PAY WIDTHS IN THE UNIT PRICE BID PER SQUARE YARD OF PAVEMENT REPLACEMENT.

The maximum length of open trench from the point of initial excavation to the point where finished grade of native and/or A.B.C. backfill has been installed shall not exceed 300 feet.

Where pavement replacement is called for, the maximum length of exposed A.B.C. backfill prior to the installation of base course asphalt concrete shall not exceed 300 feet. Surface course asphalt concrete shall not be installed sooner than two (2) weeks after base course, but no later than three (3) Weeks.

336.5 Payment:

Add the following:

Direct payment for pavement or surfacing replacement will be made at the contract price per square yard and includes all materials and subgrade preparation required for the pavement replacement.

ITEM 336-1 - PAVEMENT REPLACEMENT (TYPE A)

ITEM 336-2 - PAVEMENT REPLACEMENT (TYPE B)

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

Construction of concrete curb, gutter, sidewalk, driveway, and alley entrances shall conform to Section 340 of the MAG Uniform Standard Specifications except as modified herein:

340.1 Description:

Add the following:

This work shall consist of construction of curb, gutter, and sidewalk and driveway entrances according to the plans and these specifications.

340.6 Payment:

Add the following:

Payment for the above named items will be made in accordance with the unit bid prices. Such payment shall include full compensation for furnishing all labor, material, tools and equipment and accomplishing all work in conformance with the contract documents.

ITEM 340-1 - COMMERCIAL DRIVEWAY ENTRANCE (MESA STD. DET. M-42)

ITEM 340-2 - CONCRETE CURB & GUTTER (MAG STD DET 220, TYPE A)

SECTION 350 REMOVAL OF EXISTING IMPROVEMENTS

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

350.1 Description:

Add the following:

This work shall consist of removal and disposal of various existing improvements as called out on the plans, and shall include removal of existing fences, concrete pads, concrete curb and gutter, concrete from existing CAP overchute headwalls, chain link gates, steel grates, and other items necessary for the accomplishment of the improvement.

350.4 Payment:

Add the following:

Payment for removals will be made at the lump sum bid price, which price shall be full compensation for the item complete, as described herein or on the plans.

ITEM 350 - MISCELLANEOUS REMOVALS

SECTION 401 TRAFFIC CONTROL

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

401.1 Description:

Add the following:

This work shall consist of traffic control devices and flagmen or pilot cars in accordance with the City of Mesa *Traffic Barricade Manual*, latest revision for those portions of this project that are inside the City limits. The cost for any damage to traffic signal equipment (loop detectors, pull boxes, conduit, etc...) is the Contractor's responsibility. All repair work will be done by the Contractor at his own expense to the satisfaction of the City of Mesa Traffic Signal Group. Copy of standards may be obtained from Public Works Services.

401.2 Traffic Control Devices:

Add the following:

All signs, cones, and other traffic control devices and all equipment necessary for the control of traffic shall be furnished by the Contractor. The Contractor shall be responsible for maintaining the necessary traffic control devices until normal traffic flow is restored.

401.5 General Traffic Regulations:

Add the following:

During non-peak hours, one (1) traffic lane in each direction on University Drive, 93rd Street, Sleepy Hollow Drive and Akron Street, as well as left turn lanes at intersections shall remain open. Left turns may be prohibited as directed by the City Inspector.

During the peak hours of 6:30 a.m. to 8:30 a.m. and 4:00 p.m. to 6:00 p.m. The Contractor shall maintain all existing traffic lanes at University Drive, 93rd Street, Sleepy Hollow Drive and Akron Street, including left turn lanes at all intersections unless otherwise approved in writing by the City Inspector.

The Contractor shall submit a certification statement signed by the Contractor and the barricade subcontractor stating that they certify and warrant that the barricades will be erected and maintained in compliance with the barricade manual.

The Contractor shall employ a "designated" person who will be responsible for ensuring that all barricades, signs, barricade lights, signals, and other traffic control devices are established and maintained in strict compliance with the City of Mesa Traffic Barricade Manual and the contract requirements. The designated person shall:

1. Inspect all barricading and traffic control devices on a regular, recurring basis and submit a daily (including weekends and holidays) report, in writing, to the inspector of such inspections the next work day.
2. Ensure that existing City-owned traffic signals do not conflict with barricades and signs or give misleading signals to pedestrians and motorists. He/she shall immediately bring conflicting conditions to the attention of the inspector. The inspector will coordinate with the City's Traffic Signals Group for any required changes to traffic signal sequencing, timing, or outages;
3. Ensure that flagmen, when employed, are trained in accordance with the O.S.H.A. regulations (29 CFR 2926.201 Signaling); and,
4. Immediately respond to all call-outs by the inspector, the Stand-by inspector, or Base Operations; cooperate with Police or Fire Department Investigators; and, on his/her own responsibility, re-establish barricades and

traffic control devices, as necessary.

The "designated" person required by this section may be the same as the "competent" person required for trench safety (O.S.H.A. Regulations- 29 CFR 1926.650(i)) provided such person is qualified in accordance with O.S.H.A. Regulation (29 CFR 1926.21(1)) for these duties.

The Contractor shall certify, by letter, that the designated person has read and will comply with the requirements of the City of Mesa Traffic Barricade Manual. The Safety Certification letter shall be provided to the City at the preconstruction conference. The Safety Certification should include the name of the "designated" person, the name of the "competent" person (if different from the designated person), telephone numbers where they can be reached 24-hours per day, and any restrictions or limitations on their duties and authorities.

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 the 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.

Pedestrian Access Requirements

The contractor shall ensure that all sidewalks on this project remain open and safely useable 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.

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 Mesa.

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 bid item 401, Traffic Control.

401.5.1 Special Traffic Regulations:

Prior to excavation, the Contractor shall:

1. Develop a haul route and obtain a no fee permit from the City of Mesa.
2. Obtain City of Mesa Street Transportation Department approval of haul route, truck volumes, and operating hours.
3. Obtain a City of Mesa grading permit for proposed spoil location, if applicable.
4. The City of Mesa permit does not release the Contractor from the requirements of MAG Subsection 108.5.

Costs incurred by the requirements of this section shall be included in the bid items listed in the Bid Schedule. No additional payment shall be made for barricades, other traffic control devices, salaries, or other work or materials required by this section.

401.7 Payment:

Add 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 -TRAFFIC CONTROL

SECTION 420 CHAIN LINK FENCES

Chain link fence construction shall conform to Section 420 of the MAG Uniform Standard Specifications except as

modified herein:

420.1 Description:

Add the following:

This work shall consist of constructing chain link fences, gates and collapsible fence at the locations shown in the plans and in accordance with MAG Standard Detail 160, the details shown on the plans, and as provided in the specifications and these special provisions. When installation procedures are not covered within these specifications, standard details, special provisions, plans or other documents, installation will comply with ASTM F-567.

420.2 Materials:

Add the following:

Chain link fence per MAG Standard Detail 160 shall be constructed without 3-strands barbed wire.

420.5 Payment:

Add the following:

The price bid paid per linear foot for chain link fence shall include full compensation for furnishing all labor, materials, tools, and equipment, and doing all the work involved in constructing the fence complete in place as specified on the plans, and in the special provisions, except for furnishing and installing gates.

Full compensation for clearing the line of the fence and disposing of the resulting material, excavating high points in the existing ground between posts, excavating and furnishing and placing concrete footings, connecting new fences to structures and existing fences, and any other related work shall be considered as included in the price bid per linear foot of fence and no additional allowance will be made therefor.

ITEM 420-1 - CHAIN LINK FENCE

ITEM 420-2 - CHAIN LINK GATE

ITEM 420-3 - COLLAPSIBLE FENCE

SECTION 421 GAME FENCE

Smooth wire fence construction shall conform to the following section which is added to the MAG Uniform Standard Specifications:

421.1 Description:

The work under this section shall consist of furnishing all materials and constructing wire fence and gates at the locations and in accordance with the details shown on the plans. Fences shall be constructed according to ADOT Standard Drawing C-12.10 for Barbed Wire Game Fence (GF) except that all wire shall be barbless. Gates shall be of the types and sizes shown on the plans and shall be constructed in accordance with the requirements of these specifications.

421.2 Materials:

Fencing wire shall be 12-1/2 gauge steel wire with no barbs and shall be either zinc coated or aluminum coated. Zinc coated steel wire shall conform to the requirements of ASTM A 121, Class 1 coating. Aluminum coated steel wire shall conform to the requirements of ASTM A 585, Type 1, Class 1 coating.

Line posts shall conform to the requirements of ASTM A 702. Lengths of posts shall be as shown on the plans. Packaging of posts will not be required. The type of post furnished, tee, channel or U or Y type shall be the same on any one project.

End, corner, pull, latch and gate posts and braces shall conform to the requirements of ASTM A 702, for uprights and braces.

Posts and braces shall be painted Desert Beige.

Portland cement concrete shall conform to the requirements of Section 725.

Stays shall be 9 ½ gauge twisted wire designed for screw-on type installation. Stays shall be zinc coated steel of good commercial quality. The minimum weight of zinc coating shall be 0.3 ounce per square foot of uncoated wire surface.

Tie wires, hog rings and post clips shall be zinc coated steel of good commercial quality and shall be of the same gauge as the fence fabric being fastened. The minimum weight of zinc coating shall be 0.3 ounce per square foot of uncoated wire surface.

421.3 Construction:

The Contractor shall clear the fence lines of all earth, trees, brush and other obstructions which interfere with the proper construction of fences, unless the Engineer orders certain trees to remain in place. Disposal of removed material shall be in accordance with the requirements of Section 201.

Fence shall be constructed along and up to twelve inches (12") within the project right of way as shown on the plans.

Fence posts shall be spaced at the intervals and set to the depths shown in the ADOT Std Dwg C-12.10.

In determining the post spacing, measurements shall be made parallel to the ground slope, and all posts shall be placed in a vertical position, except in unusual locations where the Engineer may direct that the post be set perpendicular to the ground surface.

Line posts may be driven into undisturbed earth provided driving does not injure the posts. All voids around the post shall be backfilled and the material thoroughly tamped.

End, corner, pull, latch and gate posts and braces shall be set in concrete footings crowned at the top to shed water.

Any high points which interfere with the placing of fence wire shall be excavated to provide the clearance shown in the detail.

Changes in the horizontal alignment of the fence line where the angle of deflection is 15 degrees or more shall be considered as corners and a corner post assembly shall be installed. Changes in fence alignment where the angle of deflection is less than 15 degrees but more than five degrees shall be considered as alignment angles and diagonal tension wires shall be installed. The diagonal tension wires shall consist of two twisted steel wires and shall be attached to the adjacent line posts.

Intermediate post assemblies shall be installed at not more than 650-foot intervals between other braced posts. After post assemblies have been placed, the wire shall be pulled taut to the satisfaction of the Engineer, and each longitudinal wire shall be cut and securely fastened to the braced post with devices customarily used for the purpose. Wire shall not be carried past a post assembly, but shall be cut and fastened to the post independently of the adjacent spans. A maximum of two splices will be permitted between post assemblies, but not on the same wire. No splice shall be placed closer than 100 feet to any post assembly.

Where fence lines are interrupted by openings for pedestrian access, intermediate post assemblies shall be installed at both sides of the opening at a distance of one panel width from the end of the opening.

After the tensioning of the wire between two post assemblies, all longitudinal wires shall be attached to each intervening line post at the height and spacing as shown on the detail. The distance from the bottom wire to the ground may vary at any one point from that shown on the detail four inches plus or minus. Where abrupt changes occur in the fence line grade, intermediate line posts may be required to maintain proper distances between the bottom wire and the ground.

Spacing of the twisted vertical wire stays shall be as shown on the detail for the type of fence specified. The vertical

wire stays shall be woven into every horizontal wire.

At all grade depressions where stresses tend to pull the posts from the ground, the affected fence posts shall be anchored in concrete. The volume of concrete required to anchor the posts shall be not less than one cubic foot.

421.4 Measurement:

Wire fence shall be measured on the fence line along the top of the completed fence from center of end posts.

421.5 Payment:

The price bid paid per linear foot for smooth wire fence shall include full compensation for furnishing all labor, materials, tools, and equipment, and doing all the work involved in constructing the fence complete in place as specified on the plans, and in the special provisions, except for furnishing and installing gates.

Gates will be paid for at the unit price bid for each size of gate required by the plans or special provisions, which price shall include full compensation for furnishing the gates, together with all necessary gate posts, fittings and hardware, and doing all the work involved in installing the gates complete in place as specified. If double gates are required, each double gate pair will be paid for at the unit price bid and such unit price shall include furnishing and installing both leaves.

Full compensation for clearing the line of the fence and disposing of the resulting material, excavating high points in the existing ground between posts, excavating and furnishing and placing concrete footings, connecting new fences to structures and existing fences, and any other related work shall be considered as included in the price bid per linear foot of fence and no additional allowance will be made therefor.

ITEM 421-1 - GAME FENCE (ADOT C-12.10 smooth wire)

ITEM 421-2 - GATE (ADOT C-12.10 type 1)

SECTION 430 LANDSCAPE PLANTING

430.1 Description:

Provide complete landscaping and planting installation in accordance with the Contract Documents and conform to Maricopa Association of Governments (MAG) "Uniform Specifications for Public Works Construction" current edition Section 430 and 795, Flood Control District of Maricopa County (FCDMC) and City of Mesa requirements. Any Sections of The MAG not indicated herein or modified by the Drawings, shall remain in effect per the MAG Documents.

Work shall include, but is not limited to: site fine grading, material procurement, material testing, soil preparation, planting, tree staking, seed mix installation, rock ground cover installation, landscape restoration where necessary, obtaining and paying all required permits and fees, providing all necessary traffic control, and maintenance, establishment and warranty of all landscape work.

430.2 General:

The unit price bid items includes the cost for all work to furnish and install the complete landscaping and irrigation systems shown or as indicated on the Landscape Drawing Plan Sheets including the respective notes, legends, and detail sheets that are not covered by any other Bid Item.

Materials and installation shall conform to MAG Sections 795 and 430, respectively, except as noted herein or on the drawings.

Transplanting or removal of any existing plants shown on the plans along with the associated costs of obtaining any required permits from the FCDMC, City and the State of Arizona are to be included in this bid item.

All references to the Owner within these Technical Specifications or on the Drawings shall refer to the Flood Control District of Maricopa County (FCDMC).

Landscape areas shall be smooth graded as shown on the drawings unless otherwise indicated. All imported soil or on site soil used as fill or backfill shall meet or be amended to conform to M.A.G. Section 795.2 and shall not contain more than ten percent aggregate or rock by volume. Aggregate or rock shall not be nested or layered within the planting pit backfill.

Any subsurface obstructions, materials or substances which conflict with or impact the installation of plants or may be detrimental to plant health shall be excavated and removed to a minimum of two (2) times the rootball container depth and four (4) times the rootball container width.

All landscape plants, materials and surfaces shall be planted, established and maintained in accordance with MAG Section 430, except that the Maintenance/Establishment period shall be 90 calendar days from the completion and acceptance date of all pre-maintenance inspection and landscape planting and restoration punch list items of the project as determined by the FCDMC Representative. If this period extends beyond the final acceptance date of the project, the FCDMC will retain ten percent of the bid for project landscaping until the requirements for final acceptance are met at the end of the maintenance/establishment period.

This Bid Item shall also include the cost for restoration of all existing landscape areas or other existing improvements which are disturbed or impacted by any work completed under this contract. The limits of this work shall be as determined by the limit of disturbance or as necessary to complete the satisfactory restoration of impacted areas in accordance with MAG Section 107.9 and as indicated on the plans. This item includes, but is not limited to:

The restoration of existing landscape and all non-paved landscape areas as indicated on the plans.

The removal, relocation or replacement of existing landscape plants and other materials or surfaces which are disturbed or damaged by this project.

Materials and installation shall conform to MAG Sections 795, 430 and 440 respectively, except as noted herein or on the drawings.

The work shall be neatly joined, coursed, connected, attached, blended or butted (as applicable) to the existing conditions to the satisfaction of the FCDMC representative. Existing undamaged materials may be reused, subject to approval. Contractor shall provide a sample replacement of all material prior to any restoration or replacement work.

The FCDMC reserves the right to reject any replacements or restorations that do not meet the criteria for these items. The Contractor shall remove and replace any such rejected work to the FCDMC's satisfaction at no additional expense.

For existing landscaped areas, outside the allowable limits of work, the Contractor shall restore the granite, rock, soil or other existing landscape surfaces using material(s) to match the existing in type, quality and appearance.

Existing landscape items in the way of new construction or which conflict with vehicular sight visibility requirement shall be removed or relocated to an area near the present location as shown on the plans or as directed by the FCDMC's Representative.

430.2.1 Related Work:

The Contractor shall be responsible for the procurement, installation and completion of all work items and components of work items indicated, including: coordination, scheduling and sequencing of all work between the various trades required to complete the work and in accordance with the Contract Documents.

SECTION 425 - TOPSAILS

SECTION 440 - LANDSCAPE (SPRINKLER) IRRIGATION SYSTEMS

OTHER SECTIONS OF SPECIFIED WORK INDICATED HEREIN

430.2.2 Quality Control:

Within 14 days after the award of contract, the Contractor shall submit a list of all specified landscape materials, sources, locations, phone numbers and contact persons to the FCDMC Representative for review and approval. Prior to bringing plant materials onto the site, the FCDMC Representative is to visually inspect the proposed materials. The Contractor shall make all necessary arrangements with the FCDMC Representative to have the plant material inspected in accordance with MAG Section 430.52. Contact Theresa Hoff (telephone number: 602-506-1502) at the FCDMC for inspection. The FCDMC Representative may reject any material which shall be replaced with acceptable material by the Contractor.

The Contractor shall provide certificates of inspection and testing for all materials and equipment as required by law and regulation.

Note: Any and all required laboratory testing and analysis reports shall be paid for by the Contractor.

All packaged materials shall be delivered sealed in the manufacturers original packaging and shall have the manufacturers certified analysis printed or stamped on each container.

For all non-packaged materials, the Contractor shall provide analysis and testing reports from an independent certified agricultural soils testing laboratory or agency. The laboratory must be approved by the FCDMC. The Contractor shall provide certification and documentation that all required materials, equipment and products meet or exceed these specifications. The Contractor shall submit all certification, testing reports and samples to the FCDMC Representative for acceptance. Final acceptance of all materials shall be determined by the FCDMC Representative.

430.3.1 Saguaro Planting:

The Contractor shall provide and install saguaro as designated by project plans and specifications.

All equipment and methods shall be approved by the FCDMC's Representative prior to performing the work.

In order to avoid sunburn damage when relocating saguaro and other miscellaneous cacti, care shall be taken that the plant is placed so that it faces the same compass direction and orientation in which it originally grew. The plants shall be marked on the north side prior to digging. Marking shall be completed using a spot of paint or other water-proof material in a manner acceptable to the FCDMC's Representative.

Saguaros provided for this project shall have a minimum 2' diameter root mass. Saguaros with an insufficient root mass will be rejected.

When transporting Saguaros, before becoming unstable, saguaros and barrels shall be secured with wide, nylon, padded straps to a padded, hydraulically operated cradle. The cradle, padding, and straps shall be placed against the plant so that it will not be scarred, scraped, or otherwise damaged during the relocation and transplanting process. All arms must be braced prior to starting excavations.

Roots and the base of each plant will be carefully inspected for evidence of borers, rot, nematodes, and broken or bruised roots. For saguaros, cut through the tap root to provide a flat base with diameter sufficient to bear weight of unsupported saguaro.

The Contractor shall treat any cut or wound to the skin with agricultural dusting sulfur. All broken or bruised roots on cacti shall be cut off with a clean, sharp, bypass pruner and the cuts liberally dusted with agricultural dusting

powder.

Ensure good drainage for all cacti. Do not apply supplemental water for a period of 3 weeks after planting minimum.

Plant pit shall be a minimum of 6" wider than the extent of the severed lateral roots.

The Contractor shall place proper orientation to the north. Cacti planting depth should be the same depth at which plant was grown. Saguaros may be planted to bury roots a maximum of 1'.

To provide stabilization, a 3" mound of soil shall be formed around the bases of Saguaros, barrels, and other cacti to divert water from the root areas until they have healed and become callused.

For saguaros greater than 8' in height, guy as detailed or brace on 3 sides with 2x4 braces with carpet padding to protect skin per saguaro staking detail on plans.

430.3.2 Native Seeding:

430.3.2.1 General:

The work under this item consists of furnishing all materials, preparing the soil, applying seed-mulch mixture and maintaining seeded areas during establishment period in accordance with plans and these technical specifications. Areas to be seeded include areas indicated on plans. The FCDMC's Representative may adjust the schedule and the locations of the seeding operations within the limits of the project. The FCDMC's Representative shall establish exact dates to commence seeding and reserves the right to postpone seeding until conditions are suitable.

The Contractor shall provide, upon request to the FCDMC's Representative, past performance data that indicates his equipment and procedure are suitable or shall demonstrate his performance. The FCDMC's Representative has final approval as to equipment and procedure.

430.3.2.2. Materials:

Seed: Seed shall consist of Bursage (*Ambrosia deltoidea*), Purple Three Awn (*Aristida purpurea*), Blue Gramma (*Bouteloua gracilis*), Indian Wheat (*Plantago insularis*), Brittlebush (*Encelia farinosa*), Sand Dropseed (*Sporobolus cryptandus*), Cove's Cassia (*Senna covesii*), and Globe Mallow (*Sphaeralcea ambigua*).

Application rates of seed as specified are for Pure Live Seed (PLS). PLS is determined by multiplying the sum of the germination and hard or dormant seed by the purity.

The type and rate of the Pure Live Seed (PLS) is as follows:

Botanical Name	Common Name	Pounds Per Acre (PLS - Pure Live Seed)
Ambrosia deltoidea	Bursage	6.0
Aristida purpurea	Purple Three Awn	2.0
Bouteloua gracilis	Blue Gramma	2.0
Encelia farinosa	Brittlebush	4.0
Plantago insularis	Indian Wheat	2.0
Senna covesii	Cove's Cassia	4.0
Sphaeralcea ambigua	Globe Mallow	3.0
Sporobolus cryptandus	Sand Dropseed	2.5
Total weight per acre		25.5

The seed source shall be from elevations below 3,000 feet. The seed shall be delivered to the project site in standard, sealed, undamaged containers. Each container shall be labeled in accordance with Arizona Revised Statutes and the U.S. Department of Agriculture rules and regulations under the Federal Seed Act. Labels shall indicate the variety or strain of seed, the percentage of germination, purity and weed content and the date of analysis which shall not be more than nine months prior to the delivery date. Weed content of seed shall not exceed 0.5%.

Wood Fiber Mulch: The wood fiber shall be natural wood fiber having the property of dispersing readily in water, heat processed in such a manner so that it does not contain any growth or germination inhibiting factors and shall have no toxic effect when combined with the seed or other materials. The fiber shall be dyed green to allow visual monitoring during application, using a dye which is non injurious to plant growth.

Wood fiber shall be delivered in undamaged containers labeled and bearing the name of the manufacturer and showing the air-dry weight content, the maximum being 12 percent plus or minus 3 percent at the time of the manufacture, and with a pH range of 4.5 to 6.5.

Chemical Fertilizer for Seed Mix Areas: Chemical fertilizer shall be a standard commercial fertilizer, suitable for application with approved equipment, containing the minimum analysis and in the physical form of 16-20-0. The first number shall represent the minimum percent of soluble nitrogen, the second number shall represent the minimum percent of available phosphoric acid and the third number shall represent the minimum percent of water soluble potash. Chemical fertilizer shall be furnished in standard containers with the name, weight, and guaranteed analysis of the contents clearly marked.

Tackifier: Tackifier shall consist of organic muciloid liquid concentrate diluted with water and a psyllium base containing no agents toxic to seed germination. Addition of fertilizer to the slurry mix shall not change the properties of the tackifier. When applied, tackifier shall form a transparent crust permeable by water and air.

Water: Water shall be free of oil, acid, salts or other substances harmful to plants. The source shall be approved by the FCDMC's Representative prior to use.

430.3.2.3 Construction Requirements/Execution:

Perform seeding work only after other work affecting ground is complete, **All areas intended for native seeding shall not be treated with a pre-emergent control.** Protect existing utilities, paving, irrigation systems and other facilities from damage caused by seeding operations.

Where equipment can operate, the area to be seeded shall be prepared by disking, harrowing, or by other approved methods of loosening the surface soil to a minimum depth of four inches. Remove and dispose of all sticks, roots, rubbish and other deleterious material. All native rock material which does not interfere with seeding operations may remain on ground surface. Finish grade shall match finish and texture of adjacent roadway frontage areas.

On slopes too steep for equipment to operate, the area shall be prepared by hand raking to a minimum depth of four inches. On sloping areas, all disking, harrowing and raking shall be directional and parallel to the contours of the areas involved. All areas which are eroded shall be restored to the specified condition, grade and slope as directed prior to seeding.

Seeding operations shall not be performed on undisturbed soil outside the clearing and grubbing limits of the project. Seeding operations shall not be performed when wind would prevent uniform applications of materials or would carry seeding materials into areas not to be seeded.

All non-paved, non roadway areas disturbed by construction operations which are not designated to receive decomposed granite or other rock ground cover shall receive seed mix.

The homogeneous mixture shall be applied to the seeding area by means of hydraulic-type equipment which shall provide continuous mixing and agitation action to the mixture of water, fertilizer, seed, and wood fiber. The mixture shall be applied through a pressure-spray distribution system providing a continuous, non-fluctuating discharge and delivery of the mixture in the prescribed quantities.

Contractor may propose alternative means of applying seed depending on area to be seeded. Alternative method (other than by means of hydraulic equipment) must be approved by FCDMC Representative prior to start of operation.

The application rates for seed mix materials shall be applied as specified.

<u>MATERIALS</u>	<u>POUNDS per Acre</u>
Seed Mix	25.50
Wood cellulose fiber	1500
Chemical fertilizer	200
Tackifier	125
Water	Sufficient amount to form a homogeneous mixture capable of being applied by commercial hydromulching equipment.

Apply seed, mulch, fertilizer and tackifier in a two step process.

Step 1. Mix seed with chemical fertilizer (200 pounds per acre), Wood cellulose fiber (200 pounds per acre), and water to form a slurry mix.

Step 2. Apply slurry mix of 125 pounds per acre of tackifier, 1300 pounds per acre of wood fiber mulch, and water.

Contractor shall provide maintenance of all seeded areas for a minimum of 90 days until a healthy stand is achieved. Maintenance shall include watering, fertilizing, and weeding. The Contractor shall be responsible for watering the hydromulched areas. Initial watering of seeded areas will be done to maximize growth of seedlings.

The Contractor shall water for duration of maintenance period or until substantial germination occurs (when seedlings are a minimum of 4" tall). The method of watering is at the Contractor's discretion. The Contractor shall guarantee a healthy stand of desert adapted plants regardless of the method of irrigation.

The Contractor shall provide protective devices as required to protect seeded areas from traffic for a minimum of 90 days. Repair and reseed areas damaged by traffic, erosion or poor germination. Reseed to obtain successful germination based on the supplier's specified germination rates and species used. The work provided for will be found complete when the planted seeds yield a minimum stand, as determined by the FCDMC's Representative based on the supplier's specified germination rates and species used and the seeded areas are free from weeds and disease.

430.4 Decomposed Granite:

The work consists of furnishing all equipment, materials and labor required for the grading and preparation of landscape surfaces, two applications of pre-emergent, and placement of rock ground cover material within the project area, in the locations shown and in accordance with the project plans, MAG and these Technical Specifications.

Decomposed Granite rock ground cover shall be ½" minus Madison Gold. The Contractor shall confirm that a sufficient quantity is available so that the entire area will be of the same composition and appearance. Provide sample to the FCDMC for approval. Installation shall conform to MAG Section 430 and as indicated on the plans.

All landscape areas designated to receive rock ground cover, unless otherwise noted, shall be treated with two (2) applications of approved pre-emergent herbicide as required by MAG and as indicated on the drawings. The first application shall be applied over the graded soil surface prior to placement of rock ground cover. The second application shall be applied to the finish graded and compacted rock ground cover surface. Apply pre-emergent as specified by the manufacturer.

Finish grade for the rock ground cover in all areas shall be as detailed and as follows: 1 inch below any adjacent concrete walkway and 2" below adjacent curbs or other vehicular pavements. The required (minimum) installed depth indicated on the drawings shall be after settlement and shall be uniform throughout all areas designated to receive rock ground cover.

430.5 Tree, Shrub and Ground Cover Planting:

All planting shall be completed under strict compliance with the Contract Documents.

430.5.1 Substitutions:

Any and all requests for substitutions will be submitted in writing prior to Award of Contract. Upon Award of Contract the Contractor shall immediately secure and have held by the supplier, all specified landscape materials or those which have been approved for substitution, until time of delivery to the site.

430.5.6 Shrub and Tree Pits:

Plant pits shall be sized per the details, unless otherwise indicated in the Contract Documents.

Plant pit backfill may utilize on site native soil as long as the soil meets the specifications for topsoil.

In rocky site conditions, on-site soils to be used for backfill may be screened to meet the specifications for maximum aggregate content in topsoil. Refer to Section 430.2 for removal of sub-surface conditions impacting the installation or health of plants.

Nested or layered aggregate or other infertile materials located beyond the limits of the plant pit or within the potential root growth zone of the plants/turf, shall be considered a subsurface obstruction and removed as specified.

Plant pit fertilizer tablets shall be as specified under M.A.G. Section 430.5.6.

All pits shall be excavated to the detailed dimensions with the sides of pit roughened or scarified.

430.7 Plant Establishment Guarantee and Maintenance:

Unless otherwise authorized, the Contractor shall maintain and be responsible for all landscape areas and materials on a continuous basis as installations are completed during the course of work and until final project acceptance.

All existing and new plants shall be kept in a healthy, growing condition by watering, pruning, spraying, weeding and any other necessary operations or maintenance. Plant saucers and beds shall be kept free of weeds, grass and other undesirable vegetation. Plants shall be inspected at least once per week and appropriate maintenance performed.

The Contractor shall maintain the irrigation system and make any necessary repairs regardless of cause to assure a complete and operational system is provided at the time of final acceptance.

A pre-maintenance inspection will be performed upon substantial completion of all landscape planting and irrigation work under this contract. The Contractor shall be present at the inspection and a punch list of items requiring remedial work shall be generated. Upon completion of the punch list items and approval by the FCDMC, the 90 day maintenance/establishment period will begin.

Final maintenance Inspection: At the end of the 90 day maintenance/establishment period a final inspection will be performed. If, after this inspection, the FCDMC agrees that all planting areas are weed free and plant materials are in satisfactory growing condition, written Notice of Acceptance will be given to the Contractor for landscape installation.

Maintenance inspections will occur periodically. If landscape areas are improperly maintained, if appreciable plant replacement is required, or other corrective work becomes necessary, the Contractor shall continue to maintain the entire site until all items are corrected and accepted at no cost to the FCDMC.

Any corrective work disturbance, repairs or replacements completed during the 90 day maintenance/establishment period shall be subject to an additional 90 day maintenance/establishment period from the time of acceptance of the corrective work.

The cost of plant establishment, maintenance and warranty shall be included in the Landscape Planting Bid Item. Ten percent (10%) landscape retention will be paid at the end of the successful completion of the 90 day plant establishment period.

430.7.1 Warranty:

Required: Warranty plant materials to be in a healthy thriving condition for specific periods at or after the completion of the maintenance/establishment period as follows:

1 & 5 gallon shrubs and ground cover - at end of maintenance/establishment period (90 days)

Trees and all other plant material - at end of maintenance/establishment period (90 days)

Seed Mix Areas - warranty a full stand of native plants at the end of the maintenance/establishment period, perform soil preparation and reseeded as required to provide a fully established stand of plants at the stated time, at no additional cost to the FCDMC.

Replacements: Immediately replace, repair or repeat applications as specified over any rejected plant material or surfaces at no cost to the FCDMC. Immediately replace with like kind, in a satisfactory condition, any plant materials not surviving, in poor condition, or not showing vigorous healthy new growth at the end of the pertaining

warranty period, all at no cost to the FCDMC. Perform replanting as specified herein for the original planting. Maintain, establish and warranty all replacement plantings the same as required for original plantings.

Contractor's Observations: To insure that the required warranties are not impacted by the City of Mesa's maintenance, the Contractor shall check the landscaped areas at least once every two weeks during the warranty periods and notify the FCDMC in writing of any advised changes or concerns.

Periodic Inspection: Appointed personnel representing the Contractor and the FCDMCD will perform bi-weekly inspections of the landscape installation. Plants requiring replacement and other required corrective measures shall be completed prior to the next bi-weekly inspection meeting.

Final Inspection: Notify the FCDMC's Representative seven days prior to the end of the warranty period that final landscaping inspection is requested. The FCDMC's Representative will make an inspection and give the Contractor notice of any plantings or other work of this section that are not acceptable and require correction: Contractor shall immediately make such corrections.

Warranty Exceptions: The Contractor is not responsible for plant loss or damage caused by unusually extreme weather, or lack of maintenance by the City of Mesa.

430.8 Measurement and Payment:

The Lump Sum Bid Item includes the cost for all work to furnish and install the complete landscaping as shown on the Contract Documents, that is not covered by other bid items.

As supplement to the Bid Schedule, the Contractor shall complete the unit cost prices for each of the items listed in the Item/Unit Bid Supplement Cost Form provided herein. Each of the unit costs shall include all incidental or contingency work, materials, equipment, services, labor, warranties, etc., required to provide and install each listed item complete, in place and operational as indicated or directed by the Contract Documents. Any items not listed below are considered incidental to the items listed. No additional compensation beyond the Lump Sum Bid total amount will be permitted for failure to completely ascertain all aspects of the project. The unit prices will be used as a basis of adjustment to the Lump Sum Bid total amount only if the FCDMC requests the Contractor to add or delete landscape work from that which is indicated in the Contract Documents.

The Item/Unit Bid Supplement Cost information provided herein is considered supplemental only and is not intended to replace the required Lump Sum Total Amount to be provided in the Bid Schedule.

The Contractor shall complete the Item/Unit Bid Schedule Supplement Cost Form provided below. Failure to complete and submit the Form shall result in disqualification of the Bid.

ITEM 430 - Landscape Planting:

Basins 2 and 4
**LANDSCAPE PLANTING AND RESTORATION
 ITEM/UNIT BID SUPPLEMENT COST FORM**

ITEM NO.	ITEM DESCRIPTION	SIZE	UNIT	UNIT COST
Trees				
430-1	Cercidium floridum	15 Gallon	Each	
430-2	Cercidium floridum	24" Box	Each	
430-3	Cercidium praecox	24" Box	Each	
430-4	Olneya tesota	24" Box	Each	
430-5	Prosopis chilensis	15 Gallon	Each	
Accents				
430-6	Carnegiea gigantea	6'-8'	Each	
Shrubs and Ground Covers				
430-7	Caesalpinia pulcherrima	5 Gallon	Each	
430-8	Calliandra californica	5 Gallon	Each	
430-9	Cassia phyllodenia	5 Gallon	Each	
430-10	Dalea greggii	1 Gallon	Each	
430-11	Ericameria laricifolia	1 Gallon	Each	
430-12	Leucophyllum f. 'Green Cloud	5 Gallon	Each	
Miscellaneous				
430-13	Decomposed Granite (Madison Gold)	1/2" minus	S.F.	
430-14	Native Seed Mix		S.F.	

Note: The Contractor shall complete the Item/Unit Bid Schedule Supplement Cost Form provided. Failure to complete and submit the Form shall result in disqualification of the Bid.

SECTION 440 SPRINKLER IRRIGATION SYSTEM INSTALLATION

440.0.1 Description:

Provide complete installation of a fully automated landscape irrigation system in accordance with the Contract Documents and conform to Maricopa Association of Governments (MAG) "Uniform Specifications for Public Works Construction" current edition Section 440 and 757, Flood Control District of Maricopa County (FCDMC) and City of Mesa requirements. Any Sections of The MAG not indicated herein or modified by the Drawings, shall remain in effect per the MAG Documents.

The Contractor shall furnish all necessary labor, materials, and equipment required to complete the installation of the automated irrigation system providing full coverage to all plants. All permits for installation and construction of any of the work included under this section shall be obtained by the Contractor.

All references to the Owner within these Technical Specifications or on the Drawings shall refer to the Flood Control District of Maricopa County (FCDMC).

Landscape irrigation system installation work shall include, but is not limited to: material procurement, material and installation testing, all above and below ground system installations, trenching, piping, valves, backflow prevention assemblies, controllers, wiring cabinet/cage enclosures with pads, fittings, emitters, preparation of record drawing as-builts, obtaining and paying all required permits and fees, providing all necessary traffic control and maintenance and warranty of all irrigation work.

440.0.1 Related Work:

The Contractor shall be responsible for the procurement, installation and completion of all work items and components of work items indicated, including: coordination, scheduling and sequencing of all work between the various trades required to complete the work and in accordance with the Contract Documents.

SECTION 425 - TOPSOILS

SECTION 430 - LANDSCAPING AND PLANTING

OTHER SECTIONS OF SPECIFIED WORK INDICATED IN THE CONTRACT DOCUMENTS

440.0.2 Quality Control:

Within 14 days after the award of contract, the Contractor shall submit a list of all specified irrigation materials and manufacturer product data and specification sheets and all required shop drawings for fabricated items to the FCDMC Representative for review and approval. All materials shall be delivered new, protected and maintained in an undamaged condition throughout the entire installation. The FCDMC Representative may reject any material which shall be replaced with acceptable material by the Contractor.

The Contractor shall provide certificates of inspection and testing for all materials and equipment as required by law and regulation.

Note: Any and all required laboratory testing and analysis reports shall be paid for by the Contractor.

All equipment and packaged materials or components shall be delivered sealed in the manufacturers original packaging and shall have the manufacturers instructions and warranties included.

440.0.3 Submittals:

Within 14 days after the award of contract, the Contractor shall submit six (6) copies listing the types, sizes, model numbers and manufacturer's catalog data sheets for all specified irrigation materials, components and equipment, including Shop Drawings as indicated with finish and color samples for all purchased or fabricated items to the FCDMC Representative for review and approval. All irrigation submittal data and information shall be bound in a

three ring binder with the project name on the cover and edge binding.

No substitution will be allowed without prior written approval by the FCDMC. Equipment or material installed or furnished without prior approval of the FCDMC may be rejected and the Contractor required to remove such materials from the site at his own expense and shall include the replacement with the approved specified item.

Approval of any item, alternate or substitute indicated only that the product or products apparently meet the requirements of the drawings and specifications on the basis of the information or samples submitted.

Record Drawings

The Contractor shall provide and keep up to date a complete set of "record" drawings which shall be corrected daily to show all changes in the location of irrigation heads, controllers, backflow preventers, valves, drains, meters, points of connection, pull boxes and wire splice boxes, pipe and wire routing and other changes that may have been made from the original drawings and specifications as provided to him. The Contractor shall dimension from two permanent points of reference, building corners, sidewalk, or road intersections, etc., the location of the following items:

1. Water meter location including connections through backflow preventer.
2. Controller location including connections through power service source.
3. Mainline pipe
4. Isolation ball valves.
5. Quick coupler valves
6. Control valves.
7. Routing of both drip and turf lateral lines and heads
8. Routing of control wiring.
9. End location and length of all sleeving and/or conduits.

Record Drawings shall include all installations, modifications and relocations resulting from restoration of impacts to existing landscape irrigation systems.

Prior to final acceptance, the Contractor shall furnish reproducible "record" drawings prepared by a qualified draftsman showing the entire completed system as actually installed. This is the responsibility of the Contractor and shall not be construed to be the responsibility of any other party. This drawing shall be accurate and to scale. The symbols for valves, heads, and piping, etc. shall be the same as shown on the original drawings. The legend shall also be modified to designate any "record" changes. The "record" drawings shall be drawn on mil. mylar base sheets reproduced from the original drawings available from the FCDMC. The final drawings shall be dated and clearly labeled "RECORD AS-BUILT DRAWING" and signed by the person responsible for the information contained on the drawings. No final acceptance or start of project warranties will be issued until all record drawings are completed and submitted by the Contractor and approved by the FCDMC Representative.

Controller Charts

- A. Record drawings shall be acceptable to the FCDMC before controller charts are prepared.
- B. Provide one controller chart for each controller supplied prior to final acceptance.
- C. The chart shall show the area controlled by the automatic controller and the area each controller station or valve covers. Each chart shall be the maximum size which will fit inside the controller enclosure/cabinet door.
- D. The chart is to be a reduced drawing of the actual as-built system. However, in the event the controller sequence is not legible when the drawing is reduced, the necessary information shall be enlarged on the original to a size that will be readable after reduced.

- E. The chart shall be a black line or blue line ozalid print and a different color shall be used to indicate the area of coverage for each station.
- F. When completed and approved, the chart shall be hermetically sealed (laminated) between two pieces of plastic, each piece being a minimum 10 mils thick.
- G. These charts shall be completed and approved prior to final inspection of the irrigation system.

Product Handling

The Contractor shall be responsible for correct procedures in loading, unloading, staking, storing, transporting and handling all materials to be used in the system. The Contractor shall avoid rough handling which could affect the useful life of equipment. Pipe shall be handled in accordance with the manufacturer's recommendations on loading, unloading and storage. All PVC pipe shall be transported in a vehicle which allows the length of pipe to lie flat so as not to subject it to undue bending or concentrated external load at any point. Any section of pipe that has been dented or damaged will be discarded and, if installed, shall be replaced with new piping.

Project Understanding Confirmation

Prior to start of any work the Contractor shall submit confirmation that the assigned superintendent has inspected and reviewed, with the FCDMC representative and City of Mesa representative, all existing site areas to be impacted by work under this Contract and fully understands and accepts the extent of work required to complete the required improvements in accordance with the Contract Documents and to the satisfaction of the FCDMC and City of Mesa. Confirmation shall also include that the Contractor understands the intended limit of work. The limits of work shall extend to the limits necessary to remove, reconfigure, modify, replace or repair as necessary any adjacent areas or existing improvements requiring restoration as a result of work or impacts resulting from this Contract. Confirmation shall also include that the Contractor has notified and has completed all required Blue Stake markings.

440.1 General:

The Contractor shall furnish all necessary labor, materials, and equipment required to complete the installation of the automated irrigation system providing full coverage to all plants as shown or as indicated on the Landscape Irrigation Drawing Plan Sheets, including the respective notes and detail sheets that are not covered by any other Bid Item.

Materials and installation shall conform to MAG Sections 440 and 757, respectively, except as noted herein or on the drawings.

Irrigation quantities where indicated are for general reference only. It shall be the responsibility of the Contractor to determine all quantities and materials necessary to complete the work in accordance with the notes and symbols shown on the plans and as herein specified.

This section includes installation specifications for all items installed as part of the landscape irrigation system. Certain construction procedures or minor equipment installation procedures may have been omitted from these specifications that are necessary for the proper installation of the system. Carefully investigate the structural and finished conditions affecting all of the work and plan the work accordingly, furnishing such fittings, etc., as may be required to meet such conditions. Drawings are generally diagrammatic and indicative of the work to be installed. The work shall be installed in such a manner as to avoid conflicts between irrigation systems, planting, pavements, utilities, and other existing or constructed site improvements or architectural features.

In any case, all materials and equipment shall be installed in a neat and workmanlike manner according to manufacturer's recommendations and specifications, local and state codes, as shown on the Drawings and as specified herein. If the drawings call for or describe materials, workmanship, or construction of a better quality, higher standard, or larger size than is required by the above rules and regulations, the provisions of these

specifications and drawings shall take precedence. Discrepancies or conflicting information in the Documents shall be brought to the attention of the Engineer and the Engineer shall determine the course of action. Contractor assumes full responsibility for work installed without clarification.

440.2 Trench Excavation and Backfill:

All trenching and trenching backfill shall be complete, settled and compacted prior to the start of any planting or hydroseeding.

440.3 Pipe Installation:

The Contractor shall be responsible for providing all piping necessary to provide a complete and fully operational irrigation system, including all sub-lateral piping, risers and fittings to each plant emitter or turf head as specified and detailed whether or not piping is shown on the plans.

Type, class or schedule of PVC or metallic pipe shall be as shown on the drawing, except that Schedule 80 must be used for all pipe and fittings with threaded joints.

PVC sleeves that must be installed under paved surfaces and structures are included and shall be the responsibility of the Contractor to coordinate the installations prior to completion of the pavements or structures. Where sleeving is to be placed beneath existing pavements or structures the Contractor will be responsible for any required boring necessary to complete the installation.

All pipe installed beneath any paving or structures shall be sleeved and sleeved separately from wire, in PVC pipe sleeves. Size and type as required or as shown on the drawings.

Existing Trees:

Where it is necessary to excavate adjacent to existing trees, the Contractor shall use all possible care to avoid injury to trees and tree roots. Excavation in areas where roots two inch (2") and larger occur shall be done by hand. All roots two inches (2") and larger in diameter, except directly in the path of pipe or conduit, shall be tunneled under and shall be heavily wrapped with burlap to prevent scarring or excessive drying. Where a trenching machine is run close to trees having roots smaller than two inches (2") in diameter, the wall of the trench adjacent to the tree shall be hand-trimmed, making clean cuts through. Roots one inch (2") and larger in diameter shall be painted with two coats of Tree Seal or equal. Trenches adjacent to trees, should be closed within 24 hours, and where this is not possible, the side of the trench adjacent to the tree shall be kept shaded with burlap or canvas.

440.3.1 Plactic Pipe and Fittings:

All PVC pipe shall bear the following markings:

- a. Manufacturer's name.
- b. Nominal pipe size.
- c. Schedule or class.
- d. Pressure rating in PSI
- e. National Sanitation Foundation (NSF) approval.
- f. Date of extrusion.

All fittings shall bear the manufacturer's name or trademark, material designation, size, applicable IPS schedule and NSF seal of approval.

PVC Pressure Mainline Pipe, PVC Sleeves, Perforated Pipe and Fittings

Continuous Pressure mainline piping sizes less than 3" shall be PVC schedule 40, Type I, solvent weld; sizes 3" and larger shall be Class 200, SDR 21, rubber ring joint type.

Sleeves shall be PVC schedule 40, Type I for sizes 4" and less, and Class 200, SDR 21, for sizes larger than 4".

Perforated pipe shall be PVC schedule 40, Type I

1. Pipe shall be made from NSF approved Type I, Grade I PVC compound conforming to ASTM specification D 2241. Piping shall be either SDR solvent weld or rubber ring joint type. All continuous pressure mainline pipe 3 inch or larger shall be rubber ring joint type.
2. Solvent-weld fittings shall be Schedule 80, 1-2, II-I NSF approved conforming to ASTM test procedure D2467.
3. Installation procedure for rubber ring joint type pipe shall comply with manufacturer's recommendations.
4. Detectable tape shall consist of 0.35 mil thick solid foil core encased in a protective plastic jacket that is resistant to alkalis, acids and other destructive elements commonly found in soil. The lamination shall have sufficient strength that the layers cannot be separated by hand. The total composite thickness shall be 4.3 mils minimum. The foil core is to be visible to ensure continuity.

Detectable tape shall have a minimum tensile strength of 63 lbs. in the machine direction and 68 lbs. in the transverse direction per three (3) inch strip.

A continuous warning message repeated every 16 to 36 inches shall be imprinted on the tape surface. The tape shall be colored: designating the code appropriate to the type of line which the tape is protecting.

Detectable tape shall be applied to all pressurized main line.

Non-continuous pressure PVC Lateral Line Piping (Including Emitter Lateral Piping)

1. Non-continuous pressure buried lateral line piping shall be PVC Class 200 with solvent-weld joints for sizes 3/4" and larger, and PVC Schedule 315 for 1/2" size.
2. Pipe shall be made from NSF approved, Type I, Grade II PVC compound conforming to ASTM resin specification D1784. All pipe shall meet requirements set forth in Federal Specification PS-22-70, with an appropriate standard dimension ratio.
3. Except as noted in paragraphs 1 and 2 above, all requirements for non-continuous pressure lateral-line pipe and fittings shall be the same as for solvent-weld pressure mainline pipe and fittings as set forth in Section 440.3.1 of these specifications.

430.3.2 Brass Pipe and Fittings:

- A. Where indicated on the drawings, use red brass screwed pipe conforming to Federal Specification #WW-P-351.
- B. Fittings shall be red brass conforming to Federal Specification #WW-P-460.

430.3.3 Copper Pipe and Fittings:

- A. Where indicated on drawings, use copper pipe conforming to all requirements of ASTM B-88 Type K rigid.
- B. All copper pipe shall be new, seamless copper pipe designed for underground water service plumbing purposes, etc.

440.4 Valves, Valve Boxes and special Equipment Installation:

Automatic Remote Control Valves, Electric Solenoid Type: The automatic remote control valves, to be as indicated on drawings or alternate approved by the FCDMC's Representative, slow acting diaphragm type electric solenoid operated valves of sizes as indicated on the drawings. The valves shall be solenoid actuated, hydraulic operating valves of the globe screwed pattern type. Valves will be a type that can operate under low flow and at low pressure with an operating range of 15 to 200 psi.

Valve Boxes:

All remote control valves, isolation ball or gate valves, pressure regulators, wye filters, wire splices, pipe stub-ups or flush outlets unless otherwise indicated, shall be installed in suitable plastic or other type valve access box of proper size as required for easy access to the valve. Access boxes shall be completed with plastic or other approved type lids. All valve boxes, lids and extensions, where required, shall be from a single manufactured source either Carson/Brooks or Ametek bolt down locking models, or alternate approved by the Owner's Representative. Valve boxes installed in Rock Ground Cover areas shall be beige in color.

Isolation Ball/Gate Valves:

1. Isolation valves larger than 2-1/2" shall be gate valves per MAG.
2. Isolation valves 2-1/2" and smaller shall be 125-lb SWP bronze ball valves with full port openings and resilient seated with screw-in bonnet, non-rising stem.
3. Isolation valves 2-1/2" and smaller shall have threaded ends and shall be equipped with a stainless steel neoprene coated lever handle that fully opens and closes in 1/4 turn.
4. Isolation valves 2-1/2" and smaller shall be equal to those manufactured by Nibco, Hammond.
5. All Isolation valves shall be installed per detail.

Backflow Preventer:

The backflow prevention device shall be a reduced pressure type (RPA) with enclosure cage as specified on the Drawings and shall be approved by the Foundation for Cross Connection Control Research, University of Southern California. The backflow prevention units shall be tested in accordance with the requirements as specified in the manual of Cross Connection Control Recommended Practice as published by the Foundation for Cross Connection Control Research, University of Southern California and local codes. The testing of the backflow prevention unit shall be performed by authorized service-test personnel. The test shall be performed at no additional cost to the FCDMC.

The Contractor shall submit a shop drawing of the backflow prevention enclosure for approval prior to fabrication.

Cements, Cleaners, Primers and Joint Sealant Compounds:

Solvent cement for PVC solvent-weld pipe and fittings shall be "heavy-duty grey cement" as manufactured by "Oatey" or equal.

Solvent primer for PVC solvent weld pipes and fittings shall be "all purpose" primer (purple) for PVC and CPVC pipe fittings.

Installation methods of solvent cement and primer for PVC solvent-weld pipe and fittings shall be as prescribed by the manufacturer.

All threaded connections between metal to metal, PVC to metal and PVC to PVC shall be made using Teflon tape thread sealing compound. Thread sealing compound shall not be used on threaded connections between sprinkler head and nipple, bubbler and nipple, or emitter and riser.

Pressure Regulator:

The pressure regulating valve shall be as per called for on the drawings, either a non-adjustable factory preset or self-contained, single-seat, direct-acting, spring-loaded, diaphragm-actuated type. Adjustable valves shall be of all bronze construction, stainless steel body seat, composition seat discs, BUNA-N diaphragm with nylon insert and carbon steel-steel springs. Valve shall contain no screens or filter. The valve shall have replaceable seats and have renewable type disc and diaphragm. Plugs, diaphragm housing, and adjusting screw threads shall be sealed against leaks. Valves shall be provided with a means for adjusting the reduced pressure setting in the field.

The valve shall have 3/4" or 1" NH female swivel inlet and 3/4" or 1" NH male outlet as per plan.

Drip System Flush Plug:

The drip system flush plug shall be as detailed on the drawings.

The flush device shall be used for flushing of all emitter pipe or tubing downstream of the valve, and shall be placed downstream of the last emitter on every dead end run.

440.4.1 Other Miscellaneous Materials, Equipment or Special Installations:

Any other system components or equipment or special installation required to provide and install the complete and fully automated irrigation system as indicated in the Contract Documents, that is not addressed herein shall be as indicated in the Contract Documents or approved equal.

All other miscellaneous materials shall be as specified on the Drawings or shall be considered incidental to that which is specified

440.5 Sprinkler Head Installation and Adjustment:

"Sprinkler heads" referred to in the MAG Specification shall include "bubblers" and "emitters" as indicated on the Drawings and herein. Bubbler and emitter heads shall be of the types, sizes and installed in relation to finish grade as indicated on the drawings.

Emitters: shall be of the type that are non-compensating continuous flushing based on the pressure cascade principle using a series of flexible orifices. Emitters shall be as manufactured by Bowsmith or approved equal.

The cases of the emitter shall be made of durable black, heat resistant acetyl plastic material. It shall be resistant to temperature variation, ultraviolet radiation, smog (ozone), common liquid fertilizer and weed spray. The case shall completely encompass the silicone diaphragm, protecting it from potentially harmful environmental factors.

The emitter shall be capable of continuous, clog free operation with 30 mesh (minimum filtration). The emitter shall be capable of being installed in any position and maintain its flow characteristics. The emitter shall be non-adjustable and the flow regime shall be maintained by a flexible orifice silicone diaphragm.

The emitter shall function with a system pressure range of 15 PSI minimum to 35 PSI maximum. The emitter flow variation shall not exceed 1.06 at 120 degrees F. or 1.07 at 150 degrees F. Emitter manufacturing variability shall not exceed 05.

Multi-outlet Emitter Assembly: The multi-outlet emitter assembly shall be of the type and construction as shown on

the drawings and as specified under Item 2.11 with the exception that the emitter shall be capable of delivering the following quantities from each of the six (6) outlets of the emitter regardless of the number of outlets open:

<u>G.P.H.</u>	at	<u>P.S.I.</u>
1.0		20
1.14		25
1.34		30

The flexible distribution tube for use with multi-outlet emitters shall be a black vinyl blend suitable for use as emitter outlet tubing with the following physical characteristics:

I.D.	.160 inches
O.D	.220 inches
Wall thickness	.030 inches

The outside diameter tolerance of the distribution tubing shall be such as to maintain leak proof connections with the emitter.

The distribution tube shall be capable of being bent around a 7/8" mandrel without kinking.

The flexible distribution tubing shall be available in reel quantities or cut-to-length as required.

No emitter tube shall be longer than four feet (6').

440.6 Automatic Control Systems and Installation:

The Automatic Controller shall be a Rainmaster RME Sentar series with surge protection and rechargeable NiCad battery backup or approved alternate. Pedestal mount. Controller shall have a two week minimum programmable clock, shall be grounded per the details on the plans, and shall be securely enclosed in a weatherproof, locking steel cabinet. The Contractor shall provide station area coverage maps, sealed in plastic, for each controller. The Controller shall be capable of fully automatic operation of the system.

The controller(s) shall have the minimum number of stations as indicated on the Drawings.

The Controller shall be installed in a locking, stainless steel, vandal resistant enclosure cabinet as indicated on plans. Final location of automatic controller(s) shall be approved by the FCDMC Representative.

Controller manufacturer shall offer local authorized service for all components and electronics of the control equipment and make available an extended warranty package covering all parts and labor for annual budgetary purposes.

Provide installations and equipment as necessary and arrange for, coordinate and make all valve, wiring and electrical service power connections to the controller as indicated on the irrigation plan and notes.

Control wiring shall be U.L. approved for direct underground burial, controller shall have its own common wire to respective valves. Wire connections to remote control electric valves and splices of wire in the field, if allowed by the FCDMC's Representative, shall be made as shown on the details on the plans, using Pentite wire connectors and sealing cement. All connector joints shall be absolutely waterproof so that there is no chance for leakage of water and corrosion buildup on the joint.

Connections between the automatic controller and electric control valves shall be made with direct burial copper wire AWG-UF 600 volt. Pilot wires shall be a different color wire for each automatic controller. Common wires shall be white with a different color stripe for each automatic controller. Install in accordance with valve manufacturer's specifications and wire chart. In no case shall wire size be less than #14.

Wiring shall occupy the same trench and shall be installed along the same route as pressurized mainline wherever possible. Where wire is not adjacent to mainline, install wire inside Schedule 40 gray conduit.

Where more than one wire is placed in a trench, the wiring shall be taped together at intervals of 10 feet.

An expansion curl shall be provided within three (3) feet of each wire connection. Expansion curl shall be of sufficient length at each splice connection at each electric control, so that in case of repair, the valve bonnet or splice connector maybe brought to the surface without disconnection of the control wires. Control wires shall be laid loosely in trench without stress or stretching of control wire conductors. An 18" minimum length wire slack/loop shall be provided at all wire and pipe directional changes greater than 30 degrees.

All splices shall be made with Spears Dri-Splice, Pentite or Connector King connectors and sealant or approved equal. Use only one splice connector per splice.

All field splices shall be located in separate valve boxes with sufficient extra coiled wiring to allow the splice to be elevated a minimum of 3 feet above the finish grade of the valve box.

Field splices between the automatic controller and electrical control valves will not be allowed without prior approval of the Engineer.

All control wire under paving or structures shall be separately sleeved from water piping in schedule 40 PVC pipe sleeves. Size as required or as shown on the drawings.

440.7 Flushing and Testing:

Testing shall be completed in accordance with MAG Section 440.7. The Contractor shall provide 72-hour (3 working days) prior notification to arrange for the presence of the FCDMC's Inspector and a representative of the City of Mesa Park's Department during all required testing.

Contractor shall test the backflow preventer. The Contractor shall be responsible to make any temporary system alterations and have all necessary equipment available to perform the required testing in accordance with the Contract Documents.

440.7.1 Maintenance Period:

- A. Automated landscape irrigation system shall be maintained in accordance with the Contract Documents and MAG Section 440 for a period of 90 calendar days from the completion and acceptance date of all pre-maintenance inspection and irrigation punch list items of the project as determined by the FCDMC.
- B. A pre-maintenance inspection will be performed upon substantial completion of all landscape planting and irrigation work under this contract. The Contractor shall be present at the inspection and a punch list of items requiring remedial work shall be generated. Upon completion of the punch list items and approval by the FCDMC, the 90 day maintenance/establishment period will begin.
- C. Final Maintenance Inspection: At the end of the 90 day maintenance/establishment period a final inspection will be performed. If, after this inspection, the FCDMC agrees that all irrigation system and components are in satisfactory operating condition, written Notice of Acceptance will be given to the Contractor for irrigation installation and commencement of the 1 year warranty will start.
- D. The FCDMC staff and Contractor's representative will perform a bi-weekly inspection. Any items requiring replacement shall be replaced and all corrective work shall be completed prior to the next bi-weekly inspection meeting.

440.7.2 Warranty:

In addition to manufacturer's guarantees or warranties, all work shall be warranted for one (1) year from the date of final acceptance against defects in material, equipment and workmanship by the Contractor. Warranty shall also cover repairs to any part of the premises resulting from leaks or other defects in materials. Submit written warranty prior to completion of punch list items and start of the 90 day maintenance/establishment Period .

440.8 Measurement and Payment:

The Lump Sum Bid item includes the cost for all work to furnish and install the complete automatic landscape irrigation system as shown on the Contract Documents, that is not covered by other Bid Items.

As supplement to the Lump Sum Bid Schedule, the Contractor shall complete the unit cost prices for each of the items listed in the Item/Unit Bid Supplement Cost Form provided herein. Each of the unit costs shall include all incidental or contingency work, materials, equipment, services, labor, warranties, etc., required to provide and install each listed item complete, in place and operational as indicated or directed by the Contract Documents. Any items not listed below are considered incidental to the items listed. No additional compensation beyond the Lump Sum Bid total amount will be permitted for failure to completely ascertain all aspects of the project. The unit prices will be used as a basis of adjustment to the Lump Sum Bid total amount only if the FCDMC requests the Contractor to add or delete landscape work from that which is indicated in the Contract Documents.

The Item/Unit Bid Supplement Cost information provided herein is considered supplemental only and is not intended to replace the required Lump Sum Total Amount to be provided in the Bid Schedule.

The Contractor shall complete the Item/Unit Bid Supplement Cost Form provided. Failure to complete and submit the Form shall result in disqualification of the Bid.

ITEM 440 - IRRIGATION SYSTEM

Basins 2 and 4
 LANDSCAPE IRRIGATION
 ITEM/UNIT BID SUPPLEMENT COST FORM

ITEM NO.	ITEM DESCRIPTION	SIZE	UNIT	UNIT COST
440-1	RPA Backflow Preventer w/ Enclosure	3"	Each	
440-2	Class 200 PVC Sleeve	8"	L.F.	
440-3	Schedule 40 PVC Sleeve	4"	L.F.	
440-4	Class 200 PVC Main Line (Rubber Ring Joint)	4"	L.F.	
440-5	Isolation Gate Valve	4"	Each	
440-6	Isolation Ball Valve	1-1/2"	Each	
440-7	Class 200 PVC Lateral	1-1/2"	L.F.	
440-8	Class 200 PVC Lateral	3/4"	L.F.	
440-9	Class 315 PVC Lateral	1/2"	Each	
440-10	Emitter Valve Assembly	1"	Each	
440-11	Remote Control Valve Assembly	1"	Each	
440-12	Rainbird 44LRC Quick Coupler Assembly	1"	Each	
440-13	Drip Lateral Flush Cap Outlet	3/4"	Each	
440-14	Multi Outlet Emitter	6.0 GPH	Each	
440-15	Single Outlet Emitter	1.0 GPH	Each	
440-16	Rainmaster RME Sentar Series Controller w/ Enclosure	8 station	Each	
440-17	Control Wire		L.F.	
440-18	Trenching for Power Service Connection		L.F.	

Note: The Contractor shall complete the Item/Unit Bid Schedule Supplement Cost Form provided. Failure to complete and submit the Form shall result in disqualification of the Bid.

SECTION 505 CONCRETE STRUCTURES

Concrete Structures construction shall conform to Section 505 of the MAG Uniform Standard Specifications except as modified herein:

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 structures, junction structure, transition structure, inlet and outlet wings, catchbasins, drop inlets, concrete headwalls, low flow channel, concrete box culvert, concrete cut-off walls and the basin outlet structures 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.

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:
3. Concrete, identifying location of each type of construction joint.
4. Reinforcing steel.
5. 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.

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 776, 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. Method 5: Liquid-membrane forming compound method. 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.

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 ½ 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 776. 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 776. 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 per cubic yard of concrete. Payment shall be full compensation for all labor, materials, reinforcing steel, geocomposite drain system, 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 505-1 - CONCRETE (CLASS "A" INCLUDING REINFORCING STEEL)

Inlets and headwalls will be paid on a lump sum basis for each structure installed and shall include the cost of class B concrete filler.

ITEM 505-2 - DROP INLET (MAG 501-5, MODIFIED)

ITEM 505-3 - CONCRETE HEADWALL (MAG 501-1, U-TYPE)

ITEM 505-4 - CONCRETE APRON WITH CUTOFF WALL

ITEM 505-5 - CONCRETE HEADWALL (ADOT B-04-30, MODIFIED)

ITEM 505-6 - CONCRETE HEADWALL (MAG 501-3, MODIFIED)

ITEM 505-8 - CATCH BASIN (MAG 537, TYPE "G", MODIFIED)

Trapezoidal and rectangular concrete channels and reinforced box culverts will be paid on the basis of lineal feet of channel or culvert, including transition structures, constructed per the plans and these specifications.

ITEM 505-7 - 6" LOW FLOW CHANNEL

ITEM 505-9 - 6' X 3' RCBC (ADOT STD B-02.10)

ITEM 505-10 - CONCRETE CUTOFF WALL (MAG 552)

SECTION 515 STEEL STRUCTURES

Steel Structures construction shall conform to Section 515 of the MAG Uniform Standard Specifications except as modified herein:

515.1 Description

Add the following:

Steel grates and trash racks shall be constructed according to the plans and these specifications.

Steel structures shall be painted in accordance with Subsection 515.5 and Section 530 of the MAG Standard Specifications using the color Desert Beige. Contractor shall submit Shop Drawings as indicated with finish and color samples for all fabricated items to the FCDMC's Representative for review and approval. Shop Drawings shall also indicate methods of construction with finished dimensions and connection details.

515.7 Payment:

Add the following:

The unit price paid for each trash rack shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in furnishing, fabricating, delivering, erecting, prime coating and painting the steel work, complete in place, as shown on the plans, and as specified in these specifications and the special provisions, and as directed by the Engineer.

ITEM 515 - TRASH RACKS

SECTION 520 SAFETY RAIL

Steel Structures construction shall conform to Section 520 of the MAG Uniform Standard Specifications except as modified herein:

520.1 Description

Add the following:

Steel safety rail shall be constructed according to the plans and these specifications.

Steel structures shall be painted in accordance with Subsection 515.5 and Section 530 of the MAG Standard Specifications using the color Desert Beige. Contractor shall submit Shop Drawings as indicated with finish and color samples for all fabricated items to the FCDMC's Representative for review and approval. Shop Drawings shall also indicate methods of construction with finished dimensions and connection details.

520.5 Payment:

Add the following:

The price paid per lineal foot for steel rail and post shall include full compensation for all labor, materials, tools, equipment and incidentals, and for doing all the work involved in furnishing, fabricating, delivering, erecting, prime coating and painting the steel work, complete in place, as shown on the plans, and as specified in these specifications and the special provisions, and as directed by the Engineer.

ITEM 520 - SAFETY RAIL

SECTION 525 PNEUMATICALLY PLACED MORTAR

Pneumatically placed mortar construction shall conform to Section 525 of the MAG Uniform Standard Specifications except as modified herein:

525.1 Description

Add the following:

The work under this section shall consist of furnishing all material and pneumatically placing, by means of suitable equipment and competent operators, either premixed portland cement and fine aggregate (dry mix process) or premixed concrete (wet mix process) to provide inlet transitions on the inlet spillways in Basin 4. Shotcrete shall be 4 inches thick with reinforcing placed in the center.. Reinforcing shall consist of 6 x 6 - W 1.4 x 1.4 welded wire fabric unless noted otherwise on the plans.

525.12 Payment:

Add the following:

Payment for pneumatically-placed mortar will be made at the unit price bid per square yard. Such payment shall be full compensation for furnishing all materials, labor, tools, equipment and accomplishing all work in conformity with the plans and specifications.

ITEM 525 - SHOTCRETE

SECTION 526 - GEOCOMPOSITE DRAIN SYSTEM

Add this section to the MAG Uniform Standard Specifications.

Subsection 526-1 Description

The work in this section shall consist of placing a geocomposite drain material along the walls of the drop structures in accordance with the plans.

Subsection 526-2 Placement

The geocomposite shall be placed in a manner and at the location shown on the plans. The surface to receive the geocomposite shall be free of obstructions, depressions, and debris. The geocomposite shall be loosely laid and not placed in a stretched condition. All seams shall be overlapped or otherwise treated according to manufacturer's recommendation.

Subsection 526.3 - Materials

The Geocomposite Drain Material shall be of composite construction, consisting of a supporting structure of drainage core material and a geotextile filter fabric permanently bonded to each side of the core material. The geocomposite material shall be resistant to commonly encountered chemicals and hydrocarbons, and resistant to ultraviolet exposure.

The geocomposite drain material shall be Enkadrain 9812 or approved equivalent.

The geotextile filter fabric shall be laminated onto or adhere to each side of the drainage core. The geotextile fabric shall meet the following minimum average roll values:

<u>PROPERTY</u>	<u>REQUIREMENT</u>	<u>TEST METHOD</u>
Weight, oz./sq. yd.	4.0	ASTM 3776
Grab tensile strength, lbs.	120	ASTM 4632
Grab elongation at break, %	50 min., 115 max.	ASTM 4632
Mullen burst strength, psi	250	ASTM 3786
Trapezoidal tear strength, lbs	45	ASTM 4533
Puncture strength, lbs	75	ASTM 4833
Permittivity, sec -1	1.4	ASTM 4491

The core material shall be a minimum of 0.40 inches in thickness.

Subsection 526.5 – Payment

No separate Payment will be made for the geocomposite drain system as such; the cost thereof shall be included in the bid price for the construction or installation of the items to which such geocomposite drain system is incidental or appurtenant.

SECTION 601 TRENCH EXCAVATION, BACKFILLING AND COMPACTION

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

Add the following:

Prior to any excavations, contractor shall call Blue Stake at (602) 263-1100 so existing gas facilities may be accurately located. The contractor should hand dig carefully at these marked locations until the gas pipe has been found and exposed. Use care to avoid damaging or breaking a small electrical tracer wire (which is used for locating purposes) that may be buried with the pipe.

Once mechanical trenching is in progress, do not attempt to trench within two (2) feet of a gas pipe. This trenching shall be done by hand in order to prevent any damage to the gas pipe. In the event that the contractor should "hook" or otherwise strain a gas pipe while excavating, a call should be placed to (602) 271-GASS ((602) 271-4277).

Even though there may not be any apparent damage, the strain may have damaged the wrap or a portion of the buried pipe or fittings at other locations causing a leak in the surrounding area. Also, if a steel facility is exposed and the pipe coating is found to be in need of repair, please have our office contacted so a crew can be dispatched to rewrap the pipe. This is a service provided by Southwest Gas at no cost to the contractor so that we can monitor our steel facilities and minimize the possibility of corrosion.

When the excavations are complete, all exposed gas pipes should be protected. If the trench is more than three (3) feet wide, the pipe must be supported in a manner where the supporting material does not damage the pipe or its protective wrapping. The contractor shall call Southwest Gas at (602) 484-5306 to review and approve all proposed pipe support designs.

Before backfilling, the natural gas facilities requires both six (6) inches of bedding and six (6) inches of shading with sand or material free of rocks and able to pass through a 3/8 inch screen in order to provide firm support under the facility and to prevent damage to the pipe or pipe coating from the backfilling operation. When backfilling, do not drop backfill directly on the exposed gas pipe. When compacting backfill, use extra care when directly over the gas pipe in order to avoid any damage.

SECTION 610 WATER LINE CONSTRUCTION

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

modified herein:

610.1 Description:

Add the following:

The construction of all water lines shall conform to applicable standard specifications and details, except as otherwise required on the plans or as modified in the special provisions. The work under this Section includes water line relocations as shown on the plans.

The construction of all water lines shall conform to applicable standard specifications and details, except as otherwise required on the plans or as modified in the special provisions. The work under this Section includes water line relocations as shown on the plans. City of Mesa require a minimum of 72 hours written notice prior to shut downs on waterline s. City fire departments must be notified at least 24 hours in advance of any shut downs for waterline s serving as hydrants.

The Contractor is responsible for maintaining access to water valves within the construction area. Failure to do so may result in delays to a scheduled water shut down. Only personnel from the City of Mesa is permitted to operate water valves.

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

The Contractor shall be responsible for all waterline testing, disinfection and flushing including the cost of the water needed for flushing.

Water System Shut Down

Except where noted otherwise, the Contractor is responsible for protecting all waterline s in place and for maintaining all waterline s in service for the duration of the project. The waterline may be shut down and the pressure relieved in segments for short periods during construction. The waterline may not be shut down before 7:30 a.m. and must be back in service by 3:00 p.m. If a fire emergency develops that will require the waterline to be placed back in service, the Contractor shall be responsible for backfilling or shoring the trench as necessary to allow re-pressurizing the waterline.

If the Contractor elects to temporarily shut down a water main for a period of time which exceeds eight hours, the Contractor shall provide a temporary bypass waterline at no additional cost which is approved by the City of Mesa. When a shut down is necessary that will take a water user out of service, those residents and businesses must be notified by door hanger a minimum of 48 hours prior to the shut down. The hanger should state the hours that the water will be turned off.

Waterline Replacement

In the event of ACP or plastic waterlines crossing over the mainline storm drain construction or laterals which are greater than 24" diameter, the Contractor shall replace the waterline with DIP in accordance with Section 610 of the MAG Standard Specifications; as modified herein.

The Contractor shall arrange to have the line shut down in order to perform this work. The Contractor shall notify the City at least 72 hours prior to the need to shut down any waterlines. The Contractor shall bear the cost of flushing the lines. Except for 2 inch and smaller waterlines, materials for waterline replacement shall be ductile iron, in accordance with Subsection 610.3 of the MAG Standard Specifications. The replaced waterlines shall be visually inspected for leaks under line pressure prior to back filling.

Waterline Realignment

In the event of an unforeseen conflict between storm drain construction and an existing waterline not detailed on the plans or as directed by the Engineer, the Contractor shall vertically and/or horizontally realign the waterline in

accordance MAG Standard Detail 370.

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

SPECIAL NOTICE TO WATER LINE CONTRACTORS:

Contractor is advised that City of Mesa Utilities Division require a notice of five (5) working days to coordinate the necessary exercising and checking of valves prior to shutting off any water valves to tie-ins.

Contractor shall review water maps (plats) with his Inspector and submit a written request to the Inspector listing the valves that need to be exercised and when they are to be shut for any tie-ins on his project. Request shall be sent in time to allow the five (5) day time limit noted above.

Further, Contractor shall note that the City of Mesa Utilities Department conducts bacteria test from 8:00 a.m. to 3:00 p.m., Monday through Thursday, except holidays. The Contractor shall schedule all required bacteria testing within this time frame. There shall be no additional payment or allotment of time to the Contractor for this.

WATER METERS:

Water meters will be furnished by the City of Mesa. However, the Contractor is responsible to call City of Mesa at (480) 644 2257 at least 30 days in advance to request the meter. The Contractor will be responsible for the payment and installation of the meter.

610.18 Measurement and Payment

Add the following:

Payment will be made at the unit price bid per each type and size of pipe called for in the bid. Such payment shall be compensation in full for furnishing and installing the pipe and fittings, specials, adapters, etc., complete in place, as called for on the plans and/or on the standard details, and shall include all costs of excavation, removal of obstructions, shoring and bracing, bedding, backfilling, compaction, maintenance of traffic, testing, disinfecting, connections to existing lines or works, and all work not specifically covered in other pay items.

ITEM 610-1 - VERTICAL REALIGNMENT OF WATER MAINS

ITEM 610-2 - 4" TAPPING SLEEVE, VALVE, BOX AND COVER

ITEM 610-3 - 8" TAPPING SLEEVE, VALVE, BOX AND COVER

ITEM 610-4 - 4" PVC WATERLINE

ITEM 610-5 - FIRE HYDRANT

SECTION 618 STORM DRAIN CONSTRUCTION

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

618.1 Description:

Add the following:

This section covers concrete pipe line construction used for the conveyance of storm drainage in streets, easements, and alley right of ways.

618.2 Materials

Add the following:

Concrete pipe, specials, joints, gaskets, and testing shall be according to Section 735 and 765 of the MAG Standard Specifications and as specified below.

Location	Per plans
Type	Reinforced Concrete Pipe, MAG 735 (ASTM C 76)
Class	III

Diameter 24 inch
Joints Rubber Gasket, MAG 765 (ASTM C 361)

Location Per plans
Type Reinforced Concrete Pipe, MAG 735 (ASTM C 76)
Class III
Diameter 30 inch
Joints Rubber Gasket, MAG 765 (ASTM C 361)

Location Per plans
Type Reinforced Concrete Pipe, MAG 735 (ASTM C 76)
Class III
Diameter 36 inch
Joints Rubber Gasket, MAG 765 (ASTM C 361)

Location Per plans
Type Reinforced Concrete Pipe, MAG 735 (ASTM C 76)
Class III
Diameter 48 inch
Joints Rubber Gasket, MAG 765 (ASTM C 361)

618.6 Payment

Add the following:

Payment will be paid at the unit price bid per linear foot, rounded to the nearest foot, for each size and type of pipe and shall be compensation in full for furnishing and installing the type of pipe as specified and as shown on the plans including removal of obstructions, excavation, bedding, backfilling, compacting, testing, joint materials, joining, collars, pre-fabricated tee's and field closures.

ITEM 618-1 - 24 INCH STORM DRAIN PIPE

ITEM 618-2 - 30 INCH STORM DRAIN PIPE

ITEM 618-3 - 36 INCH STORM DRAIN PIPE

ITEM 618-4 - 48 INCH STORM DRAIN PIPE

SECTION 625 MANHOLE CONSTRUCTION AND DROP SEWER CONNECTIONS

Manhole construction shall conform to Section 625 of the MAG Uniform Standard Specifications except as modified herein:

625.1 Description:

Add the following:

Sewer Manholes: Construction shall consist of furnishing all materials and constructing manholes complete in place, as detailed, including foundation walls, cast iron steps, manhole frames, covers, and any incidentals thereto, at locations shown on the plans.

625.5 Payment:

Add the following:

Payment will be made at the unit price bid per each manhole, and shall be compensation in full for furnishing and installing manhole, complete, with formed invert, concrete foundation, ladder rungs, cast iron frame and cover, excavation and backfill, paving cut replacement in excess of the applicable pay widths authorized in Section 336, and any incidentals thereto, in conformance with the plans and specifications.

ITEM 625 - MANHOLE (MAG STD DET. 520 & 522)